

CANADIAN COLLEGE OF OSTEOPATHY

**ANDREW TAYLOR STILL'S
CONCEPTION OF IMMUNITY:
ITS ESSENCE AND APPLICATION**

MICHAEL HENDRIK THYS

**RESEARCH PRESENTED TO THE TORONTO INTERNATIONAL JURY
NOVEMBER 14, 2020**

Please visit

<http://www.stillnessosteopathy.com/immunity>

for a video presentation that introduces these research findings,
an introductory article,
as well as information regarding the upcoming
'on-demand webinar'
expanding upon this study

A Note to Readers:

I understand that this is an unwieldily large text. Nevertheless, the ideas it presents are sequential, each built on the ones before it. Thus the ideal way to read this research would be to start at ***Chapter 3: A.T. Still's Conception of Immunity***, and buckle in. The ***Table of Contents*** will give you an idea of what you are in for. I have gone to great lengths to attempt to present the material in a readable manner, despite the formalized constraints of research formatting.

That being said, I understand that the presentation of this material may tax the patience or available time of some. In this case, one might begin with ***Chapter 7: Conclusion***, as it contains a brief summary of all the findings. It is then possible to follow-up with the main text where desired.

It is also strongly suggested to view the introductory video and article located on www.stillnessosteopathy.com/immunity. Or perhaps one might begin by delving into the contents of ***Appendix I: Essential Reading and Viewing List***, as it may serve as an engaging entryway into the topic as a whole. ***Appendix F: Reference Historical Timeline of Still and Orthodox Immunological Discoveries*** would also be a good place to start, immediately contextualizing Still's work within his larger time and place.

It should be noted here that a number of the other Appendices are vital to the main body of the text, most especially ***Appendix H: Comparison and Implications of Orthodox and Unorthodox Worldviews - The Equation of Intuitive Knowledge?***

It is my earnest hope that many more within the osteopathic profession will become engaged with the writings of Still and the early Osteopaths. All of Still's books and much of the work of his initial students is available for free immediate download via [the archives of the Kirksville Museum of Osteopathic Medicine](#). We are the first generation of Osteopaths to have access to much of this material - take advantage of it! These documents are even text-searchable if one has a specific topic in mind. The Museum also sells a physical compilation of all of Still's articles that were published within the *Journal of Osteopathy*. This compilation is titled [Early Osteopathy in the Words of A.T. Still](#) - think of it as Still's fifth book. It covers the entire era in which Still taught, addressing diverse topics and providing valuable insights that cannot be found elsewhere.

Michael Thys,

June 12, 2021

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ACKNOWLEDGEMENTS

This thesis is respectfully dedicated to the memory of Brenda Braun (1975-2019).
Thank you for everything you taught me through the honour of working with you.

Thanks to all of the key-informants who gave freely of their time and energy, it has made this thesis possible: Anthony Chila, Reuben Bell, Brian Degenhart, Tajinder Deora, Christian Hartmann, Matvey Kiperschtein, R. Paul Lee, Walter McKone, and Jane Stark. Your preceding work has challenged and excited me.

Love to my families, Mom, Dad, Dayle, Jen, Christina, and the little people - Ella-bean, Mr. Will, Lucy and Quinster; Frieda, Ang, Christoph, and the kleine Kinder Lillian and Mimi. I especially look forward to this next chapter in life because it means spending more time with you all.

To my love Monika, thank you for going through this process with me each step of the way. Thank you for your patience over these years as you have listened to this thesis be ceaselessly assembled, out loud, at the kitchen table, on evening strolls, in the car while running errands... Your support, understanding, and belief in the necessity and worth of this project has also been unceasing. This is one more reason I love you.
I promise I'll get a hobby now.

RESEARCH ADVISOR

Special thanks to my research advisor, Paul Psutka, for his encouragement and dedication. Your care, skill, and patience in shepherding these pages from manuscript to thesis have been indispensable. I cannot repay you for the extra grey hairs that you have incurred on my behalf - but I do warmly thank you for them.

RESEARCH QUESTIONS

1. What was the essence and application of Andrew Taylor Still's conception of immunity?
2. How can the understanding of A.T. Still's conception of immunity as determined in Question 1 be enhanced by modern Osteopaths who have an educated knowledge of him?
3. What can external sources contribute to a modern understanding of Still's conception of immunity?
4. From the information accumulated in questions 1 - 3, how might Still's conception of immunity contribute to modern osteopathic practice?

ABSTRACT

This qualitative study was designed to utilize a combination of *documentary-historical* and *field* styles. The study sought to determine whether or not A.T. Still indeed had a conception of immunity. It then went on to examine, understand and discuss the essence and application of Andrew Taylor Still's conception of immunity. The context of Still's time and place were used as an initial lens through which to view Still's conclusions regarding immunity. The perspective then switches to the modern era and examines Still's historical viewpoint in light of the discoveries that have taken place from the time of Still's death until today.

Still's writings and the documents surrounding his life were interpreted by the researcher into emergent themes. This was followed by the selection of key informants who had expertise relevant to these themes. The resultant key-informant interviews and pre-existent literature search pointed to additional sources external to the osteopathic tradition. This included current quantitative research related to immunology. Thus this study was triangulated from diverse sources of data that were collected using a variety of methods. This allowed for multiple sources to challenge or support each other during the course of the study.

It was determined that: Still did indeed have a unique conception of immunity; the osteopathic community misinterpreted and/or lost sight of that conception; and modern day orthodox immunological concepts (ie: cytokine storms, immunometabolism) both confirm and corroborate the value of Still's understanding. Information regarding clinical application of Still's understanding of immunity within modern osteopathic practice was then also addressed.

RÉSUMÉ

Cette étude qualitative a été conçue pour utiliser une combinaison de styles documentaires-historiques et de terrain. L'étude a cherché à déterminer si A.T. Still avait effectivement une conception de l'immunité. Elle a ensuite examiné, compris et discuté l'essence et l'application de la conception de l'immunité d'Andrew Taylor Still. Le contexte de l'époque et du lieu de Still a été utilisé comme première lentille pour examiner les conclusions de Still concernant l'immunité. La perspective passe ensuite à l'ère moderne et examine le point de vue historique de Still à la lumière des découvertes qui ont eu lieu depuis la mort de Still jusqu'à aujourd'hui.

Les écrits de Still et les documents entourant sa vie ont été interprétés par le chercheur en fonction de thèmes émergents. Il a ensuite sélectionné des informateurs clés ayant une expertise pertinente pour ces thèmes. Les entretiens avec les informateurs clés qui en ont résulté et la recherche documentaire préexistante ont permis de trouver d'autres sources extérieures à la tradition ostéopathique. Il s'agissait notamment de recherches quantitatives actuelles liées à l'immunologie. Ainsi, cette étude a été triangulée à partir de diverses sources de données qui ont été recueillies à l'aide de diverses méthodes. Cela a permis à plusieurs sources de se confronter ou de se soutenir mutuellement au cours de l'étude.

C'est ce qui a été déterminé : Still avait en effet une conception unique de l'immunité ; la communauté ostéopathique a mal interprété et/ou perdu de vue cette conception ; et les concepts immunologiques orthodoxes modernes (c'est-à-dire les tempêtes de cytokines, l'immunométabolisme) confirment et corroborent la valeur de la compréhension de Still. Des informations concernant l'application clinique de la

compréhension de l'immunité de Still dans la pratique moderne de l'ostéopathie ont également été abordées.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
RESEARCH ADVISOR.....	ii
RESEARCH QUESTIONS	iii
ABSTRACT	iv
RÉSUMÉ	v
Table of Contents.....	vi
Table of Figures	xiii
1. INTRODUCTION.....	2
1.1. Overview	2
1.2. Background.....	2
1.3. Purpose of the Study	5
1.4. Justification	5
1.5. Research Questions	7
1.6. Literature Review	10
1.6.1. Literature Review of the Topic	10
1.6.2. Literature Review for the Topic	11
1.7. Assumptions	14
1.8. Limitations	14
1.9. Summary	15
2. METHODOLOGY	18
2.1. Overview	18
2.2. Research Design.....	18
2.2.1. Research Proposal and Acceptance	19
2.3. Qualitative Terminology	19
2.3.1. Triangulation.....	19

2.3.2. Subjectivity Management.....	20
2.3.3. Validation	20
2.3.4. Auditability.....	21
2.3.5. Transparency.....	21
2.3.6. Member Checking.....	21
2.3.7. Saturation.....	22
2.4. Research Questions	23
2.4.1. Research Question One	23
2.4.2. Research Question Two	23
2.4.3. Research Question Three	24
2.4.4. Research Question Four.....	24
2.5. Sampling.....	24
2.5.1. Sampling Style.....	24
2.5.2. Definition of Key Informants	25
2.5.3. Sampling of Key Informants.....	25
2.5.4. Literature Sampling.....	27
2.6. Data Collection.....	27
2.6.1. Weighting of Reference Materials	32
2.7. Data Analysis.....	33
2.7.1. Coding.....	36
2.8. Summary	42
3. A.T. STILL’S CONCEPTION OF IMMUNITY	46
3.1. Introduction.....	46
3.2. Still’s Opinion of Vaccination.....	47
3.2.1. A History of Smallpox	47
3.2.2. Still’s Opinion of Vaccination	50
3.2.3. Still’s Exposure to Vaccination.....	56

3.2.4. Still's Theory and Practice of Vaccination for Infectious Disease.....	63
3.3. A.T. Still's Conception of Disease	70
3.3.1. Disease: The other half of the equation	70
3.3.2. "Contagion"	73
3.3.3. Miasmatic Theory	75
3.3.4. "Fermentation"	81
3.3.5. Vitalism	82
3.3.6. Liebig and the Shifting Border between the Realms of the 'Living' and 'Non-Living'	86
3.3.7. Discussion of Still's Conception of "Infection"	92
3.3.8. Still and the Traditional 'Germ' Theory of Disease (Corn Analogy).....	95
3.3.9. Still's Opinion of the Bacterial Revolution and Its 'Germ Theory' of Disease.....	102
3.3.10. Contextualizing Still's Opinon of 'Germ Theory'	107
3.3.11. Cellular Versus Humoral Immunity: Theory and Practice.....	109
3.3.12. Still's Immunological Exposure	114
3.3.13. Should Still be Credited with Originating the Orthodox Conception of Immunity.....	117
3.3.14. The Uterine Properties of the Fascia and "Blood Seed"	120
3.3.15. Generation and Transmogrification of Bacteria.....	124
3.3.16. Summary Discussion of Still's Conception of Transmissible Disease ..	130
3.4. A.T. Still's Personal Conception of Immunity	134
3.4.1. Seeking Still's Personal Conception of Immunity	134
3.4.2. "God and Experience"	136
3.4.3. "General and Particular"	139
3.4.4. The Whole of Reality, Holographic Humanity.....	143
3.4.5. Holographic Culture	146
3.4.6. The Nature of Manifestation.....	152

3.4.7. The Infinite Unknowable	155
3.4.8. Synthesis of Still's Holographic Worldview	156
3.4.9. A Brief History of Infinity	158
3.4.10. Herbert Spencer and "First Cause"	166
3.4.11. Implications of the Unknowable	174
3.4.12. Intelligent Intent Towards Individuation	179
3.4.13. Life Defined as Coherently Organized Motion	187
3.4.14. Redefinition of God	191
3.4.15. "Atoms, Beings, Worlds"	194
3.4.16. Synthesis of Still's Personal Conception of Immunity	199
3.4.17. Still's Personal Conception of Immunity Summarized	203
3.5. The Implications of a Differentiation Between Origin and Cause	205
3.5.1. Explication as Application	205
3.5.2. A Pragmatic Approach.....	205
3.5.3. Etiology Versus Normality.....	206
3.5.4. Still's Definition of "Cause"	209
3.5.5. Loss of Transmission	215
3.5.6. Implications of Disease as Process.....	221
3.5.7. Pathogen Intent and Mechanism of Action.....	226
3.5.8. Treatment	230
3.5.9. Immune Outcomes as Ratio	237
3.6. Application of the Essence	243
3.6.1. Introduction	243
3.6.2. Trustworthy Perfection	243
3.6.3. Ratio as Harmony	247
3.6.4. "Fascia", "Lymphatics", and the "Cellular System"	260
3.6.5. Still's Treatment for Cancer and Other Forms of Abnormal Growth ...	265

3.6.6. Still's Triage of Intervention	276
3.6.7. Immunity and Fluid Flow	277
3.6.8. Unlimited Freedom for the Action of the Unknowable	280
3.6.9. Summary of Still's Application of His Personal Conception of Immunity	287
3.7. Summary of Findings in Relation to Research Question One.....	288
4. STILL'S CONCEPTION OF IMMUNITY AS VIEWED FROM TODAY	299
4.1. Introduction.....	299
4.2. Cytokine Storms.....	300
4.3. The 1918 "Spanish" Influenza Pandemic.....	304
4.4. Severity of Condition Determines the Duration and Frequency of Treatment	311
4.5. Osteopathy and Cytokine Concentrations	316
4.6. Disease Tolerance Mechanisms	319
4.6.1. There is More than One Way to Tip a Scale.....	319
4.6.2. Immunoregulation	327
4.6.3. Back to the Future	329
4.7. Another "Law of Reciprocity": Metabolism and Immunity	330
4.7.1. Immunometabolism	330
4.7.2. Self-organization: Immunity and Metabolism.....	333
4.7.3. Metabolic Modes of Self-preservation	336
4.7.4. Therapeutic Interventions Based on a "Dormant" Metabolism	340
4.8. Disease as Process Recognized	344
4.9. The Therapeutic Significance of Microcirculatory Flow	350
4.9.1. Osteopathic Manual Treatment of Infectious Disease: How?.....	350
4.9.2. Microcirculatory Compartmentalization.....	351
4.9.3. Pathogen Intent and Malignancy Strategy.....	355
4.9.4. Inflammation and Lymphatics	357

4.9.5. Back to the Future II.....	365
4.10. Dosage and Frequency	366
4.10.1. High-Frequency, Low-Duration.....	366
4.10.2. Low-Duration, Low-Intensity	366
4.10.3. The More Severe the Illness, the More Susceptible to Influence	370
4.11. Summary of Goals Sought for Patients Experiencing the Disease Process	375
4.12. Summary of Findings in Relation to Research Questions Two and Three	378
5. IMPLICATIONS AND APPLICATIONS IN MODERN OSTEOPATHIC PRACTICE	386
5.1. Introduction.....	386
5.2. Legacy of Transmission Loss.....	386
5.2.1. The Current State.....	386
5.2.2. Lack of Access to Literature	391
5.2.3. Orthodox Worldview.....	394
5.2.4. Implications of Transmission Loss to a Modern Application of Still's Conception of Immunity	397
5.3. Education and Paradigm Shift	404
5.4. Modern Fields of Applicability for Still's Conception of Immunity.....	413
5.4.1. Preventative Medicine.....	413
5.4.2. Auto-Immunity	417
5.4.3. Environmental Toxicity	421
5.4.4. Life, Self-Organization and Imposition.....	422
5.4.5. Multidrug-Resistant Organisms	425
5.4.6. Pandemics.....	427
5.4.7. Two 'Worlds' with a Shared Dilemma	428
5.4.8. Reasonable Expectations.....	429
5.5. Enacting Findings Within a Modern Osteopathic Practice.....	431

5.5.1. Appropriate Frequency of Treatment	431
5.5.2. Strategies for Increasing Frequency of Treatment	431
5.5.3. Challenges to Modern Applications of Still's Conception of Immunity	438
5.6. Summary of Findings in Relation to Research Question Four	439
6. SELF-CRITIQUE	445
6.1. Overview	445
6.2. Self-Critique	445
6.2.1. On Target.....	445
6.2.2. Missed the Mark.....	448
6.3. Suggestions for Future Research.....	449
6.4. Summary.....	454
7. CONCLUSION	458
7.1. Overview	458
7.2. Summary of Study.....	458
7.3. Summary of Findings.....	462
7.3.1. Research Question One	462
7.3.2. Research Questions Two and Three.....	470
7.3.3. Research Question Four.....	475
7.4. Self-Critique	479
7.5. Summary	486
APPENDIX A: SAMPLE LETTER OF INTRODUCTION	511
APPENDIX B: SAMPLE KEY-INFORMANT CONSENT FORM	513
APPENDIX C: LIST OF KEY-INFORMANTS	514
APPENDIX D: KEY-INFORMANT INTERVIEW TRANSCRIPTS	517
APPENDIX E: CANTHARIDIN: IMPLICATIONS AND APPLICATIONS.....	616

APPENDIX F: REFERENCE HISTORICAL TIMELINE OF STILL AND ORTHODOX IMMUNOLOGICAL DISCOVERIES	623
APPENDIX G: DIFFERENTIAL MOTION AS INDIVIDUATION.....	630
APPENDIX H: COMPARISON AND IMPLICATIONS OF ORTHODOX AND UNORTHODOX WORLDVIEWS – THE EQUATION OF INTUITIVE KNOWLEDGE?	636
APPENDIX I: ESSENTIAL READING AND VIEWING LIST	645
APPENDIX J: PROPOSAL	649

TABLE OF FIGURES

Figure: 1. The process of defining and contextualizing Still's conception of immunity, to a practical end.	5
Figure: 2. Sample of interview questions and field notes.	30
Figure: 3. Sample of document used during 'editing' style of organization.	34
Figure: 4. Smallpox is a horrifying infectious disease.	47
Figure: 5. Civil War field hospital soon after battle.	57
Figure: 6. It is a bad day when 'Miasma' comes to town.	75
Figure: 7. Content + Context = Meaning.	135
Figure: 8. Context + Content = Meaning, as applied to the first and second phases of answering the first research question, with intended results.	136
Figure: 9. Still's "general and particular" method of inquiry.	140
Figure: 10. Cutting a hologram reveals the holographic principle.	146
Figure: 11. Holographic anatomy: a single underlying cause creates multiple instances of similar effects.	151
Figure: 12. The One manifesting itself as the appearance of many.	169
Figure: 13. The One manifesting itself as the appearance of many, via the process of 'individuation'.	185
Figure: 14. Still's worldviews, early and late life.	194
Figure 15. Contexts + Content = Meaning: A.T. Still's Personal Conception of immunity.	204
Figure: 16. The effect of osteopathic normalization on the trajectory of the exponential process of disease.	236
Figure: 17. There is less to recover <i>from</i>	239
Figure: 18. A bathtub: inflow, outflow and collection space.	251
Figure: 19. Proposed revised model of the orthodox conception of infectious diseases.	322
Figure: 20. There is less to recover from.	326
Figure: 21. The reciprocal relationship of immune function and disease tolerance mechanisms.	327

Figure: 22. A personally encountered osteopathic paradigm	409
Figure: 23. Novel frequency.....	631
Figure: 24. Interior and exterior.....	632
Figure: 25. Sub-interiors.....	633
Figure: 26. Complexification.....	633
Figure: 27. Reciprocal modification.....	634
Figure: 28. Exchange as the means of perpetuation of differentiation.....	635
Figure: 29. The self-defined limits of the current scientific cultural paradigm.....	638
Figure: 30. A.T. Still's osteopathic paradigm.....	639
Figure: 31. The respective domain of the measureable in comparison to the experienceable.....	640
Figure: 32. The respective domains of the Unknowable, the experientiable, and the measurable.....	641
Figure: 33. Context + Content = Meaning. Every context yields a different meaning, even for the same content.....	642

1 CHAPTER ONE: INTRODUCTION

Osteopathy Defined by A.T. Still [a transcribed public lecture]:

It matters little at what point I commence my talk to you, for the subject of life has no beginning and is equally interesting at all points.

(Still, 1895a, p.1)

1. INTRODUCTION

1.1. OVERVIEW

This qualitative study was designed to utilize a combination of *documentary-historical* and *field* styles (Crabtree & Miller, 1999), it seeks to examine, attempt to understand and discuss the essence and application of Andrew Taylor Still's conception of immunity.

This chapter details the basic context in which this study will take place. It describes in order the:

- Background
- Purpose of the study
- Justification
- Research questions
- Literature review
- Limitations

Through this the reader will be equipped to better access the main body of the thesis.

1.2. BACKGROUND

Andrew Taylor Still warned his students against the dangers of blindly placing value on tradition:

Tradition should never have any claim whatever on our religious, political, scientific or literary opinions. Truth does not come from tradition. Tradition is a stranger to knowledge. It is a stranger to genius. It has been the everlasting parent of tyranny.

... Each day and generation has by its philosophical powers to bring forth new truths suited to the wants of the present day. Thus the reader will see that navigation handed down to us by tradition would be of no benefit to us. (Still, 1901g, p.357-58)

This itself points to the line of questioning followed by the current study: are the traditional concepts found in Still's *own* work relevant to the modern era, or should they be discarded?

The author of the current study first read Still's *Autobiography* the summer before embarking on a modern osteopathic education. Thus the author was then struck when that modern osteopathic education never discussed treatment of many, if not most, of the conditions that Still describes as the mainstays of osteopathic practice within his *Autobiography*. Why was this? Is it that in actuality manual intervention is ineffective within these scenarios, or are there other reasons for the disparity between the scope of practice that Still describes and that presented by the author's modern education? If so, what are the reasons for this disparity? How did these reasons come into existence? What results are, and are not, actually possible to achieve via manual osteopathic treatment?

This paper proposes to take up this line of inquiry, framed with specific reference to Still's conception of immunity - What was it? Are there any aspects of it that are still of value today? If so, are they understood by the modern osteopathic profession and are they being appropriately incorporated into today's osteopathic training?

In an attempt to answer these questions, it would be inappropriate to frame Still's conception of immunity only within a *modern* perspective. In an attempt to accurately comprehend the meanings found in Still's writings, it would be useful to also view them

from within the *original* context in which those meanings arose: Still's own time, place, and personal experiences.

For the purposes of this thesis the following will be explored:

- **Still's personal context:** including those influences relevant to his mode of thinking and inquiry
- **Still's societal context:** including the scientific precedents that had occurred up to the time during which Still developed his conception of immunity

It is hoped that the above two contexts will allow a re-creation of Still's personal paradigm or worldview. Once this is complete, Still's conception of immunity will be presented viewed through this lens.

The perspective will then switch, with Still's conception of immunity subsequently being viewed instead from within the modern osteopathic community, as well as the events and scientific discoveries that have taken place since Still's era. This includes the modern conception of what immunity is and relevant orthodox medical research that has taken place since Still's lifetime. This then sets the stage for the final stage of the research: the above-mentioned process of vetting Still's conception of immunity for practical value within the modern practice of Osteopathy.

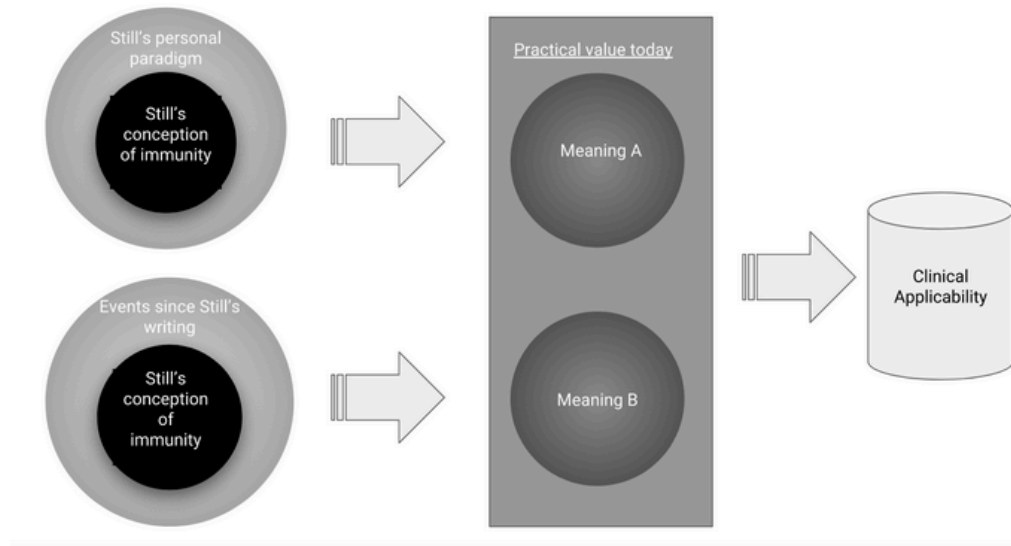


Figure: 1. The process of defining and contextualizing Still's conception of immunity, to a practical end.

1.3. PURPOSE OF THE STUDY

This study is seeking to determine if there is modern practical value contained within Still's conception of immunity. To do this will involve elucidating:

- what Still's conception of immunity was
- what factors influenced its development
- how Still applied it practically
- if any facets of the previous categories may be of use today

1.4. JUSTIFICATION

Still felt strongly regarding the dangers inherent within following tradition only for tradition's sake: "As it becomes necessary to throw off oppressive governments, it becomes just as necessary to throw off other useless practices and customs." (1902f,

p.262). Still also suggested a method of determining if a preexisting tradition continued to hold current value:

Another reason why the customs of tradition should slumber in the tombs of the past is, that with the velocity of time useful demands of a different nature appear and multiply so fast that we do not have the time to devote to the accumulation of traditionary knowledge, when that knowledge would be of no benefit to us now.

... We have to learn so much more now than then that we cannot afford to spend years on theories of the infant past, when all that is useful in a thousand pages of traditionary theories can be written in more intelligent form on a single sheet of foolscap.

... A theory may do for today and be a clog to the foot of progress tomorrow. Then to use such theories would be foolish procedure for any man born above the condition of an idiot. ...

Keep away from dead theories of record or the tongue unless they be demonstrated truths. (Still, 1901g, p.358-9)

In the above Still is suggesting to his readers that they must each personally challenge the validity of the traditions they encounter. Still urges his readers that before investing the time and effort to learn the contents of a tradition, one must first seek out practical evidence that the tradition is even worthy of being engaged with. To apply the above sentiments to the current study: the time it takes to understand Still's conception of immunity is not justified - unless Still's conception of immunity contains practical worth in the modern context.

In the process of conducting the current study a trend was identified within the key informant interviews, historical osteopathic literature, and modern osteopathic literature that was incorporated. It became apparent that there is wide-spread agreement

and demonstration that Still's conception of immunity has been lost, disregarded, and misunderstood within the osteopathic community – from Still's own lifetime up to the current era.

This study will therefore seek to illuminate Still's conception of immunity so that this conception may be appropriately understood and assessed for value by the modern international osteopathic community.

It is hoped that the results of this study will therefore benefit the modern osteopathic profession and the communities served by it, by allowing the useful aspects of Still's immunological knowledge to be accessed and thus applied in today's clinical practice.

1.5. RESEARCH QUESTIONS

1. *What was the essence and application of Andrew Taylor Still's conception of immunity?*

This question was created to serve two purposes:

- To clarify what Still's personal understanding of immunity was
- To clarify how Still applied his personal understanding of immunity

This first question was chosen as the foundation of this thesis - the other questions move outwards from this cornerstone.

2. *How can the understanding of A.T. Still's conception of immunity as determined in Question 1 be enhanced by modern Osteopaths who have an educated knowledge of him?*

This second question acknowledges that elders have tremendous value - they have lived through more experiences, and had more time to feed their curiosity: the conclusions they have arrived at can therefore serve as a direct means of better understanding current inquiries.

This second research question was created under the assumption that the topic of this research was likely best contextualized within a variety of relevant subjects that would become clear *during the research process itself*. These emergent subjects would be too much material for any single individual to explore alone. So the creation of this second question allows for the input of experts whose knowledge would enhance understanding of the emergent topics. It was assumed that this process of including a diversity of appropriately-informed modern Osteopaths would serve to better contextualize, confirm, or refute the earlier findings of the study.

3. What can external sources contribute to a modern understanding of Still's conception of immunity?

To include external sources of literature from a diverse variety of disciplines was a must for this study. During the time that Still developed Osteopathy he did not limit himself to studying humanity in isolation, but also delved into the many diverse fields he found to be relevant to his study of medicine. This included but was not limited to “minerology” (Still, 1899, p.94), “[a]stronomy” (Still, 1902, p.186), and most especially philosophy, amongst many other subjects.

It must of course also be noted that in the time since Still's era, many important discoveries have been made in the scientific understanding of immunity and interrelated

physiology - thus this third question also gave modern findings a venue in which they could be integrated and contrasted with Still's historical understanding.

It was assumed that this process of including a diversity of external literature sources would serve to better contextualize, confirm, or refute the earlier findings of the study.

4. From the information accumulated in questions 1 - 3, how might Still's conception of immunity contribute to modern osteopathic practice?

If nothing else, Andrew Taylor Still was a practical man. In Still's writings he often makes it clear that he sees no value in a theory unless it has first produced tangible results within his *personal* experience: "Osteopathic truths can be taught, demonstrated, and practiced successfully and satisfactorily, and explained in words of the American language" (Still, 1902f, p.210).

Following a similar sentiment, this final research question was framed with the intention of leading the author and reader to an understanding of some "osteopathic truths" that they themselves might verify through personal application, for the benefit of the community they live within.

As Still prescribes, a student of Osteopathy should first and foremost seek direct experience as a teacher: "It is not theory that teaches him; it is work done by his own hands that convinces him and starts him to see and feel and know what is meant by the word treatment." (1900g, p.314).

1.6. LITERATURE REVIEW

1.6.1. LITERATURE REVIEW OF THE TOPIC

No studies regarding the precise topic of Still's conception of immunity were located, but several studies were found which included significant overlap with the current topic. This included Jane Stark's *Still's Fascia* (2003), wherein Stark states that Still's intention in treatment was to interact with and disrupt pathological positive feedback loops; that is, to interrupt a self-replicating set of conditions which if unchecked result in progression of the disease state. Breaking such a cycle allowed the restoration of self-regulatory negative feedback loops. This interpretation by Stark could be taken as a statement about Still's understanding of the forces in the human being that act to repair and provide maintenance versus those external forces that act to degenerate the coherence of the individual - this concept being of supreme relevance to Still's conception of immunity.

Edward Yen's thesis (2008), *An Exploration of the Changing Attitudes of Osteopaths Towards Diseases Over the Past Century*, included what could be understood as a different description of the same concept described above by Stark. Yen comes to the conclusion that when Still treated patients whose condition was severely acute, Still's approach was to frequently and repeatedly treat "secondary lesions", as well as placing a specific focus on proper function of the excretory systems. Yen defines 'secondary lesions' as the most direct anatomical-physiological relations to the organs experiencing distress during acute illness. "Primary lesions" were said to be the root causes or original factors contributing to a vulnerability to disease. Yen theorizes that the resolution of 'primary lesions' was not necessarily attempted by Still during the acute stage of disease.

Yen states that this methodology might operate by serving to directly slow the exponential progression of the disease condition, giving the innate healing forces both the capacity and time in which to act. Yen goes on to speculate that for these reasons, Still would often treat ‘primary lesions’ at a later stage, when the patient now had the luxury of sufficient time, strength and adaptive capacity to integrate such changes. This was found to be highly informative regarding Still’s *application* of his conception of immunity.

A more detailed discussion and citation of the existing literature occurs within the main body of this study. At this time it can be stated in summary that very little has been written with the topic of Still’s conception of immunity as its primary focus.

1.6.2. LITERATURE REVIEW FOR THE TOPIC

1.6.2.1. QUALITATIVE METHODOLOGY LITERATURE REVIEW

Several books were used to guide the development of the methodology of this thesis. They are included as appropriate within CHAPTER TWO: METHODOLOGY.

1.6.2.2. OSTEOPATHIC REVIEW

This category includes a review of the literature that is relevant to understanding Still’s conception of immunity. This of course includes all of Still’s available writings, but also includes sources that helped to contextualize those writings for a clearer interpretation. This included Still’s various biographers, the writings of his contemporaries, and the subsequent osteopathic publications and books related to Osteopathy in general.

This category also included relevant quantitative studies, journal articles, theses, books, internet articles, and taped lectures. These sources were included in the body of the thesis as appropriate. A detailed list of all sources is found within the BIBLIOGRAPHY.

The piece of text most closely related to the current study is likely the book *Dr. A.T. Still Founder of Osteopathy*, published in 1918 (the year after Still's death). It was authored by the American School of Osteopathy's professor of pathology, M.A. Lane. The strength of Lane's work on this topic comes from Lane's intimate familiarity with the physiological discoveries made before and during Still's era. Lane's text organizes a timeline of the sequential discoveries that led the global orthodox scientific community to a theory of immunity. Lane juxtaposes this with the timeline of Still's own personal conception of immunity - and thereby comes to assert that Still's discovery of immunity substantially predates the orthodox mainstream. It is in this context that Lane explores "Still's conception of immunity" (Lane, 1918, p.23).

Lane states that Still's theory of immunity was revolutionary because it did not reference an isolated condition or symptom, but instead gave a sweeping context under which the whole of disease could be understood. Still's conception was applicable across all conditions, from the common cold to cancer. Even more startling to Lane is that Still's theory was so finely developed as to correctly recognize that it is specifically the body's **fluids** which carry cellular and chemical factors that resist disease.

Lane distills Still's goal in treatment of disease down to a simple principle. Still understood that patients had the innate ability to self-regulate or "harmonize" themselves (Lane 1918, p.167). Lane states that Still's therapeutic interventions were thus not directed at attempting to destroy disease, but instead were intended to restore the patient's own innate capacity to appropriately self-regulate. Lane describes how Still's understanding of immunity (i.e.: as a form of self-regulation) actually preceded, and in fact foundationally informed what he later came to call "Osteopathy".

Lane's text was the only source found within the literature survey to take the topic of Still's conception of immunity as its primary focus and discuss it in any more than general terms. While Lane's book is discussed in greater depth within the main body of this study, for the purposes of this literature review it should be noted that Lane presents an unequivocally positive assessment of Still, giving him ceaseless praise for having independently developed a conception of immunity that strongly predated the discoveries of the European orthodox medical community. This is a foundational assertion of Lane's text, and the validity of this claim will be intimately discussed within the current study.

It would seem that within Lane's text, Still's immunological work is viewed from Lane pre-existent worldview – that of the orthodox medical tradition. It is clear that Lane did not also seek to understand Still's conception of immunity from Still's own vantage point. As such, Lane identifies and highlights many seemingly prescient aspects of Still's conception of immunity in comparison to orthodox scientific discoveries, while at the same time Lane also implicitly avoids discussing those aspects of Still's own worldview that were no longer in alignment with the orthodox mainstream of early 20th century scientific culture. This includes much of Still's emphasis on vitalism and the importance Still gave to the implications of his particular philosophical conclusions.

1.6.2.3. EXTERNAL SOURCE REVIEW

As this study progressed, emergent themes pointed to relevant topics, and key informants referred the researcher to further relevant literature. This additional literature came to include journal articles, books authored by researchers, textbooks, and internet articles. These various categories were weighted and rated within the METHODOLOGY Chapter (see SECTION 2.6.1 WEIGHTING OF REFERENCE MATERIALS). These sources were included throughout the body of this thesis, with the majority being included in CHAPTER

FOUR: STILL'S CONCEPTION OF IMMUNITY AS VIEWED FROM TODAY, in answer to the third research question.

An example of this occurred when Still's descriptions of the disease process were identified as being reminiscent of the modern orthodox pathophysiological process now known as a 'cytokine storm'. A research overview of 'cytokine storms' was then sought out and incorporated into the study (Tisoncik et al., 2012).

1.7. ASSUMPTIONS

Given that an emergent theme of this research was the primary role that personal paradigm fulfills within perception, it is important that the researcher state his own worldview. Within this research, human perception is assumed to be context-specific, thus *meaning* is only derived through the relative perspective of the perceiver. Furthermore, reality is experientially infinite - the result of this being that the ultimate nature of reality is not just currently unknown, but is actually deducible as being *unknowable*.

As a result of these assumptions, while a reductionist *methodology* (ie: the scientific *method*) is recognized to be of great value when appropriately applied as a tool, a reductionistic-materialistic *paradigm* (ie: the philosophical set of assumptions that form the foundation of modern scientific *culture*) is rejected as being appropriate to the goals of this study.

1.8. LIMITATIONS

A major limitation to this study was the fact that there was but a single author of the research. A topic so large as this could easily consume the time and resources of a team of researchers. So it was that at some point this author had to focus only on what was

most relevant, rather than on *all* of what was relevant: as in the end this literally came to include the totality of reality, both in whole and specific.

Furthermore, English is the only language spoken by this researcher, thus solicitation was only made to English-speaking informants, and other than the writings of Christian Hartmann, only English-language literature sources were included within the study.

1.9. SUMMARY

This qualitative study was designed to utilize a combination of *documentary-historical* and *field* styles, it seeks to examine, attempt to understand and discuss the essence and application of Andrew Taylor Still's conception of immunity.

The background of this study began with the researcher's own questioning as to whether the traditional concepts found in Still's work are relevant to the modern era. This led to the specific topic of Still's conception of immunity as an avenue of investigation. Still's personal time, place, and experiences are a necessary lens through which to conduct this investigation as, along with a modern perspective, they should yield the best possible interpretation of Still's work in this regard.

The purpose of the thesis is to determine if there is modern practical value contained within Still's conception of immunity. This then involves elucidating: what Still's conception of immunity was, what factors influenced its development, how Still applied his conception practically, and if any facets of the previous categories may be of use in modern osteopathic practice.

This was justified as being valid due to the manner in which this research itself came to identify a trend in modern key informant interviews, and historical and current

osteopathic literature, which demonstrated the loss, lack of application and misinterpretation of Still's conception of immunity in both the historic and modern osteopathic profession. The modern utility and value of Still's conception has been indicated by the results of modern quantitative studies of the effects of its application.

The four research questions were stated and the conceptual design behind the answering of each was detailed. Answering the research questions involved a literature review of the topic. This found but two previous studies, which were assessed as being only indirectly related to the current topic (Stark, 2003; Yen, 2008). A literature review for the topic was also conducted. This included an osteopathic review of all of Still's written works, as well as the web of interrelated biographies, commentaries and modern and historical documents surrounding Still's life and work. Of primary importance in this osteopathic review was Lane's historical book written in direct reference to the topic of Still's "conception of immunity" (1918). Also included in the literature review of the topic was an external source review, this incorporated modern research overviews from outside of the osteopathic tradition that were identified as being highly related to the current topic.

Assumptions were identified in relation to the researcher's own subjective perception and worldview. Limitations were stated, primarily including the limitations involving a single researcher who only speaks the English language.

2 CHAPTER TWO: METHODOLOGY

2. METHODOLOGY

2.1. OVERVIEW

This chapter contains a detailed description of the methodology employed in this research. Included are descriptions of the research design, the research methods used to address each research question, the qualitative terminology employed throughout this study, the parameters chosen for data-sampling, and the style and method of data collection and analysis.

2.2. RESEARCH DESIGN

This qualitative study was designed to utilize a combination of *documentary-historical* and *field* styles (Crabtree & Miller, 1999). A *documentary-historical* style is one that focuses on artifacts such as literature and archives (Crabtree & Miller, 1999). The artifacts surrounding A.T. Still's life took on this role, especially his written works. Given that we do not have access to A.T. Still himself, it is necessary to use the documents surrounding his life to interpret meaning from his work. This was the foundation of this study and its primary avenue of data collection. The basic themes that emerged from this process led to the seeking out of individuals who had a specialized knowledge within that particular theme.

Interaction with these individuals necessitated the second design style termed *field* - wherein the researcher engages with others, becomes the interpretive tool themselves, and creates "holistic and rich descriptions and/or explanations" (Crabtree & Miller, 1999, p.5). Field was an appropriate style for this study as this style employs "specific data collection methods, sampling procedures, and interpretive strategies that are used to

create unique, question-specific designs that evolve throughout the research process” (Crabtree and Miller, 1999, p.4).

2.2.1. RESEARCH PROPOSAL AND ACCEPTANCE

Subsequent to the author’s 5th year of studies at the Canadian College of Osteopathy in Winnipeg, Canada, the research proposal for this study was prepared. This took place in the calendar years 2015-2017. It was formally presented to the Protocol Committee on September 16th, 2017, and was accepted with revisions on December 15th, 2017.

2.3. QUALITATIVE TERMINOLOGY

The qualitative terminology that will be used throughout this study is defined below, including its specific application within this research.

2.3.1. TRIANGULATION

Triangulation is a strategy to give increased validity to inferences made, by deriving the inference from the intersection of multiple unrelated sources (Schwandt, 2007). As Crabtree and Miller (1999, p.81) describe to be appropriate, this study was triangulated from diverse sources of data collected using a variety of methods: interviews were conducted with as wide a spectrum as possible of qualified key informants, as well as sourcing relevant documents both internal and external to the osteopathic tradition from before, during and after Still’s lifetime. This allowed for multiple sources to challenge or support each other during the course of the study.

During the research process, key informants were utilized as a sounding board for the development of the interconnected themes surrounding the research questions, especially including Still’s life and worldview, as well as acting as a means of verifying

the author's own emergent interpretation versus those of previous researchers and authors deeply familiar with Still.

2.3.2. SUBJECTIVITY MANAGEMENT

I am wary of my own understandings, lest I only see what I want to see, or to see only as far as my favourite theory allows. I still allow the possibility that there is meaning in addition to what we initially generate. Understanding is like marination; it is rarely instant...We must be able to tolerate our own anxiety, to understand it, in order to let the data speak.

Howard Stein, (Crabtree and Miller, 1999, p.194)

Subjectivity management is a “process of critical self-reflection on one's biases, theoretical predispositions, preferences” (Schwandt, 2007, p.260). A key component of subjectivity management includes processes “...by which researchers turn the focus back on themselves to evaluate their influence on the findings and interpretations” (Crabtree and Miller, 1999, p.193). To aid in subjectivity management the research began with the identification and statement of the researcher's own biases and assumptions (see SECTION 1.7 ASSUMPTIONS so that they might be kept in mind not only by the reader but also by the researcher during each stage of the study.

2.3.3. VALIDATION

In the context of qualitative research, validation means that the findings accurately convey the subjects' experiences and perceptions (Bailey, 1997, p.146). This study sought validation via *triangulation* (see SECTION 2.3.1 TRIANGULATION), *bias management* (see SECTION 2.3.2 SUBJECTIVITY MANAGEMENT), and purposefully engaging with rival explanations and mutually exclusive evidence (Bailey, 1997). Still's writings and the documents surrounding his life were interpreted by the researcher into

emergent themes that were enhanced and challenged by contrasting them with the interpretations of multiple expert scholars and external sources. All of these strategies helped to deter any single interpretation of the topic from dominating the outcome of the study.

2.3.4. AUDITABILITY

Auditability refers to the ability of a third party to verify the dependability of a study's findings (Schwandt, 2007). The goal is that an outside researcher would be able to subsequently follow the same path that was taken to reach the results that were originally published. Audio recordings were made of all key informant interviews, and a log of search terms employed in all database searches were maintained for the purposes of reproducibility.

2.3.5. TRANSPARENCY

Transparency “ensures that the methodology is easy to follow and reproducible based on how it was recorded” (Stark, 2004, p.9). The researcher kept a chronological journal of insights, theoretical ideas and emerging themes as the study proceeded. Detailed descriptions of the methods of data collection and analysis are found in this chapter. As data was collected it was organized into themed folders, and any associated correspondence was also included in the relevant folder.

2.3.6. MEMBER CHECKING

Interviewees were encouraged to review and edit the transcripts of their interview. This process of including the subject in a collaborative transcription is termed *member checking* (Crabtree & Miller, 1999, p.81). Within this thesis an example of this process took place with Christian Hartmann's interview. As the interviewee used a Latin phrase,

it was deemed appropriate by the researcher to include an English translation for readers. Thus the researcher sought out a translation of the Latin phrase used by Hartmann, and asked him to verify the accuracy of it, to ensure that it matched the intention of his original words.

2.3.7. SATURATION

Saturation is defined as the point during data collection when no new insights arise even as new data is incorporated (Crabtree and Miller, 1999, p.258-9). An example of this process from the current study follows.

During the course of reading Still's writings, a variety of significant references to fluid-filled tissues spaces were encountered, including descriptions of it as being central to his understanding of "how nature has provided to ward off diseases" (Still, 1899b, p.261). This led the researcher to re-read these sections closely, and keep them in mind during further reading and re-reading of Still's writings. Through this process an understanding emerged that the tissue spaces Still was referring to were the intercellular or interstitial space. This was the emergence of the *interstitial* theme.

This tissue-region was addressed in detail in a variety of sources that were encountered in the course of this study, including R. Paul Lee's book "Interface: Mechanisms of Spirit in Osteopathy" (2005), as well as a research paper that gained wide-spread attention due to the way its results were portrayed within the media (Benias et al., 2018). This research paper was commented on from an osteopathic perspective on Mark Rosen's website ("Fluid Continuity", 2018), and at a conference-lecture by Brian Degenhart attended in person by the researcher, *The Interstitium - An new organ or an old friend?* (2018). This was followed by the opportunity to discuss and clarify the details of the emergent *interstitial* theme during key informant communication and interviews

with Degenhart, Lee, Jane Stark and Tajinder Deora. At this point saturation on this topic was reached as per the initial definition.

2.4. RESEARCH QUESTIONS

2.4.1. RESEARCH QUESTION ONE

What was the essence and application of Andrew Taylor Still's conception of immunity?

To address this question, a review was conducted of Still's written works, and relevant writings of his osteopathic contemporaries, as well as subsequent biographies of Still. Emergent themes were identified and coded, such as, "Thus we behold effects, proceed to hunt the cause, and repair according to the demands indicated by the discovery of the cause that has produced the abnormality" (1902, p.212). This piece of text was coded into the *cause and effect* category. A synthesis is presented of Still's conception of immunity and the applications he based upon it.

2.4.2. RESEARCH QUESTION TWO

How can the understanding of A.T. Still's conception of immunity as determined in Question 1 be enhanced by contemporary Osteopaths who have an educated knowledge of him?

This second question was addressed by conducting interviews with key informants. For example, the code of *fluids* that emerged from reading Still's books was found to match the expertise of R. Paul Lee, who became a key informant and discussed this topic during a subsequent interview.

2.4.3. RESEARCH QUESTION THREE

What can external sources contribute to a modern understanding of Still's conception of immunity?

This third question incorporated the significant themes that emerged in the results of the first two questions. These themes were explored through literature overviews sourcing texts external to the osteopathic tradition. For example, the *fluids* code was further developed by accessing the connections being made within modern orthodox research between circulation and immunity.

2.4.4. RESEARCH QUESTION FOUR

From the information accumulated in questions 1 - 3, how might Still's conception of immunity contribute to modern osteopathic practice?

Utilizing all the information arising from Research Questions 1 – 3, the answer to this fourth question developed as the fruit of the final stage of data analysis. This was done by comparing, contrasting and looking for new and/or constant information derived from the study as a whole. The design of this final stage of the research was created with the intent that the results of the study would find practical relevance to the reader, allowing them to better serve their community.

2.5. SAMPLING

This section describes the methods of sampling that were employed in this study.

2.5.1. SAMPLING STYLE

This study was conducted utilizing a *criterion* sample: a sampling method wherein a specific criteria is set for inclusion into the sample population (Crabtree and Miller, 1999).

2.5.2. DEFINITION OF KEY INFORMANTS

The criterion sample of this study was the inclusion of *key informants*, these being defined as individuals “who possess special knowledge, status, or communication skills, who are willing to share their knowledge and skills with the researcher, and who have access to perspectives or observations denied the researcher through other means” (Gilchrist & Williams, 1999, p.73).

2.5.3. SAMPLING OF KEY INFORMANTS

Potential key informants were identified as individuals possessing a *specialized knowledge* of the works of A.T. Still. For the purposes of this study, a specialized knowledge of Still was defined as the potential key informant having written, published, taught or researched the subject of Still’s life, written works, or relevant topics associated with them. This criterion was set in part due to the fact that the meanings which Still attempted to convey through his writings are often difficult to comprehend and have often been misinterpreted (Stark, 2003).

An initial literature review identified the “key conceptual domains” (Crabtree and Miller, 1999, p.94), or themes (ex: Still’s philosophical worldview). Potential key informants with specialized knowledge of these themes were then sought out, so topic-focused interviews might be conducted. For example, on the topic of Swedenborg’s influence on Still’s worldview, Reuben Bell was solicited, who along with being an osteopathic physician also has a Master of Divinity and is ordained by the Church of the New Jerusalem (Swedenborgian).

New appropriate key informants were also acquired via *snowball* sampling, meaning that when an individual subject had agreed to become a key informant, and the initial interview was then completed, the individual was then asked to suggest any

literature that was relevant to what had been discussed, as well as the names of further appropriate individuals who could potentially serve as potential key informants.

Furthermore, referrals were specifically requested for individuals who had a differing opinion on the subject. This search for *confirming or disconfirming cases* (Crabtree and Miller, 1999) is a means of enhancing *validity*.

Potential key informants were initially solicited with a letter of introduction that stated the title and topic of the study, with a brief description of the intent of the study (See APPENDIX A: SAMPLE LETTER OF INTRODUCTION). This was sent via whatever type of contact information was available for the potential key informant: email, phone, physical mailing address, or Facebook messenger. A preference was given to physical mail for initial contact, if unavailable then email was the next preferred means, if not available, then Facebook messenger, then phone call. If no response was received to the initial contact then a follow-up contact was attempted two weeks later by the same means. If after an additional two weeks a response had still not been received, then phone call became the preferred mode of contact. If after three attempts, utilizing at least two different means of contact, had been employed and still no response had been received, the potential key informant was assumed to be uninterested or unavailable and solicitation ceased.

Before participation in the study took place, each key informant was required to sign a consent form, stating an understanding of their roles as a participant in the study, and giving or retracting their permission to be quoted in both the study and subsequent publications (see APPENDIX B: SAMPLE KEY-INFORMANT CONSENT FORM). Signed consent forms were submitted to the researcher by the means most convenient for the

participant: either by physical mail or a scanned copy sent via email. Physical copies were scanned and included in the key informant specific electronic folder.

2.5.4. LITERATURE SAMPLING

Literature was incorporated into the study based on either need or referral, meaning that when new literature was needed to inform a basic understanding of a topic it was actively sought out. Whereas when a key informant or other existing literature referred to another document this also necessitated its inclusion. For example, when reading Jane Stark's *Still's Fascia* (2003), the analysis framework termed *Systems Theory* was suggested as an accurate means to describe the method by which Still structured his thoughts, so the researcher sought out the book *Thinking in Systems: A Primer* by Donella H. Meadows (2008) to gain a better foundational understanding of the general subject of "thinking in systems".

2.6. DATA COLLECTION

The initial data sources included a literature review of the topic (see SECTION 1.6.1 LITERATURE REVIEW OF THE TOPIC). This comprised two existing formal studies related to the topic. An osteopathic literature review for the topic was also included in initial data (see SECTION 1.6.2.2 OSTEOPATHIC REVIEW). This review focused on Still's written works, both published and unpublished. The web of relevant commentaries, biographies, and historical accounts of Still's life and work were then also included. These initial findings were incorporated into addressing the first research question: *What was the essence and application of Andrew Taylor Still's conception of immunity?*

All of the literature that was sampled was written in the English language, with the exception of Christian Hartmann's series of online editorials, and one of his books:

Gedanken zu A.T. Stills Philosophie der Osteopathie: Auf dem Weg zu einer Philosophischen Osteopathie (2016) [Translated as: Thoughts on A.T Still's Philosophy of Osteopathy: Towards a Philosophy of Osteopathy], all of which were written in German. As Hartmann was a potential key informant, before soliciting him the researcher acquired an electronic copy of Hartmann's book and online writings, and entered them into Google Translate (2018), receiving a very rough but still useful translation. The gist of Hartmann's work was surprisingly still conveyed despite this process and relevant sections were identified and set aside for proper translation. This was done by Florian Lassnig, DOMP, who though not a formally-trained translator, is a native German-speaker, an osteopathic practitioner, and also holds a degree in philosophy. This meant Lassnig was already familiar with both Still and the often esoteric terminology and concepts used within osteopathic culture. Lassnig's translated sections were used for better comprehension of Hartmann's work, and any quotations taken from them for this thesis were first submitted to Hartmann for his approval before being included.

Themes that emerged in the preceding stage of the study were identified, and individuals whose area of expertise matched those themes were then solicited to become key informants. When potential participants were invited to take part in the research and a positive response was then received, the key informant was again contacted to arrange an interview. Interviews were preferably conducted in-person, but as the key informants were internationally situated, video conferencing, phone calls, or email correspondence were most commonly utilized. These interviews were *unstructured*, meaning that:

Interviewers have a clearly defined set of topics in mind (and perhaps even some questions that are always in the same words) that will allow them to achieve the overall goals of the study. The interviewee is told the topic and

the goal of the interview and is then allowed to direct the flow of the conversation. (Bailey, 1997, p.145-6)

For the full list of key informants see APPENDIX C: LIST OF KEY INFORMANTS. All interviews were audio recorded using the “Voice Memos” function of an orange iPod NanoTM Model A1320 and later transcribed by the researcher. In-person interviews took place at a number of locations, including for example the bar of the Yorkville Holiday Inn during the November 2018 Founder’s Day Weekend conference in Toronto, Canada. Phone interviews took place using a PanasonicTM Model KX-TGA470C at the researcher’s home-clinic space, using the speaker-phone function to project the interviewee’s voice to the iPodTM audio recorder. The same was true for internet-video interviews, this time using the screen and speakers of a MacbookTM Pro Model 8,2. This same computer was also used for email and Facebook MessengerTM interviews. During these written correspondence-based interviews, the researcher would send out a single question, and wait to receive the response before sending the next question - this format allowed the conversation to naturally unfold, rather than by submitting all the questions at the outset and potentially pre-determining the direction of the discussion.

During each of the above interview types, other than those conducted via email or Facebook MessengerTM, the researcher had a pre-prepared hand-written list of customized potential questions and topics he hoped to discuss with the key informant. This same list was used to make field notes on during the interview. An example is below:

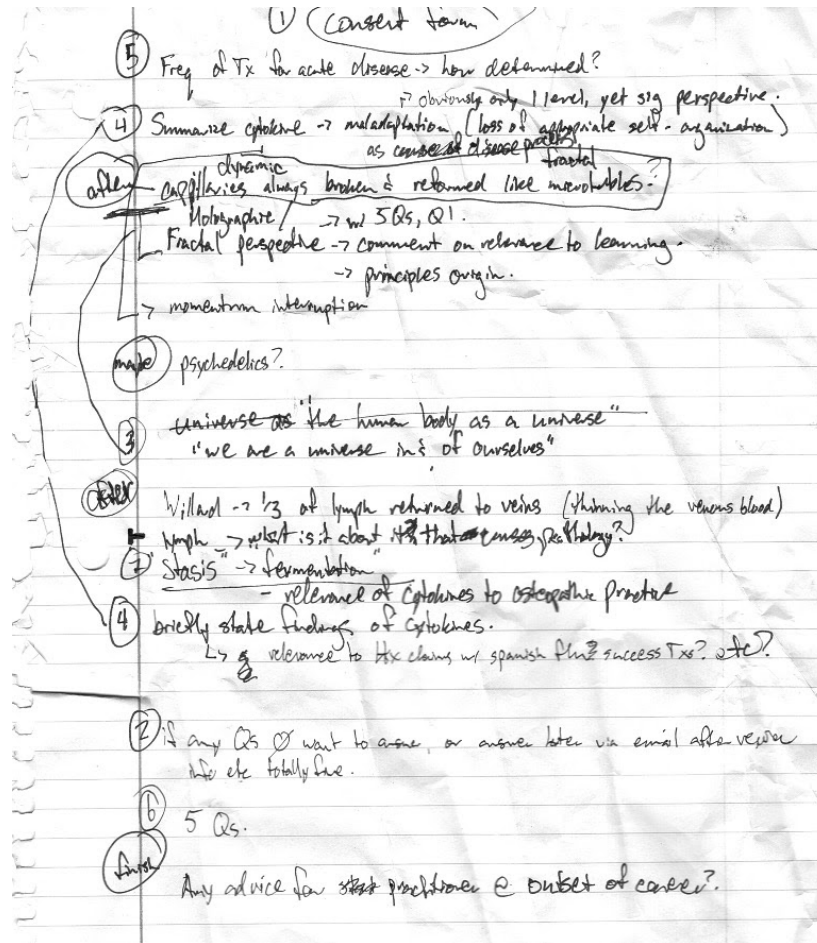


Figure: 2. Sample of interview questions and field notes.

This use of field notes was purely so that the researcher might stay “on-track” during the interview itself, as well as make on-the-fly notes for spontaneous follow-up questions as the conversation unfolded. Field notes were not used in an attempt to actually make an accurate record of the interview, as the audio recording would better serve this role.

Transcriptions were stored on the researchers password protected computer, and backed up on both an external hard drive (iPRO Drive™) as well as a secured research-

specific email account. The transcripts of each informant were added to the electronic-folder specific to that key informant. These transcriptions were sent via email back to the key informants in a timely manner following the interview, thus seeking to ensure that participants were able to verify and clarify the data via member checking.

An example of member checking occurred during Matvey Kipershtein's interview wherein he referenced a number of medieval physicians who the researcher was unfamiliar with. When transcribing this interview the researcher initially spelt the names phonetically and then attempted to find them via Google. When this was unsuccessful, the researcher emailed Kipershtein to acquire the proper spellings. This allowed the researcher to include the accurate spellings within the transcription as well as to research these historical figures and familiarize himself with their relevance to Kipershtein's interview.

When submission of a transcript to a key informant for review received no response, two further attempts were made to contact the interviewee. After a third attempt with no response received, the transcript was deemed acceptable as it stood and was included in the study as it had been submitted to the key informant. The interview transcriptions have been included in full within APPENDIX D: KEY-INFORMANT INTERVIEW TRANSCRIPTS.

Any communication with the key informants that took place after the initial interview(s) was deemed *personal communication*. This included small-talk conversations that occurred immediately after the recorder had been turned off at the formal interview. All personal communications have been referenced as such within the paper. This style of communication helped to develop the results of the study, as this

allowed the researcher to ask further questions specific to the key informants on a need-be and less formal basis. All quotes derived in this method were approved by the key informant before inclusion.

A literature review for the topic (see SECTION 1.6.2.3 External Source Review) was also incorporated into the design of the study, with the intention that it was to act as a furthering and enhancement of the earlier data set. This data was primarily included in the response to the third research question “What can external sources contribute to a modern understanding of Still’s conception of immunity?”, and was composed of those sources that were found to be linked to the original topic throughout the earlier research process, including literature that was directly suggested by the key informants.

2.6.1. WEIGHTING OF REFERENCE MATERIALS

Formal research papers related to the topic of this study were given a primary rating. For example, Hodge’s work on manual osteopathic intervention with measurable responses of the lymphatic and immune systems, as recorded during both health and disease (2007, 2011, 2012). Journal articles related to the topic of this study were also given a primary rating, such as Morens & Fauci’s work related to the mechanism of action in the 1918 influenza virus (2007).

Conventionally in qualitative research, other qualitative studies on the same topic as the current research would also be given a primary rating, but since no such studies could be found, this role was taken on by Still’s own written works.

Secondary rating was given to any available expert commentary on Still’s writings. A good example of this was Lane’s 1918 book *Dr. A.T. Still Founder of Osteopathy* as it includes an extensive discussion of Still’s conception of immunity framed within a timeline of the overall Western world history of immunology.

Secondary rating was also given to writings by key informants on the general topic of Osteopathy, which included sections relevant to this current study, such as R. Paul Lee's *Interface: Mechanisms of Spirit in Osteopathy* (2005) with its discussion of the intra- extra-cellular milieu. Secondary rating was additional given to conference proceedings, such as Brian Degenhart's *The Interstitium: New Organ or Old Friend?* (2018).

Tertiary rating was given to both websites and relevant textbooks, for example *The Catholic Encyclopedia* (Vol. V) (1913).

2.7. DATA ANALYSIS

Two organizing styles were used when conducting this research (Crabtree and Miller, 1999, p.20-23):

1. The *editing organization* style, wherein the researcher acts as an editor: cutting, pasting and organizing meaningful information by the creation of various categories to store it within, until the point at which an interpretation develops from these condensed results.
2. The *immersion / crystallization* (I/C) style, wherein the researcher immerses themselves into the data, until meaning spontaneously emerges. This is engaged in cyclically throughout the research process, leading to a meaning that continues to evolve as the research moves forward.

An example screenshot of a document created in the initial stages of this study illustrates the editing organization style:

**TISSUE LEVEL / “FASICA” / INTERSTITIUM IS THE LEVEL
WHERE THE CAUSE OF DISEASE IS FOUND (IN THE FLUIDS AT THAT LEVEL)**

The Living Matrix: A Model for the Primary Respiratory Mechanism (R. Paul Lee)

- block quote this, agrees that interstitium is the level “where the action is”.

The model of the PRM presented here explains tissue respiration by describing pulsatile activities of cells and the extracellular matrix that surrounds them. Here we find exchange between the nutrient capillaries and cells on one hand and between the cells and lymphatics on the other. These exchanges of nutrients and waste products both must transit the “no-man’s-land” called the extracellular matrix, or simply the “matrix.” Therefore, the matrix plays an essential role that determines the health and function of all the cells of the body. The matrix not only manages these exchanges of nutrients and waste, but also “contains” the cells of all tissues, is the meeting place of nerve endings, blood and lymphatic capillaries, immune functioning cells and their products, as well as hormones and many other cell-signaling chemicals. *The matrix is where the action is.* Let us look at the characteristics of the matrix that are necessary for and that express themselves in vital activities.

“Fluids” (Cranial Letter, February 2010, Volume 63, Number 1, p.11-12)

At the same time, decreased cell size from the contraction of the microfilaments forces some free water containing waste products from inside the cell towards the terminal lymphatic channel outside the cell. The terminal lymph channel also has cyclical opening and closing of the endothelial cell fenestrations. Because the endothelial cells are suspended from collagen molecules by contractile fibrin strands, extracellular fluxes of calcium ion concentration pulls open the fenestrations in cycles with cyclical contraction of the fibrin strands. When open, cellular waste products enter the terminal lymphatic channel. As the calcium wave subsides, the fenestrations close trapping this bolus of waste water in the terminal lymphatic capillary. With the next calcium wave, another bolus of waste material enters the terminal lymphatic channel pushing the previous bolus up the channel. Thus, we have pulsatile lymph movement at the terminal lymphatic channel which is carried on up the lymphatic capillary by contractile elements in the walls of the more proximal lymphatic capillary.²⁰

contrast these above quotes from Lee with Still's lymphatic fenestration quotes (PY p.259 - 262):

for restoration to that condition called seaworthy, again. I

Figure: 3. Sample of document used during ‘editing’ style of organization.

Pictured within the above example are snippets taken from a variety of sources, each referenced and grouped under a theme-title-code created by the current author. Each item within the theme-title-code also has relevant commentary by the researcher as needed. These documents were stored on the researcher’s computer, and backed-up via an

external hard-drive (iPRO DriveTM) and the author's own research-specific email account.

An example of the application of the I/C style within this study is as follows. While reading Still's second book, *Philosophy of Osteopathy*, the researcher encountered Still's description of the structure and function of the "fascia" (1899b, p.164-5). This was expanded upon later in the same text where Still states that this was the core concept which served as the foundation to his conception of health and disease, within the section titled *Concluding Remarks* (1899b, p.260). The researcher read and re-read these sections because Still had placed such emphasis upon them, but a sense of complete comprehension did not occur, due in part to the fact that certain key terminology used by Still in this section was not clearly defined by him in this location. So the researcher moved on, but kept Still's *Concluding Remarks* in mind while reading Still's other writings, thereby using the full scope of Still's texts as a larger context in which to place these *Concluding Remarks*. Through this process, a clear definition of the terminology used by Still within *Concluding Remarks* occurred. Meaning finally began to arise from the original section of text and it warranted the creation of a new code titled *interstitial*.

This interstitial code was explored and enhanced by a number of external sources, including but not limited to a recording of an interview with Dr. Neil Theise, one of the lead researchers of a prominent study on the interstitial space (Benias et al., 2018; CBC Radio, 2018). It was demonstrated that Theise made many modern connections that could be identified as clearly echoing Still's much earlier assertions.

In the meantime, through other material incorporated into the current study, the emergence of a *systems theory* theme had also come into being. This led to the framing of

the interstitial theme within an analysis methodology found in the systems theory framework. Through this process a deeper insight into the interstitial theme spontaneously occurred and a cascade of insight followed - a new theoretical understanding spontaneously generated an even deeper understanding of how Still clinically applied this concept.

This example demonstrates how the immersion/crystallization process created a domino-effect of “a-ha!” moments: from specific instances of difficult to comprehend terminology within Still’s writings, to the identification of a concept, to the enhancement of that concept by external sources, into the recognition of a generalizable principle, which informed the implications for practical application within modern treatment.

2.7.1. CODING

The term *coding* is commonly used to describe a method in qualitative research wherein vast amounts of data are organized into categories based on a shared meaning (Crabtree and Miller, 1999, p.43). This process also facilitates the identification of connections between the various meanings found within the data as a whole.

For the purposes of this study, this process of *coding* served as a means of data analysis. The process can roughly be delineated into a series of stages:

1. Immersion into the literature (ie: the writings of A.T. Still, interviews with relevant experts, external materials that were then found to be associated)
2. Organization of the data that is deemed meaningful into a series of codes whose titles capture the essence of these meanings
3. Immersion into the coded units themselves, so that meanings of individual codes are refined and any meaningful connections between the various codes also emerge

4. Once interconnected, the multiplicity of codes create a matrix from which an overarching essence, or ‘story’ arises. From this story a narrative account is given - in ‘answer’ to the research questions

It is important to note that in reality this process was not a single linear series of steps, but rather highly cyclic. Each of the above stages repeatedly took place during the research process.

Due to the manner in which the researcher attempted to engage the data from an unbiased perspective, and thereby allow the data itself to reveal what relevant meanings it contained, codes were created only *after* encountering the data. They were then subsequently revised as needed - including the ongoing creation of new codes throughout the study.

A description follows of ‘coding’ as applied within this study:

- The writings of A.T. Still, his contemporaries, his biographers and commentators were given an initial reading by the researcher. Highlighting of text and margin annotation took place.
- The text was then reviewed a second time and meaningful or representative sections were assigned a specific code deemed representative, or if warranted, a new code was created. The relevant text was then extracted and transcribed into an electronic document which consisted of all existing codes: a *codebook*. If necessary, associated commentary or notes by the researcher were included accompanying each piece of meaningful text. Often, the same piece of text was organized under more than one code, with separate commentary by the researcher for each code the piece of text was grouped with.

- The available writings *about* A.T. Still (ie: commentaries, biographies, writings by his contemporaries etc) were reviewed and organized by this same process of coding.
- Relevant topics specific to each major code were identified, modern individuals with specialized knowledge of each topic were sought out and solicited to become key informants.
- Willing individuals became key informants and were interviewed on their specialized topic(s), as well as any other subjects that emerged spontaneously in the flow of the unstructured interview. Once the interview was transcribed and verified by member check, the key informant's responses were also categorized and integrated into the codebook using the same process as the preceding texts.
- Relevant external literature was revealed each of the preceding stages of the study. These materials were themselves reviewed, filtered and also integrated into the codebook.
- The codebook itself was then reviewed in totality - through this new codes were created or existing codes became refined as interconnected meanings within and between codes were revealed within the process of immersion.
- A coherent narrative began to coalesce within the codes as their interconnections began to inform each other. An overarching flow and meaning to the codebook arose - a synthesis had emerged. This was then used to address each research question in detail.

An example of coding is given below, using a quote from Still's *Philosophy and Mechanical Principles of Osteopathy* (1902f). This quote, though long, is suitable as an example because it was found to be central to the findings of this thesis and contains many of central codes within a single section of text:

Does Nature do its work to a finish? If so, we have a lasting foundation on which to stand. Then we must work to acquaint ourselves with the process by which it proceeds to do its work in the physical man. Not only to make a well-planned and well-built superstructure, but to care for and guard against the approach and possession of foreign elements, that either cripple or hinder perfect action in all functions of the organs to form protective compounds that will ward off the formation of fungous growths of blood and flesh before the latter can get deadly possession of the laboratory of animal life. Such fungous growths as microbes, germs, bacteria, parasites, and so on to all abnormal formations, are reported to have been found in the bodies of the sick by many authors, as results of their investigations of the compounds in the blood, sputa, and stools of the sick. We will not dispute the fact that they have been and often are found in the blood, sputa, and faecal and other substances of the body. We will willingly admit that they are truths as reported as the results of discoveries made by many of the most learned and painstaking scientists of years of the past and of the years of our own day and generation. That the student may better comprehend my object, I will admit and agree that such organisms as described are found in lung disease, disease of the stomach, bowels, liver, kidneys, or any organ of the system. I do not wish to disprove their existence, but wish to take such witnesses and try to prove that all such abnormal changes have a cause in suspension of arterial or venous blood, or lymph, the excretory systems, or by their nerve-supply being cut off at some important point of the physical work. A clean shop is just as necessary to good work as the skilled mechanic is to the construction of the part desired. A careful hunt for the broken link that has

allowed the chain of life to fail to make the work complete throughout, and let life substances spoil in the blood or lymph before it has been used in the place or purpose for which it was designed, must be instituted. I want to impress upon you that all bad sputa, poor lymph, and defective blood are effects only, and a broken link is the cause, and bacteria are only the buzzards formed by the biogen that is in the dead blood itself. (1902f, p.163-4)

This quote was classified into the codes: *innate immunity, chemical immunity, fermentation of fluids, opinion of germ theory, origin vs. cause of disease, principle of perfection, trustworthiness of Nature, systems view of life, mechanistic vitalism, normal / abnormal concept, reasoning methodology, cause and effect, corn metaphor disease theory*. A quote such as this was thereby also deemed a *key quote* (this being a code unto itself) because of the vast number of codes that it contained, as well as the way in which a single section of text was able to illustrate the connections between many codes.

More common than the above large section of text were much smaller quotes with a single code attributed to them, such as: “You must reason. I say reason, or you will finally fail in all enterprises. Form your own opinions, select all facts you can obtain. Compare, decide, then act. Use no man’s opinion; accept his works only.” (Still, 1902f, p.147). This section was simply given the *reasoning methodology* code.

As data collection progressed, many such smaller quotes from disparate sources would accumulate within a single code category. From this collective of pieces, an essence, a meaning, thereby emerged. This meaning deepened the researcher’s comprehension of both the individual units that had been categorized within the code, and the code itself as a whole. This process would thereby sometimes make it appropriate to

rename a code, or subdivide it so that it might better represent the new meaning that had emerged.

An example follows of how data would first accumulate within a code and then eventually clarify the meaning of that code. When reading Still's books, the researcher soon noticed a huge disparity between the frequency of treatment that was being described as appropriate by Still, and that which had been taught to him during his modern osteopathic training. This contrast seemed significant and so a code titled *frequency* was created. Under this code all references to frequency of treatment were accumulated: both as general materials were read for the study and instances discussing frequency came up, and as appropriate sources that discussed frequency were specifically sought out. This included for example: other theses (Yen, 2008), books delineating the socioeconomic factors which influenced the frequency of osteopathic treatment in practice from Still's time until today (Gevitz, 2004), established quantitative osteopathic studies (Noll et al., 2010, 2016), and a key informant interview with the researcher who had overseen the intervention-arm of the previously mentioned MOPSE study (Brian Degenhart).

It was by this process that an attempt was made to inform the 'frequency' code from as many valid sources as possible: both theoretical and clinical, modern and historical, as well as internal and external to the osteopathic tradition. This process led to a much better understanding of the factors which influence the modern versus historical rates of frequency of treatment, thereby clarifying the reasons for the discrepancy between historical and modern frequency of treatment. This allowed a clearer framing of the frequency of treatment presented within Still's work.

The above described processes illustrate how the *editing* style of data organization naturally led into the *immersion/crystallization* experience of data analysis. The cycle of immersion, coding, and reflexivity that has been detailed allows data analysis to occur throughout the research process, not simply as a linear step “soon after data collection and sometime before writing up the results” (Crabtree and Miller, 1999, p.146). This ongoing analysis allowed new and relevant sources of data from “further afield [in] the broader literature of the sciences, the humanities, and the arts” to be sought out and incorporated into the study (Crabtree and Miller, 1999, p.190). This all necessitated an extensive process of 4 years of research and writing, but the long-road was knowingly taken in hopes that it would yield a more nuanced and mature relationship with the subject in the end.

2.8. SUMMARY

This qualitative study was designed to utilize a combination of *documentary-historical* and *field* styles. This was implemented in reference to the body of literature surrounding and including Still’s own writings, as well as emergent themes that were then further developed via interaction with key informants.

The research proposal and acceptance by committee took place in the calendar years 2016-2017.

The variety of qualitative terminology to be implemented within this study were listed and defined.

The four research questions were listed and the means by which they were addressed were briefly discussed. For the first research question this included an osteopathic literature review for the topic, consisting of Still’s writings and the constellation of

related texts. For the second research question this primarily included the results of key informant interviews. For the third research question this involved an external source literature review for the topic consisting of research overviews and related quantitative studies. For the fourth research question this involved a synthesis of the previous information by the researcher into a coherent set of recommendations and summaries to be presented to the modern osteopathic community.

The literature sample that was incorporated into the study was based on either need or referral, meaning that when new literature was needed to inform a basic understanding of a topic, it was then actively sought out. The initial literature reviews identified the “key conceptual domains” (Crabtree and Miller, 1999, p.94), or themes related to Still’s conception of immunity.

The following stage of the study was then conducted utilizing a *criterion* sample of subjects: a sampling method wherein a specific criteria is set for inclusion into the sample population (Crabtree and Miller, 1999). The criterion sample of this study was the inclusion of *key informants*, these being defined as individuals possessing a *specialized knowledge* of the works of A.T. Still.

Potential key informants with specialized knowledge of the themes that had emerged from the literature studies were then sought out, so that topic-focused *unstructured* interviews might be conducted via phone, email, video-chat, or in-person. Interview transcripts were *member checked* by the key informants. Additional appropriate key informants were then acquired via *snowball* sampling. When a key informant or other existing literature referred to another document this also necessitated its inclusion in the ongoing literature reviews.

Reference materials were weighted. Primary rating was given to formal research papers, journal articles, and Still's own writings. Secondary rating was given to directly related osteopathic literature, writings by the key informants in relation to the general topic of Osteopathy, and conference proceedings. Tertiary rating was given to websites and textbooks.

Data was analyzed via two organization styles. 1 - the *editing organization* style, wherein the researcher acts as an editor: cutting, pasting and organizing meaningful information by the creation of various categories to store it within, until the point at which an interpretation develops from these condensed results. 2 - the *immersion / crystallization* (I/C) style, wherein the researcher cyclically immerses themselves in the material until a meaningful synthesis spontaneously arises.

The data analysis process also included *coding*, and an example of coding within this study was provided.

3 CHAPTER THREE: A.T. STILL'S CONCEPTION OF IMMUNITY: ORTHODOX AND PERSONAL

To study a tradition is to track a creature, as though one were a hunter, back through time. (Sax, 2001, p.x)

3. A.T. STILL'S CONCEPTION OF IMMUNITY

3.1. INTRODUCTION

This Chapter addresses the first research question: *What was the essence and application of Andrew Taylor Still's conception of immunity?*

This will be addressed first via a historical contextualization of the elements found within Still's immunological concepts. This is followed by a contextualization of these concepts within Still's overall worldview - as this was the means found to be necessary and appropriate in defining Still's *personal* conception of immunity. Still's application of his conception of immunity is then presented in reference to this pre-established context.

3.2. STILL'S OPINION OF VACCINATION

3.2.1. A HISTORY OF SMALLPOX

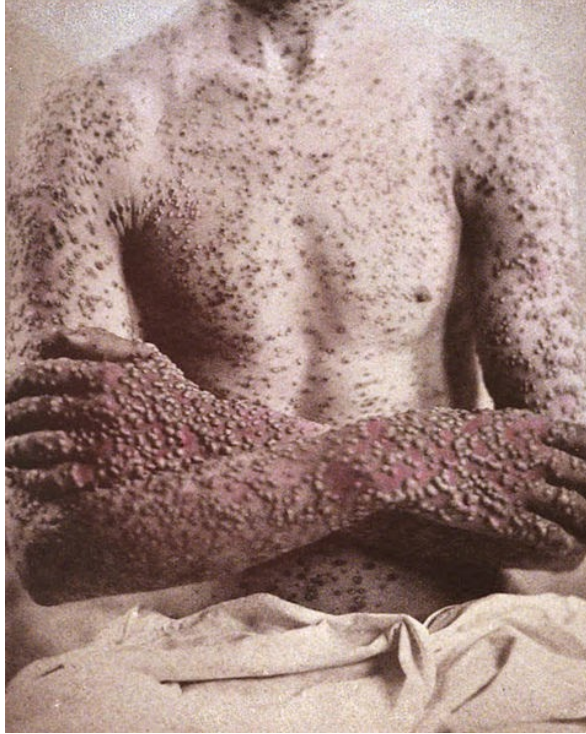


Figure: 4. Smallpox is a horrifying infectious disease (Fox, 1866, p.27)

In the paper *Edward Jenner and the history of smallpox and vaccination* (2005) Stefan Riedel, MD, PhD, lays bare the facts: being highly contagious, smallpox often spread in an epidemic manner, and depending upon a variety of factors, 20 - 60% of individuals infected by it died quickly and painfully. For infected infants the fatality rate was 80-98%. Of those individuals who did survive, $\frac{1}{3}$ were now blind (the virus often infected the cornea of the eye resulting in severe scarring), other common after-effects were hair loss, transient eczema, deformities of limbs due to muscle damage, and sterility in men. Almost all survivors received substantial, highly visible, scarring of their skin. In Europe during the 1700s, smallpox killed approximately 400,000 individuals annually.

As Riedel (2005) elaborates, it was long known that those who had suffered from smallpox and did manage to survive did not become sick when exposed to smallpox during subsequent epidemics. Due to this knowledge, previous survivors were often asked to caretake for the ill during subsequent outbreaks of the disease.

This understanding of the protective effects of previous smallpox infection led to the development of a practice known as “variolation” or “inoculation” (Ridel, 2005; Silverstein, 2009). Variolation or inoculation consisted of the harvesting of dried scabs from the pustules of a patient suffering from smallpox, then drying and powdering this material, and storing within a feather quill, or the hollow center of a bird’s bone. During times of epidemic, the material was collected, prepared, and then aspirated up the nose of a new individual who was not yet ill, or alternately a cut or scrape was created on a patient’s skin - into which the material was then placed (Silverstein, 2009). These preventative inoculations resulted in a milder and more localized form of the illness, which upon recovery, usually left the patient no longer vulnerable to the more serious, ‘naturally’ acquired disease.

The practice of variolation was most commonly used immediately before or during epidemics, and seems to have been independently innovated as a medical practice within a number of different cultures (Africa, India, China), where it practiced for many hundreds of years before it was then first introduced to European cultures in the 1700s (Silverstein, 2009).

As Riedel (2005) makes clear, preventative inoculation itself was not without risks: 2-3% of those who undertook the procedure soon died as a direct result. On the other hand, deaths from inoculation were many times lower than those from ‘naturally’

contracted smallpox - thus inoculation was a good bet, but it certainly remained, at best, a gamble. Also, because the inoculation procedure involved the transfer of a live pathogen, those who had undergone inoculation retained the potential to directly spread the full-blown version of the disease to others - through this, inoculation practices themselves could act as the catalyst for new waves of a smallpox epidemic.

Edward Jenner was born in England in 1749, and as was common in that time and place, at age 8 was inoculated against smallpox (Riedel, 2005). Riedel details the events that established Jenner's well-known place within medical innovation. Jenner was familiar with cowpox: this being a pustule-forming disease that cattle were prone to, yet which could also be spread to humans through direct contact with the pustules of an infected animal. When a human did thus contract cowpox, while unpleasant, compared to smallpox it was a substantially milder illness.

For years Jenner had heard folk-stories of dairy-maids who had been previously infected with *cowpox* were then observed to never become ill when later exposed to *smallpox*. Thus the dairy-maids who had experienced cowpox were said to have been made '*immune*' from smallpox (from the Latin *in munis*, literally meaning "not ready for service", i.e.: free from liability or obligation, as in being "immune" from military conscription (Silverstein, 2009, p.3)).

Jenner put the idea behind these dairy-maid rumors to the test by performing an inoculation procedure on a young boy, following the protocol of scraping the skin on the upper arm as per usual, but instead of using material from a smallpox pustule, Jenner instead applied material from the cowpox pustule taken from the hand of a dairy-maid named Sarah Nelms (Riedel, 2005). As expected, the boy became somewhat ill following

this alternate inoculation, then soon recovered over the following few days - at which time Jenner then inoculated the boy again. This time with *smallpox* material, as was the convention. Yet Jenner observed that the boy did not develop the characteristic symptoms of illness that usually followed after a smallpox inoculation. Nor did the boy form a smallpox pustule at the site of the scrape, as was expected. Jenner deduced that something within the previous cowpox inoculation had indeed stopped the usual symptoms of smallpox inoculation from occurring (Riedel, 2005)!

So it was, that in 1796 Jenner believed he had discovered a much safer method of gaining immunity to smallpox - by using cowpox material in place of the far more dangerous smallpox scabs as had been traditionally applied. Jenner named the new procedure “vaccination” - *vacca* being Latin for cow (Riedel, 2005). Despite long-lived opposition and ridicule of Jenner’s new ‘vaccination’ procedure, the practice did gain acceptance and eventually spread throughout European cultures. So it was that in Andrew Taylor Still’s lifetime (1828 - 1917), vaccination had become a common American medical intervention (Schroeder-Lein, 2008).

3.2.2. STILL’S OPINION OF VACCINATION

When it came to the practice of vaccination, Still was unequivocal: “I have often been asked, what are my ideas of vaccination? I have no use for it at all, nor any faith in it” (1902e, p.69). Still additionally describes the material used in the vaccination procedure as being: “vaccine rot, that cursed filth that is taken from cows afflicted with mad itch, cows with all the venereal diseases of man and brute” (1902f, p. 23).

Beginning at age 72, Still wrote an extensive series of articles concerning smallpox in the *Journal of Osteopathy*. From 1900 to 1902, this series of articles provides Still’s own

accounts of his extensive personal encounters with smallpox, inoculation, and vaccination. It was these experiences that informed Still's disparaging opinion of these medical practices:

China and other nations have inoculated with the virus of smallpox with the result of increasing its spread only. The people of other governments have also thought favourably of inoculation and have inserted the poisonous matter into the bodies of those who did not have the smallpox at the time of its insertion, spread without modification was the result.

An eminent scientist by the name of "Jenner" with whom all historians are familiar as the discoverer of vaccination to whom we should all give honor to his memory for even trying to combat so deadly a scourge, notwithstanding vaccination has long worn the black garb of mourning because his theory and practice have fallen to rise no more, it having failed to conquer the deadly enemy as hoped for by him.

Vaccination is not only believed to be a gigantic failure but is believed to be the cause of the spread of tuberculosis and many other incurable and most loathsome diseases, such as leprosy, syphilis, cancer, glanders and all of the horse and cattle diseases, being injected into and retained in the human body, which was healthy all days previous to vaccination, the effects of which have caused deaths up to many thousands, if history with statistics are reliable. (1901d, p.1-2)

Right here I will report my own experience, I have been vaccinated many times in my arms just the same as other persons, possibly twenty times in all. I have used the vaccine quills, bones, the dry scab and the fresh matter from the living arms, all to no effect. (1901d, p.3)

About the time Kansas was opened to settlement, smallpox and all other eruptive fevers began to make their appearance and do their deadly work. Of all diseases man is heir to, I dreaded smallpox the most, for if it did not

kill it left you disfigured for life. I had been vaccinated a great number of times but without effect, and should I contract the disease I felt then that I had little hope of living through it. Thus smallpox was my dread by day and by night. I was called to the sick a number of times not knowing it was smallpox until entering the house. It was then too late to back down and I had to submit to the inevitable. (1902e, p.62)

A modern reader might wonder what Still is getting at when he relates how he had “been vaccinated many times...all to no effect”. What effect did Still expect from smallpox vaccination other than the seeming immunity that he *did* apparently experience upon his later exposures? Why does Still not associate this immunity with the previous vaccinations and inoculations? Yet Still was clear that this strange conclusion was the one he had arrived at, stating:

I have been exposed and in close contact with genuine smallpox.... I have not been affected by either that or vaccine matter.

For many years following my exposure to smallpox I was in a quandary why I was immune from both. (1901d, p.3)

From the above, a modern reader is left questioning Still's comprehension of the basic concept that informs the practice of vaccination. Upon further investigation, it turns out that Still's above statements *are* logical, they only need further historical context to be understood as such.

Just as during Jenner's first experiment with the boy (as detailed above in SECTION 3.2.1 A HISTORY OF SMALLPOX) after a smallpox inoculation, or cowpox vaccination, the patient was expected to experience a milder version of the full-blown illness. At the very least a single pustule or “characteristic vesicle” at the site of

application was looked for (Hicks, 2011). If such signs and symptoms did not occur, the procedure was then judged to have been ineffective and was to be repeated. In Still's era, ineffective vaccination was a frequent occurrence. The historian Glenna R. Schroeder-Lein, whose work focuses on the Civil War (this being the time and place of Still's early life), describes how unsuccessful vaccination was commonplace:

A successful vaccination would be obvious when the doctor inspected the vaccinated spot eight days later and saw that a proper lesion had formed.

...Not all vaccinations "took" successfully and provided the needed protection. Sometimes the vaccine matter was inert, too old or weak to be effective. The doctor examining the vaccination on the eighth day was able to tell that the immunization had not worked and the person needed to be revaccinated. (2008, p.321)

Yet Still reports having *consistently* experienced ineffective vaccination, over a multitude of applications. In this case, uniform ineffective vaccination was highly unlikely - especially when some of these attempts employed "fresh matter from living arms" as Still reported above. Puzzled over his experience of repeated non-response to vaccination, Still sought a theory to explain his consistent lack of reaction:

For many years following my exposure to smallpox I was in a quandary why I was immune from both [inoculation/vaccination and contagious exposure]. In talking with my mother on the subject she said possibly she had blistered all the smallpox out of me when I was a child, at which time I had a long spell of white swelling, caused from a fall on my right hip, which resulted in inflammation of the superior crest of the right ilium, out of which a number of pieces of bone an inch or less were taken. She said she kept the fly blister active and running six weeks. Some years later a very large swelling appeared in my left groin from the saphenous opening down the thigh about four inches. My father being an M.D., ordered the

blister over the swelling, which was kept up a week or ten days, at which time the pus was let out with a lance and healed nicely. Five or six years later I was attacked with pleurisy of right side from the 8th to 12th ribs, my father bled me a quart from the arm, then ordered a blister of Spanish Fly about six by eight inches. I am now and have long since been of the opinion that I have been immune from vaccine and variola [smallpox] from the effect of cantharidin which was absorbed in my system during the times I was blistered to ally the above inflammations. (1901d, p.3)

Still retells this story a second time in his writings, adding some further minor details (1902e, p.68), and a third time in his final book (1910, p.455) wherein he gives the date of this conversation with his mother as having had taken place in 1862, when Still was 34 years old.

The repeated retellings of this anecdote by Still within his writings illustrate how he had come to a long-term acceptance of his mother's theory – this being namely that Still's lack of response to both vaccination and contagion were due to the effect on his system from previous intense and repeated exposures to “blister fly” (also known as “Spanish Fly”) which contains the substance cantharidin.

Cantharidin is an extract collected from a wide variety of beetle species, including the potato bug (Moed, Shwayder, Chang, 2001). It is a caustic substance, and therefore when used topically (on the skin) it is a ‘vesicant’ or blistering agent. Regardless of what is used, this type of intervention - wherein the body is purposefully provoked to an inflammatory response - is termed a “counter-irritant” (Schroeder-Lein, 2008, p.76). Counter-irritants have a long history of medical use across a variety of cultures. Many different methods have been employed, including the Chinese practice of moxibustion, wherein smoldering bundles of the herb mugwort are used as a means to convey heat to

specific areas of the patient's body - by circling the ember at close proximity to the skin, or even by pressing the ember onto the skin to create a therapeutic blistering (Moed, Schwayder, Chang, 2001; Alison Macdonald [Dr. of Traditional Chinese Medicine], personal communication, December 2 2018). As seen in the above stories from Still's childhood, at that time the application of cantharidin as a topical counter-irritant was a common medical practice within American culture.

Rather than accepting Still's above interpretation regarding cantharidin exposure and subsequent immunity to smallpox, it seems far more likely that Still simply did not respond to his repeated vaccination/inoculation procedures with conventional signs and symptoms, but nevertheless *did* acquire immunity through them.

Perhaps as an individual Still did not overtly respond to vaccination/inoculation because of a previous early exposure to the cowpox virus, thereby already having antibodies in advance of vaccination/inoculation. Still almost certainly did share close quarters with cattle for much of his early life as a homesteader and farmer. This would be the same mechanism of action that was experienced by the milkmaids whom Jenner heard rumors of. If this scenario did occur, Still would have only receive a boosted immunity from the later vaccination/inoculation but otherwise might not have overtly reacted to the procedure in any way – as was the opinion of Arthur Silverstein, professor of Immunology at John Hopkins University when presented with Still's account (personal communication, December 1, 2018).

Regardless, it would appear that it was the absence of the signs and symptoms that indicated an effective procedure that led Still to feel that smallpox vaccination was not effective for him as an individual. Yet this does not explain Still's vehement

opposition to the practice of vaccination/inoculation in general, and the risks that Still so strongly associated with them. Still stated that he felt vaccination to be a:

...dangerous system of multiplying other diseases which are inserted into the human body with its seeds of syphilis, cancer, leprosy and an innumerable host of diseases, that can be and are inserted into the human body, many of them never disappearing until death claims its victim. (1901e, p.240)

To clarify why Still held this negative opinion of vaccination, it is necessary to look to his personal encounters with these practices, especially during his military service during the Civil War.

3.2.3. STILL'S EXPOSURE TO VACCINATION

Still stated that his strong negative opinions of vaccination were formed by having personally observed catastrophic after-effects from its application:

I have often been asked, what are my ideas of vaccination? I have no use for it at all, nor any faith in it since witnessing its slaughterous work. It slayed our armies in the sixties and is still torturing our old soldiers, not to say anything of its more recent victims, whose number will run up into tens upon tens of thousands. (1902e, p.69)

By saying “our armies in the sixties” Still is referring to 1860s - the American Civil War of 1861-1865, in which Still served the Union Army (Still, 1897). The Civil War took place during a time when: “Medicine in the United States was woefully behind Europe. Harvard Medical School did not even own a single stethoscope or microscope until after the war” (Goellnitz, 2011).

It seems that when injured soldiers were brought back to mobile field-hospitals, the situation there was often hardly better than had the soldier been left lying out in the battlefield. In many cases, physicians were sparsely available, or completely absent from the battlegrounds (Humphreys, 2013).



Figure: 5. Civil War field hospital soon after battle (Library of Congress, n.d.).

One can imagine the ease with which a highly contagious disease such as smallpox would have spread within these conditions. During the Civil War, of those military personnel who did contract smallpox, 20 - 40% died as a result (Schroeder-Lein, 2008, p.279).

In the book *Encyclopedia of Civil War Medicine*, Schroeder-Lein's modern analysis mirrors and agrees with the reports given by Still regarding the horrifying risks associated with vaccination/inoculation during that time and place:

Much worse than the failure of the vaccination [to provide immunity] were the infections that sometimes resulted from contaminated vaccine, unsterile knives, dirty arms, or disease contracted from the person providing the scab. These results were sometimes called “spurious vaccination.” In some cases patients developed huge spreading sores, leading to the amputation of the arm or, in the worst cases, death. Sometimes the infection was made worse because the soldier already was weakened by scurvy.

Since vaccination was not a difficult process, a number of soldiers believed that they could do it for themselves. They vaccinated each other using matter from the arm of a comrade or, in at least one instance, a prostitute friend. Ineffective immunization and serious ulcerations almost always resulted. (2008, p.321)

As Schroeder-Lein describes elsewhere, under ideal conditions, the vaccination methodology of that era was to locate a cow with cowpox, take pustule material from it, and using that material, vaccinate a healthy young child. Then using the scab from that child's vaccination site, go on to vaccinate a number of adults. The child was strategically used at the start of this vaccination process in hopes of minimizing the potential for patient-to-patient transmission of additional diseases. But during a time of war, with large armies on the move, this best-practice methodology was not easily acted out. Nor within the conditions of a crowded military camp, vulnerable to rapid epidemics, was there the time to delay vaccination so that the ideal procedure might be carried out (Schroeder-Lein, 2008).

So it was that during the Civil War, vaccination often involved the direct transfer of bodily fluids from one person to another, forming a single long and unbroken chain of adult patients. This had serious repercussions in terms of disease transmission.

Tuberculosis, syphilis and erysipelas were all commonly transmitted along with smallpox (Hicks, 2011). Erysipelas is a highly aggressive form of Streptococcus skin infection that was often fatal.

Thus Still was correct in the earlier quotation wherein he described the practice of vaccination as “slaughtering” Civil War soldiers, for serious or fatal effects from vaccination *were* shockingly common.

Take for example the report of a military physician named Dr. W.A. Greene, who served in the Army of Northern Virginia in the 1863 Battle of Chancellorsville, an army which at the time of that battle had “5000 men unfit for duty, because of disability arising from vaccination” (Greene, 1867, p.242). Being an orthodox physician who had faith in the credo of his time, Greene found it necessary to chastise both his patients and other doctors for fearing the vaccination procedure. Greene stated how he had heard from many patients that they would “prefer small pox to the risk of vaccination” (1867, p.242). In an article Greene published within *The Atlanta Medical and Surgical Journal* in the months after the Civil War, Greene states that he explicitly does not believe vaccination could possibly be a means of additional disease transfer. Seeking to convince his colleagues of the same, Greene presented his reasoning:

I have, also, taken the matter [for a smallpox inoculation] from a ripe pustule of a constitutional [chronic, long-term] syphilitic subject, and produced a good result on a healthy subject, without any sign of the syphilitic poison appearing. Since vaccination is adopted almost universally in every civilized country, if it were possible for disease to be thus transmitted, is it not reasonable to suppose that a large proportion of the people would be more or less diseased who are vaccinated; and, more especially is this to be presumed, since vaccine matter is said not [to] be

deteriorated by frequent transmissions; and what a variety and intensity of disease must accumulate in this matter, which, in all probability, had passed through so many systems. Therefore, much of the dread arising from this cause is ill-founded. (Greene, 1867, p.243)

The fact that Greene's article was published in an urban medical journal of the time speaks to how common this practice and opinion may have been.

It is clear that Greene and other like-minded physicians were clearly incorrect. Of those soldiers that survived the Civil War, it is estimated that fully *one third* later died of venereal diseases, especially syphilis (Schroeder-Lein, 2008, p.323). It was likely this outcome that Still is referring to when he described vaccination as having "slayed our armies" and "tortured our old soldiers". Chronic syphilis infection involves a slow degeneration of physical and cognitive capacity before death finally ensues.

Within two years of the outset of the Civil War, the Union Army had instituted mandatory vaccination for all military personnel and any associated civilians, while the Confederates also attempted to vaccinate all possible service-personnel (Schroeder-Lein, 2008). As Schroeder-Lein's research makes clear, even when a person was *appropriately* vaccinated for smallpox, and managed to escape without immediate side-effects, this was not a guarantee that the vaccination had provided immunity: there was still some chance of contracting smallpox upon subsequent contagious exposure (2008). If one did contract smallpox despite earlier 'successful' vaccination, it was often a much less severe form of the disease, yet nonetheless, some of these individuals did die (Greene, 1867; Hicks, 2011). Civil War soldiers often suffered from malnutrition, exhaustion, as well as other diseases common to that environment, such as tuberculosis. These additional factors left

even vaccinated individuals vulnerable when subsequently exposed to the smallpox virus (Schroeder-Lein, 2008).

This highlights the finding that while vaccination as a preventative strategy institutes pre-existent knowledge of the pathogen within the patient's system, (thereby giving the patient a strategic advantage against a pathogen before being otherwise exposed to it), *vaccination does not in and of itself supply the patient with the basic immunological capacity to navigate the presence of a pathogen*. Nor, even when otherwise healthy, does every individual react to vaccination with complete immunity - even when ideal modern vaccination procedures are used. Across a vaccinated population, for some individuals the immunity is only partial, and for a very small minority vaccination is totally ineffective (Hicks, 2011; Silverstein, personal communication, December 1 2018).

Given all of these factors, Still's strong opposition to vaccination is not surprising. Still's above statements that describe the vaccination of his era as being a common means of disease transmission, accompanied by a strong risk of immediate or chronic fatal side-effects is not hyperbolic - rather the historical record now completely justifies Still's harsh assessment. Due to the methodology and conditions in which vaccination/inoculation was applied during the Civil War, it truly *was* unreliable in its potential benefits, while carrying a very high risk of serious or fatal outcomes.

Still was not alone in this conclusion regarding the vaccination practices of his time. A large and influential 1898 British Royal Commission regarding public vaccination found that vaccination procedures commonly provided a means of unintentional disease transmission. The British report's conclusions recommended the

reform of vaccination methodology to ensure greater public safety (Royal Commission, 1898). This Royal report was commissioned and then conducted over the course of 7 years in direct response to a widespread growth of anti-vaccination sentiment within the English public (Wolfe and Sharpe, 2002).

Joining in the voices that questioned the safety and efficacy of vaccination at that time was that of Alfred Russel Wallace, the co-discoverer of the principle of natural selection (independent though simultaneous with Charles Darwin) (Weber, 2010). Due to Wallace's prestige within the community, his views carried weight in the public debate, and Wallace made his views widely known through a series of articles that severely criticized vaccination (Weber, 2010). Through this, Wallace came to intimately influence the English social debate regarding public vaccination. Interestingly, like Still, Wallace was an ardent Spiritualist, and Wallace is reported to have been Still's "favourite biologist" (Deason, 1934, p.24). Although no evidence was found to support this conjecture, it is not unthinkable that Wallace's writings regarding vaccination could have reached Still in America, and thereby reinforced Still's pre-existing views on the matter.

When Edward Jenner first innovated the practice of vaccination he did not provide a theory as to how or why it worked (Silverstein, 2009). Still specifically criticized Jenner for this, and used the lack of a theoretical foundation explaining vaccination as another argument against its trustworthiness (1902e). Still in fact came to develop his *own* theory explaining the mechanism through which vaccination creates immunity. Still even claimed that his theory was informed by a principle that was generalizable to *all* infectious diseases. It was through this principle that Still eventually came to promote what he believed to be a safer alternative to vaccination.

3.2.4. STILL'S THEORY AND PRACTICE OF VACCINATION FOR INFECTIOUS DISEASE

3.2.4.1. EXISTING MEDICAL THEORY

I do not wish in the least to antagonize the efforts of Jenner. I believe that they were good, but I do think that more effective and less dangerous substances can be used than the putrid compounds of variola [smallpox]. I also believe that the philosophy that I present, can and will be found just as protective against measles, diphtheria, scarlet fever, leprosy, and syphilis as against smallpox, and other infectious contagions. This is the twentieth century, our school was created to improve on past methods and theories; let us keep step with the music of progress. I feel certain that the time is close at hand when compulsory vaccination will not be necessary, for a better method, one that will do the work and leave no bad effects as is the case in vaccination with the cow, horse or other animal poisons, has been found. The dread of disease and death that follow vaccination, causes people to hesitate in having vaccine matter put into their own or their children by military force. (Still, 1902e, p.70)

As discussed earlier, Still came to accept his mother's theory regarding how the cantharidin blistering of his early life had provided him with his later immunity to both smallpox vaccination and the direct exposure. Based on his interpretation of these events, Still sought to identify an underlying principle that would explain how cantharidin could produce such effects. Still stated that: "*My theory is, that the first active occupant of the body by an infectious fever will drive off others and hold possessions of the body until its power is spent and the excretory system has renovated the body*" (1902e, p.69).

Within this statement Still is simply reciting a long-standing orthodox medical theory that continued to be commonly accepted at that time - this being the concept that

no two different infectious diseases can occupy the same individual at the same time
(Silverstein, personal communication, December 2, 2018).

The essential details of Still's particular version of this concept are that when a patient comes into contact with an initial infectious agent, he describes the patient as being "possessed" or 'occupied' by it (Still, 1902f). If the patient is then exposed to a subsequent second infectious agent, the first agent already has "possession" of the internal territory of the patient, and thus will 'drive off' the newcomer – thus preventing the newcomer from entering and taking hold. Still had concluded that once a first infectious agent establishes itself in the patient, it thereafter will "hold the fort", and defend its home against any subsequent intruder (Still, 1902f, p.274). Still referred to this principle as the "law of possession" (1902f, p.287), and believed that it acted as the mechanism through which both cowpox and cantharidin-blistering were able to make one immune to smallpox:

My philosophy is that the possession of the human body by an infectious germ, can only immune by germicidal possession. Thus we are immune by vaccination or any other infectious substance, whilst it is in possession of and effecting the machinery of human vitality, and no longer. (1902e, p.69)

Jenner did put "rot" into his patients to keep the "rot" of smallpox out, so you see there was a fight for possession between the two great "rots" and the cow-rot is supposed to have hooked off the smallpox rot. That is all the immunity there was about cow-pock holding free from smallpox. (1902e, p.70)

Based on this theoretical framework, Still created a practical application involving cantharidin-blistering, a substance that Still considered a “safe and better substitute” compared to cowpox material (Still, 1902f, p.278). Still remarked: “I think Jenner was right in his object, but he made a bad choice of germifuge [germicide, or dis-infectant] to ward off infections” (1902f, p.277).

A modern reader may question why Still thought cantharidin, a caustic compound derived from beetles, should be categorized the same as the smallpox virus – Still refers to both in his writings as “infections” (Silverstein, personal communication, December 2, 2018). Yet this seemingly bizarre correlation by Still is clearly exactly how he did organize this theoretical model, as evidenced by his statements: “Both [smallpox and cantharidin blistering] are diseases caused by infection” (1901d, p.3). Elsewhere Still also describes the effects of cantharidin as: “an infectious and innocent fever” (1902f, p.287).

To clearly comprehend the reasoning that led Still to this categorization of both cantharidin and smallpox as “infections”, two historical contexts must first be taken into account. Firstly, a modern reader must understand the accepted medical theories of the mid-1800s that define *what* an infectious or contagious disease is - including how these ‘infectious’ diseases were propagated and transmitted to other individuals (as will be addressed below in SECTION 3.3 A.T. STILL’S CONCEPTION OF DISEASE), and secondly, a modern reader must understand the meaning Still derived from the similarity of symptoms present during smallpox infection and cantharidin-blistering, as will be discussed below.

3.2.4.2. THEORIES OF SIMILAR AND OPPOSITE

In a January 1901 article in the *Journal of Osteopathy*, Still contrasted the effects of smallpox infection versus an application of cantharidin to the skin (1901d). In this text

Still recites the progressive stages of each case, listing their signs and symptoms as they progressively intensify. In both cases Still found the two conditions to be identical - "from [initial] contact to recovery or death" - especially in regards to their effect on the patient's skin ("reddening, blistering, eating into the skin"), as well as other general symptoms ("high fever, backache, suppression or stoppage of urine, unconsciousness, convulsions and death") (1901d, p.3).

Through this comparison, Still was clarifying for his readers that his reasoning for using cantharidin as a treatment for smallpox is that both situations *produce the very same set of symptoms*. This principle of "similia similibus curantur" or "like cures like" is the central principle of Homeopathy, the unorthodox medical theory founded by the German physician Dr. Samuel Hahnemann. Though it should be noted that the concept of *like cures like* "long predated" Hahnemann himself (Gevitz, 2013, p.606, 626).

It is quite likely that Still read the works of Hahnemann (1755-1843) or was at least familiar with this central Homeopathic concept of '*like cures like*'. Homeopathic medical practitioners were common in Still's time and place (Gevitz, 2013), and Still himself stated that in the course of his medical practice: "First, I tried the virtue of drugs, as taught and administered by Allopathy, then noticed closely the effect from the schools of Eclecticism and Homeopathy" (1897d, p.314-5).

Homeopathy long pre-dated Still's development of "Osteopathy", though the development of the two unorthodox medical traditions do share some similarities. Both Homeopathy and Osteopathy were developed by formerly "orthodox" MDs, who then abandoned and deviated from the dominant medical "orthodoxy" (Gevitz, 1988).

Perhaps it was Hahnemann whom Still was referring to when he stated: “Our oldest and youngest authors all talk much about smallpox. They talk in Latin, Greek, Hebrew, Sanskrit, *German*... [emphasis added]” (1902f, p.278). Hahnemann had indeed published an interpretation of the action by which Jenner’s vaccination procedure worked, concluding that this too was an instance of ‘*like cures like*’ (Gevitz, 2013).

In any case, Still’s own assessment was exact the same – he felt that cantharidin could be used to prevent smallpox because the effects induced by the one so closely mirrored the other. By espousing this position, Still is clearly giving credence to Hahnemann’s Homeopathic principle (Hartmann, 2004). As displayed in earlier quotations, when Still interpreted the action behind Jenner’s procedure of using cowpox to prevent smallpox, Still also understood this as an instance of ‘*like cures like*’, or as Still stated it: “Jenner did put “rot” into his patients to keep the “rot” of smallpox out” (1902e, p.70).

Hahnemann coined two opposing terms based upon the *like cures like*’ principle: Homeopathy (*homo* meaning “same”, as in ‘like’) and Allopathy (*allo* meaning “opposite”) (Gevitz, 2013). The term ‘allopathic’ therefore denoted a medical philosophy wherein the intervention consists of the *opposite* of the presenting condition (ie: a cooling intervention is used to treat a warm condition, or an anti-inflammatory to treat inflammation), whereas Hahnemann’s ‘homeopathic’ approach operated on using the *same*, therefore: “...if a medicine caused a symptom in a healthy person, it would cure that symptom in a sick one” (Schroeder-Lein, 2008 p.8).

Thus it should be understood that the term “allopathic” was nomenclature given to the medical orthodoxy by an unorthodox physician; it was derogatory (Gevitz, 2013). It is a term that Still frequently employed in his writings.

In an unpublished, undated paper titled *Poisons and Antidotes*, Still again discussed the dynamics between cantharidin and smallpox, this time directly acknowledging the existence and validity of the **allopathic** principle of *opposites*:

For ages man has [xx: fough] labured [sic] to Stop the Effects of one poison by [xx: by] the [sp: antagonizing qualities] of some other poisonos [sic] substances. On that [sp: philosophy] much of the [sp: therapeutics] and practice of the medical world has stood and does so stand to day. Say If [sic] a person should be poisoned by an acid the remedy would be antiacids [sic]. Stimulating poisons were met with sedatives ...

Then if that [sp: philosophy] has passed from theory to the degree of proven truths by experience, than the gate is open and practical land marks are before us in open view, and lead us to view [sp: smallpox] as [xx: an] a foreign body [xx: thi] of poison that found its way into the body and should be met by [sp: antidotes] of greater energy. by [sp: insertion] or absorption or any method that would bring the two poisons together and turn their attention from injury to the body to that of [sp: antagonizing] each other. Thus the hope that [sp: cantharidin] would enter and destroy [sp: smallpox] in fetal life, by its superior energy. (Still, n.d.-d, p.1-2)

Despite Still's harsh and frequent criticism of other medical models, it appears that in these instances Still nevertheless used their foundational premises to inform his own theoretical system.

3.2.4.3. DISCUSSION

In summary, it would seem that from Still's assessment, topically applied cantharidin was far less dangerous than smallpox vaccination, and its effects were far easier to control (through the prescription of measured doses), thus Still deemed cantharidin to be a pragmatically useful and much preferable improvement on Jenner's vaccination protocol. A further in-depth discussion of the implications of Still's use of cantharidin can be found in APPENDIX E: CANTHARIDIN: IMPLICATIONS AND APPLICATIONS.

For the modern reader, it is crucial to note that *it is Still's own particular historical context in which a modern reader must place Still's general opinions regarding vaccination*. Still's opinions apply only to his own time and place with its historical vaccination practices. It would be supremely ignorant to take Still's statements regarding the vaccination practices of his era and then apply them wholesale to today's vaccination procedures. Though both historical and modern vaccination practices carry the same name, these protocols are *not* accurately comparable: today's vaccinations are practiced in an aseptic environment and do not involve the transfer of bodily fluids from one patient to another in a long chain.

It is clear that whatever conclusion a modern reader may arrive at regarding the risks-versus-benefits of today's vaccinations, Still's stance regarding historical vaccination should not be used as a means of informing conclusions regarding modern procedures.

3.3. A.T. STILL'S CONCEPTION OF DISEASE

3.3.1. DISEASE: THE OTHER HALF OF THE EQUATION

When today's reader encounters Still's many discussions regarding infectious disease it is easy to assume his statements such as: "healthy blood, the greatest known germicide" (1899b, p.15), and: "it may be a germ that irritates the pneumogastric nerve" (1899b, p.90), are direct references to the microorganisms of today's '*germ theory*'. Yet while conducting this research, this exact assumption was explicitly cautioned against by several medical historians (King, 1983; Hannaway, 2013; Pelling, 2013).

Lester King, MD, in the article *Germ Theory and Its Influence*, which details the history of germ theory in the United States, states that during Still's time and place, the term 'germ' would have implied: "something primordial or rudimentary, out of which something mature will develop" (1983, p.794). King also makes it clear that 'germ' was a term used in many different contexts at that time – for example it was a term common also to both agriculture and brewing practices. Thus a 'germ' could refer to the origin of a brew, or a plant, just as much a disease.

The medical historians Margaret Pelling (2013) and Caroline Hannaway (2013) also caution readers that a modern definition of the word 'germ' should not be transferred to historical texts. Both authors illustrate that there is *not* a direct line between the medical concepts that preceded the bacterial revolution and those that came after it.

Thus, confusingly enough, it must understood that the word 'germ' was in constant use before, during and after Still's era - yet this same word held dramatically different definitions, depending on the time and place it was used.

Another confusion along these same lines can occur when a modern reader encounters much of Still's writings in general, wherein Still gives seemingly familiar words unfamiliar meanings. Take for example Still's statement:

Would we be safe in saying that all diseases of climate and seasons with contagions are the results of local causes? When we meet fever have we not found a condition with cause in *fermentation* of fluids ... because of contact with atmospheric air? [emphasis added] (1900b, p.515)

Or as another example, in a section from the end of Still's *Philosophy of Osteopathy*, a crucial synthesis of his entire osteopathic theory of health and disease is provided wherein he summarises that: "...nature has provided to ward off diseases, by washing out before *fermentation* should set up" [emphasis added] (1899b, p.136). For a modern reader such statements are obtuse and perplexing. What exactly does Still mean when he says "fermentation"?

Yet Still's intended his writings to have clarity. He declared: "I use simple English. I say bone, brain or buttermilk, and try to use such plain terms that any intelligent person will know what I mean. I want to be understood" (1910, p.168). Also: "I have used simple, plain language so that those of the laity who desire to read my book will understand it" (1910, p.13). Still attempted to write for the common man, therefore he used accessible terminology. Thus Still's frequent use of the term "fermentation", and his discussions of the effects of "atmospheric air" which cause "diseases of season and climate", were common at that time. It is only to a modern reader that they may seem esoteric. That this is the case can be demonstrated by investigating the orthodox medical theories that were accepted during Still's early life. Doing so in the sections below will also serve to clarify Still's message for the modern reader.

A professor at the American School of Osteopathy during Still's final years, M.A. Lane, wrote a book regarding "Still's conception of immunity" (Lane, 1918, p.23), in which Lane described how Still's osteopathic model of health and disease "did not fall out of the sky like a meteor, but came about in the natural evolution of things" (1918, p.115-6). As will be demonstrated within the current research, the truth of the matter is that Still was *independent* - meaning that Still came to his *own* conclusions after thorough, personal consideration - but that it would be completely inaccurate to conclude that Still *independently self-generated* his theories. Still's work and thought did not emerge in isolation from the culture of his time and place. In many ways Still's model of health and disease can be demonstrated as being in total alignment with the conventional medical theories from his early life as an orthodox physician.

The above is all to say that if one wishes to accurately understand Still's conclusions, which frequently employ historical medical concepts as their basis, a modern reader must first become familiar with these historical terms and understand the concepts they imply. It is thus hoped that this research will avoid the mistake that Still's respected early student Carl McConnel, DO, pointed out to his colleagues, telling them to "realize that it was through medical knowledge already existing that osteopathy was developed" (McConnell, 1901, p.9). As stated by Still's acclaimed modern biographer, Carol Trowbridge: "Still's story can be best understood by placing him in the world of his times" (1991, p.xiv).

This will be presented first by contrasting Still's conception of immunity against its opposite, the other half of the equation: Still's conception of **disease**, i.e.: *that which*

immunity seeks to restore to normality. By doing so, an outline of Still's conception of immunity will begin to emerge.

3.3.2. "CONTAGION"

Margaret Pelling, a medical historian at the University of Oxford, reveals in the essay *Contagion/ Germ Theory/ Specificity* that "*fermentation* was a traditional point of reference for explaining the 'extension of influence' - or 'multiplication' - which seemed to characterize infectious disease" [emphasis added] (2013, p.324). Pelling goes on to describe that within historical medical philosophy an analogy can be commonly found, wherein "rot" is seen to spread from an initial location on a single piece of fruit outwards to encompass first that entire piece of fruit and then to spread to all the neighbouring pieces that are in direct contact - this being the so called 'bad apple' phenomenon if you will. Pelling relates that this analogy was commonly used within Still's era as a means to describe the process by which contagious diseases spread within and between human individuals. It is clear that Still was exposed to and integrated this medical concept. Still wrote that:

We will commence our method of reasoning by setting out with an apple that falls to the ground from its mother tree, and receives a bruise which destroys the healthy condition of a small spot on the surface by that concussion, which soon proceeds to a destructive condition known as fermentation, or rot, and continues to the destruction of the whole apple, which dies undoubtedly from the diffusion of its own dead blood. It is evident to any observer that in the fall the apple received a deadly wound, that an inflammatory action followed and the fever or fermentation became general, and the apple died because of diffusion of deadly fluids to all parts of the body of the apple, even to death. You see that from the first small bruise it was natural with the apple and its qualities, when this

chemical laboratory was put in motion by the active laws of fermentation, to go on and on to the destruction of the last vital drop of fluid. (1902f, p.92)

Following this line of thought regarding pathological “fermentation”, Still asked his readers: “As a little leaven leaveneth the whole loaf, would not a little diseased blood disease the whole viscera?” (1902f, p.253).

It is important to understand that at that time the contrasting of the process of “rotting” in fruit and infectious disease spreading through a human body was not merely a convenient means of comparison, but rather, as Pelling explains: “...these analogies were not irrelevant to, but were part of, the argument” (2013, p.310). This is to say that in the above block quotation, Still is not proposing that the “fermentation” within a human body is *similar* to the process of rotting in an apple, rather Still is attempting to demonstrate that the two are the very *same* process – Still is citing what to him are two separate instances of the exact same phenomenon.

This idea of “rot” spreading via *contact* is the origin of the word “contagion”, i.e.: a disease “spread only by contact” (King, 1983, p.794). Originally a “contagion” was literally a ‘*contact-ion*’. Pelling also defines how: “contagion described an event in which an influence was ‘increased’ in some way” [emphasis added] (2013, p.310). This means that in Still’s era, when a disease was referred to as “contagious” it meant that the disease was conceived of as a form of “spreading internal rot, that it came from an external rot, and that it could be *transferred* to others” [emphasis added] (Hamelin, 1983, p.386).

It is *this* definition of “rot” which Still employed when referring to Jenner’s vaccine material as “rot” (1902e, p.70). Given that the vaccine material was diseased

tissue, it was understood as being in the process of 'decomposition': it was *literally* rotting (see SECTION 3.2.4.1 EXISTING MEDICAL THEORY for the original discussion of Still's reference to Jenner).

Of course in other instances of disease, the infection was observed to transfer from patient to patient without direct *contact*, or was **not** spread *despite* direct contact - thus a further theory was necessary to also explain this. The content of this additional theory remained shockingly consistent over millennia, from ancient Greece right into Still's own time and place.

3.3.3. MIASMATIC THEORY



Figure: 6. It is a bad day when 'Miasma' comes to town (Seymour, 1831).

While speculating about scarlet fever Still wrote:

It may be contagious but I think it more likely that it is the result of a poisonous gas which arises from the decomposition of fecal and other vegetable matter in places where drainage is imperfect (such as stables, privies and pools of water that are close to the dwelling), and which is

being inhaled by children who have had no chance to become infected by contact with other children who have the disease. (1910, p.474)

In the above, Still is describing word-for-word the ancient theory of '*miasma*'. In these cases disease was believed to be caused and transmitted via invisible poisonous gases that originated from specific environmental conditions. In the essay *Environment and Miasmata*, the medical historian Hannaway describes how the word "miasma" originated in ancient Greece, where the term originally implied: "related to pollution or [a] polluting agent" (2013, p.296). Within Western culture the *miasmatic* theory of disease was in place from that ancient era onwards. Even in Still's America miasmatic theory remained a foundational orthodox medical tenant until at least the 1870s (Hannaway, 2013).

Hannaway describes that the theoretical *sources* of miasmata remained shockingly consistent throughout the huge timespan and various cultures in which the theory was utilized. Poisonous miasmas were held to arise from any source that generated disgusting smells, a "putrefaction of the air" (Hannaway, 2013, p.297; see also Curtis, 2007). This again, also invokes the previous concept of "rot".

Thus miasma was held to be produced by "stagnant marshes and pools, vapours from a variety of sources including corpses of humans and animals, sick persons, excreta, spoiled foodstuffs, decaying vegetable matter, and exhalations that came from the ground through ruptures or clefts" (Hannaway, 2013, p.297). Contrast Hannaway's above list with the potential sources of scarlet fever as described by Still: "poisonous gas which arises from the decomposition of fecal and other vegetable matter in places where drainage is imperfect (such as stables, privies and pools of water that are close to the

dwelling)” (1910, p.474). Still furthermore describes one potential source of diarrhea as: “poisonous gases rising from the earth, ground or swamps at a season when days are hot, nights are cold or there is much dampness” (1910, p.211). It is clear that although Still never explicitly employed the term “miasma” within his writings, he was a strong adherent of miasmatic medical theory.

One of Still's experiences during the Civil war strongly impressed upon him the accuracy of miasmatic theory:

Since 1861 I have known for a certainty that human beings cannot breathe the gases that are thrown off from decaying animals without going through the process of dysentery followed by a fever which is the effort of Nature to deliver the body from poisonous substances generated by inhaling such gases. This I well know because in 1861 when in the army the regiment I was in camped in a field where fifteen or twenty horses had been killed some five or six days previously in the hot September weather. Now while there was not the least perceptible breeze in motion I could feel waves of this invisible subtle gas pass over my face and I drew the attention of the doctors to the fact asking if they could feel this wave passing over their faces while they were lying on the ground during the night. They said they not only felt the wave but noticed a peculiar sweetish odor which came from those horses. These horses were bloated as tight as the hides could hold. About three days later fully one-third of the regiment fell sick with dysentery followed by fever. (1910, p.486)

Given that miasmata only arose from specifically *foul-smelling* sources, the appropriate intervention was obvious - clean up anything that could possibly produce these poisonous gases. This sentiment was carried into cultural action by the “Sanitary reform movement”, wherein social forces wove together the miasmatic theory of disease

with revisions to societal hygiene, politics and morality (Pelling, 2013). This social application of miasmatic theory meant that cholera epidemics were mitigated by public enforcement of hygienic sewage disposal. Furthermore, malaria was successfully combated via the draining of nearby swamps known to be foul-smelling due to the watery fermentation of dead plant matter (Pelling, 2013; Schroeder-Lein, 2008). The results of these sanitary interventions ‘proved’ to society at large that the miasmatic theory was correct; cause and effect were seemingly observed (Schroeder-Lein, 2008). Even today the echoes of miasmatic theory remain: the term malaria means “bad-air”, literally, “mal-aria” (King, 1983, p.794).

Environment was also linked with disease in other ways. For instance, each specific direction of the wind was held to contain a particular influence, as were “climatic changes related to changing seasons, and special meteorological events” (Hannaway, 2013, p.293). Each influence of weather was attributed specific qualities that were thereby seen as being capable of producing associated “diseases of climate and season” – these are the theories to which Still repeatedly refers (ex: 1900b, p.515).

Still often incorporated the concept of weather and climate influences into his ‘new’ osteopathic medical framework. For example, Still wrote: “Scarlet fever, as defined by osteopathy, is a disease generally of the early spring and late fall seasons. Generally it comes with cold and damp weather during east winds” (1902f, p.290). In this instance Still’s theoretical framework is totally conventional. Well into the 1800s many European countries funded national research studies that collected statistics seeking to correlate specific weather patterns with the incidence of particular diseases (Hannaway, 2013).

Miasmatic/environmental theory existed concurrently with the previously mentioned theoretical concepts of *contagion* and *germ*. In instances of disease transmission wherein direct contact had not occurred, miasma was held to be the cause. It can then be stated that miasma was the mechanism by which a disease could enter an individual *from their environment* (Hannaway, 2013; King, 1983).

To describe this using the terminology of that era: initially an invisible poisonous gas carrying the *germ* (meaning 'seed') of a particular disease condition was be breathed in by an individual. Then that 'seed' would *germinate* inside the host, grow, and when mature, express itself as a fully-developed disease. At this point the disease was then able to produce additional offspring (i.e.: more 'seeds') that were then carried out of the original host via a respiratory exhalation of poisonous gases –soon to be breathed in by another (King, 1983).

Still's writings regarding infectious diseases include discussions of: "persons whose lungs are throwing off deadly vapors" (1910, p.144), "contagious vapours or seeds" (1902f, p.272), and "fumes or vital ether" (1902, p.272). These are all explicit references to this miasmatic model of disease transmission. Still reasoned inside of a miasmatic framework when asking:

What is the measles? How does it get in and out of the body? Well, it is some kind of poison that comes out of the lungs of another person, who has poison in his system that has gotten strong enough to poison two people. That poisoned air was breathed from No. 1 by No. 2. (1902f, p.288)

Though the miasmatic model fell out of favour during the 'bacteriological revolution' of the late 1870s and 80s, Still steadfastly held to its validity. Still's final

book, written at age 82 in 1910, contains a description of the events regarding the death of his four children many years before. Still cites a miasmatic influence as being the source of this tragedy:

I think death in these cases [“cerebrospinal meningitis”] results from contraction caused by irritation which I think began at the lungs after inhaling poisonous atmosphere from some decomposing substances in the immediate neighbourhood close to the house. This I found to be the case usually. In the case of my own family I found floating on top of the water in our well the bones and feathers of a dead hen the flesh of which had decomposed and been taken up by the water and drunk by the family. (1910, p.345)

3.3.3.1. MODERN MIASMA

It is peripheral to this research as a whole, but perhaps interesting to note that certain aspects of the miasmatic gas-theory are finding validation within modern scientific findings. A diagnostic phenomenon has now been verified in Parkinson's disease: a woman has demonstrated the ability to accurately identify individuals afflicted with Parkinson's by their body-odor alone, well before technological diagnostic testing is able to find any presense of the disease condition (CBC, 2019; Trivedi et al., 2019). In Japanese medical culture, the altered body-odor that in cancer patients is referred to as “byoshu” (Kusuhara, Urakami, Zangiacomi, Hoshino, 2010). Specially trained dogs are also being utilized to identify altered body-odor as a means of safely and accurately diagnosing a variety of conditions such as epilepsy, hypoglycemia and a variety of cancers, amongst other conditions (Moser & McCulloch, 2010; Wells, 2012).

3.3.4. "FERMENTATION"

As noted earlier, in the traditional 'environmental-miasmatic' medical model, whether disease was transmitted by poisonous gases, or through direct contact, the resulting disease was understood as being a form of "rot". The process of "rotting" was a type of *decomposition* driven by the process of "*fermentation*". Within Still's writings, this term, 'fermentation', plays a central role. Except within Still's *Autobiography* (1897a, 1908c), the words "ferment" or "fermentation" are found with increasing frequency throughout his books:

- *Philosophy of Osteopathy* (1899b) : **11 times**
- *Philosophy and Mechanical Principles of Osteopathy* (1902f): **41 times**
- *Osteopathy Research and Practice* (1910): **58 times**

Tracking the same upward trajectory are instances wherein Still used the words "decompose" and "decomposition":

- *Philosophy of Osteopathy* (1899b): **7 times**
- *Philosophy and Mechanical Principles of Osteopathy* (1902f): **13 times**
- *Osteopathy Research and Practice* (1910): **32 times**

Like *miasma*, the concept of "*fermentation*" is ancient, and was held by a huge diversity of cultures. As the immunologist and science historian Arthur Silverstein notes within his *History of Immunology*, the concept of "fermentation" is intimately related to *humoral* theory (2009). The same as miasmatic theory, the humoral model originated within ancient Greek culture. The four 'humors' were held to be distinct bodily fluids, the

state and balances of which were understood to be the determining factor producing states of either health or disease. This model was further developed and carried forward by the iconic physician Galen (129-210 AD) whose writings dominated Western medical thought well into Still's time and place (Silverstein, 2009). As Still grew up he personally experienced conventional medical practices based on Galenic humoralism, such as therapeutic 'bleeding' (Still, 1901d).

Humoralism held that when "fermentation" of the bodily fluids occurred, disease came into being. "Fermentation" itself was generated via contact with a contagion, or the inhalation of a miasmatic gas. Similar concepts and terminology can also be found in the ancient Chinese and Arab medical traditions - most commonly in relation to smallpox (Silverstein, 2009). In the case of smallpox, an invisible "germ" or 'seed of disease' was held to initiate a "ferment" of the bodily fluids, especially the blood, thereby producing toxic by-products that had to be brought from the interior of the body up towards the surface for excretion - thus the production of the characteristic skin lesions of smallpox (Silverstein, 2009). When Still wrote about smallpox, he described this very same process (Still, 1910, p.449-450). Still described how this transport of internal toxins to the surface is an adaptive strategy acted out by the patient, "in order to make openings to pass out the dead matter" (Still, 1899c, p.67).

The central role that 'fermentation' played within Still's conception of immunity is further discussed below.

3.3.5. VITALISM

Like most people in the early and mid 1800s, Still's worldview was vitalistic. Scientific history Timothy Lenoir, in his book *The Strategy of Life: Teleology and Mechanics in Nineteenth Century German Biology*, defines vitalism as a worldview that

assumes “some form or other of the existence of an agent which actively selects and arranges matter in the organism” (1982, p.9). Still echoed the above definition perfectly within his last book:

At the end of all his philosophical labors the philosopher concludes that life is a substance and superior to the sum total of the elements of the whole universe. ... life plans, specifies, prepares, constructs the world and its inhabitants, vegetable, mineral and animal and brings them under the control of all elements of motion necessary for their preparation and construction.

Thus the philosopher reasons that the universe is governed by the attributes of the substance known as life. (1910, p.510)

Lenoir continues the above definition of vitalism by stating that: “Some vitalist approaches assume furthermore that this agent, which may be a rational soul, can exist separately from matter and that the organism is in a healthy, functional state so long as the vital agent remains in control” (1982, p.9). This additional perspective was clearly also an important part of Still's worldview, as evidenced by Still's statements such as: “Life in man is itself a man and the body is the empire he controls. The region of the heart is his headquarters where orders affecting the whole living government, man's body, are given and received” (1910, p.513-4). Or towards the end of Still's life when he had concluded that:

I have listened to the theologian. He theorizes and stops. I have listened to the materialist. He philosophizes and fails. I have beheld the phenomena given through the spiritualist medium. His exhibits have been solace and comfort to my soul. (Still as quoted in Bennett & Bush, 1903, p.4-5).

The living man is what we want. We want to know the living substance that contains mentality, the power of reason. We want to inform ourselves on that before we take hold of a man that has an enlarged liver, because on the inner man depends the results. In that human body is a being, the custodian of your life, your welfare and your success, and your only friend. The spirit is the man, the inner man of whom I am talking. (Still, n.d.-a, p.5)

As the above quotation makes especially clear, Still's vitalistic worldview was central to his conception of health and disease, and thus it formed the essence of his unorthodox medical practice. Vitalism is also a key factor in the current discussion regarding Still's concepts of transmissible disease, for as the medical historian Margaret Pelling emphasizes: "...contagion and infection are intimately bound up with basic concepts of matter and purpose in the natural world" (2013, p.310).

For example, the traditional vitalistic conception of a divide between what is classified as 'living' (matter animated by an organizing life-force), and 'non-living' (matter unoccupied by an organizing and animating life-force) can be found within Still's description of smallpox:

...we would say that smallpox is the effect of *living matter* that permeates all systems in which it may dwell, and consumes to partial or complete destruction. The same law is true with other contagious substances. They are materials reduced to the degree of living fineness [smallness]. They proceed to take possession of the human body and inflict their wounds and cause disease and death. These are effects—not of *dead matter*, but of *living matter*, that seeks to leave and destroys organic bodies by subsisting on the substances that should sustain the life of man. Thus one dies of starvation and a new creature lives, takes his flight in search of

nourishment, and keeps up a perpetual journeying as one of the finest [smallest] principles and efforts of Nature, which is matter refined to the condition known as life. [italics added] (1902f, p.257)

In this section of text, Still is describing smallpox as being composed of *intent* embedded within the smallest possible scale of physicality - thus his description of it as “matter refined to the condition known as life”.

Still was born into a cultural context that held a vitalistic worldview, and vitalism remained the accepted cultural narrative inside American society for at least the first 50 years of Still's life (Brock, 2013).

It is thus unsurprising that Still perceived a vitalistic force as the determining factor in recovery from disease. In fact Still held that it was also what underlay the process of growth and development. Still described a **healthy** form of “fermentation” whereby: “...the animal ferment manifests itself by vital action, as when an egg is kept up to the temperature of ninety-eight degrees or above; the vital fermentation proceeds and the result is that it produces a living chicken” (1910, p.146).

This is to say that, in part informed by the Galenic model of humoralism, and in part by the alternative medical theory of ‘magnetic healing’ (Gevitz, 2013), Still held that bodily *fluids* were the mechanism by which the vitalistic life-force acted out its organizational intent. Take for example Still's definition of Osteopathy which stated that: “This philosophy knows no life or death except through the motion of the blood and the inaction of that fluid, which contains life while in motion and death as the effect of motion ceasing” (Still, 1902f, p.78). Furthermore, Still held that the various *fluids*

themselves were vitalistically alive: "...stagnation of fluid is followed by fermentation, inflammation and death both to the fluid and the part" (1910, p.480-1).

This concept is most clearly illustrated when Still spent an entire article describing to his readers how breast milk remains alive while warm, and as it cools it dies. Thus 'dead' milk must first be "reatomized, and take on life anew" inside an infant's digestive tract before the milk may be utilized as a building block for bodily growth and repair (Still as reprinted in Schnucker, 1991, p.116). Still vitalistically reasoned that a living body cannot be built out of 'dead' fluids.

Still's osteopathic medical model also held pathological "fermentation" could only occur when the "living fluid" (1910, p.89) had first experienced a loss or cessation of motion:

Fluids delayed in the blood-vessels, lymphatics, and excretories ferment ... It is reasonable to suppose that before fermentation sets up its action it must have something to act upon, and, as it acts only on stagnant blood, it must find this stagnant deposit either in the veins, arteries, lymphatics, or cellular tissues [ie: chamber-like spaces] of the organs, vessels, and other places for its temporary sojourn. (1902f, p.238)

3.3.6. LIEBIG AND THE SHIFTING BORDER BETWEEN THE REALMS OF THE 'LIVING' AND 'NON-LIVING'

This vitalistic concept of a divide between 'alive' and 'dead', or 'living' and 'non-living' substances was a focal point of orthodox scientific inquiry during the early and mid-1800s (Pelling, 2013). It was an accepted fact that the 'organic' and 'inorganic' worlds were of two fundamentally different natures (Pelling, 2013).

Yet in the middle of that century European chemists began for the very first time to produce 'organic' compounds (such as uric acid) in laboratories through purely

chemical processes (Pelling, 2013). This therefore was a direct challenge to the vitalistic model, for it was now provable that synthetic processes could produce what had formerly been held to be 'living' substances (Pelling, 2013).

A trailblazer in this line of inquiry was "the magnate of organic chemistry, Justus Liebig" (1803-1873), a German scientist whose body of work played a key role in eventually shifting the international paradigm away from vitalism (Lenoir, 1982, p.15). Liebig authored the hugely influential books *Organic Chemistry In Its Applications to Agriculture and Physiology* (1840) and *Animal Chemistry or Organic Chemistry In Its Application to Physiology and Pathology* (1842). Both were translated into English at upon initial release. Liebig's work is now understood to have acted as a bridge between the pre-existent vitalistic model of *life*, and the emerging materialistic model (Pelling, 2013).

A 'materialist' viewpoint holds that the totality of reality is composed of 'matter': neither 'living' nor 'dead', simply 'matter'. This is to say that the existence of any 'non-material' forces is totally refuted within this paradigm. During the mid-to-late 1800s, a revolutionary era of cultural transition took place. Influential chemists such as Liebig began to interpret *life* as being a series of spontaneous chemical reactions that then led to spontaneous reorganization, rather than the the actions of a vitalistic 'life-force' that directed these events.

As the older vitalistic paradigm lost acceptance and the newer materialistic model gained wider cultural prominence, a transitory period existed during which the two worldviews not only co-existed, but were integrated into a single vision – *this was Still's era*.

Liebig himself did not completely discredit the presence of a vitalistic element within life, yet his experiments served to *reduce the domain* within which the vital life-force was perceived to be in action. Thus many functions that had been formerly ascribed to the vital-force were now interpreted as instances of materialistic “chemical action” (Liebig, 1842, p.54).

This cultural period wherein traditional vitalism was ‘mixed’ with emergent materialism is the perspective that saturates Still’s writings as will be demonstrated below. It should be understood that Still’s writings are both intensely vitalistic, as well as being thoroughly ‘bio-chemical’ in their conception of the *mechanisms* of life. Still frequently described the body as a “chemical laboratory” - yet his model also held that the body is a “chemical laboratory” directed by an unknowable, divine life-force (Still, 1902f, p.71).

It seems likely that Still either directly read Liebig’s works or was exposed to their perspective through the variety of highly educated and personally influential individuals which Still encountered during his early and mid-life, as is discussed below.

3.3.6.1. A “CONTAGIOUS MOLECULAR ACTION”

At the core of Liebig’s inquiries were the processes of *fermentation*, *decomposition* and *decay*. Liebig wanted to determine whether these processes were the ‘living’ or ‘non-living’. Through this inquiry Liebig sought to understand how it was that these influences could multiply and spread themselves through time and space. This included a specific focus on infectious diseases. Liebig felt that the results of his work demonstrated that infectious diseases were not only *similar* to the chemical fermentation of sugars etc., but that infectious diseases were in actuality simply a specific instance *of* chemical fermentation - meaning that the “fermentation” present during an infectious

diseases was demonstrably a 'non-living' chemical reaction rather than the action of an invisible 'living' force (Liebig, 1840, p.350-1).

Essentially, Liebig's new theory was a revised *bio-chemical* version of the historical 'spreading rot' theory of *contagion* (Pelling, 2013). In exact agreement with the theories presented by Still, Liebig concludes that:

An animal substance in the act of decomposition, or a substance generated from the component parts of a living body by disease, communicates its own condition to all parts of the system capable of entering into the same state, if no cause exist in these parts by which the change is counteracted or destroyed. ...[thus producing] a connected series of changes and transformations, in which it causes all substances capable of similar changes to participate. ...in the same manner, miasms and certain contagious matter produce diseases in the human organism, by communicating the state of decomposition (1840, p.364-5)

In Still's own discussion of infectious disease he mentions the "chemical action called fermentation" (Still, 1910, p.502), elsewhere asking: "What is the condition of the lymph and other fluids when they have gone through the process of fermentation from sugar to acids?" (1910, p.167-8). Still's interpretation is clearly in line with Liebig's work. Liebig writes on this same topic:

...muscle, urine, cheese, cerebral substance, and other matters, in a state of putrefaction, communicate their own state of decomposition to [other] substances... When placed in contact with a solution of sugar, they create its putrefaction, or the transposition of its elements into carbonic acid and alcohol. (1840, p.349-350)

Liebig came to conclude that “fermentation” was a chemical process much the same as combustion. Liebig saw both processes as chemical reactions producing transformation, both processes were capable of perpetuating themselves and spreading to additional locations via direct contact: they were “contagious molecular action” (Pelling, 2013, p.325).

This concept of infectious disease as being a type of combustion, an ‘inflammatory’ chemical reaction, is also mirrored within Still’s own writings. For example, Still described how the resolution of a smallpox infection takes place only when “the fire of the pox has been extinguished by exhaustion of all igniting substances of the body” (1899c, p.67). Or when, again in reference to smallpox, Still asked:

Does it [smallpox] cause the magnetic battery of man to call into the system such gases as ammonia and phosphorus and set them on fire by electricity, exploding the nitrogen that is stored so abundantly in the cellular [chamber-like spaces] system of the body? (1902f, p.270)

Still also saw typhoid fever as a type of errant chemical reaction between hydrogen and oxygen, resulting in an uncontrolled production of water within the patient which was managed by the body via intense perspiration (1910, p.464).

Still and Liebig also share similar terminology. For example, both authors refer to the process by which warm-blooded animals produce warmth using the concept of “animal heat” (ex: Liebig, 1842, p.31; Still, 1899b, p.191). This term implied biological heat-production via internal chemical combustion (Brock, 2013). Still used this concept of literal internal ‘*inflamm*-ation’ as the foundation for many in-depth discussions of the physiology of fever. Still held that the body purposefully created a fever as a means of ‘burning up’ excessive amounts of accumulated waste (ex: 1902f). From Still’s

perspective, during fever the body utilizes internal chemical combustion as an *adaptive strategy* to transport otherwise immobile wastes. As means of explanation, Still employed the analogy of attempting to move a towel through a pipe - if burned, the solid towel is transformed into a gas (i.e.: smoke), so that it may easily be transported through the same narrow tube through which it previously could not pass (1902f, p.112). Still proposed that this was the very same strategy employed by the body during fever – a means of transforming and thus moving lmetabolic or infectious waste products through the body's internal vasculature. This concept is contrasted with the findings of modern biology in SECTION 4.9.4 INFLAMMATION AND LYMPHATICS.

3.3.6.2. THE 'MIXED' ERA

The cultural impact of Liebig's work was to bridge the two realms of the vitalistic worldview, the 'living' and 'non-living' and give them a means of interaction – the 'bio-chemical'. This new 'mixed' theoretical framework was readily accepted by the orthodox medical culture of the mid-1800s as it integrated easily into the pre-existent miasmatic theory of disease (Pelling, 2013). Miasmatic theory focused on the interaction between a 'living' individual and their 'non-living' environment, Liebig's work seemed to enhance the understanding of that interaction (Pelling, 2013).

This cultural moment of 'mixing' between the vitalistic '*humoral-miasmatic-environmental*' medical model and the emergent materialistic '*bio-chemical*' perspective is clearly identifiable within key aspects of Still's writings related to immunity:

The doctor does not have to furnish his patients mind, matter or motion. His work is to keep the body adjusted so it can supply itself with brain and muscle; then mind and motion will appear and keep the laboratory full of the choicest chemicals and free from disease. (1902f, p.255-6)

Trace these connections from the brain to the chemical laboratories, and note the results as they unite and prepare blood and other fluids that are used in the economy of this vital, self-constructing and self-moving wonder known as man, wherein life and matter unite and express their friendly relation one with the other. (Still, 1902f, p.250)

The perspective held by both Still and the wider scientific culture during this 'mixed' era has been summarized as: "Life does not exist independently of the mechanical processes through which it is manifest. But equally important, life is not simply a mechanical process" (Lenoir, 1982, p.171). This statement encapsulates much of Still's worldview, including immune function, as will be demonstrated below.

It is apparent that during this 'mixed' era Still assembled the long-term foundations of his worldview. It would seem that for Still this 'mixed' model remained firmly in place even as he grew old and society at large around him continued to move further and further towards a purely materialistic paradigm.

It was this 'mixed' perspective that provides a modern reader with the clearest context from which to view Still's central focus of inquiry: "the machinery of human vitality" (1910, p.456), wherein Still perceived "...Life as the engineer of the electric machine" (1910, p.192-3), plainly stating that: "I looked upon man as the perfect machine which was run by a force we call life" (1904a, p.289).

3.3.7. DISCUSSION OF STILL'S CONCEPTION OF "INFECTION"

It is important to note that all of the above discussed concepts (*contagion*, *miasma*, *fermentation*) are explanatory theories of the *multiplication of influence* - how it is that an external influence first enters the interior of an individual, and the means by

which that influence then increases with the potential to encompass and transform the entire individual (Pelling, 2013).

The above sections thus finally make it clear why Still saw fit to categorize both the chemical compound cantharidin and the contagious disease smallpox as each being instances of “*infection*” (see SECTION 3.2.4.1 EXISTING MEDICAL THEORY). Still’s model of *infection* includes Liebig’s perspective wherein infectious disease is a type of abnormal chemical reaction spreading within the patient. Given this, it is logical that Still categorizes both smallpox and cantharidin as ‘infections’ – to Still they are both instances of errant chemical reaction.

Another explanation for Still’s grouping of cantharidin and smallpox into the same category can be found by looking to Still’s *Osteopathy Research and Practice*, wherein Still includes a definition of ‘germ’, quoted directly from a standard orthodox medical text of that era:

Definition of Germ.—Rudiment of new being, not yet developed or still adherent to the mother. Spore or living particle which has been detached from already existing living matter. A microorganism. (Dunglison, as quoted in Still, 1918, p.418)

At that moment in history, a definition this broad and indefinite was necessary as the discovery of microorganisms and the subsequent ‘bacteriological revolution’ had only recently given rise to ‘germ theory’. In fact note how Dunglison’s definition is even chronological, beginning with the traditional vitalistic definitions, with the new revolutionary existence of microorganisms ‘tacked-on’ as a final sentence.

This was the era of cultural upheaval as the new ‘germ theory’ replaced the previous ‘*humoral-miasmatic*’ medical model that had stood for centuries. During this

tumultuous process, the pre-existing medical terminology was not discarded, rather it was simply **repeatedly** redefined as new discoveries were made and accompanying novel theories gained cultural prominence.

An example of this, which Silverstein discusses in *History of Immunology*, is the term 'virus' - a word which originally meant simply "causative agent" of *some* type: known or unknown, including witchcraft, poison, or the miasma or slime from which it was held to have been originally emitted (2009, p.9). Thus in the early 1900s, when scientists first discovered an invisible and unknown infectious agent that was observed to be capable of passing through a bacteria-proof membrane, this agent was simply termed a 'virus': meaning - 'a causative agent of *some kind*' (ex: Ward, 1937, p.4). It was only many years later when the terms 'virus' and 'bacteria' were no longer interchangeable, only well into the mid-1900s did the word 'virus' come to imply the definition that it *currently* holds.

Redefinitions of terminology such as this only occurred gradually, and without broad cultural consensus, with contentious groups endorsing differing definitions at the same moment in time (Silverstein, 2009). As stated above by Pelling, all of this served to create a deep confusion as to *which* meaning was actually implied when a particular term was employed. As Pelling describes, at that time: "even 'germ theorists' used the concepts of contagion, infection, and miasma as if they were difficult to distinguish, overlapping, or even interchangeable" (2013, p. 310).

Linguistic evolution in response to a shifting cultural paradigm is also found clearly demonstrated within Still's writings, particularly within the various meanings he attributed to the word 'germ', as will be discussed below.

3.3.8. STILL AND THE TRADITIONAL 'GERM' THEORY OF DISEASE (CORN ANALOGY)

3.3.8.1. "SEEDS OF DISEASE"

Pelling notes that historically, the term 'germ' had "to do with generation, growth, and differentiation" of all types, thus it was a word used in many different contexts (2013, p.314). For example a 'germ' could refer to agricultural seeds or a brewer's starter-yeast. Pelling describes that before the bacteriological revolution, when the term 'germ' was used to refer to an agent of disease:

... 'germs' were by definition *not* fully developed organisms capable of causing disease; instead some process of 'germination' was required, often outside the body, and with it a range of other factors or causes, usually environmental, before disease could result. (2013, p.314)

The medical historian Hannaway also adds that the concept of "seeds of disease carried in the air" goes at least as far back as Varro (127-16 BC) and Galen (129 AD - 200/210 CE) (2013, p.297).

Thus a modern reader should not be surprised to learn that Still's *Philosophy of Osteopathy* also contains a section titled *Seeds of Disease*, discussing this traditional medical concept:

We reason, if corn be planted in moist and warm earth, that action and growth will present the form of a living stalk of corn, which has existed in embryo, and still continues its vital actions as long as the proper conditions prevail, i. e., until the growth and development is completed. ... we are constrained by this method of reasoning to conclude that disease must have a soil in which to plant its seeds before gestation and development. It must have seasonable conditions, the rains of nourishment, also the necessary time required for such processes. All these

laws must be fulfilled to the letter, otherwise a failure is absolute. As the great laboratory of nature is always at work in the human body, the chilling winds and poisonous breaths, with extremes of heat and cold at different seasons of the year by day and night, and the lungs and skin are continually secreting and excreting every minute, hour and day of our lives, is it not reasonable to suppose that we inhale many elements that are floating in the common winds that contain the seeds of some destructive element, to the harmony of fluids that are necessary to sustain the healthy animal forms. (1899b, p.86-7)

Various versions of Still's above 'corn analogy' are included in three of his four books (1899b, p.86-7; 1902f, p.114-5; 1910, p.146-7), being absent only within Still's autobiography (1897a, 1908c). It makes sense that Still, being a corn-farmer in his early life, would then later describe health and disease in terms of a corn-field requiring appropriate conditions to thrive.

Still's central idea contained within the above '*corn analogy*' (i.e.: that the interior of the body is a type of *soil* inside which disease 'seeds' may encounter either suitable or inhospitable conditions) was a core concept within the orthodox medicine of that same era. The idea of an 'interior soil' was a foundational component of the same '*environmental-humoral*' model of health and disease that also emphasized the influence of external factors such as weather and climate (heat and cold, wind) and miasma (poison originating in the external environment that then enters the interior environment) as was discussed in SECTION 3.3.3 MIASMATIC THEORY. Pelling notes that "the history of the concept of contagion cannot be understood without reference to this traditional multifactorial structure of ... causation" (2013, p.311).

Liebig's writings provide a good example of this same 'internal-soil' concept in the mainstream orthodox literature, using much the same terms as are found within Still's writings:

In order to explain the effects of contagious matters [ie: physical 'matter'], a peculiar principle of life has been ascribed to them--a life similar to that possessed by the germ of a seed, which enables it under favourable conditions to develop and multiply itself. It would be impossible to find a more correct figurative representation of these phenomena; it is one which is applicable to contagions, as well as to ferment, to animal and vegetable substances in a state of fermentation, putrefaction, or decay, and even to a piece of decaying wood, which by mere contact with fresh wood, causes the latter to undergo gradually the same change and become decayed and mouldered. (Liebig, 1840, p.352)

Included within the same earlier discussed sections of Still's books relating to "Seeds of Disease" (1899b, p.84-6; 1902f, p.113-5), is Still's additional concept explaining that from earliest infancy each human individual normally carries within themselves a variety of 'seeds'. Each of these particular seeds contains the potential to grow into a **specific** infectious disease. Still presented the idea that these innate internal 'disease seeds' are female and dormant in quality, and are thus are only capable of being awoken through an encounter with the active 'male seed' - which may enter the patient's body from the external environment. Once the duality of these 'male' and 'female' disease seed-elements come together, that is to say *germinate*, then the process of development towards their specific infectious disease is set into motion. Still described this process of literal disease germination and growth as taking place within the "fascia", using the example of a female patient:

In her [the female patient's] fascia there is one seed, if vitalized will develop a being called measles. She never has but one confinement [pregnancy]. That set of nerves that gave support and growth to measles died in the delivery of the child, and never can conceive and produce any more measles. Another seed lives in her fascia waiting to be vitalized by the male principle of smallpox, and when it is born it always kills the nerves that gave it life and form. And the person never can have but one such child or being during life.

Still another seed awaits the coming of the commissary to nourish while it consumes that vitality in the fascia of the glands to develop the portly child we call mumps. Both male and female conceive and give birth to such beings, then tear up the tracks and roads behind them, by killing the demand for such drink. (1899b, p.85-86)

In the above quotation Still is employing this concept of a **single** innate female 'seed' of a specific disease as a means of explaining *acquired immunity* – thus after having survived a *specific* infectious disease such as measles, smallpox or mumps, the individual does not become ill upon further exposure because the **single** 'female' part of the 'seed' was fertilized during the first instance of the disease! Thus it does not matter if afterwards the patient encounters additional 'male seeds' from the external environment - for even if these 'male seeds' enter the patient's body they will find no 'female' counterpart with which to interact and thus generate the specific disease.

Using this model to explain acquired immunity was not original to Still, as is made clear by contrasting Still's above quotation with the writings of the British physician Thomas Fuller (1654-1734), first published in 1730:

Nature, in the first compounding and forming of us, hath laid into the Substance and constitution of each something equivalent to the Ovula, of

various distinct Kinds, productive of all the contagious, venomous Fevers we can possibly have as long as we live. Because these Ovula are of distinct Kinds, ... as Eggs of different Fowls are from one another; therefore every sort of these Ovula can produce only its own proper Foetus ... and therefore the Pestilence [the black plague] can never breed the Small Pox, nor the Small Pox the Measles ... All Men have in them those specific Sorts of Ovula which bring forth Small Pox and Measels, and therefore we say that all Men are liable to them. ... The Ovula always lie quiet and unprolific, till impregnated, and therefore these Distempers seldom come without Infection, which is as it were the Male, and the active Cause. The Ovula of each particular Fever, are all, and every individual one of them, impregnated ... And when these have been impregnated, and delivered of their morbid Foetus, there is an End of them; ... Upon this Account no Man can possibly ... be infected with any of the respective Distempers any more than once. (Fuller, 1730, p. 175-6)

It is clear that Still is presenting in his own words an exact replication of Fuller's historical concept of acquired immunity. This again displays how many of the aspects of Still's unorthodox *osteopathic* medical model were simply remnants carried over from his earlier life as a practitioner of orthodox medicine.

3.3.8.2. 'INTERNAL SOIL'

To return to Still's 'corn-analogy', wherein the 'condition' of the 'inner soil' dictates susceptibility to infectious disease, it can be interpreted that Still is emphasizing what would be called today 'innate immunity', that is: the multitude of factors involved in a generalized resistance to all types of disease, regardless of their origin (Silverstein, 2009). Enhancing innate immunity was a central strategy of the traditional

'*environmental-humoral*' model of health and disease. Still wished to impart its importance to his students:

I want to draw the mind of the reader to the fact that no being [including the aforementioned infectious diseases] can be formed without material, a place in which to be developed, and all forces necessary to do the needed work. (1899b, p.86)

What Still is implying with the above statement is that if the conditions within the body, the 'inner milieu', are not first conducive to the establishment and progression of a disease condition, then no disease can or will occur. If the 'internal soil conditions' are not amenable to a disease 'seed' (ex: by being too warm, or not containing enough moisture) the disease 'seed' can not sprout and grow into a mature 'plant' - regardless of how many 'seeds' fall onto the 'soil'.

Reasoning upon this framework, when Still encountered a sick patient he did not seek to remove or destroy these 'seeds of disease' but rather to facilitate a return of the patient's inner 'soil' to a *normal* condition, this was a guaranteed means of aborting the progression of the disease.

Still applied this same strategy to the presence of 'osteopathic' mechanical abnormalities – they were not to be the focus of his intervention. Rather it could be said that in Still's treatments he sought to consistently recreate the *conditions* in which normal anatomy and physiology would be able to regenerate *themselves*. Still's intent was to *restore* the patient's own capacity to produce normal internal conditions. Still was not seeking to *remove* abnormal anatomy and physiology. It has been reported that Still often instructed his students to: "Leave lesions out and look for cause" (Purdom & Moore, ca. 1900-1902). Still described his initial discovery of Osteopathy as the time when:

I began to realize the power of Nature to cure after a skillful correction of *conditions* causing abnormalities had been accomplished so as to bring forth pure and healthy blood, the greatest known germicide. [emphasis added] (1902f, p.10)

Still thereby illustrates that the destruction of 'seeds of disease' and the direct restoration to normal health are both to be left in the hands of "Nature", not the osteopathic physician. Emphasizing this same line of reasoning, Still stated elsewhere that: "Harmony only dwells where obstructions do not exist" (1899b, p.197). By saying this, Still is again emphasizing that his intent during treatment is not the *creation* of harmony, rather, his intent was to facilitate the existence of those normal conditions that harmony itself would naturally enter and *take up residence*, or "dwell". Harmony is a vitalistic force of *organization* that should be *invited to return*. Still described this conclusion and the medical strategy it implies:

If life in man has been formed to suit the size and duties of the being; if life has a living and separate personage, then we should be governed by such reasons as would give it the greatest chance to go on with its labors in the bodies of man and beast. (1899b, p.195)

Still's therapeutic strategy rested on a foundation of explicit trust in the superior "wisdom in the vital energy" (1902f, p.47), the "life-giving force, common to all nature" (1902f, p.271). Knowing that this vitalistic organizational-force would always spontaneously innovate the *most* appropriate response possible, Still's interventions sought simply to open up the field of possibility. Still made his faith in this arrangement very clear:

The God of Nature is the fountain of skill and wisdom and the mechanical work done in all natural bodies is the result of absolute knowledge. Man cannot add anything to this perfect work nor improve the functioning of the normal body (1910, p.VIII).

In the final pages of Still's last book he made a point of emphasizing this methodology: "As life is as plentiful as oxygen, filling all space and each and every atom of the universe, we will work to keep *conditions* in line and wait results" [italics added] (1910, p.511).

Still acted from a deep humility for the superior intelligence inherent in the vital force. This perspective thus came to strongly influence Still's opinion of the orthodox 'bacteriological revolution', during which orthodox medical culture began to propose that the presence or absence of bacteria was the primary or even sole factor determining health or disease.

3.3.9. STILL'S OPINION OF THE BACTERIAL REVOLUTION AND ITS 'GERM THEORY' OF DISEASE

3.3.9.1. THE RELEVANCE OF BACTERIAL 'GERMS'

The orthodox scientific '*germ theory*' arose during the 1880s and '90s. In Still's writings, he had no problem acknowledging the existence of microorganisms: "We have no controversy with scientists over the fact that germs are found in the system. This was proven many years ago" (1910, p.418-9). Yet nevertheless, in regards to health and disease, Still only gave microorganisms what relevance he felt they warranted - very little. In Still's assessment, bacteria were declared to be "effects only" - merely a symptom, a byproduct of the fermentation of stagnant bodily fluids (1902f, p.164). Still described that "bacteria are only [...] buzzards" which feed upon dead flesh (1902f,

p.164). This is to say that Still readily accepted the reality of bacteria, and their *association* with disease processes, but Still staunchly refuted attributing bacteria a *causative* role.

Some orthodox physicians and scientists were proposing that bacteria are the *sole* relevant factor in the occurrence or absence of disease (Pelling, 2013; Still, 1910; Wiendling, 2013). This reductionistic interpretation of 'germ theory' was fueled through a rapidly occurring series of experiments identifying and naming *specific* species of bacteria that were found to be *omnipresent* during *specific* disease conditions (Pelling, 2013). Up to that point, the traditional viewpoint of health and disease was perceived as being fundamentally *multifactorial* in nature; the outcome of multiple layers of complex interaction between the internal and external environments (Pelling, 2013).

Still strongly refuted the new reductionistic interpretation of germ theory. Still was not alone in this, some iconic scientists and physicians of that same era shared Still's conclusion that the new reductionistic theory was a gross misinterpretation (Wiendling, 2013). For if specific bacteria were the sole or even primary factor in specific disease conditions - why then could the very same species of microorganisms also be sometimes found to exist in small numbers within healthy people (Wiendling, 2013; Still, 1910)? An excellent example of the general confusion regarding an accurate interpretation of 'germ theory' can be found within an editorial published in the prestigious British medical journal *The Lancet* even as late as 1909. The editorial matter-of-factly states how:

It is not at all rare to fail to find the causal organism in an individual case of disease, and the explanation usually given is that the search has not been as yet sufficiently thorough. Again, many organisms which are

considered to be causal are frequently to be found in healthy persons. ("Bacteriology Tested by Epidemiology", 1909, p.848).

Due to the presence of 'pathogenic' bacteria within healthy individuals, Still and many others drew the conclusion that the relevant factor within the occurrence of infectious disease conditions was **not** simply "the presence or absence of a particular germ" (Snow, 1913, p.221). Rather the relevant factors lay inside the patient's own multifactorial *susceptibility* and *resistance* to a disease **condition**.

This multifactorial interpretation can be understood as a direct continuation of the traditional 'environmental -constitutional' model, now only slightly revised to incorporate the existence of bacteria. This mild revision of the traditional model has been referred to as a new "synthetic" or "inclusive" version (Pelling, personal communication June 18 2019). This is to say that this synthetic-inclusive model perceived bacteria as **pathological** (*associated* with disease), rather than **pathogenic** (*causative* of disease).

This is all to say that Still did not deny the scientific discoveries that took place during his lifetime. Rather, Still, like many of his orthodox colleagues, simply interpreted the bacteria revolution through the pre-existing cultural lens, and thereby came to a differing perception as to what was correlation and what was causation. Still stated that:

We will not dispute the fact that they [microorganisms] have been and often are found in the blood, sputa, and faecal and other substances of the body. ... That the student may better comprehend my object, I will admit and agree that such organisms as described are found ... I do not wish to disprove their existence, but wish to take such witnesses and try to prove that all such abnormal changes have a cause in suspension of arterial or venous blood, or lymph, the excretory systems, or by their nerve-supply being cut off at some important point of the physical work. (1902f, p.164)

Thus for Still, the newly discovered microorganisms were simply an additional but peripheral phenomenon within the existing framework of his 'corn analogy' with its 'internal soil'. Still had concluded that: "The germs must have suitable *conditions* or they fail to appear in dangerous numbers [emphasis added]" (1910, p.419).

Still retained a belief in the miasmatic origin of certain infectious disease conditions, writing:

I pay no attention to laboratory stories of microorganisms. I have no time to spend or to reason about what Professors A and B have seen under their microscopes in specimens taken from the body of a man, after death and decomposition have done their work. The instruments that I use in my laboratory when seeking for the cause and relief of typhus fever are spades, pitchforks, water and fire to dispose of all filth. It takes no microscope to see a dead cat, a dead dog, a lot of old boots and shoes, dishes holding stagnant water, unclean chamber utensils, kitchen filth around the back door, and so on. Be sure you take your spade and pitchfork into the cellar, yard and out-houses, turn and rest not until you can say, after having put your nose to the ground and smelt, that you have found the filth producing the poison. After you have seen to a thorough cleaning up of the house, out-buildings, yards and surroundings, enter the house and see that all bedding, clothing and so on are taken out into the fresh air and sunshine. Then burn some wool or burn some sugar and fill the house with smoke therefrom. Start a little fire in the stove or fire place in order to secure an active draft and draw your imaginary microbes up the chimney. Now you have your sanitary condition secured and the filth abolished. You are ready to give your patient osteopathic treatment [...] (1910, p.487)

This is exactly in line with the traditional miasmatic theory. Even late in life, Still continued to describe typhus as a “filth fever” (1910, p.485) as would have been the cultural norm many decades beforehand when “cholera and typhoid were described as ‘filth diseases’ ” (Pelling, 2013, p.327).

While Still did largely refute orthodox ‘germ theory’, his medical practice nevertheless included specific antiseptic procedures - such as washing out bites from rabid animals with a solution of sulfuric acid to “neutralize the poisonous saliva of the dog” (1910, p.505-6), as well as using alcohol to clean wounds that he suspected would create tetanus (1910, p.504). Again this is a clear example that just because one holds a mistaken theoretical model, it does not necessarily mean that one’s intervention will not be efficacious (see also the discussion of the “Sanitary reform movement” in SECTION 3.2.3 STILL’S EXPOSURE TO VACCINATION).

3.3.9.2. “PROTECTIVE ODOR/MUSK”

Within Still’s theoretical musings he proposed a sort of mirror-image of miasma: a beneficial and **protective** invisible gas that was given off by an organism as a means of counteracting poisonous environmental miasma. Still termed this protective gas as being an organism's own “musk” or “odor” (1899c; 1902, p.286-7). This *protective odor/musk* is therefore highly analogous to the modern conception of immune function. As Still was avidly interested in ornithology, he discussed the ‘protective odor/musk’ concept using the example of a buzzard, the supremely foul-smelling carrion bird. Still pondered:

Did you ever think for a moment that odors are living powers and that one can overpower and destroy another? Thus if a buzzard should stop and eat a man who had died of small-pox, that odor cannot overcome the effects of the odor of the bird and plant the bacteria of small-pox in him and kill him. ... I am of the opinion that by the laws of odor-force disease is often

conveyed from one person to another, thus contagions are carried over the earth. If a person should take up the odor of small-pox, why not kill the microbes by the natural odors of a healthy person? ... Is it not reasonable to suppose that virus [ie: an infectious agent of any type] could take possession of a body whose living force is inferior to its own? Thus the disease that does kill the human is stronger than the resisting force of man and will grow in him as grass will flourish in the soil of the earth. Thus the odor of diseases fall on and take root and grow because of their power to prevail over the weaker. (1899c, p.66)

The immunological concepts contained in the above statements are striking, and even seem to be in agreement with the theoretical basis underlying the antibody-based serum therapies that were emergent in that same era – i.e.: “why not kill the microbes with the natural odors of a healthy person?”. Yet Still’s above article is the single instance within his writings that provides any real development of this ‘protective odor/musk’ concept.

It is also interesting to note that within the above article Still suddenly had no qualms attributing the genesis of smallpox to a transfer of **bacteria** from one person to another. In this instance Still has granted bacteria a pathogenic role. Even so, Still apparently continued to view these bacteria simply as a subcategory of ‘disease seeds’ carried within a miasmatic gas – thus demonstrating only a mild revision of his traditional perspective.

3.3.10. CONTEXTUALIZING STILL’S OPINION OF ‘GERM THEORY’

Still’s lack of acceptance of germ theory was also likely due simply to his cultural and geographic surroundings. The so-called ‘bacteriological revolution’ occurred amongst European scientists during the 1870s and ‘80s (Pelling, 2013). In contrast, Still

lived from 1828-1917, “discovered” Osteopathy in 1874, developed and practiced it over the following years, then began teaching others in 1892 at the age of 64 (Still, 1897a, p.417).

Yet in America during the mid-1870s the study of bacteria was marred by poor culturing technique, as well as a lack of specialists in the new field (King, 1983). This led to the creation of many studies unwittingly contaminated with additional species of bacteria, leading to incorrect results that were nonetheless interpreted and accepted by the medical community at large. This contributed to a very unclear picture within American medical culture as to what bacteria’s life cycle, behaviour, and cause and effect in disease actually were.

So it was that subsequently, in the 1880s, America’s medical community came to largely ignore new findings from Europe regarding the role of bacteria in disease. To Americans these results “seemed so tentative, and the American temper had no great patience with the indecisive” (King, 1983, p.796). This attitude was reinforced by the fact that at that time germ theory had only been proven in relation to diseases affecting silkworms and livestock – this being of great economic value, but of “little relevance to medical practice” (King, 1983, p.796).

It was only in the late 1880s that germ theory gained any sort of wide acceptance within America’s medical culture, and even then only with the “majority of American medical elites in urban centers” (King, 1983, p.796). This can again be in part explained by the absence of clinical applicability germ theory held at that time – for though it could enhance diagnosis and hygienic preventative measures, for someone who was already ill germ theory had little to offer (King, 1983).

Still strongly endorsed the value of hygiene, but was dismissive of the sporadically successful serum therapies and vaccines through which early germ theory attempted to find clinical application. In Still's eyes, these new serums and vaccines were simply another iteration of historical vaccination; a practice that Still had observed to be not only ineffective, but also frequently induce severe injury or death (see SECTION 3.2 STILL'S OPINION OF VACCINATION).

Thus Still's lingering conclusion that 'germ theory' was largely irrelevant to clinical practice would have been in line with the assessment of many of his orthodox rural medical colleagues. In some respects this was actually an accurate interpretation.

Furthermore, at the point in time during which germ theory came to prominence, Still had already experienced clinical successes that were unprecedented within the orthodox system. This was despite the fact that Still had **not** been treating within a paradigm that incorporated the existence of bacteria. Thus when the mainstream of orthodox medicine began to emphasize the importance of bacteria as *the* causative agents of disease, while simultaneously presenting an absence of clinical means of addressing this concern, it is rather understandable that as a pragmatist Still would have simply stood by his superior pre-existent results, feeling no need to alter the theoretical framework that had produced them.

3.3.11. CELLULAR VERSUS HUMORAL IMMUNITY: THEORY AND PRACTICE

Still wrote during the time period of 1894-1916. In this very same era the wider scientific and medical worlds were being rocked by a rapid wave of experiments suggesting that the *host themselves produced an active response to a bacteria infection* – the existence of immune function was coming to light (Weindling, 2013). A modern reader should understand that even though today's historical-narrative now describes a

specific study or publication as having provided conclusive proof for a landmark scientific theory, it does not mean that the implications of such a study were immediately understood or widely disseminated at the time it was first published (Silverstein, 2009; Pelling, Personal communication, June 18 2019). The process of cultural integration of new scientific revelations often occurred over the course of many subsequent years, or even decades (Silverstein, 2009; Pelling, Personal communication, June 18 2019).

Once germ theory did eventually gain international academic acceptance, a battle of words ensued from approximately 1890 to 1914 (Weindling, 2013). European scientists fiercely debated *how* it was that the body produced an active response to pathological bacterial infection (Weindling, 2013). Two camps, essentially nationalistic in nature, promoted opposing theories. The French “cellularist” camp, led by Elie Metchnikoff, proposed that the body’s defensive response to invasive bacteria was via specialized cells such as “phagocytes”; while the German “humoralist” camp (whose name was derived from the long-standing Galenic humoral theory – i.e.: referring to fluids) was led by Robert Koch, and promoted the idea of specialized anti-bacterial chemical compounds innately innovated and distributed via the fluids of the body (Silverstein, 2009). In the end it turns out that both camps were correct, but this conclusion did not become clear until well after the humoralist camp had achieved far greater academic and economic backing. As a result of this cultural imbalance, the emerging field of immunology was dominated by the humoral paradigm - imposing an emphasis on the study of *biochemical* rather than *cellular* immune functions (Silverstein, 2009). This state of affairs lasted until well into the mid-1900s.

Still followed this social trend within his own writings, and discussed chemical-based (i.e.: humoral) immunity extensively and consistently, while only two potential mentions of cellular-based immunity were found within Still's writings. The first of these being: "I took the position that the living blood swarms with health corpuscles which are carried to all parts of the body" (1907a, p.22), while elsewhere Still also stated:

You administer medicines from the chemistry of the arts by mouth, injection and otherwise. We adjust the machinery and depend upon nature's chemical laboratory for all elements necessary to repair, give ease and comfort, while nature's corpuscles do all the work necessary. (1899b, p.148)

It is likely that in the above quotations Still was in actuality referring to the general processes of *regrowth and repair*, rather than specific cell-based immune function in relation to microorganisms excetera (see further discussion below in SECTION 3.3.13 THE UTERINE PROPERTIES OF THE FASCIA AND "BLOOD SEED"). This can be surmised given that in all of Still's writings he never mentions or infers the modern definition of 'cells' (i.e.: biological 'units of life') (see futher discussion below in 3.6.4 "FASCIA", "LYMPHATICS", AND THE "CELLULAR SYSTEM"). Rather, in Still's time and place, his above-mentioned "corpuscles" were defined as:

A minute particle, or physical atom; corpuscles are the very small bodies which compose large bodies, not the elementary principles of matter, but such small particles simple or compound, as are not dissolved or dissipated by ordinary heat. ("corpuscle", 2020 [originally published in 1828])

To return to the early academic immunological debate between the cellularist and humoralist camps, as this debate played out, there was a period of time when the humoralists began to suspect that it was in fact toxic by-products *produced by* a bacterial infection, rather than the bacteria themselves, that was the actual mechanism of disease. In quick succession study after study regarding this theory was released, and for a time it seemed that the traditional medical models of the preceding centuries were perhaps correct after all - perhaps all disease *was* due to multiplying levels of internal poison as had been held by the *miasmatic* and *decomposition/fermentation* theories (Silverstein, 2009).

Diphtheria played a key role in supporting the above interpretation of the mechanism of disease, especially given that diphtheria was a condition for which the orthodox system of medicine had had little to no success until the advent of 'serum therapy' during the late 1800s (Wiendling, 2013). So-called 'serum therapy' consisted of extracting blood from a host (often a horse) who had previous exposure to the bacterial toxin, and thus had already innovated an immunity to it. This extracted blood was then separated into its constituents, so that the 'serum' might be isolated from it. Today 'serum' would be known as 'blood plasma' – the aspect of blood containing antibodies. The serum was then injected into the human diphtheria patient, who being early stages of the infectious process had not yet themselves produced sufficient levels of the "serum-factor" - thus the externally introduced serum buffered the patient for a period of time until they could begin to produce their own toxin-specific protective response (Silverstein, 2009; Wiendling, 2013).

It took many years until serum therapy yielded consistent results for a small handful of conditions, and even then it was only applicable as a preventative measure, or in the very earliest stages of a disease (Wiendling, 2013; Silverstein, 2009). Yet contrast this with reports from both Still and his newly trained son that consistent success was achieved treating patients experiencing diphtheria, while employing only manual osteopathic treatment, even in advanced cases (Still, 1897a).

The humoral immunologists of that era caused a revolution when they first proposed that *specific* species of bacteria produced *specific* poisons inside the body of their host, and that these toxins then had to be neutralized through the innovation **by the host** of *specifically* designed counteractive compounds. These neutralizing compounds were found to be *circulated* within the *fluids* of the body, as a means of counteracting both the poisonous toxins, and the bacteria that had produced them.

It is thus likely that from Still's perspective, the main thrust of these new orthodox immunological discoveries would have sounded like nothing more than another version of the long-standing traditional concepts he held dear (environmental poisons, the importance of normal circulation of bodily fluids).

Thus even late in life Still was essentially was in full agreement with the conclusions of the humoral immunologists. Still himself propounded that: "...newly compounded fluids [will produce] any change in the chemical quality that is necessary for renovation and restoration to health" (Still as reprinted in Schnucker, 1991, p.101). Furthermore, Still held that "the organs", when functioning normally, "form protective compounds that will ward off ... microbes, germs, bacteria, parasites, and so on" (1902f, p.163). It was by this mechanism that Still felt "Nature's chemistry [can] destroy the

germs ... Nature abounds with remedies necessary for her use in all conditions” (1910, p.419). Simply put, “I believe that God has placed a remedy for every disease within the material house in which the spirit of life dwells” (1908a, p.423).

Yet Still differed from humoral immunologists in *application*. Still held that an Osteopath did not need to provide external serum therapy in cases of bacterial infection, given that “Nature furnishes its own serum if we know how to deliver them” (1910, p.14). Nor did an Osteopath need to search for an external anti-bacterial to insert into an infected patient, because: “An osteopath kills diphtheria worms with the club of reason dipped in pure arterial blood” (1910, p.12). This was why Still advised his students to “not waste time hunting for typhoid germs”, instead, “give freedom to the solar plexus and it will soon furnish a germicide that will drive the bugaboos from the system” (1910, p.481).

In this regard the central difference between Still and the orthodox humoral immunologists of his era is that Still had been able to painstakingly develop a **practical application** of the model. While scientists struggled to find a means of applying immunological germ theory via some sort of externally imposed intervention, Still already had a long track record of clinical success gained through strategic reliance on the patient’s internal self-corrective mechanisms.

3.3.12. STILL’S IMMUNOLOGICAL EXPOSURE

It is unclear when the European literature regarding the bacteriological and immunological revolutions would have become available in Still’s rural America. It is known that Still had contact with an orthodox European physician, Dr. Neal of Scotland, circa the late 1850s. Around that time-frame, Neal provided Still with copies of the then-current scientific literature released in Europe (Deason, 1934; Still, 1899, p.14-5; 1902,

p.10; Trowbridge, 1991). How long this relationship may have continued is not known (Trowbridge, personal communication, May 26 2019). Only if this relationship continued for decades could Neal have provided Still with materials relevant to the above topics in the 1870s and 80s.

The 1850's and 60's was the era in which the theory that the human body is composed of a multitude of individualized 'cells' was first being established by Rudolph Virchow in Germany (Virchow, 1860). The subsequent recognition of *single* celled life, the so-called "micro-organisms" of the 'bacteriological revolution', only began in the 1870s (Wiendling, 2013). After this, from the late 1880s onwards, 'germ theory' first emerged and began to be debated within academia, soon followed by the above discussed immunological discoveries (Wiendling, 2013). APPENDIX F: REFERENCE HISTORICAL TIMELINE OF STILL AND ORTHODOX IMMUNOLOGICAL DISCOVERIES contains a detailed and referenced time-line regarding the relevant immunological discoveries of this era, integrated with the chronological events of Still's own life history and publications.

Still described himself as a "faithful reader of medical authors, ancient and modern" (1910, p.167). A list of the books known to be in Still's library was recently compiled (Onsager & Museum of Osteopathic Medicine, 2014). Yet this modern list contains almost exclusively books that were published from the 1890s onwards, so it is acknowledged to be only a small fraction of what Still's collection must have originally consisted of. The 1890s was the era in which Still began actively teaching Osteopathy to others, rather than the preceding decades during which Still's theoretical frameworks were first developed.

It is nevertheless possible to attain a deeper glimpse into what sorts of immunological information Still would have had access to, at least in the 1890s and onwards, by reviewing the literature produced by Still's colleagues, the professors of his American School of Osteopathy in Kirksville, as published in the *Journal of Osteopathy*.

For example, in an 1899 article titled *Immunity*, James B. Littlejohn compiled a summary of the leading orthodox immunological theories. In this article James speaks from a viewpoint wherein germ theory is an accepted fact. Within the text James details specific pathological "microorganisms" such as the "micrococcus of pneumonia and the spirillum of cholera" (1899, p.291). James accurately describes many details of today's immunological knowledge that were emerging at that time such as the "ameboid cells" eat foreign microorganisms ('macrophages' in today's terminology), even using the term "phagocytosis" to describe this action (1899, p.291). "[W]hite blood cell[s]" and "leucocytes" are also discussed (1899, p.292-3). The various immunological theories put forward by Pasteur and Metchinkoff are clearly presented and summarized in the article, as are discussions of the theoretical dynamics of "acquired immunity" (1899, p.291).

James's brother, John Martin Littlejohn, also an influential professor at the American School of Osteopathy (ASO), gave a presentation of Osteopathic principles and practice to an orthodox medical audience in London, England in 1900. John Martin's speech was reprinted within the *Journal of Osteopathy* (Littlejohn, 1900). Within it, John Martin presented a discussion of "phagocytosis", "micro-organisms", "white blood corpuscles [cells]" that produce "chemical compounds to destroy the germs", along with "leucocytes... [that] eat up the germs and thereby produce in the system a serum that will render the body immune from the action of these disease germs" (1900, p.377).

Thus it is clear that at least from the late 1890s onwards the Littlejohns and others who surrounded Still did have access to the latest scientific literature. The Littlejohns had clearly incorporated it into their osteopathic instruction. Still on the other hand, continued to overtly question the value of these conclusions, seeing them as uncertain theories (ex: 1902, p.29-30).

3.3.13. SHOULD STILL BE CREDITED WITH ORIGINATING THE ORTHODOX CONCEPTION OF IMMUNITY

As late as the 1880s, the iconic French scientist Louis Pasteur continued to promote the idea of a human body that is completely passive and inert in the face of bacterial infection. At that time, Pasteur theorized that a bacterial infection ceases only when the invasive bacteria use up all the food within their host and then starve to death (Silverstein, 2009). Pasteur based this concept on the idea that each specific bacteria required specific nutrition, thus once these nutrients were consumed within the host, the bacterial infection therefore must cease. Yet as noted above, evidence for an *active* body response to infection began to emerge from around 1890 onwards, with an intense scientific debate taking place as to how this protective response was enacted (Weindling, 2013).

In contrast, Still's known published and unpublished writings span from 1894 to 1916. (See APPENDIX F: REFERENCE HISTORICAL TIMELINE OF STILL AND ORTHODOX IMMUNOLOGICAL DISCOVERIES for a timeline of the relevant historical events and scientific discoveries integrated with a chronology of Still's personal history). Thus, due simply to the later timeline in which Still wrote, when compared to the European immunological authors, it is not possible to provide any written evidence that could establish Still as having independently originated the orthodox concept of immunity. By

the time Still began writing, major orthodox authors had already published findings regarding immunity. This set of circumstances has not dissuaded past Osteopaths from crediting Still with the discovery (Gillum, 1942; Lane 1918; Lyda, n.d.; Powell, 1918; Purdom, 1936; Riley, 1938; Webster, 1918).

Still declared that the human body “swarms with health corpuscles” (Still, 1907a, p.22) and secretes “protective compounds” to “ward off ... microbes, germs, bacteria, parasites, and so on” (1902f, p.163). *If* these concepts regarding an active body-response to disease *were* already present in “1874, [when] like a burst of sunshine the whole truth dawned” on him (Still, 1908c, p.85), or alternately, even if these immunological concepts only originated by the early 1880s - *if* any of this is actually the case, then Still could be justly credited with an incredible prescience and direct independent innovation of the orthodox immunological concept well before those who are now credited such as Metchinkoff and Erlich etcetera.

Yet since Still's known published and unpublished writings begin only in 1894 (Museum of Osteopathic Medicine, personal communication, April 14, 2019), there is simply no available evidence to confirm or deny the presence of orthodox immunological concepts within those earlier periods of Still's life and work. Thus the claim of Still's origination of the immunological concept simply cannot, and should not, be made.

What can be said with certainty via the timeline of Still's available documents, is that in regards to the description of an active body-response to disease, Still *was* on the right side of history from an early date, especially in regarding fever as a beneficial and defensive process that is *purposefully* initiated by the body, rather than a pathogenic

condition that is *passively* imposed onto a patient by malicious external forces (Still, 1899b; Silverstein, 2009).

Yet given the frequent instances within Still's writing wherein many of his foundational medical concepts can be demonstrated as having been actually derived or synthesized from outside sources, this seems doubtful.

As discussed above (see SECTION 3.3.10 CELLULAR VERSUS HUMORAL IMMUNITY: THEORY AND PRACTICE), when the immunological concepts found in Still's writings are analyzed from the viewpoint of the scientific discoveries and orthodox theories present during his time and place, it is clear that Still's conception of immunity was essentially in alignment with the orthodox 'humoral' immunologists who established their theory in the 1890s.

Yet when the immunological concepts found within Still's writings are viewed instead from his own *personal*, unorthodox perspective, a strikingly different conception of immunity emerges, one that *does* contain profound and relevant aspects not derived from the orthodox model. Thus Still's personal conception of immunity *is* independent from the orthodox tradition - both in its conclusions and most certainly in the lens from which it views the subject. This second conception of immunity, Still's personal *unorthodox* conception of immunity, is discussed below in SECTION 3.4 A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY.

The following sections lead into that discussion by engaging with some of the unorthodox aspects of Still's worldview that intimately inform his personal conception of immunity. This will serve to provide a deeper historical context as well as better allowing the reader to understand Still's words from *his own* perspective.

3.3.14. THE UTERINE PROPERTIES OF THE FASCIA AND “BLOOD SEED”

As already discussed, as Still's assembled a worldview, he incorporated many existing medical theories, eventually producing his own personalized 'collage'. This same trend in Still's thought can be observed regarding the orthodox 'bacteriological revolution'. It is possible to watch an evolution over the timeline of Still's writings, as his *invisible agents of disease* transition from being traditional 'seeds of disease' to the incorporation of microorganisms.

Before, during and after the bacteriological revolution, concepts regarding '*invisible agents of disease*' are necessarily tied to cultural theories regarding the development, growth, replication, and origins of life (Pelling, 2013). Still's view on this is illustrated in the earlier discussed '*corn analogy*' (see SECTION 3.3.8 STILL AND THE TRADITIONAL 'GERM' THEORY OF DISEASE (CORN ANALOGY)), wherein externally originating 'seed-germs' enter the patient's body, find suitable soil, grow and ripen into a mature disease. The 'internal soil' which Still described these 'seed-germs' investing themselves into is what he called "the fascia" of the body: "the place in which diseases germinate and develop the seeds of sickness and death" (Still, 1902f, p.61).

Thus when Still described "the fascia" as being a foundational factor in disease, he was not defining "fascia" as one would today (Stark, 2003). Rather the results of the current study indicate that Still's definition of "fascia" incorporated the scale of perspective and elements of what would today be termed the *interstitial* and *extracellular* space. This therefore *does* include the connective tissues and extracellular matrix of modern "fascia", but importantly *also* refers to the region-specific parenchymal tissue, as well as the terminal structures of the nerves, vasculature and lymphatic vessels. All of which were conceptualized by Still as being continuously bathed in and exchanging with

the bodily fluids. This is discussed in depth immediately below, as well as in SECTIONS 3.6.3 RATIO AS HARMONY, and 3.6.4 “FASCIA”, “LYMPHATICS”, AND THE “CELLULAR SYSTEM”.

For the purposes of this research, when Still uses the term “fascia”, it is interpreted that it was the above definition which he implied when using this term. This explains, for example, why Still described “the fascia” as “penetrating all parts [thereby acting] to supply and renovate [remove] the fluids of life” (Still, 1899b, p.89). To Still then, “the fascia”, the interstitial space, was the most direct physical representation of the ‘internal conditions’ of his ‘corn analogy’. The “fascia” was the microscopic stage wherein metabolic exchange occurred - via the in- and outflow of bodily fluids in relation to the elements of the tissue. This was a theme which Still gave a central emphasis to throughout his writings.

Still saw the “fascia” as being the “womb” of all life and growth within the human body - both normal and pathological. Still repeatedly referred to the fascia’s “uterine powers” (1899b, p.84). It was this concept that Still is referencing when he describes the “fascia” as being “most near the surface” in the uterus (thus providing the nutritive environment necessary for the growth of a conceptus into an infant), and also in the lungs (thereby being able to renew the ‘corpuscles’ of the returning blood, but also having the potential to act as a suitable nursery for any infectious ‘disease-seeds’ that might be aspirated) (1899b, p.169). As will be discussed below, within Still’s model, the “fascia” in a healthy body was the location where all processes of growth and repair were finalized through the actions of the living arterial blood.

Within this model, it then followed that in an unhealthy body, the “fascia” was where seeds of disease might find nourishment and take root:

So certain is contagion to be taken up by the nerves and vitalizing fluids of the fascia. It seems that all the fascia needs to develop anything is to have the substance planted in its arms for construction; the work will be done (1902f, p.289)

Thus within Still's theoretical framework, the “fascia” is a rich internal ‘soil’ which cannot help but provide nourishment to whatever might fall into its cradle.

In Still's final book he extensively described and emphasized a concept of normal, beneficial ‘seeds’ within the body – “seeds of animal life” (1910, p.35). ‘Seeds’ purposefully created as the ongoing means of growth and regeneration:

Every atom of blood when sent forth from the lungs is a living seed, as much so as the seed of any shrub, flower or tree in all nature. When those atoms are delivered to the proper soil in the human body they grow and that which is added or is a product of its growth is as real as the substance that we see or find in the cabbage or the lettuce or in any vegetable whatsoever. (1910, p.32)

With this quality the atoms acting as seeds multiply when in soil to suit their growth. (1910, p.33)

Still delineates in detail how initially, venous blood arrives at the lungs depleted of vital life-force while simultaneously carrying a burden of waste after its long return journey through the body. Still goes on to describe how within the lungs the venous blood is mixed with the “chyle” (the fat-rich lymphatic return of the digestive tract). In his model, the lungs first purify both chyle and blood, then activate them. For Still, the lungs

were the means by which the “exhausted” venous blood was cleaned and recharged with vitalistic life-force before another journey outwards (1910, p.29).

Within Still's model, these renewed and vital “blood seeds” are then sent out from the lungs by the heart, and upon arrival at their intended destination, each seed comes to rest within the slow-flowing ‘eddies’ of the “lymphatics”. In this instance, Still's use of the term “lymphatics” is once again a description of the extracellular space within the tissues. Within Still's schema these “lymphatics” are place where “the atom [i.e.: seed] obtains form and knowledge of how and what to do” (1902f, p.66). It was within these gentle ‘eddies’ inside the “fascia”, that the ‘blood seeds’ were intended to germinate and grow (1899b, p.217).

This final stage of the “blood seed” process was directed by the “nutritive nerves” (1902f, p.62), which interacted with the vitalistic-potential contained within the “blood seeds”, thus finalizing their transformation into the appropriate form, which could be any “tissue, bone, muscle and all constructed substances” (1910, p.33).

Direct students of Still felt his “blood seeds” concept to be reminiscent of theories proposed by others, such as Darwin's “gemmule” theory, Weissmann's “idants”, Haeckel's “plastidules” (Deason, 1934, p.45), or the earlier mainstream European theory of “blastema” (Lane, 1918, p.33).

Regardless of its possible influences, it can be demonstrated that Still's conception of *growth* and *repair* in relation to “blood seeds” is yet another instance of the same foundational principle contained within his ‘corn analogy’. Both concepts state that if life is to develop, the proper combination of elements and must exist within appropriate

conditions. Normal “blood seeds” are the dualistic opposite of the abnormal “seeds of disease”.

3.3.15. GENERATION AND TRANSMOGRIFICATION OF BACTERIA

Within Still's schema regarding “blood seeds”, he conceptualized these seeds as being *constantly* planted within the internal soil of the “fascia”. The relevance of this is that if the *conditions* of either the ‘soil’ or the seeds became abnormal, the resultant forms generated would also be abnormal.

Still described a variety of mechanisms by which “blood seeds” could become abnormal (1910). If the digestive tract is in dysfunction, it would provide abnormal building blocks out of which the “blood seeds” themselves were first constructed. Or alternately, if the lungs were dysfunctional, they would not properly form the constituents of the blood into normal “blood seeds”. Or thirdly, when normal “blood seeds” were forced to exist inside of stagnant fluids, either before or during their deposition into the ‘eddies’ of the “fascia”, they are distorted by their exposure to abnormal conditions.

When any one or more of these scenarios occurred, the “blood seeds” did not go on to become normal and healthy tissue, but instead mutated into abnormal, destructive forms. Still felt this was one potential origin of pathological microorganisms:

When these semi-normal corpuscles [blood-cells] appear on the mucous membrane, they produce forms that are known by the name of microbes. They are natural to the body and come from the fascia, and in the condition of diminished health or vitality they are mistaken for foreign bodies, but they have not been added to the system from the outside. Thus we say membranous croup microbes, diphtheria microbes, and so on. (1902f, p.52)

The success of skin grafting depends on good blood and sound flesh. The surgeon well knows that when the arterial atoms or seeds fall in diseased fluids bad union is the result, for the atoms become diseased and his work is a failure. Then if he takes of such local blood and places it under growing conditions to suit, he sees living atoms move. Thus you have your microorganisms. They are the developed atoms of life or the seed generated in the lungs and returned to the heart and sent forth as arterial blood which is nothing more nor less than the seed of life. Thus the philosopher sees no mystery in the so-called micro-organisms of disease. (1910, p.33)

Within Still's overall framework, *what type of life-form arose was totally dependent upon the **conditions** in which it had formed, germinated, and matured.* Thus Still held that this was a mechanism by which pathological bacteria could come into existence - internally generated "blood seeds", distorted by existing in stagnant fluids, were being mistakenly identified by 'germ theorists' as bacteria of external origin.

It is important to note that Still holds that it is this same distortion of "blood seeds" that provides the genesis of cancer and other classes of tumors:

We see at once that when the nerves of the veins become paralyzed the vein is inactive and full of venous blood that cannot pass on through the venous system normally. By this venous congestion we cause the arterial system to deposit the living arterial blood in the spongy membranes and it begins to construct flesh in an abnormal position and condition. Thus we reason that a tumor is the natural outgrowth of the living arterial blood when perverted from the normal functioning, and the appropriation of such blood which has been delivered to the organ but not carried away by venous return. I think this is why tumors are produced. (1910, p.233)

Still's conception of the cancer-genesis and other abnormal growth is discussed in further detail below in SECTION 3.6.5 STILL'S TREATMENT FOR CANCER AND OTHER FORMS OF ABNORMAL GROWTH.

Yet Still held that there was also a manner in which life-forms could arise *spontaneously*, independent of "blood seeds". For centuries before and into Still's era, the wider cultural narrative included the theory of *spontaneous generation*, as defined by an author of that era: "the formation of living beings directly out of lifeless matter", "requir[ing] but to be exposed to the influence of certain conditions in order to assume the living state" (Beale, 1870, p.37-8). These new life-forms, though being initially formed independent of "living matter", were held to later become capable of multiplying via conventional means. This theory of 'spontaneous generation' "persisted and was defended by prominent scientists even up to the 1860s and 1870s" (Silverstein, 2009, p.28).

This wide-spread belief in spontaneous generation may seem counterintuitive to a modern reader, yet before passing such a judgement, one should perhaps consider the fact that the today's scientific-cultural-narrative *still* holds spontaneous generation as being true. The modern scientific community still invokes the reality of spontaneous generation when discussing the first origins of life on our planet, openingly describing the spontaneous assembly of life-forms. The current model now holds that this phenomenon only occurred in that specific early timeframe - yet it is telling to note that the explanation for why this phenomenon should be so isolated is that necessary *conditions* had to first be met - these being the oft-described 'primordial soup': a highly particular *fluid* environment.

Regardless, what is relevant to this discussion is to realize that Still's medical theories regarding the prevention and therapeutic management of abnormal life-forms involved a version of spontaneous generation. Still sometimes utilized this concept when explaining to his readers the *true* origin of the microorganisms observed by 'germ theorists'. Thus this is once again an instance wherein Still described pathological bacteria as being of **internal** origin. Still held that internal spontaneous generation of bacteria was made possible by the inherent vitalistic life-force contained within the body's "living fluids". Still reasoned that if these living fluids stagnate, their life-potential could then spontaneously degenerate / *decompose* into the bacteria that are subsequently observed under a microscope. Many possible examples of this scenario are presented by Still within his writings:

We will try to assist the reader to fully comprehend what we mean by germs. I believe they are universally the products of decomposition. When a tree dies in a forest it ceases to produce leaves, flowers and fruit. It begins to live a new life which is just as active as the life it lived when producing the tree. The second life or condition is ordinarily known as decomposition. It goes on and on until complete disintegration of all atoms is accomplished. After the tree has been as we say dead twelve months we see that it is not dead but actively producing another form of being commonly known as frogstool. (1910, p.419-20)

...bacteria are only the buzzards formed by the biogen that is in the dead blood itself. (1902f, p.164)

Thus we are prepared to reason that blood when ligated and retained in that condition of dead corpuscles, and no longer able to support animal life, can form a zoophyte... (1899b, p.135)

So it can be seen that between Still's "blood-seed" and '*degenerated living fluid*' theories of the possible origins of pathological bacteria the commonality yet again is a version of the 'corn analogy': normal internal conditions lead to the formation of normal forms of life, while abnormal internal conditions dictate the formation of distorted, abnormal, and destructive life-forms.

Curiously enough, Still almost never presented the possibility of pathological bacteria as being of **external** origin. The above mentioned example involving the odor of a buzzard seems to be one of the rare and isolated examples found within Still's writings (see SECTION 3.3.9.2 "PROTECTIVE ODOR/MUSK"). Though it should be noted that Still did give credence to diseased animals passing illness on to humans via a transfer of bacteria:

If there is any truth in the theory that bacteria of the same kind and form are found in all places of diphtheria, I would suggest inquiring into the health of the cow's udder from which the milk is taken that the children have been drinking. Perhaps that cow has but three teats that give "sound" milk, and the other gives lumpy or bloody milk from an ulcer, cancer, or tubercular bag. I fear that the bacteria are swallowed in diseased milk. (1902f, p.98)

The rarity of externally originating bacteria within Still's work suggests that for Still the "seeds of disease" remained primarily defined by the traditional theories of miasma and contagion (see SECTIONS 3.3.2 "CONTAGION" and 3.3.3 MIASMATIC THEORY).

As discussed above in SECTION 3.3.6 LIEBIG AND THE SHIFTING BORDER BETWEEN THE REALMS OF THE 'LIVING' AND 'NON-LIVING', during Still's lifetime the scientific

cultural narrative used to explain biological life was in the process of transitioning from a vitalistic to a materialistic model. Thus as the theory of *what* life was shifted, so too did the conception of *how* life came to exist - especially in regards to the newly discovered microscopic forms of life (Pelling, 2013). At that point in time, Still was not alone in espousing a menagerie of concepts regarding the various possible origins of microorganisms. Each of these possibilities was held as being equally possible, all dependent upon the conditions that occurred. Still's discussions of the effects of stagnant fluids and distorted "blood seeds" were also not unique, as theories involving "the evolution of degenerate bodily products into agents of disease" was commonplace in that era (Pelling, 2013, p.326).

For example, the writings of the French scientist Antoine Bechamp (1816 - 1908) closely mirror many of the concepts found within Still's work in regards to components of bodily fluid that spontaneously transmogrify into bacteria when particular circumstances occur (Bechamp, 1912; see also Proby, 2015).

Various theories involving the internal generation of bacteria were common to Still's time (ex: Beale, 1870). As mentioned above, this was especially true in America. At that time poor American laboratory culturing procedures often unwittingly cross-contaminated samples, thereby creating the publication of many studies containing the mistaken interpretation that multiple forms of bacteria had originated from a single parent (King, 1983). Amongst other factors, these interpretations served to reinforce a popular belief that bacteria were able to shift their form depending on the conditions in which they grew, what they fed on, and what stage of life-cycle they were in (King, 1983). This shifting of form, or '*transmogrification*' had been readily observed elsewhere in the

natural world (for example when a caterpillar turns into a butterfly, or tadpole into a frog), so why would the same not also be true of the newly discovered micro-organisms?

At certain points in this era, prominent scientists posited that all or some of the different forms of bacteria were in fact only different instances of a **single** underlying species, one who reorganized its “living matter” to suit any of the varied conditions it found itself within (King, 2013). Again, it is demonstrated that the content of Still's osteopathic medical model was consistent with the theories held by his earlier orthodox contemporaries.

3.3.16. SUMMARY DISCUSSION OF STILL'S CONCEPTION OF TRANSMISSIBLE DISEASE

So it becomes clear that Still's adherence to miasmatic theory, his emphasis on the processes of *decomposition* and *fermentation*, as well as his ‘corn analogy’ - with its emphasis on the ‘inner soil’ condition - all are historically cohesive with Still's time and place. It can thus be surmised that these concepts were not independently generated by Still in isolation. Instead it is clear that Still's writings on this topic contain “a gamut of traditional ideas” (Pelling, personal communication June 18 2019).

Just as Still incorporated aspects of ‘Allopathy’ and Homeopathy into his new osteopathic medical system (see SECTION 3.2.4.2 THEORIES OF SIMILAR AND OPPOSITE), throughout the course of his life Still also ‘collaged’ together a model of *transmissible disease*, incorporating both ancient concepts and to a lesser degree the revelations of the bacteriological revolution. As Still's direct student Wilborn Deason, DO, surmised:

In brief, Andrew Still was not merely a researcher and abstract intellectualist but he had the ability to analyze, correlate and synthesize the researches and observations of others and to apply the results of his own creative thinking. (1934, p.25)

Of course Still's personal synthesis of these diverse concepts was unique, and there are other central aspects to Still's overall model of health and disease that have not yet been discussed within this research.

Yet Still himself described his process of leaving orthodox medical practice and beginning to develop "Osteopathy" as being similar to a carpenter who is replacing the shingles on a roof. Still stated that it is wise to only remove and restore the old shingles *one at a time so that the roof remains weather-proof throughout the entire process* (1897d). Within Still's analogy, each shingle is an aspect of the existing orthodox medical model, to be replaced piece-by-piece with a more effective and appropriate unorthodox substitute. Yet when one reads Still's writings, it is evident that during this process of sequential replacement Still found many of the 'old shingles' to be worthy of staying in place.

It seems fair to say that, broadly, Still accepted the orthodox medical theories of his time regarding infectious disease - though he did not shift his opinion as old orthodox theories fell by the wayside and new theories came to prominence. Still's geographical and cultural location, as well as his time of life likely had much to do with this.

It should also be noted here that additional central aspects of Still's overall theoretical medical model **do** fundamentally clash with those held by his orthodox contemporaries, yet *to frame Still's 'osteopathic' medical model as being totally independent from the orthodox framework would be grossly inaccurate*. This is despite the fact that Still himself often made the claim that: "...osteopathy as a science is independent of all other theories..." (1902f, p.210).

During the later decades of Still's life the reductionistic interpretation of germ theory, which held that the presence or absence of bacteria was the main or even sole factor in many diseases, became more and more deeply entrenched within orthodox medical culture (Pelling, 2013). This shifting of orthodox focus to "single-factor causes and their corollary, 'magic bullets', as specific cures" led to the international decline of the multifactorial 'environmental-constitutional' model of health and disease, while giving rise to the reductionistic '*etiological*' model (Pelling, 2013, p.312; see also Hoover, 1963). This meant that orthodox physicians now "shifted the focus of practice from eliminating the symptoms of infection to destroying or rendering inert pathogenic microorganisms and their byproducts" (Gevitz, 2004, p.76).

Still on the other hand, remained intent on addressing what he saw as the fundamental *cause* of transmissible disease, as opposed to obsessing over the infectious *agents* that he perceived as being merely *associated* with disease. Still stated that: "Disease is evidently sown as atoms of gas, fluids, or solids. A suitable place is first necessary for the active principle of the disease, be that what it may" (1899b, p.161). Thus Still felt that the 'germ theorists', orthodox medicine, and the international scientific culture were all focusing on the wrong **scale** of the scenario at hand. Still wrote that:

...modern medical writers have piled up volumes on the chemistry of disease and its specifics, and experimenters have analyzed almost every atom of the known universe, and studied the minutia of the effects of bodily disorder, to the total neglect of the broader and more important phenomena of animal life. In their long and fruitless search of the outside world for specific poisons that would drive their "devils of disease" from the human body they have totally ignored that great engine of life itself, and have failed to recognize the **presence of native forces which the**

Creator placed within the mechanism for its own government ... The founder of Osteopathy looked upon disease as an abnormal condition, and reasoned that the means of restoring the normal should be in the human engine itself ... While the medical profession has searched all the world outside of man, the founder of Osteopathy searched man himself for the means of controlling disease [emphasis added] (1897b, p.6)

It can be summarized that within Still's worldview, pathological microbes were recognized to exist, but only to appear in conjunction with stagnant fluids. Thus from Still's assessment, whether in the end microbes only appeared *after* the presence of stagnant fluids, or whether, as the germ theorists held, microbe invasion itself *produced* the stagnation of fluids was not of primary concern. What was most pragmatically relevant to Still was the observation that transmissible disease could not exist, could not increase itself within an individual, without the *condition* of stagnant fluids. Thus Still's chosen leverage-point of intervention centered on *returning the fluids to a state of normality* so that the higher wisdom of the organizing life-force might innovate the most appropriate response. As Still saw it, the presence or absence of any particular species of microbe was but a minor footnote within these overall dynamics.

It should now also be pointed out that Still saw transmissible disease as but one small subset of the possible origins of disease, and furthermore, that within Still's mind there was a profound clinical importance in differentiating between the *origin* of a disease versus its *cause* (see SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE).

In conclusion, regarding transmissible disease, *it was not so much Still's theoretical model set him apart from his orthodox medical peers, rather it was his*

philosophically driven shift towards manual intervention. That philosophy and its relevance to Still's *personal* conception of immunity are discussed in the following section.

3.4. A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY

If I were to take up this subject [Osteopathy] and discuss it as a philosophy, no one hot night would be sufficient for an introduction to it. I do not think I could tell it in six months or six years. It is as inexhaustible as the works of the whole universe. (Still, 1896b, p.3)

3.4.1. SEEKING STILL'S PERSONAL CONCEPTION OF IMMUNITY

Thus far, this research has largely focused on analyzing Still's conception of immunity in comparison with the immunological concepts developed within the orthodox medical tradition. While that analysis has served to illuminate much of Still's thought regarding immunity, it does not in and of itself allow for a definition of Still's own *personal* conception of immunity.

As one qualitative researcher concluded: "the only way for us to really know what another person experiences, is to experience the phenomenon as directly as possible for ourselves" (Patton, 2001, p. 106). Thus the following section is an attempt to describe the phenomenon of immunity as it appears when viewed from Still's *own* perspective.

As the below diagram illustrates, the very same *content*, when given a different *context*, yields a different *meaning* - ie: where you look *from* determines *what* is observed (Buhner, 2004; McKone, 2015, 2018).

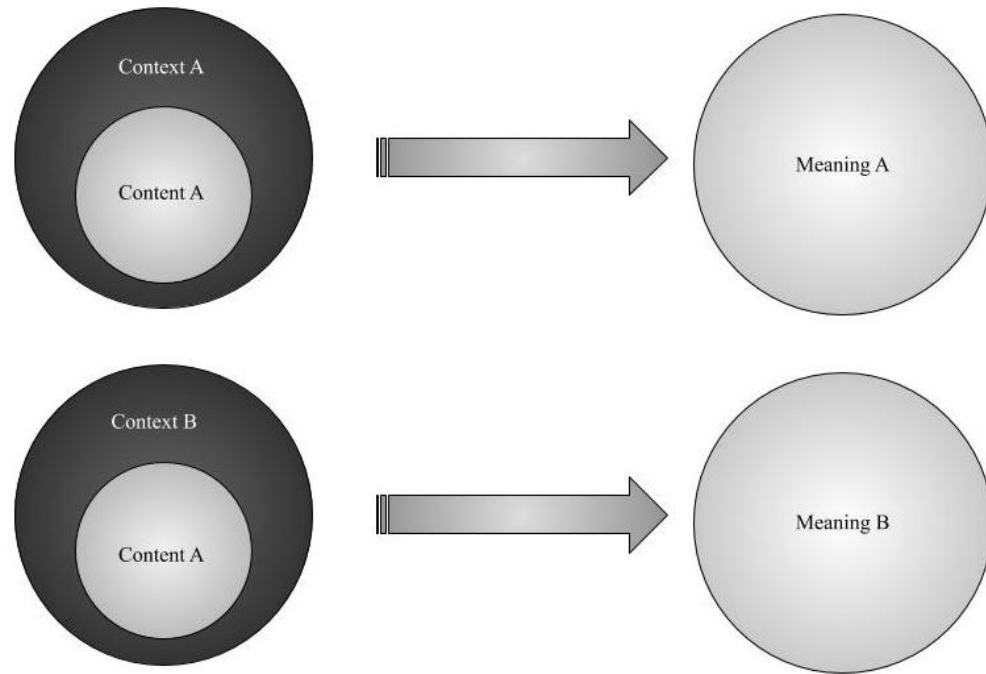


Figure: 7. Content + Context = Meaning (adapted from Buhner, 2004; McKone, 2015, 2018).

Thus to determine Still's personal conception of immunity it is therefore necessary to attempt to 'input into the equation' the same values as Still; to analyze the phenomenon of immunity within the same context as Still. This can also be represented diagrammatically:

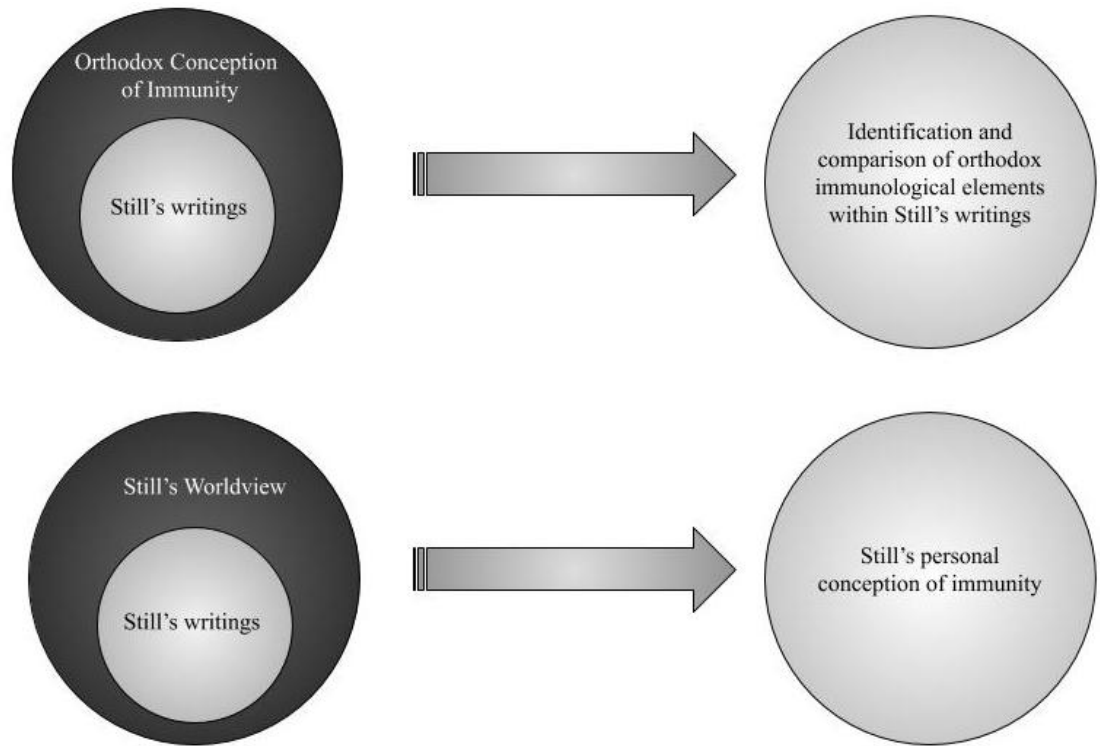


Figure: 8. Context + Content = Meaning, as applied to the first and second phases of answering the first research question, with intended results.

As noted in the diagram above, to illuminate Still's **personal** conception of immunity it is necessary to describe those aspects of Still's worldview inside of which he contextualized immunity. The following Sections do so.

3.4.2. "GOD AND EXPERIENCE"

In Still's lifelong search for the truth of reality, he was pragmatic: "It matters not to me from what point knowledge comes. I would as soon take the truth from the old coloured woman down here who does washing, as to take it from the Pope of Rome" (Still, n.d.-a, p.4). By taking this approach, Still was able to weave together many different threads of influence, resulting in a unique personal worldview, or as he termed

it, a “philosophy”. The osteopathic physician and author Zachary Comeaux, describes the outcome of Still’s ceaseless process of inquiry:

For a frontiersman, the scope of his written discourse seemed scattered; however, to the astute investigator it demonstrates that Still was either well read or otherwise well informed as to the scientific and philosophical ideas of his days. His apparent ramblings are in actuality his best attempt at synthesizing a broad spectrum of complex ideas presented by a host of thinkers. (2009, p.5)

While Still explicitly stated that he would “quote only *God* and *experience*” [emphasis added] (1899b, p.12), it also becomes clear that during the course of Still’s life he experienced a redefinition of “*God*” that was profoundly shaped by the cultural influences he *experienced*. The following Sections focus on this process and its outcomes.

Such a discussion is necessary given that Still’s revised definition of “God” was incredibly central to his conception of Osteopathy itself. Take for instance the first edition of Still’s *Autobiography* (1897a), wherein Still employs the word “God” **235** times. For comparison, in the same book Still refers to “Osteopathy” **214** times.

Still employed an incredible diversity of names for the sacred, many of which demonstrate his revised conception of divinity. For example, Still described “the incomprehensible ... [as] an all-wise chemist, be he known as God, Nature, the Unknowable, or the ever-living Genius of the universe” (1902f, p.258). Within the book *Osteopathy and Swedenborg*, the author and osteopathic physician David Fuller catalogues a full spectrum of **52** different terms used by Still when referring to the divine

(2012). Still's names for the divine may therefore also be used in part as a means of *defining* Still's conception of divinity, as will be discussed below.

It is important to understand that many of Still's names for the sacred are also found within the writings of other authors published before and during Still's era. Previous researchers into Still's work have used these shared *terms for the divine* as a means of identifying and understanding some of Still's most important cultural influences.

Authors with whom Still shared nomenclature for the divine include: Emanuel Swedenborg (Fuller, 2012; Trowbridge, 1991), the Swedenborg-influenced phrenology and magnetic healing movements which were in full force during Still's early life (Fuller, 2012; Gevitz, 1993; Trowbridge, 1991), the Spiritualist movement which Still strongly participated in - a movement which itself drew strongly on Swedenborg's writings (Fuller, 2012; Trowbridge, 1991; Stark, 2003); the philosophy underlying Thomsonian frontier botanical medicine (Trowbridge, 1991); and the intermingled influence of William James and the Pragmatic school of thought (McKone, 2012), with the British philosopher Herbert Spencer (Trowbridge, 1991; McKone, 2012), and the American Transcendentalists such as Ralph Waldo Emerson and Henry David Thoreau (McKone, 2012). Important correlations in worldview between Still and these other authors are readily apparent upon investigation.

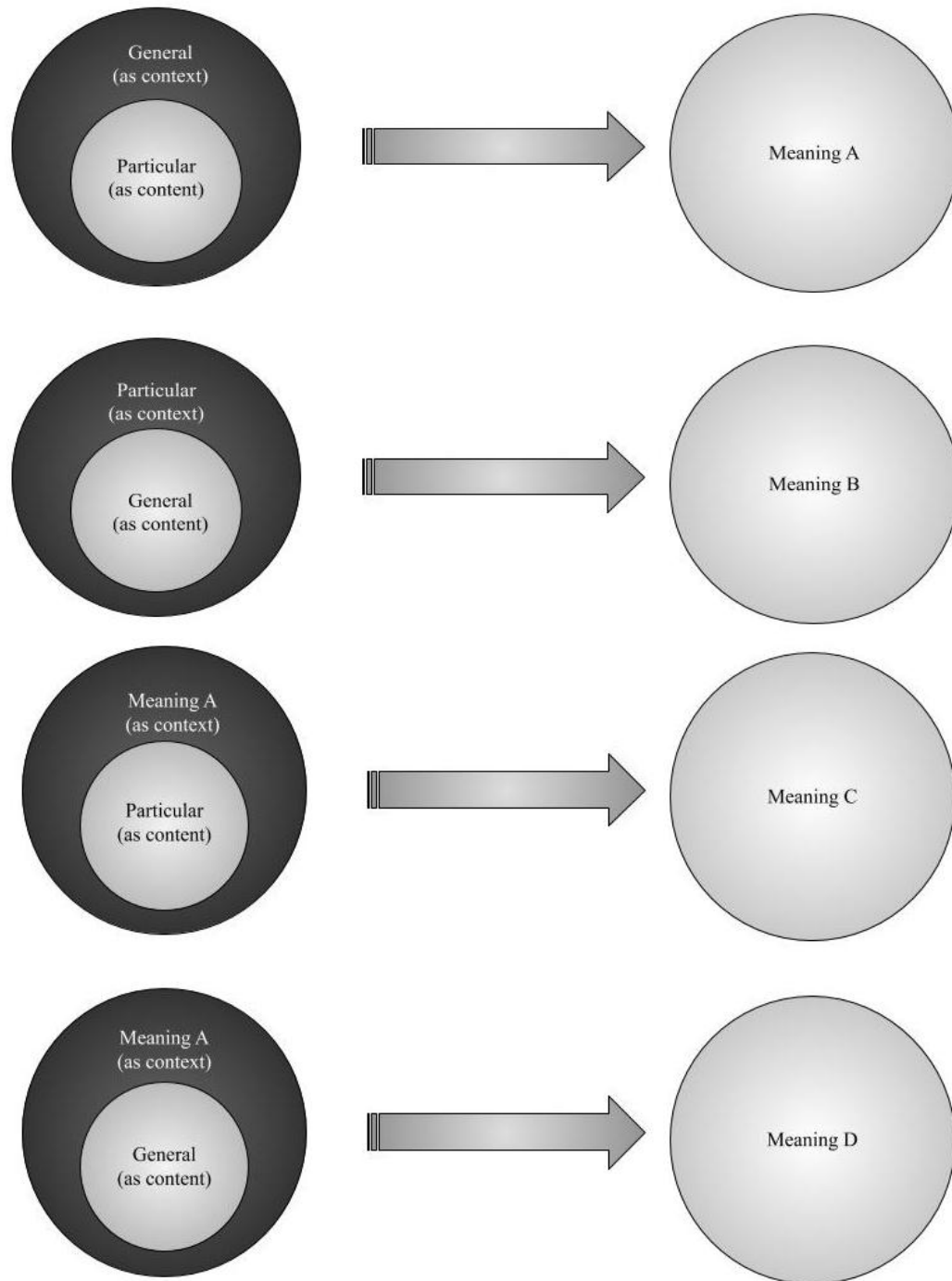
A comprehensive explication of the impact of these various influences onto Still's personal philosophy is not the purpose of this research, rather these disparate influences will be incorporated below only when they better serve to illuminate the aspects of Still's worldview which informed his *personal conception of immunity*.

3.4.3. "GENERAL AND PARTICULAR"

Now we take up the human body and when we get through with Anatomy, Histology, Physiology, Chemistry and all that part, this question comes up, what is life? (Still, n.d-a. p.9)

As demonstrated by the above quotation, when Still inquired into a specific topic his attention went not only to the details of it, but also involved a *recontextualization* of those details within the largest possible context.

This is to say that Still employed a methodology of inquiry composed of sweeping ceaselessly back and forth between the "general and particular" (1899c, p.65). Still's process involved employing the *general* as the *context* for the *particular*, and then switching the frame so that the *particular* became the *context* through which to more clearly interpret the *general*. This is represented in the following diagram:



And so on and so forth...

Figure: 9. Still's "general and particular" method of inquiry.

This process might be carried on indefinitely, through an endless series of combinations, thus creating an endless number of *meanings*. Within the multitude of *meanings* that arose, Still identified patterns, and from these patterns he synthesized the **most** pertinent *meaning* of the current inquiry. Yet this method also meant that Still's perceived meaning of a **current** inquiry was intimately tied to *every previous inquiry*. This meant that the influence between current and previous inquiries was also reciprocal - every current inquiry served as a means of refining and revising every past inquiry, and every past inquiry informed and shaped the current one. Still's constantly evolving worldview emerged from this unceasing process.

Perhaps Still came to utilize this "general and particular" style of inquiry due to the demands of his own life, wherein he was often forced to undertake a huge diversity of tasks. Still's was a life wherein many disparate demands required a personal synthesis by him as an individual, often without recourse to outside help (Lewis, 2012; Paulus, 2009; Stark 2003; Still, 1908; Still Jr., 1991; Trowbridge, 1991).

It is apparent that as Still compiled and compared his observations, he recognized patterns common to them all. Still's constantly refers to his identification of patterns that are seemingly omnipresent throughout the entirety of reality. Still interpreted these as patterns as the signature of "universal principles" or "universal laws" that had left these patterns in their wake. One of many possible examples:

A few years spent in the school of Nature teaches the osteopath that principles govern the universe, and he must obey all orders, or fail to cure his patients. (1910, p.23)

Still therefore verified his comprehension of these so-called 'universal principles' by depending on their presence during real-world decisions. If Still's understanding of the principle was correct, the predicted results would take place:

A truth can always be demonstrated; otherwise, we may have only a theory that is awaiting demonstration, but which until demonstrated does not merit adoption, neither should it be taught until abundantly proven by reliable demonstration. Then, such truths are ever-living facts and will lead the possessor to good results all the time. (1902f, p.164)

Thus within Still's writings many instances may be found wherein a *particular* personal experience is presented as proof of a *generalizable* principle understood by him as existing within many disparate phenomena. Which is to say "we often find one principle to rule over much territory" (1899b, p.199).

It would appear that it was by acting out this "general and particular" method of inquiry that Still arrived at a system of logical reasoning, a type of '*pattern logic*', which enabled him to trace chains of cause and effect that were seemingly unending, even circular. Still would follow a particular chain step-by-step 'upstream', thereby arriving at "the highest pinnacle of mental observation possible, a philosopher's constant aim when beginning his observations of the harmonies of Nature in all its works" (1902f, p.203). With this statement Still is describing the journey from the "particular" to the "general". From the elevated vantage point of the "general", all differentiated details coalesced into a landscape spread out below – individual *particulars* were revealed as a general *pattern*. Still held that universal laws and principles were *only* observable from this perspective, which is why he sought it out constantly for every *particular* inquiry he undertook.

A modern author has described the results of this very same method of inquiry:

...I can interconnect near and distant patterns by shifting my focus back and forth between them. Nearby patterns give meaning to distant details, which help reveal patterns too large to notice right around me. (Krafel, 1999, p.72)

From Still's own perspective, the universal principles or laws which this process revealed were then applicable to *every* inquiry, as being universal they were manifest inside *every* subject:

Are the tracks and truths of God in plain view? ...when we take up any one subject for investigation on which mind and experience may dwell for knowledge we see those truths, those mighty principles... (Still, 1898d, p.101)

How was it then, I am asked, that I thought of Osteopathy? I first saw the tracks of God in the snow of time. I followed them. (1898e, p.272)

In an article by Still titled *Osteopathy Defined by A.T. Still*, his opening line demonstrates how pivotal this perspective was to his worldview, and therefore his conception of Osteopathy: "It matters little at what point I commence my talk to you, for the subject of life has no beginning and is equally interesting at all points" (1895a, p.1).

3.4.4. THE WHOLE OF REALITY, HOLOGRAPHIC HUMANITY

Still's "general and particular" style of inquiry seemed to serve him well in the development of his revolutionary medical philosophy. This was commented on by E.E. Tucker and Carl McConnell, two of Still's early close students:

His real effort with us was not to teach the details of the science - they would come of themselves in time - but to carry us to the source, the springs, to make us appreciate that point of view, to give us understanding

for that sort of osteopathy. With him each fact was seen not as an isolated item, but as part of a subject of many subjects. Each item was evidence of a principle or principles, and was merely the period to a vast question mark as to its wider relations (Tucker, 1918, p.247).

Nothing apparently escaped his notice. ...he was a child of nature. He saw far beyond the mere objects. Everything to him seemed to be literally pulsing with life, of which the inner meaning was sought, analyzed and arranged after a certain order of cause and effect and its relationship to the universe. Nothing was isolated. There was order and a completeness, subject to the law of change, in his scheme of life. ... many a striking conclusion worked out in his actual experience with disease received added confirmation due to his keen observation and understanding of wildlife. (McConnell, [1918, reprinted in] 2011, p.6)

As Still's early students note above, one aspect of Still's method of inquiry was to take each particular instance under investigation and recontextualize within "its relationship to the universe" - meaning *literally within the **whole of reality** so far as Still had personally experienced it*.

This was the scale at which the *particular* was revealed as being but a specific instance of a much larger *general* pattern. Through this viewpoint, Still concluded that an understanding of the *whole* of reality could therefore also be gained by looking back at the whole through the lens of the *particular*. That is to say, when one took the perspective of viewing the *particular as being a specific instance of the **whole***. Still felt that this method of inquiry was especially suitable to humanity:

That question "What is man?" covers all the questions embraced in the universe—all questions, none left, "Who is God?" "What is life?" "What

is death?" "What is sound?" "What is love?" "What is hatred?" Any individual one of these wonders can be found in that great combination, Man. Is anything left? Nothing? (1908c, p.240)

Man, that machine, that biological being...is the miniature universe, mind, motion and matter made to love and work as one. (1898e, p.267)

As is presented in the examples discussed below, it becomes obvious that Still perceived each of the 'parts' as a direct presence of the 'whole'. The 'whole' existing *within/as* each of the 'parts'. Doing so clearly demonstrates a *holographic* conception of reality (Bortoft, 1971). "Holographic" was the term that Reuben Bell, DO, used to describe Still's overall worldview and perspective (see APPENDIX D: KEY-INFORMANT INTERVIEW TRANSCRIPTS).

Of course Still himself never employed the word 'holographic' as this word only came into existence in the early 1960s accompanying the advent of laser beams (Caulfield, 1979). Regarding this technologically derived 'holographic principle', the modern British Osteopath Walter McKone explains that a hologram is a **2**-dimensional image that has the striking capacity to present **3**-dimensional information (2018). Furthermore, a hologram *only* reveals the different aspects of its total information when viewed from *different vantage points* by an observer (McKone, 2018). This is despite the fact that *all* aspects of the 2-dimensional surface of a holographic print contain the **entire** amount of 3-dimensional information.

This last quality is particularly important: it means that if a 2-dimensional holographic print is cut into two separate pieces, rather than resulting in two *partial* aspects of the original image (as would take place with the cutting of a conventional

photograph), the result is instead the creation of two separate yet *complete* representations of the original image - each image as *perceived from a different vantage point!* (See the below illustration). Thus each separate piece of the original 2-dimensional print becomes a smaller *scale* version of the original image, albeit with a lower resolution of clarity (as each piece now has a smaller pool of information from which to compose the image) (McKone, 2018).

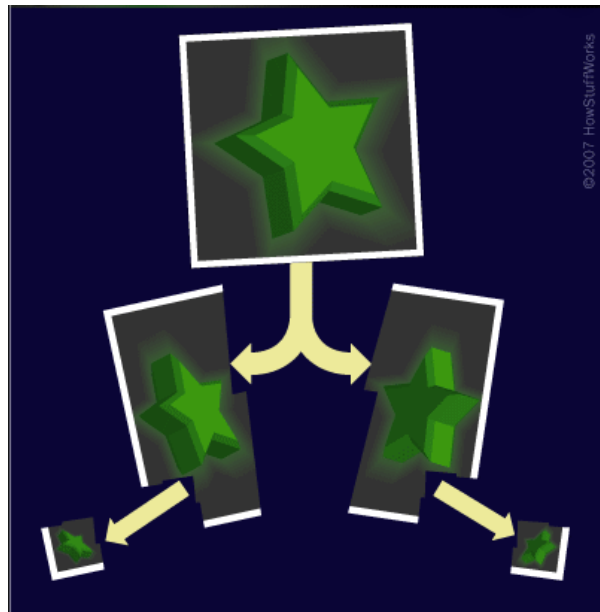


Figure: 10. Cutting a hologram reveals the holographic principle (HowStuffWorks, 2007).

Thus a ‘*holographic quality*’ can be summarized as the ability to *contain ‘the whole’ **within** all aspects that compose ‘the whole’* (Bortoft, 1971). Thus even when the appearance of distinct and separate ‘parts’ occur, each ‘part’ is nonetheless understood to be a manifestation *of* the ‘whole’ (Bortoft, 1971).

3.4.5. HOLOGRAPHIC CULTURE

During the course of Still’s life, a scientific revolution occurred as ‘cell theory’ came to prominence. Cell theory was a new “microcosmic vision of the body” (Pelling,

2013, p.327), a theory containing the profound shift in perspective that a single living organism should be better understood as a *multitude* of **discrete** organisms, i.e.: 'cells', each sub-unit now considered 'alive' unto itself, each with its *own* distinct boundaries delineating a 'self' from the surrounding 'non-self'.

Rudolph Virchow (1821-1902) was the Prussian scientist who first synthesized and advanced this theory of cells as the fundamental biological units that underlay the processes of growth, health and disease.

In Virchow's paradigm-shifting book, *Cellular Pathology as Based upon Physiological and Pathological Histology*, he presented this new holographic vision of a biological 'individual' through the use of a specific analogy:

Just as a tree constitutes a mass arranged in a definite manner, in which, in every single part, in the leaves as in the root, in the trunk as in the blossom, cells are discovered to be the ultimate elements, so is it also with the forms of animal life. *Every animal presents itself as a sum of vital unities* [italics original], **every one of which manifests all the characteristics of life**. The characteristics and unity of life cannot be limited to any one particular spot in a highly developed organism (for example, to the brain of man), but are to be found only in the definite, **constantly recurring structure, which every individual element displays**. [emphases added] (Virchow, 1860, p.13-14)

Charles Darwin was struck by the profundity of this new perspective and wrote in response that: "Each living creature must be looked upon at as a microcosm--a little universe--formed of a host of self-propagating organisms, inconceivably minute and numerous as the stars in heaven" (1868, p.404).

Ralph Waldo Emerson, the figurehead of the American Transcendentalist movement, much the same as Still, engaged in an inquiry that led him on a “ascent from particular to general” (Emerson, 1836, p.47). It was through this process that Emerson came to perceive a holographic quality within:

...the Unity of Nature, -- the Unity in Variety, -- which meets us everywhere. ... Every **particular** in nature, a leaf, a drop, a crystal, a moment of time is related to the whole, and partakes of the perfection of the **whole**. Each particle is a microcosm, and faithfully renders the likeness of the world. [emphases added] (1836, p.54-5)

Within Emerson's writings he explicitly referenced Emmanuel Swedenborg as an important influence on his work (1836, p.43, p.90). Swedenborg was a Swedish scientist and Christian mystic whose body of work eventually became foundational to Spiritualism. Spiritualism was the American metaphysical movement that Still participated in to one degree or another for much of his adult life (Fuller, 2012; Lewis, 2012; Stark, 2003). Swedenborg's writings record his experiential visions, including the perception that one's own body and the realm of heaven are unified within a holographic relationship:

It is recognized that every organ and every member in the body is made up of parts and of parts of parts. ... All of these, **in general and in specific**, correspond very precisely to the Universal Human, and in the same measure, so to speak, to the heavens. In fact, the Lord's heaven is similarly divided into smaller heavens, these into still smaller ones, and these into the smallest. Ultimately it is divided into angels, each of whom is a miniature heaven corresponding to the greatest one. These heavens are quite distinct from each other, each belonging to its own general part, and the general heavens to the most general or the whole, which is the

Universal Human. [emphasis added] (Swedenborg, 1984, n.4222, as cited in Bell, n.d., p.10)

Herbert Spencer, the British thinker who is reported to have been Still's "favourite philosopher" (Deason, 1934, p.24), concluded in his culturally important book *First Principles* that a holographic quality was *the* essential characteristic contained within *all* of physical reality. Spencer stated:

Thus we seem led to the conclusion that the entire process of things, as displayed in the aggregate of the visible Universe, is analogous to the entire process of things as displayed in the smallest aggregates (1863, p.481).

It was perhaps through influences such as these that Still himself came to conclude that:

I feel able through Osteopathy to look at Saturn as a small corpuscle of blood in the body of the great universe. When I look at the earth, and the moon, and take the solar system, I find that the Directing mind has numbered every corpuscle [blood cell] in the solar system, and each one of them come on time - no mistakes. ... I want to tell you that I worship a respectable, intelligent and mathematical God. ... We take up Osteopathy. How old is it? Give me the age of God and I will give you the age of Osteopathy. (1896c, p.1)

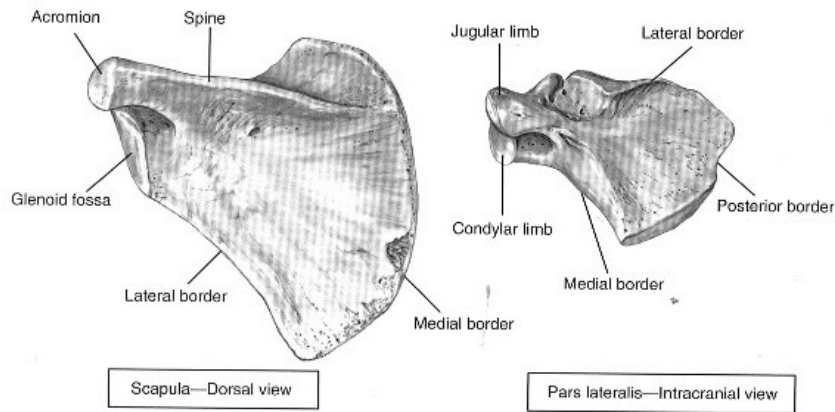
It is highly significant to note the manner in which Still stated the above. Still said "I feel able *through Osteopathy* to look at..." - he is thereby defining Osteopathy *not as a medical system* – but rather *as a particular means of perceiving*.

It was through this 'osteopathic' perception that Still arrived at the above holographic conclusion, the same conclusion that saturates Still's writings: reality as a

whole is composed of *repeated instances* of the *same patterns* taking place on *different scales*. As stated by another author:

In nature, a whole encloses the parts, and a yet larger whole encloses the whole enclosing the parts. By enlarging our field of view, what is thought of as a whole becomes, in fact, nothing more than one part of a larger whole. Yet another whole encloses this whole in a concentric series that continues on to infinity. (Fukuoka, 1987, p.124)

Still had reasoned that universal *patterns* were evidence of an underlying unitary *cause*. A single *cause*, when repeated at various scales, would consistently produce similar *effects*, at those various scales – thus the repetition of form and function that Still observed across space and time. It was through *this* reasoning that Still saw “in man a miniature universe” (1908c, p.333). Still felt that the human body and the whole universe are mirrored phenomena due to a **shared** cause. Still understood the full diversity of *manifestations* within reality as the many effects of a single *cause of manifestation*.



Comparison between the left perinatal scapula and the right pars lateralis from the same skeleton

Figure: 11. Holographic anatomy: a single underlying cause creates multiple instances of similar effects. This field guide for anthropologists and forensic investigators cautions against confusing the left perinatal scapula with the right pars lateralis (a developmental segment of the occiput) - given that the two bones are exceedingly self-similar. (Schaefer, Black, Scheuer, & Christie, 2009, p.7. Reprinted with permission)

Still's presented this concept of a unitary *cause of manifestation* expressing itself as a diversity of *manifestations* through the use of an everyday example: "The wood, the leaf, and the coloring matter of the leaf, limb, and fruit are simply physical expressions of the power of the mother tree to create variations in the several divisions of the tree" (1902f, p.49). Still used this analogy to present his readers with the concept that neither the leaf, limb or fruit are the totality of what the tree *is* - rather the *essential underlying 'tree'* had manifested itself *as* the leaf, limb and fruit.

As again stated by the medical historian Pelling: "...these analogies were not irrelevant to, but were part of, the argument" (2013, p.310). This is to say that when viewed from within Still's holographic worldview, the fruit tree was perceived to be a

direct instance *of* the very same concept he was elucidating regarding the parts and the whole of the universe. The implications of this to humanity are discussed below.

3.4.6. THE NATURE OF MANIFESTATION

The list of capitalized terms that Still used in reference the divine is both extensive and frequent throughout his writings. Examples include:

- “Master Architect of the Universe” (1908c, p.282)
- “Nature’s architect” (1908c, p.120)
- “Author and Builder of all worlds and all things therein” (1908c, p.259)
- “Creator” (1908c, p.82)
- “directing Mind” (1908c, p.228)
- “Divine Surveyor” (1899b, p.33)
- “Philosopher, Mechanic, Engineer and Author” (1910, p.516)
- “Father of all motion” (1902f, p.249)
- “Infinite Mind” (1908c, p.205)
- “Intelligence” (1908c, p.366)
- “Inventor of the Universe” (1908c, p.232)
- “Divine mind” (1908c, p.164)
- “mind of the Infinite” (1908c, p.193)
- “Nature” (1908c, p.312)
- “God of nature” (1908c, p.340)

Within the diverse terms contained in this selective list, a commonality may be found in that all of these names denote the *qualities* of the divine when in *action*, when *manifesting*.

Thus just as the “limb, leaf, and fruit” were shown above to be but many different manifestations of the single underlying “mother tree”, so Still had come to understand that the same holographic concept applied to reality on the largest possible scale. This meant that to Still reality was understood as being the diverse *particular* instances of a *single underlying whole* expressing itself. Still attempted to describe that underlying whole as that which was “superior to the sum total of the elements of the whole universe” (1910, p.510).

For Still, this one further step in pattern recognition and explication gave rise to serious implications for his conception of both human *individuals* and the *divine*:

What is God? If all of man, with his mind, matter and motion is one being, what is the universe but a being? It has mind, matter and motion. It does its work well and wisely, still it is only one universe. Then mind to the universe is the same that mind is to man. Thus God would be the universe. We are in the universe therefore, we are with God and help to compose that great all, and journey as it journeys. That great compound is eternal, so are we. We have lived, do live and will live out the full number of the days of the universe. Thus to us a universe means all space and all therein contained. This signifies the universal universe. A man under the same law of reasoning would be a dependent universe, while the universal universe is not dependent, because it is the all of all, **specially and universally**, mental [mind], motor [motion] and material [matter]. The individuality of mind with its independence from all else, to me seems to be imposiible [sic] ... Thus the universe is a being ... Thus we have God

as mind in union, working in union with the motor [motion] and physical [matter]. [emphasis added] (Still, 1901h, p. 198).

God manifests himself in matter, motion and mind. Study well his manifestations. (Still, 1895a, p.1)

You do not need a medium to get into communication with the Infinite. You have this Infinity in yourself... . . . Every bone in the body, every muscle, nerve and blood vessel is continually telling you that they are parts of this great Creative Scheme... (Still as recollected by Pickler, 1921, p.244-245)

The thoughts of God himself are found in every drop of your blood. (Still, 1896d, p.3)

...the wisdom of God proved his highest point when it united soul and body, mind and matter, life and motion. ... By his power and wisdom **he put in you a part of himself** and says, "You are my child". [emphasis added] (Still, n.d.-a, p.8)

Still's osteopathic "general and particular" method of inquiry had brought him to a vision of reality where the human individual and the divine whole could no longer be viewed as separate. Still's inquiry had led him to experience a fundamental redefinition of both 'self' and 'God'. This is to say that from Still's perspective, a human being was understood to *be* the indivisible whole of reality - manifesting in this particular instance *as a human*. Or stated differently: humanity does not exist *within* the universe, rather, humanity *is* a particular instance *of* the universe *existing*.

Using the same concept as contained in his earlier example involving the "leaf, limb and fruit" that were demonstrated to be but different expressions of the underlying

“mother tree”, Still explicitly stated these conclusions within a different piece of unpublished writing, titled: *Man as a part, or the product of the wise & kindly workings of Mother Nature* (Still, n.d.-c). In this text Still stated that once a human individual has matured he would begin to view “himself as one of the leaves of the book of nature” (Still, n.d.-c). This is to say that for Still “Mother Nature” is the essence, while a human individual is but a particular instance of this essence expressing itself in form.

Yet even *this* profound shift in perspective, and the revelations that accompanied it, did not quench Still’s yearning to know - for if the universe, the divine, and humanity were actually but different instances of the same underlying phenomenon - *what was that underlying unity unto **itself***? By what means was that underlying unity able to form and maintain the appearance of individual “beings”? The conclusion that Still came to can be illustrated by a second category of names which he used to refer to the sacred.

3.4.7. THE INFINITE UNKNOWABLE

A second list of the terms used by Still to refer to the divine include:

- “the Infinite” (1902f, p.47)
- “the Unknowable” (1902f, p.258)

The commonality that can be found within this second selective list is that these names denote the divine *itself*: the **cause** of manifestation, rather than referring to the divine’s **behaviour** as a manifestor. Still wrote:

God. We can easily say God, but what do we know about him? When we have accumulated all the knowledge that the human mind can possibly acquire, it is acquaintance with the work of that Architect that constitutes the real knowledge of God. Outside of that, all is silence ... Let those who

wish, worship God by a closer acquaintance with his work. My highest and most profound worship is when I take up any part of the human body or any part of nature ... (n.d.-a, p.2)

Thus Still felt that describing the *actions* or *qualities* of the divine, was the most approximate *possible* means of describing the divine *itself*. Thus the divine itself could only be accurately described as *indescribable*, thus: “the Infinite”, or “the Unknowable”.

With statements such as the above quotation, Still made it clear that he had come to the conclusion that *creation* was the only way which humankind can know anything at all about *that which creates* perceivable reality. Still felt that this fundamental unknowability was the *essential nature of the divine*, and was thereby unknowability was also the very ground from which all of perceivable reality emerged.

3.4.8. SYNTHESIS OF STILL'S HOLOGRAPHIC WORLDVIEW

A concise synthesis of Still's overall conclusions in this regard follows immediately, while a fuller explication of these conclusions takes place in the following two Sections.

Through a series of logical reasonings and personal experiential investigations, Still had come to conclude that perceivable, finite reality consists of the many diverse manifestations of a singularity. This singularity itself consists of *infinite* potential, i.e.: “...that associated force whose qualities are endless in both numbers and effects, unlimited in all spheres of its action” (Still, 1901i, p.241). This is to say that everything finite is itself a direct instance, a manifestation of, *that which* is infinite. Thus Still's term for divinity, “the Infinite”, is meant to imply not only ‘endlessly vast’, and ‘of an endless duration’ (without start or end), but even more fundamentally: *that which* manifests itself

as time and space - the *infinite potential* from which the phenomenon of time and space emerges.

It follows that this *infinite potential* is therefore unlimited - because it is *unformed*, having no character itself except to contain the potential for *all possible* characteristics.

The corollary of this conclusion of Still's is that "the Infinite" can therefore never be perceived - for the perceiver is in fact *also* but one particular finite manifestation of the infinite potential. To Still it was logically deducible that a fountainhead of formless infinite potential could **not** exist within human perception - quite simply because an unlimited *infinity* cannot be contained within *finite* human perception.

This is to say that, by definition, a human cannot understand "the Infinite", as human understanding is based on *comprehension*, that is: viewing from a perceptual vantage point which is *comprehensive*. Yet it is not possible to take a comprehensive vantage *in relation* to infinity, as infinity has no limit, therefore it cannot be *related* to – it is a singularity - you cannot get 'outside' of infinity's boundaries so as to have a look at it. This is the reason that infinity exists as a unity. This explains how "the Infinite" may act as the unlimited source that manifests itself *as* all that is finite.

Still felt this line of reasoning logically demonstrated the impassible limitations in human perception in relation to the source of reality. Through this, Still concluded that the truth of reality was not only currently *unknown*, but that was in fact demonstrably *permanently unknowable*.

This was the line of experiential reasoning that informed Still's additional use of the term "the Unknowable" in relation to the divine. This was a term which Still

employed in conjunction with the term “the Infinite” - anything “Infinite” is by definition “Unknowable”. It was through this sequence of logic that Still concluded that creation is the only way for humankind could come to know anything at all about *that which* creates. Thus in the end Still felt that: “We know its power by what it does, only” (Still, 1901i, p.242).

How Still arrived at this worldview can be better illuminated by investigating the cultural origins of the terms he chose to employ as the representatives of these conclusions.

3.4.9. A BRIEF HISTORY OF INFINITY

The inherent *unknowability* of divinity is a conclusion that has been arrived at throughout human history. It can be found in the *Rg Veda*, India's most ancient sacred text, as well as in ancient Egyptian worship of the god Aton, and in the writings of the ancient Greek philosophers who pursued an “apophatic theology” - meaning “to deny,” or “to say no” – this being a literal definition of the sacred: ‘*that which cannot be spoken of or conceptualized in any way*’ (Winters, 1994).

Infinity has been perceived as a central quality of *divinity* since at least the classical Greek philosophers - who thereby also explicated the inherent *unknowability* of the sacred (Barrow, 2005; Dowden, n.d.). This association continued within important Western theological writers throughout the Middle Ages. For example, contrast Still's sentiments above, regarding the unknowable of reality due to its holographic nature, with the writings of the German Christian mystic Meister Eckhart (1260-1328), who wrote:

The image of the soul is the product of itself, with neither will nor knowledge. Here's an analogy. **When a branch grows from a tree, it bears the name and nature of the tree. What grows out is the same as**

what remains within, and what remains within is the same as what grows out. Thus the branch is an expression of itself. [emphasis added] (Parke, 2009, p.80) *[This being Still's exact "mother-tree" metaphor, used by both authors as a means of conveying the holographic quality of reality in "general and particular"]*

It is no more possible to find a name for the soul than it is to find one for God, even though some weighty tomes have been written about this! But in so far as she chooses to act, we give her a name. Consider a carpenter for instance. This is not so much his name as the name of what he does and of which he is master. (Parke, 2009, p.86). *[This mirrors Still's use of names for the divine that are 'descriptors of the **actions** of the divine' – as approximate names such as this are the only means available of describing the indescribable. (See SECTION 3.4.6 THE NATURE OF MANIFESTATION)]*

God is infinite in his simplicity and simple in his infinity. Therefore he is everywhere and is everywhere complete. He is everywhere on account of his infinity, and is everywhere complete on account of his simplicity. Only God flows into all things, penetrating their essence. (Parke, 2009, p.101) *[Divine infinity expressing itself **as** all of finite reality, in an unbroken holographic relationship]*

The writings of the Irish theologian Johannes Scotus Eriugena (815-877) also contain a similar perspective. For historical context, Eriugena is said to be "the most outstanding philosopher (in terms of originality) of [his] era" (Moran & Guiu, 2019), due to the manner in which his thought "synthesize[d] the philosophical accomplishments of fifteen centuries" (Burch, 1951, p.5). Exactly mirroring Still's line of reasoning

regarding the infinite nature of the sacred, thereby demonstrating its inherent unknowability, Eriugena stated that:

So supremely perfect is the essence of the Divinity of God that God is incomprehensible not only to us but also to Himself. For if He knew Himself in any adequate sense He should place Himself in some category of thought, which would be to limit Himself. ("Eriugena", 1913, p.520)

Eriugena is stating that humanity cannot hope to attain a comprehensive vantage point from which to observe the divine, as the divine is boundlessness itself. Eriugena concludes from this that even the divine cannot know its own true nature!

Thus it is demonstrated that the concepts referred to by Still, via his use of the terms "the Infinite" and "the Unknowable", are the very same conclusions as are found within many centuries of theological and philosophical traditions that preceded and informed Still's time and place.

It is also relevant to note that the 20th century's preeminent Professor of Comparative Religion, Mircea Eliade, identified a conception that is found nearly ubiquitously throughout indigenous cultures, despite the huge distances of time and space separating these societies (Eliade, 1989). The commonality consists of a perception of the cosmos as taking the form of the roots, trunk, and branches of a holographic, micro-macrocosmic "World Tree". This 'World Tree', "on the one hand represents the universe in continual regeneration, the inexhaustible spring of cosmic life, the paramount reservoir of the sacred" (Eliade, 1989, p.271). It is a motif that "excludes neither the profound unity of the universe nor its apparent 'dualism'" (Eliade, 1989, p.284).

Perhaps Still encountered a holographic cosmology such as this directly during his experiential investigations into Nature. Eliade states that this is a common experience

in those individuals who fulfill the societal role of 'healer' in indigenous cultures: "The shamans did not create the cosmology, the mythology, and the theology of their respective tribes; they only interiorized it, 'experienced' it, and used it as an itinerary for their ecstatic journeys" (Elidae, 1989, p.266). It certainly appears that this was Still's own vantage point:

In the sky we have constellations of worlds, in the body constellations of molecules. In the sky we have rain clouds, in the body lying alongside the veins are the lymphatics which prepare water and pass it into the veins thinning the crop of blood. This analogy may be carried out indefinitely... (Still, 1895b, p.6)

Perhaps Still came to these perspectives through personal experience, or perhaps it was through his method of inquiry wherein all fields of study were integrated into a one worldview. Another individual who took that approach was Leonardo da Vinci, who himself then also described the study of anatomy as a "comografica del minor mondo", that is, a "cosmography of the microcosm" (Gelb, 2004, p.223). Regarding this same perspective da Vinci wrote:

Man was called the microcosmos by the ancients, and surely the term was well chosen: for just as man is composed of earth, water, air, and fire, so is the body of the earth. As man has bones as support and framework for flesh, so the earth has rocks as support for soil; as man carries a lake of blood in which the lungs inflate and deflate in respiration, so the body of the earth has the ocean which waxes and wanes every six hours in a cosmic respiration; as the veins emanate from the lake of blood and are ramified throughout the human body, in the same way, the ocean fills the body of the earth with an infinity of veins of water. (As quoted in Gelb, 2004, p.224)

Thus it seems likely that Still would have at the very least encountered such perspectives within the course of his wide reading as these conclusions seem frequent throughout a wide diversity of human cultures. One of Still's direct students, Wilborn Deason, reported that: "From various personal visits with him I know that Dr. Still had been an ardent student of most of the recognized philosophers of his day as well as the earlier writers" (1934, p.22). Still himself described or displayed his reading habits as being very far-ranging:

Call them spirits or devils. You take one and I will take the other. How is this? We find it among the Brahmins. We find it among the Chinese. We find there has been just enough of the spirit man in all ages—the early days of Christianity, the days of the Greeks and the Hebrews... (n.d.-a, p. 5)

Read all authors from AEsculapius [the Greco-Roman god of medicine / healing arts] to this date... (1902, p.232)

The current research is not concerned with determining the origin of these concepts, nor with locating the first instance within the historical literature wherein the exact terms "the Infinite" and/or "the Unknowable" were first used. Nevertheless, it can easily be demonstrated that these terms for the sacred, and the concepts they imply, were central to philosophical works that were prominent in the culture of Still's time and place.

The writings of the popular American Transcendentalist Ralph Waldo Emerson (1803-1882), described the relationship between divine-infinity and human-individual through the use of the now familiar holographic tree analogy:

...spirit creates; that behind nature, throughout nature, spirit is present; that spirit is one and not compound; that spirit does not act upon us from without, that is, in space and time, but spiritually, or through ourselves. Therefore, that spirit, that is, the Supreme Being, does not build up nature around us, but puts it forth through us, **as the life of the tree puts forth new branches and leaves through the pores of the old. As a plant upon the earth, so a man rests upon the bosom of God... .the infinite...we learn that man has access to the entire mind of the Creator, is himself the creator in the finite.** [emphases added] (Emerson, 1836, p.79-80)

Also strikingly similar to Still's writings are those of his contemporary Andrew Jackson Davis (1826-1910), a prominent Magnetic Healer and leader within the American Spiritualist movement - both of these being cultural currents that Still participated in (Fuller 2012; Lewis, 2012; Stark, 2003). At times Still and Jackson's writings are nearly indistinguishable from each other. Both authors utilize many of the same terms for divinity and discuss similar themes, for example, Davis wrote:

As the human mind is organized on a finite plane, so is the Divine Mind organized on an infinite plane. ... The outer universe is a visible manifestation of the Indwelling Deity. Nature is the body, God is the soul. ... God is the Cause, Nature is the effect; God is the spiritual, Nature the material; Nature is finite, God is infinite. ...

God acts upon the universe anatomically. In the structure of planets and in the forms of solar systems there are manifold indications of a great anatomical law; and inasmuch as spirit is a substance superior to matter, which it moves, the formative principle which lies back of and beneath all visible combinations of matter... . The series, degrees, associations of structures in Nature are expressive of principles contained in the One Great Principle. God also acts physiologically on the universe. [And then, yet again, Davis employs the holographic tree analogy:] **As the**

acorn develops into an oak, as the germ of all forms produces an ultimate development in its own image and likeness, so the Divine Mind begets Its image and likeness in the human soul. (1923, p.5-6)

Even David Bohm, a giant in the development of today's quantum mechanical theory of physics, came to his own holographic conclusions regarding the essential nature of reality:

...our work brings out in an intuitive way just how and why a quantum many-body system cannot properly be analyzed into independently existent parts, with fixed and determinate dynamical relationships between each of the parts. Rather, the "parts" are seen to be in an immediate connection, in which their dynamical relationships depend, in an irreducible way, on the state of the whole system (and indeed on that of broader systems in which they are contained, extending **ultimately and in principle to the entire universe**). Thus, one is led to a new notion of unbroken wholeness which denies the classical idea of **analyzability of the world into separately and independently existent parts**. Through this, a novel direction is indicated for our general intuitive and imaginative thinking, which takes it beyond the limits imposed by classical concepts. [emphasis added] (Bohm & Hiley, 1975, p.95-6)

In today's theoretical physics the existence or non-existence of infinity on the macro- and micro- scales of space-time remains a fundamental focus of inquiry (ex: Ellis, Meissner, & Nicolai, 2018).

To return to Still's era, discussions of not only "the Infinite" but also of "the Unknowable" were central features in the works of:

- The Scottish metaphysician and philosopher Sir William Hamilton (1788-1856), in his *Philosophy of the Unconditioned*, which was released as a

series of newspaper articles in Edinburgh in 1829 and republished in book format in 1852.

- The British philosopher John Stuart Mill (1806–73), who is even today regarded as being “the most influential English language philosopher of the nineteenth century” (Macleod, 2016). In 1864 Mill published a book-length discussion of Sir Hamilton’s earlier work. Much of this book was focused around the implications of “the Infinite” and “the Unknowable”.
- The British philosopher, Herbert Spencer (1820-1903), who also used Sir Hamilton’s work as a foundation for his own further explications. Spencer’s 1863 tome *First Principles* includes extensive quotations of Sir Hamilton’s earlier writings. Importantly, it has been reported that Spencer’s writings deeply influenced both the general culture of Still’s time and place, as well as Still in particular (Deason, 1934; McConnell, 1913; McKone, 2012; Trowbridge, 1991).

The above historical sequence of philosophers and cultural influencers is provided to make the point that, since Still was a voracious reader, it is quite possible he read **any number** of authors who discussed “the Infinite” and “the Unknowable”. Perhaps Still also perceived reality’s holographic, limitless quality via his own direct experience - there are inklings of this to be found within his writings (ex: 1908c, p.312-5).

Yet as will be detailed below, it is likely that the work of the British philosopher Herbert Spencer provides a particularly useful lens through which to better interpret the

role of “the Infinite Unknowable” within Still’s worldview. This particular aspect of Still’s “philosophy” is foundational to an understanding of his personal conception of immunity.

3.4.10. HERBERT SPENCER AND “FIRST CAUSE”

Carol Trowbridge, one of Still’s most respected modern biographers, broke new ground when she demonstrated the profound degree to which Herbert Spencer’s thought had exerted a central influence on Still (1991). Trowbridge felt that this connection was of such importance, and even now remains so little understood, that she is currently in the process of authoring a second book elaborating the relationship between Still’s worldview and Spencer’s writings (personal communication Jan 21, 2019).

It is necessary to investigate this influence here indepth - given that while Still did often employ the terms “the Infinite” and “the Unknowable” in reference to his conception of divinity, Still only *contextually* defined the meaning that these terms held for him. Within Still’s writings he never quite presented an explicit definition of “the Infinite”, “the Unknowable”, nor the linear sequence of logic that led him to resonate with the concepts that these terms imply.

Yet Spencer’s 1863 book *First Principles*, which is reported to have been one of Still’s “more treasured volumes” (Deason, 1934, p.22), focuses on providing meticulously crafted definitions of both “the Infinite” and “the Unknowable” that consist of the entire philosophical sequence of reasoning represented by these terms.

When Spencer wrote *First Principles* he was seeking to illuminate a single “deepest and widest of all truths” - a unity, arrived at through synthesis (1863, p.99):

The question, however, is not the value or novelty of the *particular* truth... . My aim has been to exhibit the more *general* truth, which we are

apt to overlook, that between the most opposite beliefs there is usually something in common,--something taken for granted by each... [emphases added] (Spencer, 1863, p.10)

Spencer sought a single universal truth capable of reconciling the conclusions of science and religion, a truth applicable to reality on all scales. To accomplish this, Spencer meticulously traced chains of cause and effect further and further 'upstream' - employing a series of thought experiments that were intended to lead the reader into a personal *experience* of what Spencer is presenting. Spencer directly engages the reader to join him in the process of "merging derivative truths in those wider and wider truths from which they are derived" (1863, p.254).

Thus Spencer is employing the very same philosophical method of inquiry that Still propounded earlier, the journey to "the highest pinnacle of mental observation possible (Still, 1902f, p.203).

Using this philosophical strategy Spencer sought to identify and define a "First Cause" - *the* primal phenomenon that could be demonstrated as being the single ultimate origin of **all** subsequent phenomena (1863, p.38). By doing so, Spencer hoped to establish a "general Theory of Things" - a theoretical model of reality capable of describing *any and all* phenomena (1863, p.22).

Through this system of ascending inquiry from the particular to the general Spencer arrived at the conclusion that the apparent diversity of reality can inevitably be traced back to a single physical law. Spencer referred to this law as the "persistence of force" (1863, p.251). Today this same law is now known as the 'First Law of Thermodynamics' (Taylor, 2007), which "states that energy cannot be created or

destroyed. It can only change form or be transferred from one object to another” (Kahn Academy, n.d.).

Spencer logically deduced that since force can not be destroyed, only transferred or transformed, *motion* (i.e.: force existing over time through space) also can not be destroyed, merely transferred or transformed. Thus Spencer deduced that if *force* was not universally (infinitely) uniform it must interact – thus producing a variety of motions that become further diversified into an ever-increasing spectrum of vectors and velocities – this being the genesis of the perceivable diversity known as reality. Spencer described the details of this process using various examples of time and space, from the scale of molecular vibrations all the way up to the formation and motion of celestial bodies and solar systems.

This is to say that within Spencer’s model, *motion* is the sole and core phenomenon that ultimately leads to the appearance different types of ‘matter’, as well as the organization of ‘matter’ into its full diversity of forms and functions.

Spencer’s rather complex concept is difficult to concisely summarize here; within *First Principles* this process takes hundreds of pages and a graduated sequence of examples. Yet Spencer’s model of reality has beautifully conveyed in illustration by Walter Russell (1871- 1963), the American artist, philosopher, musician and scientist:

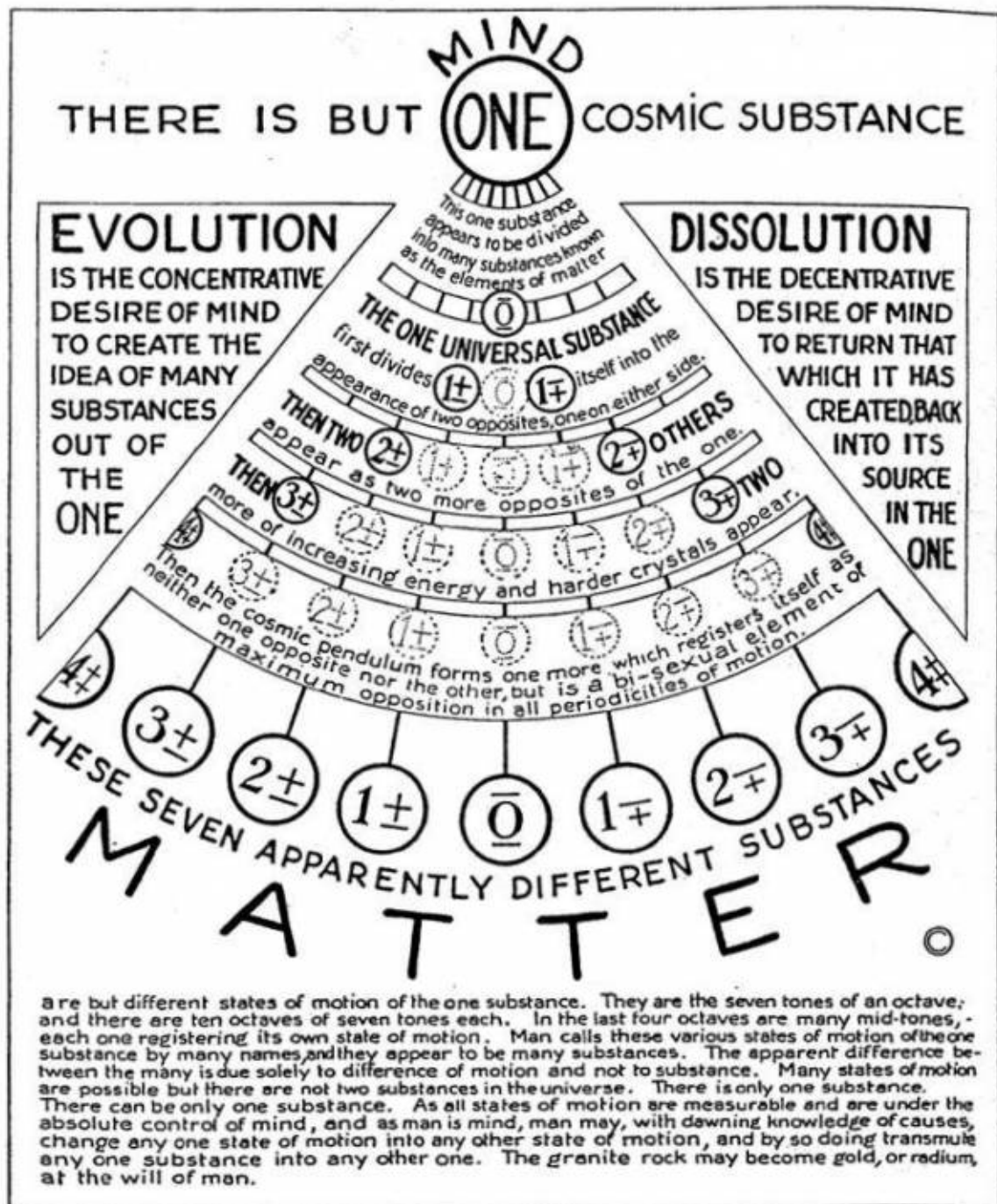


CHART TRACING SOURCE OF MAN'S SUPPOSEDLY
MANY SUBSTANCES BACK TO THE ONE

Figure: 12. The One manifesting itself as the appearance of many. (Russell, 1974, p.9)

Yet Spencer was not satisfied with this unified conclusion - for the question remained: if all of reality could be described as the movements dependent upon the irreducibility of *force*: what is *force* **itself**? In the end, Spencer paradoxically employed logic as the means of conclusively demonstrating that a logic-based scientific inquiry would **never** be capable of answering this question as:

...there must exist some principle which, as being the basis of science, cannot be established by science. All reasoned-out conclusions whatever, must rest on some postulate. As before shown (§ 23), we cannot go on merging derivative truths in those wider and wider truths from which they are derived, without reaching at last a widest truth which can be merged in no other, or derived from no other. (Spencer, 1863, p.254)

Thus Spencer felt that once “persistence of force” had been identified as the *singularity* from which all other phenomena are subsequently derived, the scientific method of inquiry had reached the logically definable end-point of possible applicability.

This is to say that the scientific method might act as a means to explain *how* the “persistence of force” *acted*, how it *behaved*, but the scientific method could **never** provide an answer as to *why* force had *that* particular behaviour, or *what* ‘force’ itself actually *is*.

The reasoning behind this again falls back upon the observable conclusion that **all** phenomena can be demonstrated as but differing manifestations of the persistence of force, thus, *there is no other finite method of inquiry that can be utilized* to analyze “the persistence of force” **itself**. Since Spencer had identified an underlying unity that described *all* of reality - there was no possible way to describe the quality of that unity *itself*! The unity could not be *measured*, as the unity was all that existed, thus nothing

separate could be *compared* to the unity as a means of producing a measurement! This is to say that a *singularity* is by definition *incomparable* – ‘*that which*’ gives rise to time and space cannot be perceived *from* time and space. The eye that produces sight cannot turn backwards and *see* itself.

Spencer thus concluded that, regardless from which point in reality one follows *any* particular chain of cause and effect, one ultimately arrives at but the same singular ‘upstream’ location - the place where "explanation must eventually bring us down to the inexplicable. The deepest truth which we can get at, must be unaccountable" (1863, p.73).

Through this meticulous sequence of logic Spencer had arrived at an all-encompassing First Cause, that in and of itself thus demonstrated the existence of the “uncaused”:

Is the First Cause finite or infinite? If we say finite we involve ourselves in a dilemma. To think of the First Cause as finite, is to think of it as limited. To think of it as limited, necessarily implies a conception of something beyond its limits: it is absolutely impossible to conceive a thing as bounded without conceiving a region surrounding its boundaries. [Thus] ...we have no alternative but to regard this First Cause as Infinite... (1863, p.38)

Spencer reasoned that any universal “First Cause” of reality must by definition be *infinite* - by definition *uncreated* - as nothing can have given rise to the ‘First Cause’ - for that would mean that something else existed *before* the ‘First Cause’. Thus ‘First Cause’ is that which manifests itself *as* time and space. *First Cause is the causelessness from which time and space, cause and effect, come into being.*

It was at this point that Spencer had demonstrated his goal of a “deepest and widest of all truths”: that the fundamental nature of reality, as demonstrated by scientific inquiry, was agreed upon by the fundamental assertion made by all of the world’s religious and spiritual traditions – “that the Power which the Universe manifests to us is utterly inscrutable” (1863, p.46). Spencer explicated:

Common Sense asserts the existence of a reality; Objective Science proves that this reality cannot be what we think of it as it is, and yet we are compelled to think of it as existing; and in this assertion of a Reality utterly inscrutable in nature, Religion finds an assertion essentially coinciding with her own. We are obliged to regard every phenomenon as a manifestation of some Power by which we are acted upon; phenomena being, so far as we can ascertain, unlimited in their diffusion, we are obliged to regard this Power as omnipresent; and criticism teaches us that this Power is wholly incomprehensible. In this consciousness of an Incomprehensible Omnipresent Power, we have just that consciousness on which Religion dwells. And so we arrive at the point where Religion and Science coalesce. ...the imperfections of each have been undergoing correction by the other; and now the final out-come of their mutual criticisms, can be nothing else than an entire agreement on this deepest and widest of all truths. (1863, p.99)

The progress has thus been as much towards the establishment of a positively unknown [the logical demonstrability of the existence of the causeless First Cause] as towards the establishment of a positively known [the greater accumulation of finite scientific knowledge]. Though as [finite scientific] knowledge approaches its culmination, every unaccountable and seemingly supernatural fact, is brought into the category of facts that are accountable or natural; yet, at the same time, *all accountable or*

natural facts are proved to be in their ultimate genesis unaccountable and supernatural. [emphasis added] (1863, p.106)

In summary, Spencer felt he had conclusively demonstrated *through* the scientific method (tracing a hierarchy of observable ‘facts’) that all of perceivable reality originates from a single universal origin - yet by that very fact this singularity could then be logically demonstrated as being not only currently unknown, but permanently inexplicable, *eternally* “Unknowable”.

This then finally is the reason why Spencer (and Still) felt that the ultimate source of reality can be most accurately described only as a *unity*, consisting of infinite potential, that manifests itself *as* time and space, *as* an endless diversity of *appearances*.

From this perspective, each seeming **particular** *appearance* is understood to be a specific manifestation *of* the underlying **general** singularity / unity. While simultaneously, no particular manifestation, nor all particular manifestations in sum total, *are* the general singularity itself. The holographic principle *as* universe.

This is in exact alignment with Still’s worldview, as demonstrated in Still’s earlier discussed revelation regarding the relationship between the divine-whole and the human individual (Still, 1901h, p. 198), as well as Still’s assertion that the divine is permanently unknowable (n.d.-a, p.2) (as discussed in the above SECTIONS 3.4.5 HOLOGRAPHIC CULTURE and 3.4.6 THE NATURE OF MANIFESTATION).

The following sections further explore this correlation between Spencer and Still’s philosophies, and the implications that this holds for Still’s conception of immunity.

3.4.11. IMPLICATIONS OF THE UNKNOWNABLE

As discussed above, Spencer's line of reasoning had led him to conclude that everything finite, **limited**, can fundamentally be described as a direct manifestation of *that which* is unlimited, or **infinite**. The human mind was but one more instance of this same scenario, thus: "...what a thing may be out of consciousness, no mode of consciousness can tell us" (Spencer, 1863, p.78).

Spencer explicated this discovery utilizing lengthy quotations from Sir William Hamilton, the earlier mentioned philosopher whose work also focused on the implications of 'the Infinite' and 'Unknowable'. Hamilton had traced the very same line of philosophical reasoning regarding the human mind, thereby coming to conclude that:

...thought necessarily supposes conditions. ...the greyhound cannot outstrip his shadow, nor (by a more appropriate simile) **the eagle outsoar the atmosphere in which he floats**... so the mind cannot transcend that sphere of limitation, within and through which exclusively the possibility of thought is realized. ... Thought cannot transcend consciousness. ... [thus ultimately] philosophy is impossible. [emphasis added] (Hamilton, as quoted in Spencer 1863, p.75)

Still mirrored this exact conclusion, using the very same analogy as Hamilton - that of a bird flying within its atmosphere. Still wrote that:

He [humanity] reasons because of the lack of that amount of mental ability known as knowledge absolute. He can fill all the limits in his sphere and no more. The fish can swim up to the surface of the water; it can dive to the bottom; it can swim the length and width of rivers and oceans in which it is prepared to dwell and explore—in obedience to that command, "Thus far shalt thou go, and no farther." The high-sailing birds are only the fish of the atmospheric ocean. They can touch the upper surface of this great

ocean; they can descend to the lower surface; their limits of life are between the superior and lower limits above cited. ... The same law is equally applicable to the human being. (1902f, p.27)

Still felt that just as a bird can only exist within its God-given realm, so too can a **finite** human mind only possibly *comprehend* that which is finite. Still was explicating to his readers that the finite human mind is itself only a particular instance of manifestation of “the Infinite”. Still made this clear through also referring to the divine as: “the Mind of all minds” (1908c, p.259). Still also stated that since the human mind is but a particular instance of the general mind of God: “...when you think[,] you touch the cord that connects you to the Infinite” (1908c, p.321).

It was through this line of reasoning that Still came to accept the insurmountable limitations of the human mind, acknowledging the existence of *that which* “to the finite mind [is] incomprehensible” (1902f, p.45):

...[the divine] creates by association; it destroys by disconnecting adhesions; it is the motive power of all atoms, all worlds, and beings. It is to itself a perpetual mathematician, a master architect. **It is so far above the being in which it dwells, that the being can obtain no knowledge of how and why it acts.** Thus we have its use. It acts beyond man’s mental vision in its perfection in its work. It does faultless work. How? We know not. [emphasis added] (Still, 1901i, p.241)

An important lecture was given by Still relating his personal encounters with reality’s ultimate unknowability. Within the whole of Still’s writings this particular speech is his most clear presentation of the concept so foundational to his worldview. It also demonstrates how Still that felt this topic was the most

useful lens through which to view the phenomenon of human immunity. Still described how for:

Over twenty years I have stood in the courts of God as an attorney. I have questioned and cross-questioned, and directed my questions positively on any and all parts of this subject that I desired to investigate. The questions that I asked myself were about the following: if I have any mind at all capable of comprehending or solving by my force of philosophy, the great question "What is man?" That question, "What is man?", covers all the questions, none left, none excepted. The question itself says, "Who is God?" "What is life?" "What is death?" "What is sound?" "What is love?" "What is hatred?" What is any individual one of these wonders found in that great combination, Man? Anything left? Nothing at all. Do you find in man's make-up any principle in heaven, on earth, in mind, in matter or in motion, that is not represented by kind and quality of his make-up? You find them all there. You find the representation of the planets of heaven in man. You find the action of those heavenly bodies represented in yours. You find in miniature there the mind that controls this power in motion. ...

When I looked up the subject and tried to acquaint myself with the works of God, or the unknowable, as some call him, Jehovah, another class say, or as the Shawnee Indian calls him, the Great Illinoywa Yapa mala qua, which signifies the life of the living God himself. When I took up the subject first I wanted some part that my mind could comprehend. I began to study what part I would take up to begin the investigations of the truths of God, to place them down as a scientific system of facts, based upon facts themselves. What will I take? That is the question. Where will I begin? Which is the best way? Soon I found that one of my hands was enough for me all the days of my life. Take the hand of man, the heart, the lung, or the whole combination; and how it runs is the unknowable. I began to want to be one of the Knowables.

The first discovery I made was this: every single individual stroke that he made came to me as the unknowable. The stroke of death--what do you know about this? I don't know anything. Therefore, it is unknowable. I begin to study and experiment. By accident I got started. I removed growths from the human neck, called goitre. That goitre disappeared in a few hours. The philosophy to me was doubtful or unknowable. A great deal of it yet is. Soon I tried flux. It stopped. I thought I commanded it to stop, and it did stop. I made a certain move there, and it stopped itself, and that law is absolutely unknowable to me yet. I found a headache. What is headache. That was also to me unknowable. ...

What is electricity? **I don't know anything about it. I simply can show you what it will do.** [emphasis added] (1896a, p.1)

Following *the very same sequence* of philosophical reasoning as Spencer's *First Principles*, Still himself had:

- Perceived the universe to be holographic: "*Do you find in man's make-up any principle in heaven, on earth, in mind, in matter or in motion, that is not represented by kind and quality of his make-up? You find them all there.*"
- Seen a common unity within the underlying essence of all the world's various spiritual and religious traditions: "...*God, or the unknowable, as some call him, Jehovah, another class say, or as the Shawnee Indian calls him, the Great Illinoywa Yapa mala qua...*"
- Focused his particular inquiries using the scientific method, himself understanding and describing the scientific method to be based upon a **hierarchy** of facts: "*a scientific system of facts, based upon facts themselves*"

- Yet through the use of the scientific method and tracing the heirachy back to its source, Still had found that the final layer of 'fact' - that which the entire ediface rests upon - was itself *unknowable*. Each of Still's particular inquiries led him to the same general conclusion: "*The first discovery I made was this: every single individual stroke that he made came to me as the unknowable.*", "*Take the hand of man, the heart, the lung, or the whole combination; and how it runs is the unknowable.*"
- To Still, the implications of this conclusion were profound - for if the fundamental nature of reality was *unknowability*, the deepest wisdom lies in acting from a recognition of this. By first acknowledging unknowability as the permanent general context of human existence, one could then seek the most ***pragmatically relevant*** incomplete understanding of a particular inquiry. Thus Still's final statement on the topic: "*What is electricity? I don't know anything about it. I can simply show you **what it will do.***" [emphasis added]

Still is thereby presenting to his audience the conclusion he arrived at regarding divinity: the most accurate way **possible** to describe *that which* creates reality is to describe its *behaviour*; outside of that, the source of creation can only be accurately described as *indescribable*, Unknowable.

Thus Still is asserting that though there is a definite limit as to what is **learnable**, there is no limit to the number and relevance of things that can be learnt. Still stated this conclusion elsewhere, saying: "If we cannot swallow all, we can taste" (1899b, p.99).

Still perceived “the Unknowable” to be manifesting itself *as* time and space in an unerringly consistent manner, thus Still engaged in a deep process of *pattern recognition* and *pattern logic*: “We find by comparison, it is our greatest lever to obtain truth” (Still, 1898i, p.54). This is what informed Still’s constant use of **analogy**: it was through *patterns* that despite the “Infinite’s” ultimate unknowability it nevertheless becomes predictable and dependable; trustworthy.

3.4.12. INTELLIGENT INTENT TOWARDS INDIVIDUATION

We know it builds up heaps of flesh, but how, is the question that leads us to honor the unknowable law of life, by which it does the work of its mysterious construction of all forms found in the parts of man. In all our efforts to learn what it is, what it is made of, and what enters it as life and gives it the building powers with that intelligence it displays in building, that we see in daily observation, is to us such an incomprehensible wonder, that with the “sacred writers” we are constrained to say, Great is the mystery of “Godliness.” (Still, 1899b, p.151)

The fact that Still felt that “the unknowable” acted with *intelligent intent* during manifestation is a central element of Still’s personal conception of immunity, as is demonstrated below. Still intimated within the actions of the Unknowable a *wisdom of action*. In fact, this was *the* characteristic of the divine that Still wanted to convey to his readers:

I use the word God in preference to Nature, Almighty or the Supreme Being, because I believe it conveys the thought of **absolute intelligence** more forcibly to the mind of our deepest thinkers, as well as the half-way and superficial. Whether “God” be an individualized person or not I will leave that for the reader to decide. [emphasis added] (Still, 1898d, p.101)

Thus Still perceived all of reality to have a universally-consistent *appropriate organization* present within it. As Still saw it, the omnipresence of coherence predicated the existence of a wise *teleology* underlying it (McConnell, 1915). Teleology is defined as:

- 1 a:** the study of evidences of design in nature
- b:** a doctrine (as in vitalism) that ends are immanent in nature
- c:** a doctrine explaining phenomena by final causes
- 2:** the fact or character attributed to nature or natural processes of being directed toward an end or shaped by a purpose
- 3:** the use of design or purpose as an explanation of natural phenomena (“Teleology”, 2019)

Still consistently presented a teleological viewpoint in his writings:

If we take man as the object on which to base the beginning of our reason, we find the association of many elements, which differ in kind to suit the *purpose* for which they were *designed*. To us they act, to us they are *wisely formed and located for the purpose for which they were designed*. [emphases added] (1902f, p.15)

It was through teleological reasoning that Still came to the conclusion that even if he himself did not understand the purpose of something that was encountered within the natural world, it nevertheless was assumed to be a holographic and integral expression of the unified whole. Still stated that: “Life is perpetual because the great All has full control of all principles of spirit and matter. ... Nature has no waste baskets...” (n.d.-b).

Still felt that his perception of teleology within reality was a key distinction between his Osteopathy and the worldview inherent to the orthodox medical system. For example, the orthodox medical community judged the appendix as being “useless”,

whereas Still concluded that the appendix *must* be an integral 'part' of the holographic 'whole'. Still often used this distinction as a means of contrasting the two worldviews (Still, 1898f, p.161; 1899b, p.222-7; 1902f, p.85, p.175; 1908d, p.434; n.d.-b).

As discussed in SECTION 3.3.6 LIEBIG AND THE SHIFTING BORDER BETWEEN THE REALMS OF THE 'LIVING' AND 'NON-LIVING', during Still's lifetime the scientific cultural paradigm was shifting from a vitalistic to a materialistic conception of reality. Thus the majority of Still's life should be understood as "a period in the history of the life sciences when the imputation of purposiveness to biological organization was not regarded as an embarrassment but rather an accepted fact" (Lenoir, 1982, p.ix). Still was influenced in this regard by, amongst others, the Naturphilosophen of Europe (Stark, 2003), and the American Transcendentalists such as Ralph Waldo Emerson and Henry David Thoreau (McKone, 2012). All of these prominent thinkers and scientists are said to have been "not religious in an orthodox sense but held a profound, almost pantheistic reverence for nature." (Lenoir, 1982, p.x). Still clearly seems to have shared this same perspective, for example when stating that:

Anything which tends to give us a better comprehension of the great creative power which fashioned us, must necessarily make us appreciate the wonderful mind or spirit back of it. It has been said that I am not an orthodox believer, perhaps in some ways I am not, but no man lives who has a deeper seated, more implicit faith in the Power who created this human machine than I have, or a more exalted reverence for that Creator and his work. (Still as recollected by Pickler, 1921, p.244-5)

The science historian Timothy Lenoir describes a further aspect of a teleological worldview to be a perspective wherein "...employing language similar to Aristotle's, we

might say that *the whole is functionally prior to the parts*" [emphasis added] (1983, p.7).

Still put forward this same conclusion in a discussion of human development: "He did not come as a living germ, but as man... . We find him a skilled workman, and not "an atom of life, a living germ of protoplasm." (Still, 1902f, p.259).

Still is making it clear that he observed wisdom beyond comprehension to be guiding the *emergence* and *perpetuation* of all motions and forms. This was especially true in the case of the conception of a human individual:

Life enters the forest of flesh as man. It carries constructing wisdom and ability. It begins with the atoms of flesh, adds by ones to countless millions, and carefully adjusts each to suit the form of the plans and specifications to make a physical habitation to suit the union of mind and matter. Thus we see the form, material man. It, man, begins work as a great and wise builder. It plans as it goes. All requirements are known and are well finished with perfect skill throughout. All parts fit to suit all other parts, he qualifying and preparing each atom of matter to the greatest gauge of purity of each kind, with forms to suit each atom, previous to being placed in its required position to harmonize with all other atoms entering into the form of bone or muscle. All work is so nicely done that we are forced as critics in the fine arts to conclude, from the work and skill shown in man's physical being, that man began as a skillful life, led on and on by perfect wisdom, each stroke in unison from start to finish. We must conclude that he is a builder guided by wisdom to the fullest and most satisfactory proof that life is the essence of wisdom in action in all nature... (1902f, p.258)

Still is envisioning a process of organization wherein "the Unknowable" manifests itself into form with unerringly intelligent intent. It was by this process of

emergent organization that the unknowable, infinite unity took on the appearance of a distinct *individuated* form. Still wrote:

No one knows who the philosopher was that first asked the question, What is life? But all intelligent persons are interested in the solution of this problem, at least to know some tangible reason why it is called “life”; whether life is personal, or so arranged that it might be called an **individualized principle of Nature**. [emphasis added] (1902f, p.249)

By positing of life as an “*individualized* principle of Nature” Still was proposing that the variety of biological ‘individuals’ might be better understood as *multiple particular instances of a single general phenomenon*.

This was the exact manner which Herbert Spencer described all the multiplicities of form and function within reality - as “individuations” that can be best understood as being “not independent existences, but merely special combinations of general causes” (Spencer, 1863, p.104).

The same process, wherein unity creates the appearance of multiplicity, is central Still’s conception of the forces that underlie biological life, how it is that a biological individual comes into being. This is intimately related to Still’s conception of immunity – for immunity is a means of distinguishing between ‘self’ and ‘non-self’.

3.4.12.1. ‘INTERIOR’ AND ‘EXTERIOR’

Much of Spencer’s *First Principles* consists of a detailed presentation of the sequential steps through which the appearance of “individuations” emerge from “the Infinite” (1863). Throughout this Spencer references a variety of scales at which the process of *unity manifesting as multiplicity* is played out. Spencer employed a consistent series of examples on the scale of atoms, celestial bodies,

human bodies, human thoughts, and human social structures. By painstakingly tracing back lines of cause and effect to their universal source Spencer demonstrated to his readers that each of these specific scales is best understood as a direct manifestation of “the Unknowable”.

Spencer's thinking in this regard is difficult to present within this research without the quotation of exceedingly large sections of text. Spencer presented each of these concepts only in reference to the preceding concepts. Yet each concept, when added to the existing conglomerate, then served to generate the subsequent concepts.

Thus while the reader is strongly encouraged to engage with Spencer's original text, a modernly paraphrased summary is presented in the APPENDIX H: DIFFERENTIAL OF MOTION AS INDIVIDUATION.

Fortunately, Walter Russell once again concisely presented a version of Spencer's complex concept using only a single diagram:

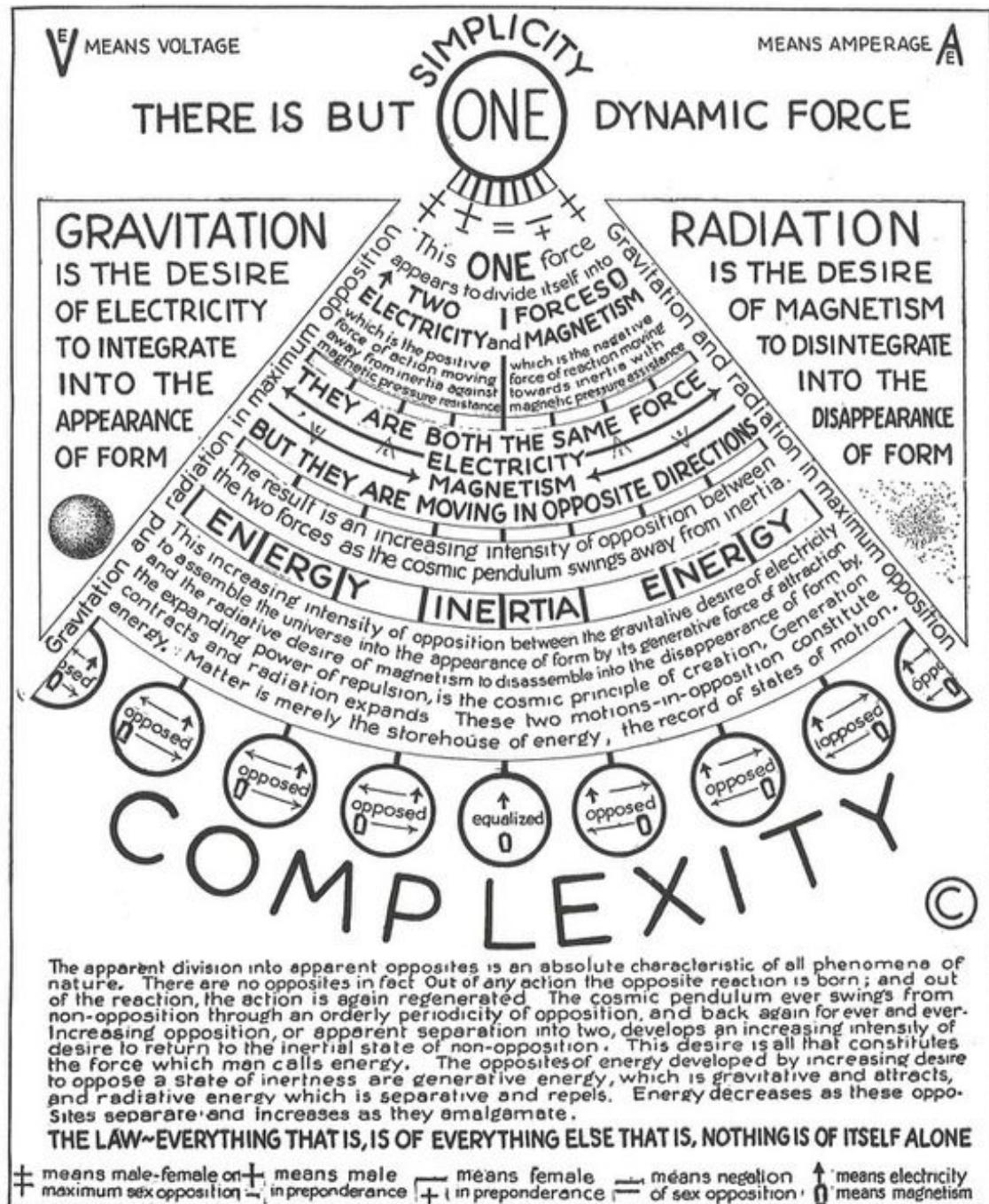


Figure: 13. The One manifesting itself as the appearance of many, via the process of 'individuation'. (Russell, 1974, p.57)

In Spencer's own words:

Evolution is a transformation of the homogeneous into the heterogeneous, and of the indefinite into the definite, it is also a transformation of the incoherent into the coherent. Along with the differentiation shown in increasing contrasts of parts with each other, there goes on an integration, by which the parts are rendered distinct units, as well as closely united components of one whole. (1863, p.215)

...if it be agreed that the phenomena going on everywhere are parts of the general process of Evolution, save where they are parts of the reverse process of Dissolution ; then it must be inferred that **all phenomena receive their complete interpretation, only when recognized as parts of these processes.** ... change is fully understood, only when brought under those universal principles of change, to which these transformations necessarily conform. [emphasis added] (1863, p.499)

The core of Spencer's thesis is that this process of *individuation* and *complexification via differential motion*, is the basis for the formation of a planet as much as it is for the genesis of a human individual. As Spencer presented it, in the case of a living organism, after the initial creation by differential motion of an *interior* and its *boundary*, there comes into existence for the first time a delineation between 'self' and 'non-self' - an **interior** (self) versus an **exterior** (non-self). The 'self' becomes organized in relation to the 'non-self' and develops into an exchange with the 'non-self' as a means of fueling its 'self'-perpetuation.

Energy (force) must be taken into the 'self' from the 'non-self' so that the 'self' may continue to exist within the larger context of 'non-self'. Thus aspects of 'non-self' are being continually incorporated and transformed into 'self', while aspects of 'self' are

continually being excreted out into the 'non-self', where they then become 'non-self' as they lose their differential motion. In a living organism this would be referred to as *metabolism*.

It is by this process of energy transfer and transformation that for a time the 'self' first develops in increasing internal complexity. Eventually a point is reached when complexification itself impedes the ability of the 'self' to appropriately relate and integrate the influences of 'non-self'. This leads to a state in which the differential of motion between 'self' and 'non-self' can no longer be maintained. In a living organism this is referred to as *death*.

With the cessation differential motion between the 'self' and 'non-self', the formerly distinct 'self' once again becomes uniform with 'non-self'. This process of evolution and dissolution of 'selves' continues ceaselessly, on all scales, throughout reality. Yet ultimately the only phenomenon present is 'force'; the various manifestations are brought about through its persistence.

3.4.13. LIFE DEFINED AS COHERENTLY ORGANIZED MOTION

It is the above-described processes of dynamic exchange between interior and exterior regions of differential motion that Spencer settled upon as being the appropriate definition for *life*. Still also obsessed over the question of properly defining life, considering this a primary topic which "all intelligent persons were interested in" (Still, 1902f, p.249). Spencer concluded that:

Life is definable as the continuous adjustment of **internal** relations to **external** relations [emphases added] (1863, p.84).

All vital actions, considered not separately but in their ensemble, have for their final purpose the balancing of certain **outer** processes by certain

inner processes. There are unceasing **external** forces tending to bring the matter of which organic bodies consist, into that state of stable equilibrium displayed by inorganic bodies; there are **internal** forces by which this tendency is constantly antagonized; and **the *perpetual changes which constitute Life***, may be regarded as incidental to the maintenance of the antagonism. [emphases added] (1863, p.82)

All organic processes, physical and psychial, having for their object the maintenance of certain relations with environing agencies and objects; **it is impossible that there should be a true definition of Life, in which the environment is not named.** (1863, p.213)

In Still's writings this very same conception of life as an *interior* region composed of coherent *motion*, is echoed:

The Osteopath reason if he reasons at all, that order [i.e.: coherence of motion] and health are inseparable, and that when order in all parts is found, disease cannot prevail, and if order is complete and disease should be found, there is no use for order. And if order and health are universally one in union, then the doctor cannot usefully, physiologically, or philosophically be guided by any scale or reason, otherwise. (Still, 1899b, p.21)

Still also described life as being the process of maintaining the ongoing appropriate modification of the *interior* motions in relation to *exterior* conditions. Just the same as Spencer, Still described this process as occurring universally, and displayed the concept to his readers using a repetitive set of examples to illustrate this on a sequence of scales. Still's scales of reference mirror Spencer's, in that both authors most often refer to

atomic, planetary and human examples. Importantly to the topic of this research, Still also applied this same concept to *the contagious diseases that afflict humanity*:

We know life only by the motion of material bodies. That self-moving principle which we see in all animal bodies we call life, because we see them move independently from other bodies or forces. That life acts and moves in that being of its own force. **Life is individualized** and has its **limit of action** [i.e.: *boundary*], which extends no further than the man or beast governed by that individual power known as the life of man or beast. Then we behold a living body, and we say, "That body is all alive; every atom moves." How long have the atoms moved as man, all united in form?

...

We speak of life, but know of it only as we see bodies move by life back of the visible matter. Does Nature have a finer matter that is invisible and that moves all that is visible to us? Life surely is a very finely prepared substance, which is the all-moving force of Nature, or that force that moves all nature from worlds [planets] to atoms. It seems to be a substance that contains all the principles of construction and motion, with the power to endow that which it constructs with the attributes necessary to the object it has formulated from matter and sent forth as a living being. ***We think it is not unreasonable to conclude that life is matter in motion, with ability to carry its kind and impart the same to other bodies.*** To illustrate, we would say that smallpox is the effect of living matter that permeates all systems in which it may dwell, and consumes to partial or complete destruction. The same law is true with other contagious substances. [emphases added] (1902f, p.255-7)

Still's use of this particular definition and conception of life feature strongly vitalisitic and teleological aspects - which it should be noted are strikingly absent in Spencer's version.

Nevertheless, just the same as Spencer, Still's writings describe a process whereby the undifferentiated Unknowable Infinite spontaneously organizes itself into *self-constructing* and *self-maintaining **individuations*** – i.e.: individualized life-‘forms’. Both authors describe the resultant ‘self’ or “being” as a self-perpetuating *process*, the boundaries of which are defined by a coherence of motion. Both writers emphasize that this is the same process by which **all** physical forms are created; biological or otherwise.

So while it was demonstrated above that Spencer can be used as an important means of better interpreting Still's own writings, it should also be noted that many of the fundamental concepts presented by Spencer found within Still's writings *are not exclusive to either author*. The concept of life *as* motion, the concept of the ‘self’ as the process of exchange between an *interior* and *exterior* - these same concepts can also be found in Justus Von Liebig's much earlier writings on life and the processes through which it is manifest (see also SECTION 3.3.6 LIEBIG AND THE SHIFTING BORDER BETWEEN THE REALMS OF THE ‘LIVING’ AND ‘NON-LIVING’). Indeed, “...for Liebig, life was *making*, that is, the active construction of a planned self” [italics original] (Munday, 1998, p.403). Decades before both Spencer and Still's writings, in 1842 Liebig published a similar vision of life based on a definition of motion, stating that:

The vital force appears as a moving force or cause of motion when it overcomes the chemical forces (cohesion and affinity) which act between the constituents of food, and when it changes the position or place in which their elements occur; it is manifested as a cause of motion in overcoming the chemical attraction of the constituents of food, and is, further, **the cause which compels them to combine in a new arrangement, and to assume new forms.** [emphasis added] (Liebig, 1842, p.204)

The medical historian W.H. Brock notes that during the first half of the 1800s, such concepts were standard among the world's leading physiological chemists (2013).

An era wherein they perceived:

...a continuous struggle between the chemical forces and elementary substances of the inorganic kingdom and the organizing force of living organisms. The equilibrium of the living systems could be maintained only by 'the constant and unremitting agency of the vital principle'. If this vital agency failed, either naturally through age or from sudden exhaustion, then death resulted and speedily restored the incarcerated atoms to their original inorganic state of existence. Such vitalistic notions, with variations, were common... (Brock, 2013, p.158)

Thus keeping this wider cultural context in mind, it is nevertheless deemed appropriate to utilize Spencer's work in particular as being an appropriate lens through which to better interpret Still's writings. This is given that it within Spencer's model of reality life-as-motion was described as an act of the Infinite Unknowable – the same as in Still's. Thus it would appear that Still was influenced by Spencer's *particular version* of the above concepts, making Spencer's work a particularly relevant lens through which to better understand Still's more fragmentary writings.

3.4.14. REDEFINITION OF GOD

Throughout Still's writings a constant theme is in place. Still is attempting to convey to his readers that the fundamental law under which reality operates in *general*, is the very same law under which reality operates in *particular*; therefore all forms and functions can be best understood when viewed as specific instances of the universal

organizational force. *This* was the core principle that Still's unorthodox medical system was founded upon.

This was the reason why Still often described Osteopathy itself as being a "universal law" or "principle", existing in the same category as other laws of Nature:

In answer to the question, "How long have you been teaching this discovery [Osteopathy]?" I will say: I began to give reasons for my faith in the laws of life as given to men, worlds, and beings by the God of Nature, in April 1855. (1902f, p.9)

When every part of the machine is correctly adjusted and in perfect harmony, health will hold dominion over the human organism by **laws as natural and immutable as the laws of gravity**. Every living organism has within it the power to manufacture and prepare all chemicals, and forces needed to build and rebuild itself. [emphasis added] (Still, 1908b, p.526)

As the above quotes demonstrate, Still felt Osteopathy as a medical system was built upon was the *universal tendency for organization towards complex individuation* - whether that be on the scale of "men, worlds, or beings". Still felt that the force guiding this organization could be trusted explicitly - it had already demonstrated its skill in creating all existing forms and functions, "the panorama of the eternal beauties in form, painting and decorations of color" (Still, 1898g, p.161). The intent acted out by the organizing force was ultimately both incomprehensible and infinitely wise.

As a child Still was raised to know the orthodox Methodist Christian God, this being a God who was a *creator* – a creator *in the past*, of a now static and unchanging world. A world wherein all existing species had been created in their current forms

during the first 6 days after reality began (Trowbridge, 1991). Yet later in life Still came to experience a fundamental redefinition of the divine, later perceiving God to be the *creative* force – ever evolving, ever in action, continuously manifesting *itself* as the past, present and future (Hartmann & Pöttner, 2011a; Trowbridge, 1991).

The definition of divinity that Still arrived at can be here paraphrased as: *that which* is outside of the human capacity to know, which nevertheless manifests *itself* both *as* humanity *and* as all that is within the human capacity to know and experience. Thus Still's revised conception of divinity was an infinite whole, a unity which continuously organizes itself into a multiplicity of presentations – much the same as the pre-existing essence of a tree that manifests itself *as* roots, trunk, branches, leaves, and fruit, yet simultaneously is something unknowable beyond those particular manifestations.

Still's shift in perspective would today be categorized as the transition from a 'monotheistic' worldview, to a 'panentheism' (Culp, 2020; Wainwright, 2018).

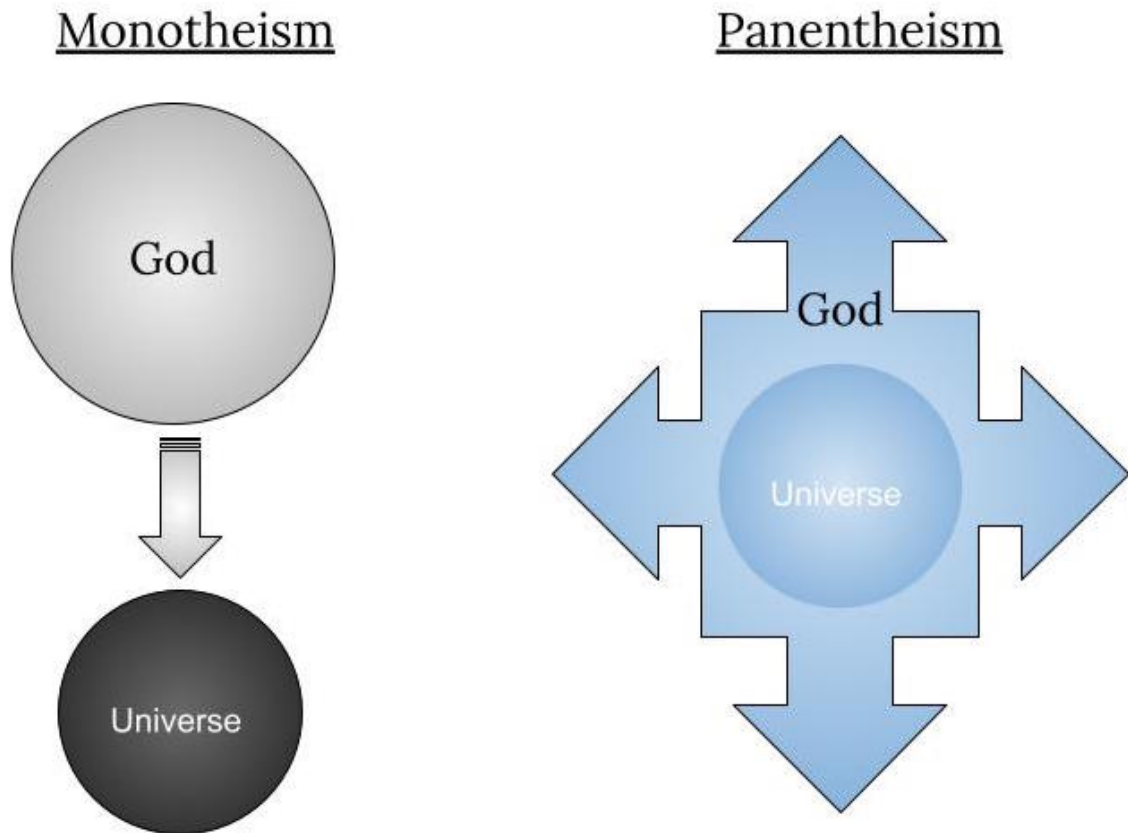


Figure: 14. Still's worldviews, early and late life.

3.4.15. "ATOMS, BEINGS, WORLDS"

Within Still's later worldview, the unknowable Infinite organizes itself into self-coherent *units* of differentiation, each delineated by an individuated form and function. Each unit innately contained the universal intent towards appropriate organization as both the source of its genesis as well as its subsequent means of self-perpetuation. Still referred to these *individuations* within his writings as "beings". Still used this single term to refer to each of the individuated 'parts' of the holographic universal 'whole'. Still saw fit to apply this label of "being" to:

- planets ("worlds") (1908c, p.195)

- the sun, moon and stars (1908c, p.195)
- angels (1908c, p.195)
- fish, birds, reptiles, a horse and all other types of animals (1899b, p.175; 1902f, p.48; 1908c, p.195)
- the feather of a peacock (1908c, p.256)
- atoms (1902f, p.22)
- chemicals associating together to form a molecule of sugar (1908c, p.218-9)
- oxygen and hydrogen combining to form water (1910, p.512)
- a steam engine (1899b, p.21)
- a tree (1908c, p.219-220)
- each new layer of annual growth within a tree's trunk (1902f, p.144-5)
- a mushroom emerging from a dying tree (1902f, p.145; 1910, p.420)
- a individual human being (1901h, p. 198; 1908c, p.195; 1910, p.312, p.19)
- the material body of a human individual (1910, p.181)
- the individual organs of a human body (1910, p.126)
- the sub-diaphragmatic venous system (1899b, p.116)
- the microscopic individual building-blocks of various tissue types inside the human body (1902f, p. 59)
- a variety of specifically named contagious diseases (1902f, p.64, 113, 114, 288)
- a tumor (1902f, p.56)
- a tubercle (1902f, p.113)

- a fever (1899b, p.175)
- the vitalistic seat of organization within each human or animal (1910, p.514)
- the vitalistic life-substance which goes on after the death of the physical human body (1910, p.20, 182)
- the “spiritual being” who dwells within the material body (1899b, p.163)
- the divine whole (1901h, p. 198)

The commonality within these diverse examples is that each of Still's individuated “beings” has come into existence through the previously detailed process: the creation of an *interior*, in reference to an *exterior*, as defined by a *boundary* that separates the two (see SECTION 3.4.11 INTELLIGENT INTENT TOWARDS INDIVIDUATION). Still applied this concept and title just as much to a ‘whole’ *individuation* as much as to its sub-*individuated* ‘parts’, stating for example: “We know we can look upon the lung as one of the organs, beings, or personalities of life” (Still, 1910, p.126).

Thus it can be explicated that in Still's many discussions of “organized being[s]” (1910, p.513) that are able to “make or furnish laws of self” (1899b, p.128), Still is describing the mechanisms by which a coherently organized ‘self’ comes into “being” out of the undifferentiated ‘non-self’:

Thus man's body is a form given by celestial life to the terrestrial life that is reduced back from the living matter to a man, world, or being, with form of a being given by the celestial forces acting on living matter whilst in the living state of matter, so fine that the atoms blend and **become a unit, or melt and become one being or body of living matter**, ... [emphases added] (Still, 1902f, p.255)

...we will have to reason that man is a machine of form and power, forming its own parts and generating its own powers as it has use for them. (1899b, p.34)

The uterus has the power to construct itself from an atom to the full form (1910, p.293)

Thus from here forward within this research, the term '*self-organization*' will be used to refer to this concept that has been demonstrated to be so central to Still's thought.

The term 'self-organization' originated long after Still's own era, and is now well established in the literature. A history of this is excellently discussed within Capra and Luisi, 2016.

'Self-organization' is deemed an appropriate term to describe Still's concept of innate organization, given that 'self-organization' nicely conveys both:

1. the initial *creation of a 'self'*
2. the complexification and ongoing process of organization that is necessary if the 'self' is to be perpetuated over time

Still referenced and emphasized the universal pattern of self-organization extremely frequently within his writings, often in conjunction with the above mentioned phrase "atoms, beings, worlds" (1910, p.511). It seems Still used the phrase "atoms, beings, worlds" as a means to provide his readers with a sequence of the possible scales at which he saw this universal quality of self-organization playing out, but also to provide a consistent cue that it was the concept of self-organization which he was referring to - a form of shorthand for both writer and reader.

Still used variations of the “atoms, beings, worlds” phrase some **41 times** within his books:

- *Autobiography* (2nd edition, 1908c): **14 times**
- *Philosophy of Osteopathy* (1899b): **7 times**
- *Philosophy and Mechanical Principles of Osteopathy* (1902f): **16 times**
- *Osteopathy Research and Practice* (1910): **4 times**

A number of examples of Still's use of this phrase are provided below. They provide explicit illustration of the conjunction of “atoms, beings, worlds” with the concept of self-organization. For instance:

Life is a substance which fills all of the space of the whole universe. One of its attributes is action under all proper conditions. It gives form and motion to both physical and intellectual. One of its powers is to select the kind of matter that will make flesh to suit any fiber or muscle in man, beast, bird, reptile, or that will make mineral, vegetable, all gases, fluids, and the force of all Nature. It selects and adjusts and supplies life to **atoms, beings, worlds** and keeps them equipped with material and motion, with mind to construct and wisdom to govern all motions of the body formed by its eternal labors. Life is the God, the wisdom, the power and the motion of all. [emphasis added] (**1910**, p.511-2)

...this vital , **self-constructing** and **self-moving** wonder, commonly know as man; wherein life and matter do unite, and express their friendly relation one with the other; ...the living man ... expressing and proving the relation that can exist between life and matter, **from the lowest living atom, to the greatest worlds**. [emphases added] (**1899**, p.103)

Man. Who made him? One says, "God made him." Another thinks that if God had anything to do with man-making, that He, God, or **the universal law under which man comes**, put into his life-compound the essence of **perfect constructive ability, which quality pervades the whole universe in the construction of worlds and beings of animal forms.** **Thus, to construct wisely is natural to all things.** [emphases added] (1902, p.259)

Consistent references throughout Still's work to this motif of *intelligent intent towards organization into individuated units* illustrates how central this concept was to Still's worldview. Still referenced innate self-organization as being *the* foundational yield of his life-long "general and particular" inquiry into reality. Still used the concept of innate self-organization as the context to frame his discussions of most every topic - including immunity.

3.4.16. SYNTHESIS OF STILL'S PERSONAL CONCEPTION OF IMMUNITY

Still stated that the existence of an intelligent self-organizational force underlying reality was *the* fundamental concept that his revelatory discovery of Osteopathy *in and of itself consisted of*. Once Still had identified this core principle, he then **later** came to apply an understanding of this general principle, in particular, as his unorthodox medical system:

[Looking up into the night sky] I saw great stellar worlds give birth to other worlds. I saw those worlds live, grow, and die, and the offsprings thereof repeat in accordance with nature's law the same process of exhibition and retirement—just as the children of men pass through the various phases of physical life. I beheld these glorious denizens of upper air in brilliant brave attire advance, and to the refulgent music of the spheres dance rhythmically upon the floor of space. With reverential eyes

I saw this **part of a whole, whose beginning and end we know not !**—this branch of the universal life that throbs and pulses through every vein of nature and *guides* each atom on its way throughout the countless ages of eternity. This life is law and Osteopathy its latest clause that teaches us its magnitude, and doth direct and *guide* creation's crowning work—the living man—unto his perfect right, unchanging health. [emphases added] (Still, 1908c, p.314-5)

The principle of innate intelligent universal self-organization was the perceptual vantage point from which Still assessed and treated the 'individual' patient. The existence of universal self-organization was the means through which his "Osteopathy" found both its broad application and its efficacy:

Osteopathy is a truth of Nature, put into practice. When fully understood, results follow as sure as nature's law is trustworthy, and the mind and law of God as given, is true, immutable, and ever the same. (Still, 1896g, p.3)

The intelligence of Deity is unquestionable, its law unalterable. On this law is the science of Osteopathy founded... . **I am simply trying to teach you what you are**; to get you to realize your right to health and when you see the cures wrought here after all other means have failed you can but know that **the foundation of my work is laid on Nature's rock**. [emphases added] (Still, 1895d, p.3)

...discard the idea that Osteopathy is a special gift to its founder and cannot be taught to others. On the contrary it is placed before the world the same as the science of electricity, and one principle after another has been discovered till an unbroken chain of principles has been formed, strong enough to stand the test of eternity, natural enough to live as long as nature's well defined lines remain unchanged. Who could ask for more?

Who wants more? All mysteries are hidden in nature, all discoveries are made in nature. Then does it not follow that nature's unchangeable laws must be followed in order to find what you seek? Osteopathy is one of the natural sciences; Osteopathy is found in nature; Osteopathy is founded on nature; Osteopathy is natural; Osteopathy is NATURE. (Still, 1894, p.1)

Thus during Still's various immunological discussions regarding "the inherent recuperative powers of the organism" (Still, 1902g, p.275) he frequently described the quality of 'immunity' as being but one *particular* instance of this universal pattern of appropriate *self-organization*:

I want to tell you that I worship a respectable, intelligent and mathematical God. He knows whether the earth is going too fast or not. ... I make this assertion from the confidence I have in the absolute mathematical power of the Universal Architect. I have the same confidence in His exactness and ability to make, **arm and equip** the human machine so that it will run from cradle to grave. He **armed and equipped** it with every thing necessary for the whole journey of life... [emphases added] (Still, 1896c, p.1)

This is to say that Still viewed immune function as being simply *one more instance of the universal phenomenon wherein intelligent self-organization spontaneously creates and then perpetuates individuated units of structure-function*. To Still, immune function was one more of the "native forces which the Creator placed within the mechanism for its own government" (Still, 1897b, p.6). This was the manner in which Still understood immunity, and the manner in which he framed it when teaching his students - a *particular* instance of the universally *general* phenomenon of perfectly appropriate self-organization:

Does Nature do its work to a finish? If so, we have a lasting **foundation** on which to stand. Then we must work to acquaint ourselves with **the process by which it proceeds to do its work in the physical man**. Not only to make a well-planned and well-built superstructure [i.e.: initially organize a 'self'], but to care for and guard against the approach and possession of foreign elements, that either cripple or hinder perfect action in all functions of the organs to form protective compounds that will ward off the formation of fungous growths of blood and flesh before the latter can get deadly possession of the laboratory of animal life. (1902f, p.163-4)

Still states in the above quotation that the very same "*process*" which initially gave rise to an individuation, is the same "process" by which that individuated form and function is perpetuated through time. Still is thus stating that both *emergence* and *perpetuation* are shared instances of the single "process by which [Nature] proceeds to do its work in the physical man".

By close observation the philosopher who is endeavoring to acquaint himself with the laws of cause and effect finds upon his voyage as an explorer that Nature acts for wise purposes, and shows as much wisdom in the construction and preparation of all bodies, beings, and worlds as the workings of those beings show when in action. (1902f, p.231)

Still had concluded that the innate organizational action of the universe that manifested itself during the initial *creation* of an individuated unit, *was the exact same force which continued to act towards the ceaseless maintenance and defence of that individuation*. Thus embryology, growth, maturation and **immunity** were all but different

expressions of the single force of *self-organization*. It was from this perspective that Still concluded:

...osteopathy does not antagonize the idea of using drugs to combat disease, but on the other hand it does advocate the use of drugs. Right here, ladies and gentlemen, of the congregation, I will state to you that the osteopath does want drugs, he needs the use of them, but the drug that he seeks must be chemically pure, **it must come from the laboratory of the Infinite**; that drug must be **selected, prepared and compounded** in the chemical laboratory of the human organism which begins its preparation from crude materials in the abdomen and passes to the lungs to be finished to perfection. The substance is known as blood, the highest and most wisely compounded substance that has ever been prepared by any laboratory, which laboratory is conducted by the mind and energy of God himself. [emphases added] (1902a, p.218)

3.4.17. STILL'S PERSONAL CONCEPTION OF IMMUNITY SUMMARIZED

It has been illustrated above that, for Still, the divine is a direct analogue for the functions acted out by the unerringly wise vital force of self-organization. The partial list of names that Still gave to 'the divine when in action' directly demonstrates this, for example: "the directing Mind" (the full list is presented above in SECTION 3.4.6 THE NATURE OF MANIFESTATION).

Thus, in synthesis, Still viewed *immunity* **not** as a particular phenomena within an biological individual, but rather as one of the many instances wherein the Unknowable Infinite acts with intelligent intent in self-organization – first forming and then maintaining the appearance of 'individuations'. Still referred to these units of coherent form and function as "beings".

Still saw the perfect wisdom of self-organization as being omnipresent throughout reality, on all scales of “atoms, worlds, or beings”. In his view the innate organizational action of the universe manifests itself as the self-organizational force that first **creates** and then later **maintains** and **defends** an individual “being”. The motion defining an ‘*interior/self*’ is initiated and perpetuated in relation to the motions of the ‘*exterior/non-self*’. Thus immunity, as perceived by Still, is simply a particular instance of this force in action. This is summarized in the diagram below.

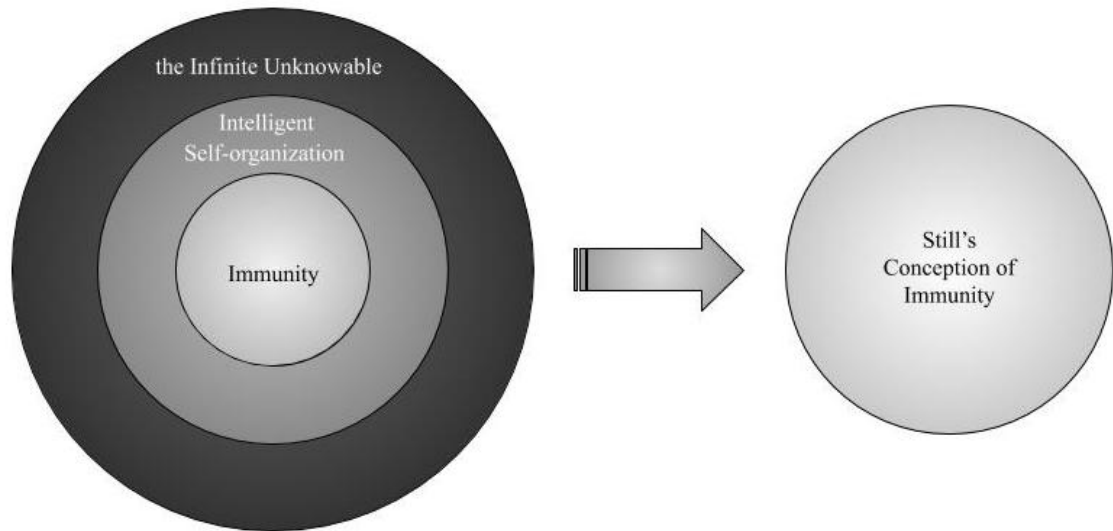


Figure 15. Contexts + Content = Meaning: A.T. Still's Personal Conception of immunity.

3.5. THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE

3.5.1. EXPLICATION AS APPLICATION

Given that the current study is concerned not only with Still's conception of immunity, but also with how Still came to *practically apply* his conception, the following SECTIONS 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE and 3.6 APPLICATION OF THE ESSENCE are a description and discussion of the means by which Still *acted out* his personal conception of immunity.

3.5.2. A PRAGMATIC APPROACH

It seems A.T. Still would have heartily agreed with the maxim "Actions speak louder than words". Still mocked and derided "hopeless theorist[s]" (1904c, p.252), a title he reserved for those who had much to write, but little that held applicability to real-world action-taking.

Still held that: "A truth is only a hopeful supposition if it is not supported by results" (1899b, p.2), therefore seeking "a philosophy [worldview] that is capable of being sustained by its application" (1902f, p.185), for otherwise he felt "you will fail in proportion to your lack of knowledge, not theoretical, but practical, which you can only obtain by experience" (1902f, p.87). For Still, a theory only held value as the *most direct means of producing a practical application*. Still was thus clearly demonstrating his *pragmatism*:

1 : a practical approach to problems and affairs

2 : an American movement in philosophy founded by C. S. Peirce and William James and marked by the doctrines that the meaning of conceptions is to be sought in their practical bearings, that the function of

thought is to guide action, and that truth is preeminently to be tested by the practical consequences of belief ("Pragmatism", 2019)

Given that the foundational essence of Still's worldview was the Unknowable, he would have likely agreed with the statistician George Box who concluded that:

"Essentially, all models are wrong, some are useful" (1987, p.424). Still thus stated that in *his* school "we reason for necessary knowledge only", meaning that scientific inquiry should be fueled by its pragmatic outcomes (1902f, p.9). Still rejected a scientific culture preoccupied with accumulating *data* rather than *results*:

We analyze the urine, we analyze the blood, we analyze the fecal matter, and we report the kinds and quantity of bacteria and the death of our patient. (1910, p.80)

While it can thus be said that Still was an early proponent of 'evidence-based medicine', he felt that the only truly acceptable *evidence* was real-world *clinical outcomes*.

3.5.3. ETIOLOGY VERSUS NORMALITY

Still "divorced" himself from orthodox medicine (1897c). This gave him the distance from which to reassess his former worldview and the medical system based upon it. Still perceived the orthodox medical system as being *etiological* - focusing on ascertaining and quantifying 'signs and symptoms'.

Within this orthodox *etiological* approach, each disease was perceived as being a diagnostic entity unto itself and was classified as such (Still, 1897b). Each disease could be defined and differentiated through 'its' signs and symptoms. It followed that before an orthodox diagnosis could be made it was first necessary for abnormalities to be assessed

(i.e.: symptomology, chemical analysis of fluids, investigation for the presence and quantity of various specific species of microbes etc.).

Still was pragmatically frustrated with this approach, it did not produce the desired results:

You must remember that you have been well drilled, or talked out of patience in the room of symptomatology and all you have learned is, something ails the kidneys, and are told their contents when analyzed are not normally pure urine. In urinalysis you are told “here is sugar,” “here is fat,” “here is iron,” here is pus,” here is albumen,” and this is diabetis [sic], this is Bright’s disease, but no suggestion is handed to the student’s mind to make him know that these numerous variations from normal urine are simply effects... . Symptomatology is very wide and wise in putting this and that together and giving it names, but it fails to give the **cause** of all these abdominal lesions. [emphasis added] (1899, p.121)

Futhermore, within the orthodox medicine’s *etiological* system, specific treatments were sought with which to remedy the specific disease that had been diagnosed. This then necessitated the diagnosis of *what particular disease* a patient ‘had’ *before* a cure could be attempted.

The orthodox medical strategy consisted of a search for abnormalities; which were then measured, catalogued, and whose attempted *removal* was monitored – this being the determination of success or failure of the intervention.

This etiological method continued to gain cultural momentum throughout Still’s lifetime (Pelling, 2013). Yet Still perceived that all abnormalities *modify the expression of each other*, and orthodox therapeutic intervention itself only serves to add

yet another layer of interaction to the scenario. The orthodox system of diagnosis and treatment thus consisted of an exponential complexity that rendered it unworkable:

What has the doctor done but multiply his drugs and chronicle defeat? ...
Like a rhinoceros, he sees and fights only the smoke of the gun that throws
the deadly bullets that tear asunder his frame and let the life out. (1902f,
p.96)

Before you begin to experiment with any dangerous poison, of cut, try
and hope, you find just as great mysteries in the effect of any single drug
as in the whole human body. Thus in our ignorance of one law of life as a
machine, we increase perplexity when we add a new or foreign element to
the competition. (1898e, p.3)

Still felt he had found a new and better medical strategy:

For twenty years or more I was content to be governed by the opinions and
customs of older and more experienced physicians. I gave the disease its
proper name. I gave the medicine as taught and practiced, but was not
satisfied that the line of procedure was philosophically correct. ... I
believe at the present time I am fully prepared to say I can offer you a
more rational philosophy of what should be the physician's first object...
(1899b, p.135)

The [orthodox] methods of treatment are just as uncertain as the course of
a vessel would be without a compass to guide it. (1910, p.158)

...a true compass points to the normal only. (1899b, p. 176)

Thus from Still's new unorthodox perspective, treatment consisted of a search for
and reestablishment of the actual "cause" of disease – the a *loss of normality*. Just as

“...darkness is an effect, caused by *absence* of light” [emphasis added] (Still, 1902f, p.92), so too was disease but an effect, caused by *absence* of normality. Still defined this in terms of both anatomy and physiology:

Every Osteopath must know that “normal” does not simply mean a readjustment of bones to a normal position in order that muscles and ligaments may with freedom play in their allotted places. Beyond all this lies the still greater question to be solved, how and when to apply the touch which sets free the chemicals of life as nature designs. (1907a, p.22)

Still was propping that the normal condition of the patient was to be used as the point of reference and therapeutic goal - *rather than the removal of the original influence that had disrupted the patient's normality - no matter what that original influence may have been*. From Still's unorthodox perspective, disease was to be redefined as a *verb* rather than a *noun* - no longer an *etiological* diagnostic “entity” to be dispelled (1897b, p.6), but rather an abnormal *process* that should be provided with the conditions inside which it might again self-organize towards normality. “Conditions not symptoms are what an Osteopath has to contend with” (1900b, p.514).

3.5.4. STILL'S DEFINITION OF “CAUSE”

This meant that, from Still's pragmatic, when his manual interventions resulted in a reestablishment of health within his patients it was a direct demonstration that he had found the true “*cause*” of their disease.

Furthermore, and importantly, it could be said that as a result of this pragmatic approach, Still felt that there was in actuality a single universal “cause” of any and all disease - the loss of normal anatomy and physiology. The flip-side of this was the

existence of a universal cure - the restoration of the conditons in which normality returned.

Given that Still's pragmatic approach focused on '*what achieved the desired results*', versus '*what was going on*', it followed that ***a patient could be effectively treated despite the origin of their abnormalities being completely misperceived or even simply unknown***. Still conveyed this point to his students strongly, stating that:

It is not ***necessary*** for the osteopath to enter into the discussion of the unanswerable question of how a contagious disease gets possession of the person. ... Thirty-four years ago I dropped all hope of ever being able to tell the how and why of the contagious properties of smallpox, chickenpox, mumps, measles and whooping-cough, and how they proceed to get possession of the body of a healthy person and begin their torture and go on to recovery or death. ... While the diseases are different in effects, appearances and names, yet they attack and execute their work by overcoming the harmony of nerve and blood action... [emphasis added] (1910, p.415-17)

It matters not to me as a mechanic whether this disease [scarlet fever] is contagious or epidemic. When I have a case to treat, the thing I want to know is what nerve, blood-vessel or gland has failed to perform its function and excrete poisonous products as fast as they accumulate? My object is to put the body in such condition that the glands of the excretory system of the entire body ... can carry off impurities before fermentation sets up. (1910, p.474-5)

This perspective and course of action can be understood as Still's pragmatic means of navigating the *ultimate unknowability* of reality, the very same attitude displayed as in his earlier discussed statement: "I don't know anything about it. I simply

can show you what it will do.” (1896a, p.1, discussed in SECTION 3.4.10 IMPLICATIONS OF THE UNKNOWNABLE). This statement could be recontextualized in relation to diseases: ‘*I don’t know anything about it. I simply can show you what **to do about it**’.*

It was through this new unorthodox framework of pragmatic assessment and treatment that Still thereby made a clear distinction between the *origin* and the *cause* of a disease. Within Still’s framework, the *origin* might be any combination of specific factors: such as the influences of weather, temperature, climate, miasmatic gases, contagions, or mechanical injuries such as falls etcetera. While on the other hand Still found “*cause*” to universally be the *lack* of normality within the patient’s anatomy and physiology.

This explains why Still’s origin of disease could remain completely unknown, or be totally misperceived by him through the use of inaccurate theoretical frameworks, and yet despite this Still’s treatments were nonetheless often effective: Still’s assessment and treatment was in reference to the pragmatic **cause** of the illness, not its **origin**. It did not matter if he was incorrect regarding the theoretical origin of a disease, that theory was not the basis of his intervention.

Still also found that the reverse also proved to be true: effective treatment could *not* be given if the *cause* remained unknown, even if the *origin* was clear! In fact, Still felt that the results produced by the orthodox medical tradition provided a profound example of the awful truth of this scenario.

Still used the very *format* of his final book as a means to repeatedly drive home this central point every few pages. Still’s 1910 *Osteopathy Research and Practice (ORP)* replicates the format of a orthodox medical text of that era: it is organized into a series of

separate sections, with each section devoted to a distinct disease - as classified by the orthodox medical tradition.

Still began each of these sections with an orthodox presentation of the definition of the disease as quoted directly from a standard medical author. Yet Still immediately followed this with a *subversion of the very paradigm* that would lead one to format a medical text into an series of isolated diseases - Still immediately provided his own unorthodox definition. In stark contrast to the orthodox text, Still's definitions are a repeated attempt to illustrate the fundamental difference between the origin and the "cause" of a disease condition. Still was attempting to emphasize his fundamentally different vantage point and its implications.

An example of the section from *ORP* regarding erysipelas (an often fatal bacterial skin infection) begins with the orthodox definition of the disease, as quoted from Dunglison:

Definition.--This disease is contagious and inoculable, and is thought to be the result of the introduction of the *Streptococcus erysipelatis* or *erysipelatos*. * * * —DUNGLISON.

Etiology.— [Still's definition begins:] I am satisfied from long experience in handling erysipelas that the cause of this malady is venous blood obstructed and held in the parts affected long enough for inflammation and decomposition to take place. (1910, p.440)

Thus it can be understood through this contrast that Still is providing his readers with the details that he feels are *therapeutically actionable* - thereby being the true "cause" of erysipelas. To Still, if adjustment of the abnormal physiology and anatomy resulted in a resolution of the patient's condition, then that abnormal physiology and

anatomy had been directly demonstrated as being the true “cause” of erysipelas. Such experiences informed Still’s rejection of describing a particular species of bacteria as the “cause” of erysipelas (see 3.3.9 *Still’s opinion of the bacterial revolution and its ‘germ theory’ of disease*).

Still thus felt that the orthodox tradition had offered a medical theory with no practical application - thus no proof of its theory. On the other hand Still *could* directly help a the patient return to health. Which of the two approaches had **demonstrated** a more accurate understanding of the scenario?

It was this line of thinking that informed Still’s steadfast conclusion that: “Osteopathy is not a theory but a demonstrated fact” (1908b, p.526). This held, for: “When we remove the obstructing cause we have the proof of this reasoning because normal functioning is the result” (1910, p.369-70).

As discussed in SECTIONS 3.2.2 STILL’S OPINION OF VACCINATION and 3.3.9 STILL’S OPINION OF THE BACTERIAL REVOLUTION AND ITS ‘GERM THEORY’ OF DISEASE, Still clearly accepted the existence of infectious agents, including a recognition of the potential that these agents had to directly initiate disease in otherwise healthy individuals (ex: smallpox). Yet from the perspective that Still presented to his readers, *once an infectious disease had occurred and needed to be remedied, the infectious agent was no longer the most pragmatically relevant factor*. Instead, the “cause” of disease within these patients was now *the disease **process** itself*.

Thus Still did not view an infectious *agent* as what “caused” the various symptoms and progression infectious *disease*. From Still’s perspective, the disease itself

could all only be attributed to an original loss of normality, which then flowed forth and spread out exponentially.

What Still drew from this was the conclusion that the normal or abnormal condition of the patient was the most relevant factor to be understood and therapeutically interacted with - *not* the presence, absence or intensity of any particular symptom, microbe, or metric of a laboratory analysis.

As per SECTION 3.3 A.T. STILL'S CONCEPTION OF DISEASE, it should again be understood that Still did not deny the *validity* of germ theory, but rather he denied the pragmatic *relevance* of germ theory. Still held that simply knowing it was a germ that had *originated* a disease did nothing to describe what the disease process itself actually was – not in any therapeutically *useful* way. In contrast to this, knowing where and how normality of structure and function had been lost *did* allow one to effectively take actions that allowed the reestablishment of health.

Still's discussion of measles can be used as a clear illustration that he understood infectious agents as being the *origin* of infectious diseases. Still described how his son, showing early signs of a generalized illness, entered a classroom for not “over one half-minute”, and “in just nine days forty-two children had broke out with measles” (1899b, p.169). Still went on to describe in a later book that:

Measles is a condition or effect produced by a poisonous, infectious and contagious gas, so far as we know. The question is not what is the cause [i.e.: the origin], but what part of the body does this poisonous substance affect? It irritates the whole constrictor system of the human body and closes the excretory gates so tight that the foul gases cannot pass out from the body through the porous system. (1910, p. 423)

As was annotated in the above quote, using the above established definitions of *origin* and *cause*, Still's use of the word "cause" would be more accurately described here as an *origin* of disease. Yet throughout Still's writings he used only a single term, "cause", to refer to **both** *cause* and *origin*. This use of the **same** term to describe two central yet **distinct** concepts could easily create misinterpretation. It is apparent that from the very start of the osteopathic profession, this central aspect of Still's work has been generally misunderstood.

3.5.5. LOSS OF TRANSMISSION

As was demonstrated in the previous section (see also SECTION 3.3.8.1 "SEEDS OF DISEASE"), Still did give credence to various types of *seeds of disease* as being the origin of infectious disease conditions. While usually regarding 'disease seeds' as being of secondary relevance to the condition of the inner 'soil', in other instances, Still made it clear that he thought infection was almost **unavoidable** when one was exposed to the infectious agent (see the above example of his son's measles, or Still's own "dread" in the face of smallpox exposure (1902e).

Still's acknowledgment of infectious agents as origins of disease, as well as Still's emphasis on a wide variety of other **non-mechanical** origins of disease, has often been fundamentally misunderstood or untransmitted by the osteopathic profession that claims to follow in Still's footsteps. A common, and inaccurate paraphrase of Still's model is to state that Still believed that all disease originates via mechanical injury (see for example: Tasker, 1903).

A vehement demonstration of this incorrect interpretation of Still's conceptual model is found within an opinion piece written by Dr. Henry Bunting, DO. Bunting was the former editor of Still's own *Journal of Osteopathy*. Bunting later established his own

journal, *Osteopathic Physician*, wherein the below article was published. Written in 1916, the year before Still died, Bunting waded into the debate going on within the osteopathic profession as to whether the new diphtheria antitoxin serum therapy should be incorporated or rejected. Bunting wrote:

Would we rather hang on to our dogma that—no matter what the facts show—*it has always got to be a mechanical lesion?*

Nothing is easier to prove in the case of diphtheria, at least, that the word “mechanical” has no business to be inserted as the necessary condition for getting that disease. The exciting cause is vital, not mechanical—the Klebs-Loeffler bacillus. ... Inject 100 guinea pigs, each of 250 grams weight, with an equal amount each (or 1-100th part) of minimum death dose of diphtheria toxin. Each guinea pig will be “sure dead” in 96 hours. Repeat the experiment with 1000 guinea pigs, the thousand will die. Repeat it with 1,000,000. The million will die on the same schedule.

Does this mean anything?

What caused the disease? What killed? Some unknown and different anatomical lesion in the case of each guinea pig, or the well known Klebs-Loeffler bacillus through its toxins. (Bunting, 1916, p.2-3)

The viewpoint presented above by Bunting as being the osteopathic “dogma”: that “it has always got to be a mechanical lesion”, is a prevalent understanding of Still’s model of etiology within the osteopathic profession. It is also quite simply a total misinterpretation of Still’s work. It would not even be accurate to describe this interpretation as a gross oversimplification of what Still presented to his students, rather, Bunting’s “dogma” totally lacks any mention of the fundamental points that Still consistently attempted to convey.

It can be easily demonstrated that the above interpreted “dogma” is *not* what Still meant when writing: “...disease is the result of anatomical abnormalities followed by physiological discord” (Still, 1910, p.15). A reader only exposed to such isolated sentences of Still’s writings might easily indeed assume that Still was putting forward the idea that *all anatomical abnormalities originate in mechanical injuries*. Yet *nowhere* within Still’s writings is this idea found. Rather, on the very page that follows the above quotation, Still goes on to describe that anatomical abnormality may originate “by atmospheric changes, wounds, bruises, mental shocks, etc.” (1910, p.16). In fact, within Still’s writings as a whole there can be found consistent descriptions of an incredible diversity of potential *origins* for loss of anatomical and physiological normality: “all interferences, from whatsoever cause” (1902f, p.231), “any cause whatsoever, either mechanical or chemical” (1902f, p.181). Further specific examples include, but are not limited to instances wherein Still discussed:

...the caecum, which, as we have shown, is often driven into the pelvis by strains and jolts, and very often by the use of powerful purgatives [laxatives], also following efforts to liberate the bowel from faecal matter or any chemical or irritating substances. (1902f, p.196)

Did we ever halt and reason that the white patches found in mouth and throat were put there to guard the parts against coming injuries that **hurried breathing, cold air, food and drink might produce?** [emphasis added] (1900, p.249)

I have given much time and study to find a term that would apply to all diseased conditions, either of contagion, location or seasons. I believe I can show by reason that the word wound would express more fully all conditions known as diseases, general and specific ... I hope by this time

that the student knows what I would try to draw his mind to by calling all diseases surgical wounds, coming in as many ways as the number of all diseases, cuts, jars, shocks mental or physical, heat, cold, eating too much, loss of sleep, property or friends; all are shocks to the nervous system, and the case is a wounded person, and the doctor must treat accordingly. (1900d, p.165)

The prevalence of the impression within the osteopathic profession that Still's model was one wherein *all* disease originates in mechanical injury such as a fall etc., clearly shines a light on the perplexing inaccuracy and incredible superficiality with which Still's work has been continuously interpreted (Hoover, 1963).

When Still's writings are analyzed in total, rather than as isolated phrases or sentences, it would seem that what Still was attempting to convey was the idea that the bio-mechanical *level* is the most easily *accessible and comprehensible level on which the disease process is manifest*. Thus Still was proposing that all disease could and should be intervened with on that same bio-mechanical *level*.

The misinterpretation attributed to Still is that every possible disease *originates* from disruptions subsequent to mechanical *trauma*. This is a ridiculous notion and should be discarded immediately.

By using a medical strategy centered on the mechanical level, Still was able to utilize the patient's anatomy as a 'handle' by which to assess and therapeutically influence *all* levels - including the abnormal physiology present during infectious disease **processes**. This method produced good results, given that all the various levels are simply the interrelated manifestations of an individuated self-organized unit known as *the patient*.

The above interpretation is echoed by the early Osteopath R. Kendrick Smith, DO, who wrote in 1920 that:

Just as truly as all physiologic body activity is essentially mechanical, so is all pathologic activity as fundamentally mechanical; hence mechanical readjustment is always indicated in mechanical disturbances of body function, which constitutes the condition which we name disease. (Smith, 1920, p.174)

As presented in Still's above quotations that list the various possible origins of disease, within Still's construct the *origin* of disease is multifactorial and unknowably complex in its variations ("in as many ways as the number of all diseases"). Yet Still also stated that, for pragmatic purposes, the cause of disease remains universally the same: disease can only exist and intensify within an abnormality of anatomy and physiology.

To once again return to Still's above quotation in which he summarizes his 'osteopathic' medical model:

The fundamental principles of osteopathy are different from those of any other system and the cause of disease is considered from one standpoint, viz: disease is the result of anatomical abnormalities followed by physiological discord. To cure disease the abnormal parts must be adjusted to the normal. (1910, p.15)

Still's above elucidated model regarding the relevance of the *origin* of a disease versus that of its *cause*, is the proper context in which to place his previously quoted statement: "All of the bacteriology I want or need is a good knowledge of man's anatomy, of the functioning of his organs and how to know the cause of the friction that has produced the disease; then I relieve it" (1910, p.12). This is to say that Still had

demonstrated to his own satisfaction that regardless of what had *originated* the infectious disease process, his intervention could universally remain the same - simply seek out any loss of normality, and aid its return to a normal state. Still encouraged his students to thus avoid becoming lost in the exponential complexity of the orthodox etiological model.

The famous neurophysiologist and researcher Irvin Korr summarized a key distinction between the osteopathic and orthodox medical models by stating that:

From an Osteopathic viewpoint disease is by no means synonymous with, characteristic, of, or even determined by, the precipitating or pathogenic agent. Also, from the Osteopathic viewpoint, diseases have a great deal more in common than not. Indeed, all human diseases have in common the most important feature – man himself. From this viewpoint, therefore, disease is not the action of a given pathogenic agent; rather, disease is the response of the individual to the stimulus of the pathogenic agent. (Peterson, 1979 p.224-225)

John Martin Littlejohn, the iconic early Osteopath who brought Osteopathy to Britain, is in agreement with Korr's above statement – including in reference to infectious diseases:

...specific diseases are not caused by specific germs. [Rather] Disease represents a function, not of the germ, but of the animal that is diseased, the normal activity of the organic cells giving health and the abnormal activity of the organic cells giving disease. According to this, disease is the result of abnormal functional activity, resulting from, (1) certain external conditions, and (2) internal body conditions including the presence of the bacteria. (Littlejohn, 1900, p.382)

It can thus be summarized that within Still's model, a disease process might have its *origin* in any number of influences such as a change in weather, an externally originating infectious agent, or a mechanical injury. The origin of a disease process was often an infinitely complex combination of factors that in the end were both known, unknown, and unknowable.

Thus, to Still, the origin of the patient's abnormality was not the most pragmatically relevant aspect of the scenario that needed to be dealt with - for how would one attempt to treat an *origin* such as a shift in the weather *once it had already taken its effect on the patient*? Instead Still proposed a model of intervention consisting of the normalization of a patient's disrupted interior *dynamics* - a reestablishment of the coherence of motion that the patient as a "being" was composed of (see SECTION 3.4.12 LIFE DEFINED AS COHERENTLY ORGANIZED MOTION). Still held that this perspective was the most appropriate and effective strategy even when the *origin* of the disease process was an infectious agent such as the erysipelas bacteria.

3.5.6. IMPLICATIONS OF DISEASE AS PROCESS

Throughout Still's writings he makes it clear that the most relevant quality of any disease process is its *exponential* nature. Still observed that in any instances wherein a patient experienced a loss of normality, that lack of normality would inevitably increase in both location and intensity - unless the vital force or an osteopathic intervention was capable of altering this trajectory:

In some cases the obstruction which is the cause of the trouble can be removed directly by the Osteopathic operation. In others, where the trouble is more complicated or deeply seated, the operator must give such assistance as will enable nature to remove the obstruction herself, and

nature, Ilke [sic - like] the mills of God, grinds slow but exceedingly well.
(1897g, p.6)

Within the medical literature of Still's era exponential degeneration of the body during disease was a primary theme, especially in regards to "fermentation" – a concept central to Still's own medical perspective (see SECTION 3.3.4 "FERMENTATION"). In the medical culture of that day, the process of "fermentation" was often described as "the growth of a fire from an initial spark" (Hannaway, 2013, p.297). This was an analogous means of describing an *exponential multiplication of influence that transformed or degenerated the original substance* (Pelling, 2013). A spread of influence from an initial localized origin towards the progressive consumption and transformation of the whole (Pelling, 2013).

As discussed earlier, the commonality shared by all of the key concepts within Still's framework of disease *process* (ie: "fermentation", *miasma*, "contagion", even 'germ theory') is that they are all theories or explanations of *multiplication of influence*. Each of these models of disease emphasizes the primary relevance of exponentiality. It is also important to note that this same exponential multiplication of influence is the key characteristic of abnormal growths such as tumors. Malignant or not, abnormal growth comprise a process, a cascade away from the former self-coherent goals and outcomes of the organizing forces. This is discussed in depth below.

Still's writings contain endless examples of exponential disease processes, *cascading losses of normality* that make take place within a patient's physiology and anatomy.

Still provides these examples as means of conveying exponentiality as the central characteristic of disease-as-a-process. One of many possible instances is Still's description of the disease process of pneumonia:

Pneumonia is a condition which is the effect of atmospheric changes, especially on patients who have become debilitated from any cause. The result of such changes is a shock so far reaching in its effects that all of the structures of the body are disturbed thereby. The nerves become irritated, then the vessels carrying the blood and lymph contract, then the muscles, until there is attained the degree of general contracture, and the nerves, veins and arteries are placed on a strain in their effort to carry out normal functioning. The lymphatic system in its contracted condition fails to take up its usual supply of lymph for delivery through the thoracic duct to the veins for the heart. Consequently there is a lowering of the nutritive quality of the blood as well as the rate of circulation. As a result the blood stagnates, ferments and soon becomes overcharged with decomposing substances robbing the seeds of life of their constructive power. The lungs become irritated, the venous drainage is hindered by the contractures, the capacity of the lungs is diminished, they are unable to take in oxygen in normal quantities, and the breath becomes labored, short and quick. (1910, p.161-2).

Still is clearly describing how an initially localized loss of normality sets in motion the spread of loss of normality outward in branches, which then further disrupts the coherence of the patient's internal dynamics, thus altering the internal condition of the patient, which then sets the stage for yet larger and increasingly intense losses of normality, ad infinitum. Or as Still put it elsewhere: "Pneumonia begins by its oedematous accumulations of dead atoms, even to the death of the whole body, all having found a start in atoms only" (1899b, p.200).

Still had concluded that the exponential quality of the process of disease was only natural, logical, given that a human being was a *self-coherent unity*. Thus it followed that if any one facet lost its normality, this sooner or later directly affected *all* other facets via an exponential *cascade* of reciprocal influence. Yet the reverse was also true: in normality (meaning health), each aspect of the patient supported the proper function of all others, forming a *beneficial cascade* of growth, defense and regeneration. This latter principle was the central mechanism relied upon during osteopathic intervention.

Although today's terminology was not present in Still's era, it is very clear that Still was describing what would today be termed a "*positive feedback loop*" (Stark, 2003; Girardin, 2019). A positive feedback loop (PFBL) is defined as: "The enhancement or amplification of an effect by its own influence on the process that gives rise to it" ("Positive Feedback", 2019). This is how a PFBL creates exponential effects.

Still often described to his readers a set of abnormal internal conditions that produce a cyclic repetition of processes that then create and enhance those original abnormal conditions. A concise example was when Stills stated that: "The stomach is a sac, and when filled to its greatest capacity, it irritates all the surrounding tissues and they in turn irritate the stomach" (1910, p.312). This is clearly a direct description of the characteristics of a PFBL. A *negative* feedback loop (NFBL) then can be defined as:

A mechanism of regulation in which the products of a process or reaction act to inhibit their own formation. Negative feedback tends to stabilize systems whereas positive feedback amplifies. ("negative feedback", 2020)

A NFBL is exactly what Still described in his famous (though often incompletely quoted) statement that:

...the rule of the artery must be absolute, universal and unobstructed, or disease will be the result. I proclaimed then and there, that all nerves, sensory and motor, depended wholly on the arterial system for their qualities, such as sensation, nutrition and motion, even though by the *law of reciprocity* they furnished force, nutrition and sensation to the artery itself. [emphasis added] (1901b, p.33)

Within the above NFBL described by Still, the blood nourishes the nerves, and the nerves direct the movement of blood: thus forming an unceasing lemniscate of *reciprocal* functionality. Each depends on the other to function normally, thus each regulates the other to express within a normal range. Since in Still's eyes the patient was literally composed *of* motion – i.e.: composed *of* many such interdependent NFBLs - disease could *only* occur when “the normal chain is broken” (1902f, p.209). Therefore Still's approach was deeply informed by the assessment and treatment of a patient's many interacting layers of NFBLs:

If the abdomen provides the rough material for the blood of the system, and perfect health can only come from good blood, and perfect blood cannot be furnished by imperfect viscera nor any imperfection in form, location, or function of any organ of the abdomen, chest, or brain, why not hunt for some cause of disease in the machinery that produces blood from the start to its finish? (1902f, p.159)

This was one more reason why it was only logical for Still to describe the process of disease as a transition from a NFBL to a PFBL - holographic reciprocal influence remains in either case.

Still often presented examples of degenerative cascades as a means of illustrating to his students that they must always remain vigilant so that they would be able to

“observe those fine beginnings that lead to death” (1899b, p.221), for it “matters not how gentle the stroke at the time of conception” (1900d, p.165), over time there would inevitably occur a “progressive injury” (1902f, p.161) as the initial loss of normality became “extended by progressive encroachment” (1902f, p.167), “the result of which will extend over the whole body” (1910, p.17) effecting “organ after organ” (1902f, p.242) until each is “giving way, one at a time, in quick or slow succession” (1902f, p.216).

Thus it was the exponentiality of this process that led to the dreaded state wherein a degenerative PFBL had gained so much momentum that the patient was now trapped in what Still termed the “whirlpool of death” (1910, p.346). At this point the patient was locked into a repetitive cycle that with each iteration only drew them further down towards the point of no return.

3.5.7. PATHOGEN INTENT AND MECHANISM OF ACTION

Still also described the action taken by an infectious agent as a process within the patient wherein loss of normality exponentially increases via a degenerative cascade. Still described the infectious disease process of smallpox as being a sequential process of loss of normality, originated by the “poisonous seeds, fumes or gases of smallpox as they are inhaled by the lungs” (1902f, p.281). Still described how, initially:

...they cause a shock by irritation, which causes constriction [sic] of the sphincter system of cells, and retains this vital ether for the purpose of adding to the germ of smallpox nutriment which develops a sufficient quantity of this vital gas to supply the whole system with the yeast of development to all fluid cells from lymph to chyle. Thus it is ready to enter and proceed successfully with its deadly war with all that is vital in the human system... accumulation follows, then fermentation, with inflammation added to congestion and fermentation. (1902f, p.285)

Still understood measles in the same way. In an article published in the *Journal of Osteopathy*, Still himself provided the voice of measles as it describes its strategic *intent*:

...by the action of the lungs and the elements of the air I ride in the air into the lungs and deposit an egg, believing that a living principle commonly known as biogen, welcomes and assists me in the development of measles; here I reach the nerve terminals as one would say, and by secretion am conveyed to the universal fascia, in which I am nourished and watered into perfect manhood, matured measles. Then as I have possession I assert my authority and run the machinery of life until my whole desires are satisfied although death be the result in many cases. (1898d, p.104)

A modern understanding of the action of the measles pathogen would be in agreement with Still's above description - the virus takes control of the action of the host cells which it infects ("assert my authority"), and manipulates the energetic resources and protein-replicating capacities of those host cells to produce further viruses ("run the machinery of life until my whole desires are satisfied"). Still goes on to detail the specific plan with which measles seeks to ensure the success of these goals:

When I take possession of the lungs my first thought is to close the secretions by filling them with dead substances as they pass out of the skin. My first strategic move is to close the mucous secretions of the lungs. Should they continue normal with the ability to combine oxygen and hydrogen, I would be washed out by the water renovation, therefore I close both excretion and secretion until my work is done. (1898d, p.104)

Amongst others, these quotations establish that Still viewed infectious agents as not only "living matter", but "living matter" endowed with an intent to act out a intelligent strategy. In Still's descriptions, infectious agents not only **design** the ideal

conditions within their host in which to feed and reproduce, but the pathogens also strategically *disable the innate defensive properties* of that host. This prescient insight on Still's part is discussed in greater detail in SECTIONS 4.9.2 MICROCIRCULATORY COMPARTMENTALIZATION and 4.9.3 PATHOGEN INTENT AND MALIGNANCY STRATEGY.

Thus it becomes clear that, in Still's mind, while an infectious agent could in some instances be simply be an after-effect of preexistent abnormal internal conditions (see SECTION 3.3.14 GENERATION AND TRANSMOGRIFICATION OF BACTERIA), an infectious agent could also be the origin of the disease process itself - by strategically manipulating and altering the patient's internal dynamics to create the abnormal conditions that best suited it. To employ a Stillian analogy, this is much the same as when beavers migrate into a new region, then strategically build the necessary dams and lodge that alter their new environment - thereby allowing the beavers both consistent access to preferred food, as well as engineering a robust defensive position - well in advance of immediate need.

Many times within Still's writings, he listed the series of events that occur when various infectious agents initiate a degenerative PFBL, initially:

- the infectious agent enters the body and irritates or "shocks" the local nerves (often of the lungs)
- as a result of this, the fluid dynamics become imbalanced and abnormal (*especially the **ratio** between the amount of fluids flowing-in versus those flowing-out* - as will be discussed in SECTION 3.6.3 RATIO AS HARMONY)
- thus fluids are retained in the tissue spaces ("fascia", "lymphatics") for abnormal periods of time
- simultaneously, abnormal tone of skeletal and smooth muscle occurs

- both of which create further abnormality of nerves, muscles and vasculature, which itself then further increases the location and severity of the imbalanced rates of fluid-flow
- thus leaving the “living fluids” trapped within tissue spaces (or “cells”) for increasing periods of time, wherein the fluids eventually die of “asphyxiation” and begin to “ferment” and “decompose” into additional poisons
- which further irritates the nerves, muscles and vasculature...
- thus the initial loss of normality has become a cascade, an exponentially increasing degenerative PFBL – that if left unchecked will spread a loss of normality throughout the entire patient, unto death

As discussed earlier, Still presented two scenarios in this regard. Either the infectious agent was an after-effect of preexisting abnormality, or it was the original instigator of the abnormality unto itself. In either case Still employed the ‘corn metaphor’ of ‘internal soil’ conditions.

In the first of Still’s above two scenarios, the infectious agent would not be able to ‘take root’ unless a preexistent loss of normality was present (for example due to an unresolved mechanical injury from the past). While in the second scenario, the infectious agent could not grow to maturity and ‘go to seed’ unless loss of normality was present in an **ongoing** basis - for the disease agent *required* the lack of normal conditions to spread its influence. Thus the agent strategically **disabled** the *innate defensive capacities* of the host - for if left normally active these capacities would quickly destroy or expel the infectious agent.

This again emphasizes that, for Still, the origin of the disease process was not pragmatically relevant, instead it was the “conditions operating as causes” with which Still was concerned (1910, p.479). In Still’s eyes, loss of normal internal conditions was the **cause** of disease, *even if an infectious agent was the **originator** of that loss of normality*. An infectious agent might very well initiate the cascade, but if the process of disease could then be effectively normalized via patient-focused treatment, then for Still this demonstrated the fact that the cascade itself was best viewed taking place *within the patient*, rather than as a microbiological phenomenon.

3.5.8. TREATMENT

3.5.8.1. THE INTERRUPTION OF EXPONENTIAL LOSS OF NORMALITY

Since Still had concluded that disease consists of a progressive cascade of exponentially intensifying loss of normality within the body, Still also concluded that disease could be both interrupted, and with time completely eradicated, via *an appropriately repeated reestablishment of **normality***, i.e.: “Can I attack in the proper place to stop the downward tendency, the downward road to death in which that child is being propelled?” (Still, 1896d, p.3)

A normalization of the body was repeated as often as was necessary to allow the patient’s own innate capacity for appropriate self-organization to take action. Thus the *the role of a physician* was to ensure that the capacity for appropriate self-organization was **consistently** in place.

In Still’s final book (1910), he suggested appropriate frequencies of treatment for a multitude of various disease conditions. Some of these frequencies are as high as “hourly” for infants with acute croup (p.182), or “once or twice a day” for cases of intense tonsillitis (p.53). In other places Still suggested that patients with certain chronic

conditions (infectious or not) were to be treated at a rate of “once or twice a week” (1902f, p.88), or in other instances “every other day” (1910, p.54). Still stated that chronic cases would usually require this frequency of treatment for some time to bring about a full resolution of their disease-process.

Yet it should also be noted that elsewhere within Still's writings he staunchly warned his students *against* treating:

...oftener than once or twice a week... .

[As] Many of your patients are well six months before they are discharged. They are kept on hands because they are so weak, and they are weak, because you keep them so from irritating the spinal cord. (1899b, p.217)

Thus it would appear that Still felt it was also quite possible to cause harm via treatment that was too frequent.

In the *Journal of Osteopathy*, Still wrote an article titled *Information for Patients* in which he explained that despite consistent and frequent treatment (i.e.: multiple times per week as was the norm), potential patients of his Kirksville Infirmary should enter into their care informed by the expectation that “seventy-five per cent of the cases of asthma are curable in from two to four months” (1898h, p.209), while the remainder of cases were to expect *even longer* to resolve.

It was for this reason that Still's infirmary did not charge fees *per minute* of treatment given, but rather *per month* of overall care (Still, 1899b, p.272). During such a time-frame, the attending osteopathic physician would supply the most appropriate *frequency* and *duration* of treatment determined to be ideal. In an article on this topic, titled *Quick Results are Not the Rule*, Still wrote that:

While cases of many years standing have been cured in a single treatment, and others have been restored to health in so short a time as to seem remarkable, a majority of cases require more time. Many of the most truly wonderful cures have been those in which results came only after a long course of treatment. ... One case may be cured at a single treatment, while another, the outward appearances of which are the same, may require many weeks, perhaps months. (1897g, p.6)

Early editions of the *Journal of Osteopathy* contain advertisements for patients of the new Kirksville infirmary, stating that: "Treatments are given from one to three times a week, according to the requirements of the case" (Patterson, 1895, p.8). Still's grandson recollected that the usual frequency of treatment at the Infirmary in those days was "three treatments a week" (Still Jr., 1991, p.163).

It seems that some of these treatments must have only required very quick interactions, as is suggested by the fact that during only the third year in which Still began to teach Osteopathy to others, already "thirty thousand osteopathic treatments were given at the infirmary during the year 1895, and most of the patients insisted that they be personally treated by Dr. Still" (Trowbridge, 1991, p.151). Thus it appears that Still's treatments must have been often of a very short duration.

This interpretation is supported by an article wherein Still described a rival upstart school which was publicly professing to teach his Osteopathy. Still sought to demonstrate to his readers that this upstart school could not in fact be giving instruction in Osteopathy, but rather must be teaching massage, for the upstart school described treatments that lasted from "thirty to fifty minutes; the time required for a masseur but not for an Osteopath" (1898k, p.168).

Yet in the vast majority of Still's descriptions of treatment he nevertheless describes giving specific attention to each boney level of the patient's spine and ribs, as well as often the clavicles and hips and any specific structures that are involved outside of these central regions. In Still's final book he repeatedly presents this both 'general and particular' methodology to his readers with some variation of the description: "I proceed to adjust from the abnormal to the normal all bones of the body from the sacrum to the atlas" (1910, p.333). While at the same time Still also noted that: "The expert operator learns to do all this work in a very short time. It is not necessary for you to worry patients by indulging in long drawn out treatments" (1910, p.387).

Contemporaries of Still who acted as instructors at the American School of Osteopathy and also as clinical staff at the Infirmary suggest within their own writings that in that era most Osteopaths spent about twenty to thirty minutes per treatment (McConnell, 1901; Lane, 1918). Yet McConnell also stated that the actual time could vary widely - as the *duration of a treatment was based on the accomplishment of the desired results, not the number of minutes pre-allocated in the practitioner's schedule* (McConnell, 1901). This is to say that treatment duration and frequency were ideally to be determined by **biological** rather than **socioeconomic** factors. As stated by McConnell:

Timing and spacing of treatments are too often based on fancy of some sort and not on therapeutic requirements. Probably more failures and dissatisfaction in osteopathy arise here than from all other sources combined. ... Success is dependent upon this [appropriate frequency and duration] as well as upon definite structural corrections. (2011, p.31)

Still confirms this conclusion during a discussion of erysipelas, where he stated that:

When the case is severe the treatment is to be given once, twice or even three times the first day. But my object has never been the number of treatments but the certainty of drainage which is always accompanied in a short time by a disappearance of the fever, swelling, soreness and all other distressing symptoms. (1910, p.442)

Still repeatedly described certain conditions wherein the ideal application was multiple treatments per day. In other conditions, especially chronic ones, Still felt that treatment should be continued over extraordinarily long durations of time. For example, Still was able to completely resolve the severely granulated eyelids of Margaret Hildreth, but only by providing her with weekly treatment for *two consecutive years* (Hildreth, 1938).

This begs the question - why? *Why did Still find it necessary to **repeatedly** normalize the **same structures**?* In answer Still suggested that one must:

...[Guard] your patient against strains and jars that would cause bones and ligaments to fall back to the condition that caused the disease in the first place. Remember that **the same cause will produce the same effect**, and you will have to do your work over again unless care is taken ***long enough to let muscles get strong and normal.*** [emphases added] (1902f, p.245)

I have gotten good results, clear skin, and a general improvement [in myxedema] following the adjustment of the bones of the head, neck and upper chest, **when they were kept in position *any reasonable length of time.*** [emphasis added] (1910, p.114)

Due to the unity of structure and function, the scenario as presented by Still is one wherein loss of normality in physiological processes *must* inevitably create corresponding loss of normal anatomical relationships. Thus it is only logical that with a single

treatment, wherein all anatomy was adjusted to “as near normal a condition as was possible” (Still, 1910, p.282), it would often **not** be sufficient to bring about total long-term resolution. This is logical, given that after such a normalization, to one degree or another the *process* of disease remained in place - manifest at the very least as the loss of normal **physiology**. Therefore corresponding **anatomical** loss of normality would naturally reemerge in a short time afterwards.

The iconic American osteopathic physician Dr. Harold Hoover synthesized Still's vision of treatment, stating that it was one wherein:

...structural abnormalities are the form of functional deviations in the living processes, and the aberrant tissue causing a functional deviation needs to be changed in function in order that the living process will be more adaptable and efficient in maintaining or attaining health. ... **This dynamic, functional approach considers disease and pathology as a part of the living process, to be treated by *changing the process*.** [emphases added] (1963, p.493, 490)

It seems that this was a primary reason why Still held that the role of a physician was to *repeatedly* reintroduce normality - for when disease is understood as a verb, a process, a physician must bring about an interruption of the exponential *character* of the disease, as *this in itself is then a profound step towards normalization of the disease*. When disease is understood as a process: normalizing the ‘disease-process’ is the same as ‘curing’ the disease.

3.5.8.2. APPROPRIATELY REPEATED REESTABLISHMENT OF NORMALITY

Each time an osteopathic practitioner adjusts towards normality, the exponential rate of intensification of the process of disease is temporarily *decreased* or even

interrupted - thereby not only depleting the total 'velocity' which the process of disease had already accumulated up to that point, but also *decreasing the rate at which the process of disease gains additional velocity from that point forward*.

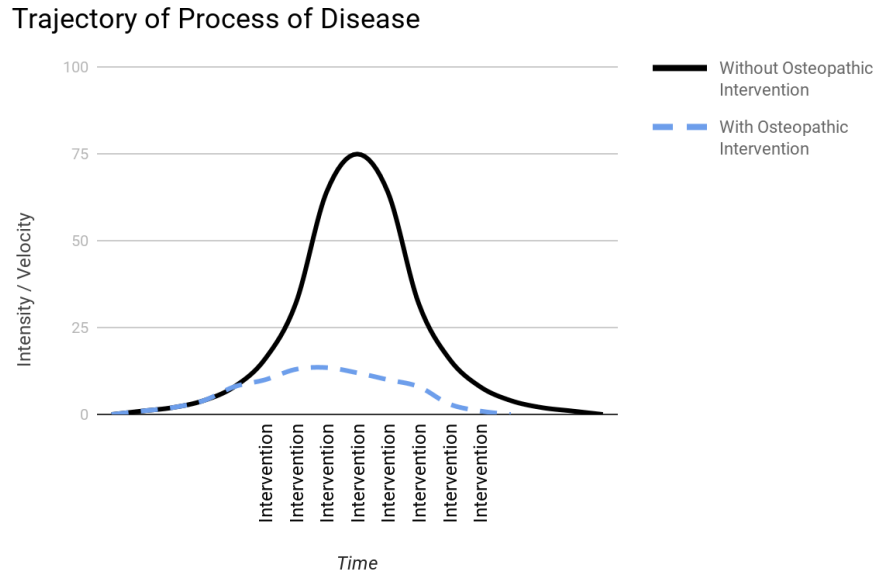


Figure: 16. The effect of osteopathic normalization on the trajectory of the exponential process of disease.

This serves to illustrate why for *both* intense acute or long-standing, deeply chronic conditions of any kind Still's intent remained the same - to "note all variations from the normal, and adjust them as nearly as possible to the conditions of the perfect model that stands in your mental shop" (1902f, p.46). For even if an individual treatment only served to temporarily slow or interrupt the exponentiality of the process of disease - *if this temporary influence was **repeatedly** introduced so as to allow the state to be **consistently maintained** over a long enough period of time - an eventual complete dissipation of the disease process would occur.*

The disease process could be said to be resolved when a state of *normality of autonomy* returned to the patient, i.e.: when their capacity for innate appropriate self-organization was fully restored.

3.5.9. IMMUNE OUTCOMES AS RATIO

During the course of treatment, repeated normalizations would allow the patient to exist within a state of more normal function, thus providing relief of symptoms and also dramatically increasing the patient's ability to appropriately adapt / self-organize to the remaining lack of normality. It was for this reason that Still stated that:

It matters not to me as a mechanic whether this disease [scarlet fever] is contagious or epidemic. When I have a case to treat, the thing I want to know is what nerve, blood-vessel or gland has failed to perform its function and **excrete poisonous products as fast as they accumulate?** [emphasis added] (1910, p.474)

Still is stating above that it was the *ratio of generation of poison vs. excretion of poison* that he found to be the most relevant lens through which to view the scenario of this infectious disease process. Still felt that if he could intervene in such a way to influence the opposing sides of this ratio to be favourable to the patient, and maintain that state over the necessary period of time, then the process of disease **must** inevitably cease. Still's intention was to disrupt the exponentiality of the disease process, and therefore disrupt its spread or intensification, thus eventually fully restoring normality.

Michael Lane, a DO and professor of pathology at the American School of Osteopathy during Still's last years, discussed this very strategy as the appropriate

osteopathic means of treating infectious diseases. Lane again describes this as a *shift in ratio*:

A certain amount of blood is needed to neutralize the poisons and destroy the life of a certain number of germs in the tissues. If these germs did not multiply in number a given quantity of blood would do the work in a given time. But the number of germs is constantly growing, and inasmuch as nature itself can supply only a limited amount of blood in a given time, the inflammation must grow larger as the number of germs increase, and it must grow larger at a higher rate than the rate at which the number of germs grows; else the multiplication of the germs could never be stopped. ... But it can be seen that if the rate at which the blood flows into the part be increased beyond the natural rate, the inflammation, just because it is increased out of its natural *proportion*, should be correspondingly shortened; and this is the actual fact. [emphasis added] (1918, p.83-4)

Lane is essentially stating that if a physician can help shift the ratio between the momentum of the exponential process of abnormality, and the action of the patient's innate self-organization, self-organization will be able to accomplish its goals not only more thoroughly, but also within a shorter period of time. When this occurs, recovery from infectious disease will take place. Furthermore, *the time required for recovery is dramatically reduced* - as not only is the capacity for recovery **increased**, but *due to the fact that the disease cascade has had less time in which to gain exponential momentum - there is less to recover from*.

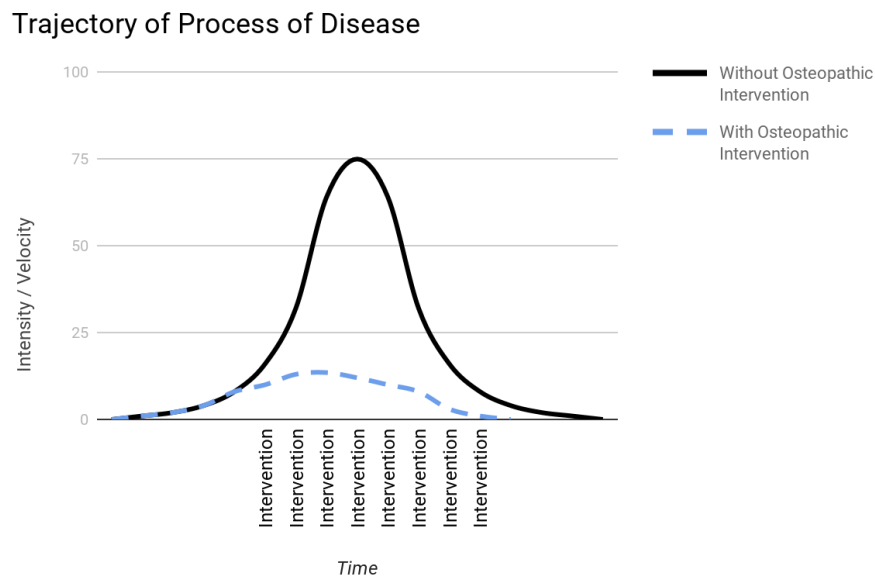


Figure: 17. There is less to recover *from*.

Lane went on to study this exact concept within using animal models - results of supported his above assertion (1920). Lane's findings demonstrated that osteopathic treatment could not only increase the *rate* at which antigen-specific antibodies were produced in the host, but that ongoing osteopathic treatment also facilitated the maintenance of higher antibody levels for a long *duration* of time after cessation of the antigen.

In modern research, similar findings were observed in human subjects who were vaccinated: adaptive-immunity was achieved sooner in those individuals who received osteopathic treatment after their vaccination (Measel, 1982; Jackson et al., 1998). Just as during a 'naturally' contracted infectious disease, after the vaccination procedure there is a window of time required between initial exposure to the antigen and the time when the adaptive immune system has gained the ability to effectively address the antigen.

This required time is when the adaptive immune system first identifies the new antigen, then grows and/or programs the immune cell-types that are specifically equipped to identify and neutralize the new antigen. Even once that is accomplished, the adapted immune cells must still go on to produce enough antibodies to out-number antigens that are present (i.e.: shift the ratio of antigen vs antibodies in the patient's favour).

In both infection and vaccination this process usually takes a number of days or in some cases even weeks, leaving only the more generalized and less effective innate branch of the immune system as the only means of host-defense during the initial period (Measel, 1982; Jackson et al., 1998).

The above studies demonstrated a significant reduction in the time required for adaptive immune competency in those subjects who received very basic osteopathic techniques in the days following vaccination. This suggests that in infectious illness, osteopathic treatment would also have the ability to decrease the amount of time required for adaptive immune competency to occur. This has huge implications in terms of clinical outcomes.

Other modern studies have found promising results. A application of a single simple osteopathic technique was able to dramatically slow the reproduction rate of bacterial pneumonia within rats (Hodge, 2012; Creasy, 2013). These results were found to take place in the days *immediately* following the induced infection, therefore suggesting that manual osteopathic treatment *also increases the efficacy of the immediate generalized 'innate' immune response.*

An enhanced initial innate immune response would *decrease the exponential growth rate* of the early infectious process, thus slowing its progress and intensity until

the time at which the more specific and effective adaptive immune system would also be able to take action against it. A more effective innate immune response would serve to 'buy time' until adaptive immunity takes place. This again indicates that the patient would be more likely to recover, and have less to recover *from*.

From all of this follows Still's consistent emphasis that Osteopathy can effectively treat most any condition, infectious or otherwise, if treatment is begun *soon enough*:

To the engineer who understands his engine as an osteopath should, all the mysteries disappear, the law of cause and effect is understood, and he governs himself accordingly and his patient will get well if he has taken the case **reasonably early**. [emphasis added] (1907b, p.422)

Variations of this "reasonably early" clause are found throughout Still's writings - while he did demonstrate supreme confidence in the efficacy of Osteopathy, Still also understood that the key quality of the process of disease is *exponentiality* - thus the later treatment is initiated, the more difficult it is to overcome the pathological momentum that has already been established. The further from a normal state the patient has traveled, the longer and less likely it will be that they will return. This indicates the importance of not only early intervention, but *prevention*, as will be discussed in SECTION 5.4.1

PREVENTATIVE MEDICINE.

Still described that his goal in each individual treatment was to produce within the patient a state of as much normality as possible, and that subsequent treatments were applied if and when a suitable state of normality had again been lost. Treatment was discontinued and deemed to no longer necessary only when total normality remained constant over time, despite a lack of further intervention by the Osteopath - the

degenerative PFBL had ceased and the normality of regenerative NFBLs had become reestablished. The highest wisdom of self-organization could now again direct the trajectory of the patient's vital motions: "When you have adjusted the physical to its normal demands, Nature universally supplies the remainder" (Still, 1902f, p.165)

Thus Still stated that it was the "business" of an Osteopath to simply "keep up perpetual harmony" (1910, p.255). Even in a condition that was immediately life-threatening, such as smallpox, Still suggested that the appropriate course of action was to "work to save the organs of the body in at least working order or enough so as to begin repairs after the fire of the pox has been extinguished" (1899c, p.66-7). It is clear that in such cases *Still did not expect his anatomical normalizations to last over time*, yet that did not preclude these temporary normalizations from possessing a profound ability to modify the final outcome of the process of disease.

Even in those cases when a patient had already gone too far into an exponential "whirlpool of death" (1910, p.346) to ever return, *temporary* and *partial* normalization would nevertheless serve to slow and soften the descent. Thus Still instructed his students to use Osteopathy as a means to "cure the curable and relieve the dying" (1898j, p.74).

3.6. APPLICATION OF THE ESSENCE

3.6.1. INTRODUCTION

This Section discusses Still's application of the orthodox and personal immunological concepts previously identified. To do so, it is necessary to introduce a number of relevant concepts that Still utilized during the practical application of his immunological understanding.

3.6.2. TRUSTWORTHY PERFECTION

Throughout Still's writings he frequently referred to the "perfection" of the "plans and specifications" through which humanity has been divinely "constructed":

Ever remember that the word "perfect" means no more and no less than the fiat of God, that His work has been concluded with absolute exactness. (1908c, p.205)

She [Nature] succeeds in all because her plans are perfect. Her designs have an object as their day star, and with her eyes fixed on the plan the effect is seen to follow. The body of man or beast is made for the purpose and to get results. (1910, p.22)

I have not only worked to relieve and cure the sick, but I have had both eyes open all the time to find a defect in Nature's work, its object, its plan, its specification, its building and engineering; so far I have failed to find a variation from perfection. (1910, p.26)

Yet how did Still reconcile this claim of "perfection" with the existence of disease? With the inevitability of bodily death? These same questions were posited by interviewees in Matvey Kipershtein's thesis *The Merit of Philosophy in Modern*

Osteopathic Practice (2014), wherein a number of internationally recognized Osteopaths:

...criticized A.T. Still's ideas of perfection as philosophically immature. According to that critique there are inherent logical conflicts in A.T. Still's understanding of perfection. For example, one cannot resolve the issue of physical death in relation to the perfection of the human body which was created by the perfect God without resorting to theological explanations of afterlife. In another example of such critique, the perfection of man does not explain how humans adapt to various stressors in their environment. (p.117)

Given that Still makes it repeatedly clear that this concept of perfection is a foundation of his medical paradigm, it is crucial that modern readers reach a clear interpretation of this concept.

The conclusions reached by the current research are that Still's concept of divine "perfection" readily addresses both of the above-posed "logical conflicts". In fact, Still's concept of "perfection" points to the fundamental principle upon which Still's unorthodox medical system was based. Still seems to be quite clear on this point:

The human system is a perfect mechanism, **and it must be in perfect mechanical order that it may perform its various functions aright.**

[Based on this, an Osteopath's medical intervention consists of] ...the reduction of such structural condition as far as may be done, or [if it currently or permanently cannot be normalized, the Osteopath then] attempts by his special manipulative measures to render the organism such aid as will enable it to overcome or **adapt** itself to the changed structure. ... [This is because Still based his entire medical intervention upon]... **the foundation principle that nature constantly tends toward a normal condition both of structure and function, and *the province of the***

physician is not in seeking a healing power from without, but in assisting the organism to maintain its structural integrity, which animated by the vital principle is sufficient of itself to generate and distribute every element necessary to normal functioning. [emphases added] (1902g p.275-6)

As the above quote displays, when Still spoke about the “perfection” of humanity, he was discussing a perfection of *design*, not of *existence*. Meaning that Still saw each human being as containing the capacity to *perfectly* self-organize (i.e.: enact *the* most appropriate *adaption*, a ceaselessly orientation *towards* perfection) – while *given the constraints of the finite scenario in which the being existed at that time*.

Still observed that each individual’s innate capacity for self-organization *perfectly* chose *the* most appropriate course of action - **from those options that were available**.

This aspect of Still’s concept of perfection was therefore additionally an attempt to convey his observation that the universal phenomenon of self-organization was in play *at all times* within all individuals. To Still, self-organization *was* adaptation, was Evolution, taking place during each moment:

...[each human is] a machine that was made and put in running order according to God’s judgment—perfect in the construction of all its parts, designed to add to its own form and power day by day, and to carry out all exhausted substances that have been made so by wear and motion.

...this machine is self-propelling, self-sustaining... (1897h, p.185)

Still saw humanity’s *perfection of adaptation* as but one particular instance of the universal, perfect self-organization that was taking place throughout all aspects of reality:

“If he [humankind] partakes of the nature of the universe, then, by that quality, he has

constructiveness to perfection as a natural quality of his animal perfection” (1902f, p.259). Thus within a human individual this universal quality was manifested as ceaseless adaptation the ever-shifting internal and external conditions. Still saw immune function as just one more instance of this perfection of adaptation:

...nature. It is ever willing, and self-caring, self-feeding and **self-protecting**. [emphasis added] (1896a, p.1)

He finds each part connected to all others with the wisdom that has given a set of plans and specifications that are without a flaw or omission. The body generates its own heat and modulates to suit climate and season. It can generate through its electromotor system far beyond the kindly normal, to the highest known fever heat, and is capable of modulations far above or below normal. (1899b, p.182)

I found that nature had provided all things necessary to sustain animal life, **modify temperature and remove disease**. [emphasis added] (1898l, p.460)

It was the existence of innate perfection of adaptation that Still's immunological medical interventions were based upon. It can be said that Still's intent during medical intervention was simply to *provide the patient's inherent capacity for perfect adaptation with a better array of options from which to choose*. Based upon this reasoning Still concluded that:

Thus we can do no more than feed and trust the laws of life as Nature gives them to man. We must arrange our bodies in such true lines that ample Nature can select and associate by its definite measures and weights and its keen choices of kinds, that which can make all fluids needed for our bodily uses, from the crude blood to the active flames of life, as seen

when marshalled for duty, obeying the edicts of the mind of the Infinite.
(1902f, p.53)

Restating the above: Still's medical intervention did not seek to determine what the correct state of the patient was and then attempt to enforce that state – rather Still only sought to restore a *normality of autonomy*. Still often reiterated the reasoning that had informed this choice of strategy:

Is God an architect? If so why not be governed by the plan, specification, building and engineering of that Architect in our work as healers? When we conform to and work by the laws and specifications of this Architect, we get the results required. This is the foundation stone on which osteopathy stands and has stood for thirty-five years. (1910, p.25)

An Osteopath walks out single-handed and alone. And what does he place his confidence in? First, on his confidence in the intelligence and immutability of God Himself (1897a, p.303).

Thus Still's unorthodox medical system was essentially his means of coming into appropriate relationship with the fundamental unknowability of reality (See SECTION 3.4 A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY). Still had concluded that since the human mind could not comprehend the totality of reality, the only wise course of action to be taken was, in short, trust. Trust based upon, and justified by, an ongoing observation of the existence of appropriate self-organization acting out as perfection of adaptation.

3.6.3. RATIO AS HARMONY

As noted in the previous section, when seeking to restore health within his patients, Still sought to make better options available to the patient's own innate capacity

for appropriate self-organization, their perfection of adaptation. As noted earlier in SECTION 3.4.11 INTELLIGENT INTENT TOWARDS INDIVIDUATION, a 'self' can only be defined in **relation** to a 'non-self'. Thus a 'self' is in actuality composed of the motion, the dynamic, or *relation-ship* taking place between these two ('self' and 'non-self' - see also SECTION 3.4.12 LIFE DEFINED AS COHERENTLY ORGANIZED MOTION). Thus when Still was seeking to provide better options to the self-organizational capacity of a 'self' (i.e.: patient), it was the ***dynamics crossing the boundary that defines 'self' from 'non-self' onto which Still focused his intervention.***

In this regard an individuated 'self' (or "being" as Still put it) could then be conceptualized on a variety of scales: a tissue type, an organ, a bodily region, or an entire patient (see SECTION 3.4.14 "ATOMS, BEINGS, WORLDS"). This is to say that a 'self' consists of a unit of coherent self-organization, no matter the scale. Still found that on any scale, a 'self' exists as the *interior* of a *boundary*, across which dynamic mutual transfer with 'non-self' continuously occurs. It is by continuous transformation of '*internal/self*' **into** '*external/non-self*', as well as '*external/non-self*' **into** '*internal/self*' that a 'self' is perpetuated through time. Both intake of fuel and the excretion of waste must persist for the existence of the self (see SECTION 3.4.11 INTELLIGENT INTENT TOWARDS INDIVIDUATION).

Within Still's writings he categorized *dynamic mutual transfer* as occurring in two basic directions, **into** and **out of** the self-organized unit. For the purposes of this research, these directions will be termed '*inflow*' and '*outflow*'. It can therefore be summarized that *inflow* **adds** *content* to the *internal* from the *external*, while *outflow* **removes** *content* from the *internal* into the *external*.

Again, this process of dynamic mutual transfer takes place within a self-organized unit of any scale: a tissue, organ, region, or whole organism. Still's writings include many instances wherein he breaks down a given scenario into these *elements* (*interior, exterior, inflow, outflow, content of flow*), then proceeds to analyze the *relationships* between them (this terminology and its associated system of analysis is adapted from Meadows, 2008; Krafel, 1999, p.83-4).

Extensive examples follow further below, but first, it should be made clear that this terminology is being imposed on Still's work by the current researcher. Yet it can also be demonstrated that this modern schema is an exact match for the framework of analysis that Still consistently presented within his writings.

This was a central conclusion of Jane Stark's 2003 *Still's Fascia* (see especially p.183-91, p.299-312). The current study, although developed independently, was upon re-review found to closely reflect the same interpretation as is found within Stark's much earlier work - both authors even choose the same examples from Still's text to provide evidence of the presence of this analysis style in Still's work (see the below discussion of Still's 1902f, p.63-4, in reference to Stark, 2003, p.311).

The terminology used here to refer to these analytical components and concepts is modern. What is here referred to as *inflow* and *outflow* were usually referred to as "supply" and "drainage" by Still.

A partial list of what will be here classified as *content of inflow*, was described by Still within his writings as:

- arterial blood
- inhalation of air

- cerebrospinal fluid flow from the central nervous system into the distal tissues, via the nerve channels
- nerve flow into a tissue
- intake of food and water
- inhalation of seeds of disease, or miasmatic gases

A partial list of examples identified within Still's writings of what will here be termed to as *content* of *outflow* includes:

- venous blood
- lymph
- exhalation of air
- exit of gases from the skin
- exit of heat from the body
- urine
- feces
- sweat
- digestive juices
- nerve flow out from tissues towards the spine and brain
- by-products of normal metabolism, or pathological "fermentation"

Thus these *inflows* and *outflows* are the *dynamic mutual transfers* across the *boundary* that differentiates a self-organized unit from its surroundings. To Still these transfers were, in large part, what the self-organized unit itself consisted of, given that

Still conceived of life as a vitalistically guided coherence of motion, perpetuating itself through time (see SECTION 3.4.12 LIFE DEFINED AS COHERENTLY ORGANIZED MOTION).

Thus it should be noted that both *inflow* and *outflow* are determined in relation to an *interior*, which from here forward be termed a *collection space*. Thus a complete schema using modern terminology to represent Still's original concept has now been established. It is presented within the below diagram, using the format of a bathtub:

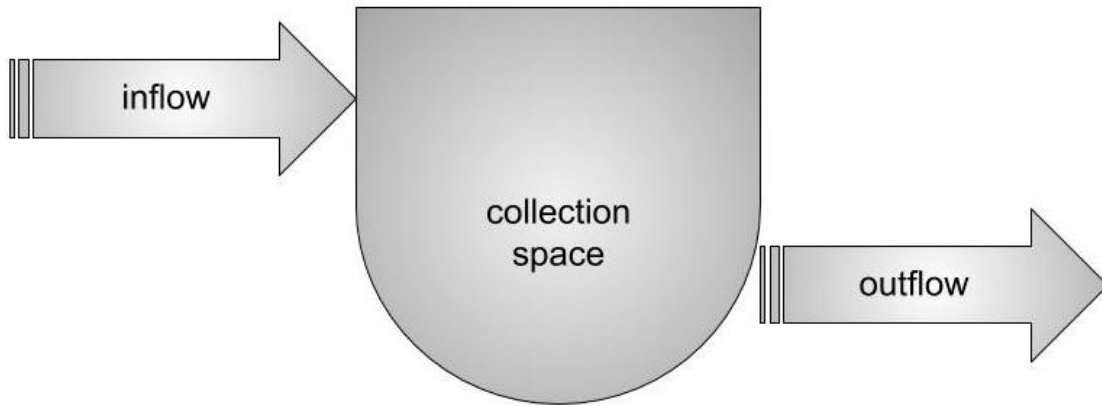


Figure: 18. A bathtub: inflow, outflow and collection space (Illustration by author. Modern schema and this means of analysis adapted from Meadows, 2008; Krafel, 1999, p.83-4).

The *collection space* therefore not only receives the *content* of *inflow*, and discharges the *content* of *outflow*, but importantly - the *collection space* only has a **finite** capacity to hold *content*. The above example of a bathtub would be analyzed within this schema as containing a faucet (*inflow*), a drain (*outflow*), and a finite volume for the potential storage (*collection space*) of water (*content*) (Meadows, 2008).

Thus when the **ratio** of rate of *inflow* exceeds that of the rate of *outflow*, the *collection space* inevitably accumulates greater levels of *content*, and eventually, if

capable, it begins to distort (swell). This is then accompanied by the genesis of abnormality, including changes in *inflow*, *outflow* and *content*. New abnormal avenues of *outflow* may now occur (i.e.: water flowing out via the lowest portion of the rim of the bathtub). During an abnormal ratio of *inflow* versus *outflow*, the *content*, as Still put it, “finds an outlet” (1899b, p189), and begins to be displaced into new, abnormal *collection spaces* (i.e.: the bathroom floor).

These same concepts may alternately be used to illustrate the manner in which, if the bathtub (*collection space*) is to ever be useful for taking a bath, a minimum amount of *content* must accumulate within it. To bring this about, the ratio between the rate of *inflow* must exceed that of the rate of *outflow* – and be maintained for an appropriate duration of time. Once the appropriate level of *content* has accumulated within the *collection space*, the ratio must now be readjusted, and then remain constant at this new balance (or in the case of the body: *fluctuate within an acceptable range*), if the bathwater is to exist over time while containing both appropriate water-levels and remain clean.

Explicating the concepts contained in the above example of a bathtub to those of a biological self-organized unit yields a useful means of analysis of the *relational dynamics* that give rise to the state of a self-organized unit. It was this exact style of analysis which was frequently utilized by Still throughout his writings. An example of this is presented below, first in Still's original words, and then repeated again while being paired with the modern terminology that was established in the above schema. Still says:

Observation will show any fair-minded person that tumefaction [defined elsewhere by Still as a **swelling** of liquids or solids] causes death in the majority of cases. But another power is equally effective in destruction of

life, which is just the reverse of tumefaction. It destroys by withholding nutrition and all of the fluids, and the effect is starvation, **shrinkage**, and death. Thus you see it is equally certain in results. In the one case death ensues from an **overplus** of unappropriated [unused, unabsorbed] fluids of nutrition; in the other there is no appropriation to sustain animal life, and the patient dies of **starvation**. **The same law holds good in any part as well as in the whole body.** [emphases added] (1902f, p.224)

This piece of text is now presented again, with the modern terminology paired to Still's original text:

Observation will show any fair-minded person that tumefaction [**excess of content** in a *collection space*] causes death in the majority of cases. But another power is equally effective in destruction of life, which is just the reverse of tumefaction [**excess of content** in a *collection space*]. It destroys by withholding nutrition and all of the fluids [a deficiency of *inflow*], and the effect is starvation, **shrinkage**, and death [a lack of *content* in the *collection space*]. Thus you see it is equally certain in results. In the one case death ensues from an **overplus** [excess *content* accumulated in the *collection space*] of unappropriated [unused, unabsorbed] fluids of nutrition [*inflow*]; in the other there is no appropriation [*inflow*] to sustain animal life, and the patient dies of **starvation** [a deficiency of *content* in the *collection space*]. **The same law holds good in any part as well as in the whole body** [in a self-organized unit of any scale that operates under these same principles]. (1902f, p.224)

Thus, to Still, one way to define *normal health* was to describe an appropriate *harmony between the rate of inflow and the rate of outflow* - as this was what allowed for the existence of an *appropriate amount of content to be contained in the collection space* at any one time. As Still notes above: "The same law holds good in any part as well as in

the whole body” - meaning he had found that this concept could be accurately applied to specific tissues, organs, bodily regions, or the entire organism. Still presented many other diverse examples of this concept taking place on these various possible scales.

Below are examples wherein Still employed this conceptual framework as the very means by which to define both *health* and *disease*:

We find building and healthy renovation [a.k.a “drainage”] are united in a perpetual effort to construct and sustain purity. In these two are the facts and truths of life and *health*. If we go to any other part or organ of the body, we find just the same law of supply, arteries first, then renovation, beginning with the veins. **The rule of artery and vein is universal in all living beings**, and the Osteopath must know that, and abide by its rulings, or he will not succeed as a healer. [emphases added] (1899b, p.153)

Hence *disease* is looked upon as a condition of an organ or of the organism in which function or activity cannot properly obtain because of some interference with one or more of these various pathways. [italicization added] (1902g, p.276)

Yet Still was not the first to display such an analysis, nor to draw these implications from it. Presented below are striking similarities between Still's writings and the concepts presented by Justus Von Liebig in the 1842 book, *Animal Chemistry* (see also SECTION 3.3.6 LIEBIG AND THE SHIFTING BORDER BETWEEN THE REALMS OF THE ‘LIVING’ AND ‘NON-LIVING’). Liebig wrote:

That condition of the body which is called *health* includes the conception of an equilibrium among all the causes of **waste** and of **supply** ; and thus animal life is recognized as the mutual action of both ; and appears as an alternating destruction and restoration of the state of **equilibrium**. [emphases added] (p.245)

Liebig continues this line of thought some pages later:

Every substance or matter, every chemical or mechanical agency, which changes or disturbs the restoration of the **equilibrium** between the manifestations of the causes of **waste** and **supply**, in such a way as to add its action to the causes of **waste**, is called *a cause of disease*. *Disease* occurs when the sum of vital force, which tends to neutralize all causes of disturbance (in other words, when the resistance offered by the vital force), is weaker than the acting cause of disturbance. ...

To the observer, the action of a cause of disease exhibits itself in the disturbance of the **proportion** between **waste** and **supply** which is **proper** to each period of life. **In medicine, every abnormal condition of supply or of waste, in all parts or in a single part of the body, is called disease.** [italics original, bold emphases added] (p.254)

Still echoes Liebig's sentiments and schema exactly:

Hence I reason that when the normal excretory system is able to excrete impurities from the body **as fast as they are generated**, we have not only a hope but a certainty of giving relief and cure... [emphasis added] (1910, p.170)

Osteopathy ... reduce[s] tumors by vital excretory activities, banish[es] ulcers by **bringing more good blood and repairing faster than the powers to waste can destroy.** [emphases added] (1902b, p.2)

Given Liebig's huge influence on the orthodox medical culture of the mid-1800s, it is possible that this particular means of defining health and disease was absorbed during Still's early life. In *The Strategy of Life: Teleology and Mechanics in Nineteenth Century German Biology*, a book discussing the worldview of Liebig as well as other

influential scientists of that time and place, the historian Timothy Lenoir summarizes that from a teleological perspective:

...biological principles establish hierarchies of organization in which each level relies for its working on the levels below it while being irreducible to these lower principles. Biological principles in this view, therefore, **control the boundary conditions** within which the forces of physics and chemistry carry on the business of life. (1983, p.7)

The aforementioned British philosopher Herbert Spencer (see SECTION 3.4.9 HERBERT SPENCER AND “FIRST CAUSE”) also stated a version of this same concept, while using his own terms, by discussing the necessity for a “equilibrium mobile” or “moving equilibrium” between those motions crossing the *boundary* that delineates *internal* from *external* (1863, p.443). Spencer stated that:

This maintenance of a **correspondence** between **internal** actions and **external** actions ...**is the means whereby life is continued through subsequent moments...** [emphases added] (1863, p.86)

...co-ordination [is] the specific characteristic of vitality, ... an arrest of co-ordination is death, and imperfect co-ordination is disease. (1871, p.61)

Thus all of the above schemas describe life and health as *depending upon the ability to **regulate** inflow and outflow between the ‘self’ and ‘non-self’*. A dynamic self-regulation, a *constant appropriate self-organization* was necessary to maintain levels of *content* within a functional range. Therefore Still’s concept of “fermentation” (see SECTION 3.3.4 “FERMENTATION”) was what occurred when *content* was not refreshed with an appropriate frequency - the *content* became stale and rotted within the *collection*

space. **This** was the reason why Still concluded: "...death may begin in the fascia and pass through the whole system" (1898f, p.163).

As discussed earlier in SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE, when Still interacted with a disease process, a primary goal was to interrupt its exponentiality. As has been demonstrated within the current Section, the dynamic mutual transfers (inflows, outflows) across the boundary of a self-organized unit were *the specific venue chosen by Still at which to assess and enact this intervention*.

Still repeatedly demonstrates the incredible depth and precision with which he applied this concept. Take for example Still's discussion on pages 63-4 of *Philosophy and Mechanical Principles of Osteopathy* wherein Still details the mechanisms of lung disease and thereby explicates the appropriate treatment. Still begins the section by explicitly identifying the various *inflows* and *outflows* relevant to the scenario - these being the vascular autonomic nerves and the fluid pathways which they regulate. Having identified these elements, Still then goes on to describe the effects that a loss of normality of *ratio* between the various neurovascular pathways would have on the levels of fluid *content* in the *collection space* over time. In this, as in many cases, Still determined that the *collection space* is what would today be called 'the extracellular space' within the fascia (see SECTIONS 3.3.13 THE UTERINE PROPERTIES OF THE FASCIA AND "BLOOD SEED" and below 3.6.4 "FASCIA", "LYMPHATICS", AND THE "CELLULAR SYSTEM"). If a loss of normal ratio of *inflow* versus *outflow* is not corrected, a degenerative positive feedback loop of loss of normality exponentially takes place. If such a ratio of excessive *inflow* versus *outflow* has occurred, Still writes that logically one should then give:

...attention to the sensory nerves of the lungs, in order that the blood may pass through the veins [*outflow*], whose irritability has refused to receive the blood, further than capillary terminals [these being the junction of the *outflow* to the *collection space*]. As soon as sensation [nervous tone] is reduced, relaxation of nerve-fibers of veins tolerates the passage of venous blood, which is [has become] deposited in the spongy portions of the lungs [the *collection space*] in such quantities as to overcome the activity of the nerves of renovation [the regulators of rate of *outflow*],... [in this case, the *excessive* levels of *content* overflowed] first in the region of the fascia [an abnormal new *collection space*], then [back-flowed] in the arterial and venous circulation [additional new abnormal *collection spaces*]. Thus you see what must be done. The veins as channels must carry away all the blood as soon as it has deposited its nutrient supplies to the places for which they were intended; otherwise, by delay, [a *degenerative positive feedback loop* begins and] vitality [adaptively]... calls for a greater force from the arterial pumps to drive the blood through the parts, [thereby] rupturing capillaries and depositing the blood in the mucous membrane [yet another abnormal *collection space*], until finally the nerves of the fascia become powerless by surrounding pressure, and, through the sensory nerves, an irritability sets in at the heart, which is driven to still greater efforts [the *degenerative positive feedback loop* continues as additional regulation mechanisms of *inflow* and *outflow* are disrupted - with acute global implications]. (1902f, p.63-4)

In the same book, only pages away, Still described the same scenario more clearly:

Suppose venous blood is suspended by cold [weather, temperature] or other causes in the lungs to the amount of oedema of the fascia [accumulation of an excess *content* within the *collection space* due to loss of *outflow*]; another mental look would see the nerves of the fascia of the lungs in a high state of excitement, cramping fascia onto veins, which would be bound to cause an interference with the flow of blood to the

heart. No blood can pass through a vein that is closed by such resistance, nor can it ever do it until the resistance is suspended. Thus the cause of nerve-irritation must be found and removed before the channels can relax and open sufficiently to admit the passage of the obstructed fluids. In order to remove this obstructing cause, we must go to the nerve-supply of the lungs, or other parts of the body... . As soon as sensation [nervous tone to the venous musculature] is reduced, the motor and sensory **circuit** is completed and the labor of the artery is less, because venous resistance has been removed [rate of *outflow* has been increased by relaxing the veins, thus increasing their diameter]. The **circuit** of electricity is complete... . The high temperature [fever and inflammation] disappears because distress gives place to normal, and recovery is the result. [emphasis added] (1902f, p. 59-60)

This again illustrates that *Still's chosen means of intervention was **not** to impose a specific **state** on the system, but rather to remove the **incapacity of the system to innately self-organize***. This is why in the above given examples, Still is not himself 'pumping out' or 'draining' the excess venous blood that has pathologically accumulated. Rather, Still sought to *restore the capacity of the regulatory mechanism (i.e.: "the sensory system") to give accurate **feedback** as to **what amount of venous blood it would be appropriate to drain***. This allows the system as a whole to regain its normality of autonomy; given time it will now continually and appropriately adjust itself.

By applying this modern interpretive schema and analysis to Still's writings, a reader begins to get a clearer understanding of Still's intent and method of treating the many serious immunological conditions he encountered. It can be stated that Still's intervention sought to disrupt local and global cascades of loss of normality within the ratio of *inflow* versus *outflow* - and the regulatory mechanisms that dictated these rates.

This was Still's "law of reciprocity" between artery and nerve now put into action (1901b, p.33; see SECTION 3.5.6 IMPLICATIONS OF DISEASE AS PROCESS). This was how Still facilitated the improved *conditions* in which perfection of adaptation could then take place.

3.6.4. "FASCIA", "LYMPHATICS", AND THE "CELLULAR SYSTEM"

As has proven necessary in the earlier phases of this research (see for example SECTION 3.3.4 "FERMENTATION", or SECTION 3.4.7 THE INFINITE UNKNOWABLE), a deep engagement with the meaning of Still's terminology is vital when attempting a modern comprehension of his work.

In a number of highly relevant sections of Still's work which discuss immunological function a number of deeply interrelated concepts are presented: "fascia", "lymphatics" and the "cellular system" of the body.

On first glance, these terms are seemingly familiar to a modern reader. Yet as will be demonstrated below, this is not the case. In fact, in some instances Still employed each of these terms to refer to a *single* underlying concept.

It might initially be assumed by today's reader that when Still uses the phrases "cell" or "cellular system", this was a reference to today's biological 'cell' – i.e.: the 'unit of life' described by modern science. To give some context, biological cell-theory was first proposed in relation to health and disease by Rudolph Virchow in the mid-1850s (see also SECTION 3.4.5 HOLOGRAPHIC CULTURE). Yet Still did not discuss today's 'cells as a unit of life' within his writings. Thus Virchow's premise of "cells" as the building-blocks of life is seemingly absent from Still's work.

Yet as mentioned above, Still *does* refer to a "cellular system" within a number of key sections of his texts. This includes important references by Still to health, disease,

and the mechanisms by which a human is innately able to reestablish health in the face of infectious disease (examples follow shortly).

Yet if not referring to 'biological units of life', what *did* Still intend to convey when using this term the "cellular system"? Upon a careful reading of Still's texts as a whole, it becomes clear that this term was employed to refer to *microscopic spaces within the body's tissues* – this is to say that to Still a "cell" meant a *chamber*. This same meaning would be intended today when one refers to a 'jail-cell'.

Thus when Still describes a "cell" or a "cellular system", he was referring to a *collection space* - as described within the above presented schema (see SECTION 3.6.3 RATIO AS HARMONY). In support of this modern interpretation, Still one described a "cell" as being composed of "open-mouthed vessels" (1899b, p.261). This is clearly a description of a *container* of some sort.

This interpretation can now be used to give revealing context to Still's following key quotation:

The fascia gives one of, if not the greatest problems to solve as to the part it takes in life and death. It belts each muscle, vein, nerve, and all organs of the body. It is almost a *network* of nerves, *cells and tubes*, running to and from it; it is crossed and filled with, no doubt, millions of nerve centers and fibres to carry on the work of **secreting** and **excreting** fluid vital and destructive. By its action we live, and **by its failure we shrink, or swell, and die**. [emphases added] (1899b, p.164)

Thus it is clear that Still is referring to a series of interlinked *tissue spaces* when he uses the phrase "cells and tubes". It is also clear that Still was once again employing the previously detailed schema that emphasizes the possible outcomes when different

ratios of *inflow* versus *outflow* take place - "by its failure we shrink, or swell, and die".

Using that schema as a means of analysis, in the above quotation Still can be interpreted to be presenting a "cellular system" consisting of an *inflow* ("secreting"), and *outflow* ("excreting"), and a *collection space* (i.e.: the "cells and tubes" of the "fascia"). The fascial *collection space* is therefore where the consequences of balance or imbalance between *inflow* and *outflow* take place: the stage for "life and death.

Having established that Still's term "fascia" sometimes meant a *collection space* for the *inflow* and *outflow* of fluid, a further understanding of other key statements by Still regarding "the fascia" becomes possible, such as:

I want to draw the mind of the reader to the fact that no being can be formed without material. A place in which to be developed, and all forces necessary to do the needed work. And as all excrescences and abnormal growths, diseases and conditions, must have the friendly assistance of the fascia before development; the fascia is the place to look for cause of disease and the place to consult and begin the action of remedies in all diseases... (1899b, p.44)

Yet it then becomes important to note that Still uses much the same description, and attributes much the very same roles, to the "lymphatics" - which he *also* described as being many fluid-filled, interconnected "cells or pockets" present in tissue (1902f, p.59). In fact, Still felt that fluid-filled interconnected tissue spaces were ubiquitous *throughout* the body:

I have thought for many years that the **lymphatics** and **cellular system** of **the fascia**, of **the brain**, **the lungs**, and **the heart** throughout the whole **system of blood supply**, do get filled up with impure and unhealthy fluids, long before any disease makes its appearance, and that the process

of changes known as fermentation, with its electromagnetic disturbances, were the cause of at least ninety per cent of the diseases that we labor to relieve by some chemical preparation called drugs. [emphases added] (1899b, p.260)

Elsewhere Still refers to “all fluid cells from lymph to chyle” (1902f, p.285). Thus it can be surmised that Still’s emphasis on this microscopic scale of observation had much more to do with *pathways for and collection of fluid-flow*, rather than any particular tissue type or terminology that he employed to denote it (i.e.: “fascia” or “lymphatics”).

Overall, Still’s writings demonstrate that it was often this level of *interconnected microscopic tissue-spaces* that he sought to interact with via his gross manipulations. For example, Still’s statement that one could: “Take scrofula, consumption, flux, eczema, every one of them. There is a broken current, an unfriendly relation existing **between** the capillaries of the veins and the arteries” [emphasis added] (1896f, p.3).

This perspective is perhaps best represented within modern Osteopathy by the work of the American osteopathic physician R. Paul Lee, DO. Lee’s 2005 book, *Interface: Mechanisms of Spirit in Osteopathy*, is an explication of the fundamental importance, and non-material basis, of fluid circulation within the extra- and intra-cellular scales.

Still’s own emphasis on this *microscopic* scale is perhaps the most important continuity shared between his conception of health and disease and that presented earlier by Virchow in his paradigm shifting *Cellular Pathology* (1860).

It is also worth noting that in early 2018 the concept of fluid-filled tissue spaces, interlinked and continuous throughout the whole human body, became a prominent

headline within mainstream media. Researchers claimed to have discovered that these spaces constituted a “new organ” previously unknown to science. These tissue structures were “discovered” through the use of a new application of imaging technology, and were referred to as “the interstitium” by the research team who published these findings (Benias et al., 2018). Dr. Neil Theise, one of the lead researchers, detailed their findings during a radio interview. Pay attention as Theise uses terms similar to Still’s own, and even attributes the ‘newly discovered’ tissues some of the very same functions as described by Still one hundred and nineteen years earlier. Theise modernly describes how:

So the entire dermis, the second layer down of the skin, is actually mostly interstitium. [...] around every blood vessel from the largest aorta down to the smallest arterials, from the smallest veins up to the inferior vena cava going back to the heart - that’s all surrounded by what had been thought to be dense connective tissue. It’s not, it is fluid. The fascia, between muscles and covering muscles - again, dense connective tissue? Nope, fluid-filled space. And the middle layer of all the visceral organs: the lungs, the entire GI tract, the liver, the pancreas, the urinary system, that middle layer that has always looked like dense connective tissue - also fluid-filled space. And when you add that up, that is about 20% of the fluid volume of the body, which is about 10 litres in the young adult: that makes this technically the largest organ in the body by volume. It looks like a shock absorber, and works like a shock absorber. It is found wherever something is moving in the body, either continually, like the bowel is constantly pulsing and moving, the arteries are constantly pulsing and moving, or the muscles which move when you move an arm or something. Why does that tissue not tear after 10, 40, 80, 100 years of life? You’d think there would be wear and tear injury, but there is not. The reason is it’s not stiff. It is this compressible extendable shock absorber, so there are mechanical

functionings. I think that the fluid in there is also sort of acting as a lubricant, and I wonder about the stiffening of limbs and skin as we age - is that an aging change of this space? I think that is an interesting question... (“Time to re-think human anatomy”, 2018)

It is striking to contrast Theise's modern comments above with Still's historical writings regarding this same topic:

The fascia gives one of, if not the greatest problems to solve as to the part it takes in life and death. **It belts each muscle, vein, nerve, and all organs of the body.** It is almost a network of nerves, cells and tubes, running to and from it... . Each fiber of all muscles owes its pliability to that yielding septum-washer, that **gives all muscles help to glide over and around all adjacent muscles and ligaments, without friction or jar.** It not only lubricates the fibres but gives nourishment to all parts of the body. Its nerves are so abundant that no atom of flesh fails to get nerve and fluid supply therefrom. [emphasis added] (1899b, p.164-5)

Clearly Still's conception of the function and structure of the body was far ahead of his time. In many ways this is true even today, as Still further discussed the concept of microscopic tissue spaces acting as the *collection space* for *inflow* and *outflow* of fluids as being the basis of the body's processes of repair and growth (see SECTION 3.3.13 THE UTERINE PROPERTIES OF THE FASCIA AND “BLOOD SEED”). This then also applied to instances of abnormal growth, such as cancer.

3.6.5. STILL'S TREATMENT FOR CANCER AND OTHER FORMS OF ABNORMAL GROWTH

3.6.5.1. MECHANISMS OF GENESIS

We see at once that when the nerves of the veins become paralyzed the vein is inactive and full of venous blood that cannot pass on through the

venous system normally. By this venous congestion we cause the arterial system to deposit the living arterial blood in the spongy membranes [again meaning *tissue spaces*, Still uses this same term elsewhere as an analog to his term “the fascia”] and it begins to construct flesh in an abnormal position and condition. ... I think this is why tumors are produced. (Still, 1910, p.233)

As discussed previously in SECTION 3.3.13 THE UTERINE PROPERTIES OF THE FASCIA AND “BLOOD SEED”, Still saw the arterial blood as the body’s direct method of regeneration and growth. Each “atom” or unit of arterial blood was a living seed, awaiting the correct conditions in which to take root and then grow into a mature expression.

As this was Still’s perception of how the body, when in balance, **normally** grew and renewed itself, he reasoned that when out of balance, this same dynamic process was the genesis of **abnormal** growth and degeneration:

The arterial blood is the highest order of living fluid and should pass away from the heart on to its destination and return without any obstruction whatever. It is a living substance whose function is to build or construct, and when hindered in its passage through the capillaries and into the veins it proceeds to build up abnormal growths and structures. (1910, p.89)

When elsewhere discussing the source of abnormal growth, Still presents a natural phenomenon observed on a *macro*-scale as an holographic analogy of the *microscopic* process he is attempting to convey to his readers. This method of presentations allowed Still to use the more familiar and accessible *macro*-scale phenomenon as the justification of his interpretation of what is occurring on the *microscopic* scale:

How would any person account for the growth of a fibroid tumor of the uterus, pelvis, or any section or organ of the abdominal viscera? To stop a river with an ice-gorge [ice-jam] does not stop the flow of water, but sends it to surrounding territory just as fast as the gorge builds the dam up higher, and it is just as reasonable to know that a dam across a river of blood will drive the blood to other places just as long as the supply comes. (1902f, p.179-80)

Still held that this was one mechanism by which abnormal growth took place - abnormally displaced fluid *content* becomes located in abnormal *collection spaces*, then takes root and creates abnormal growth within these abnormal locations.

Still described how the location of an abnormal *collection space* might be directly adjacent to the site of obstruction, relatively nearby, or even possibly in a distant location. *Wherever* the creative power of the arterial blood was abnormally displaced to, abnormal creation, *growth*, took place:

Diseases of the tonsils are an effect of pressure and constriction. Go on up to the submaxillary glands and all of those that you find enlarged and proceeding on to inflammation, and you will find that **the obstructed blood which is prevented from entering the head to execute its normal work is busy** building adenoids, polypi, nasal thickenings, and sometimes causing erysipelas, scarlet fever, diphtheria and so on. All of these abnormal growths and their effects follow obstruction to the normal flow of the fluids of the body. It matters not where the obstruction is, trouble follows. [emphasis added] (Still, 1910, p.244)

An enlargement of the thyroid gland is due to a failure of the carotid arteries to deliver blood inside the cranium. (Still, 1910, p.101)

It is important to note that in the above examples, Still is describing a scenario in which inflammation and swelling take place at the **distant** location of abnormal collection, not at the true cause – the local site of obstruction. In Still's example, the fluid originally intended to enter the cranium is unable to do so because of abnormal obstruction, and thus begins forming abnormal growths in the abnormal locations to which it has been displaced. This is to say that **this is an injury via 'ricochet' of fluid.**

Still felt that this same mechanism was the means by which aneurysms came about, as an *adaptive* response wherein a new abnormal collection space was purposefully generated, as a means of holding the *content* that had been blocked from entering its normally intended destination:

If an artery cannot unload its contents a strain follows, and as an artery must have room to deposit its supplies it proceeds to build other vessels adjacent to the point of obstruction. ... We call them aneurisms or accommodation chambers, builded by nature's constructing ability of the arteries as deposits for blood. ...an obstruction has limited the flow of blood, and the tumor [in this instance "tumor" being a generic term for any abnormal accumulation] is only an effect, and obstruction is the cause of all abnormal deposits, either from vein or artery. (1899b, p.188-9)

Thus in summary, Still's conception of the genesis of any type of abnormal growth can be described, using the modern schema presented earlier, as being an *accumulation of excessive content within a collection space.*

In Still's model this result can therefore come about via a number of different scenarios:

- blockage of *inflow*, thereby displacing fluid to an abnormal, alternately located *collection space* (as seen above in the sub-cranial 'ricochet' examples)

- a deficiency of *outflow*, thereby trapping fluid within its normal *collection space* for an abnormal length of time (as seen in examples immediately below)
- or a ratio of excess of *inflow* versus *outflow*, thereby again trapping fluid within its normal *collection space* for an abnormal length of time (as seen in Still's earlier examples of the degenerative PFBL that took place during lung disease - as was discussed above at the conclusion of SECTION 3.6.3 RATIO AS HARMONY)

Still therefore used the above reasoning as to the **mechanisms** of abnormal growth as the basis of its **treatment**. In cases such as these, Still sought to restore harmony between the ratio of *inflow* versus *outflow*, including the removal of any anatomical or **physiological** blockages that prevented this (such as the physiological abnormalities of nervous tone supplying the vascular musculature - as described by Still in the lung disease examples provided at the end of SECTION 3.6.3 RATIO AS HARMONY).

Still described that in practice, a lack of *outflow*, or insufficient “drainage”, was the most common scenario that produces abnormal growth:

...tubercles, cancers, ulcers and accesses. How came they there? is the unanswered question. The servant ... who failed to keep his room clean, is the one to find... (1899b, p.35)

[When a mechanical blockage has interrupted normal *in-/outflow*, and *in-/outflow* regulation, and thereby caused an ongoing situation wherein the ratio of *inflow* versus *outflow* results in an accumulation of excess *content*...] Thus we have a cause for unlimited growth, and we can expect tumors, and would be very much disappointed if we did not find them [as

it would mean that our reasoning had been proven incorrect and we would need to start that process of reasoning over again]. If we wish to reduce the tumor, we must proceed to remove the obstructing causes, with the expectation of relieving and reducing the abnormal growths through natural channels of drainage. One would say, "how large a tumor can be reduced by the natural drainage?" I cannot answer that question. I have reduced a number whose diameter was from four to six inches, without the use of the surgeon's knife. I am satisfied that some tumors are not reducible, from the fact that they have passed the point of vital response before applying for a osteopathic treatment. (1902f, p.200)

3.6.5.2. REASONING OF TREATMENT

Still reports in the above quotation that his therapeutic strategy of restoring a *normally balanced ratio of inflow versus outflow* yielded clinical success in some cases of tumor growth. The idea of manual osteopathic intervention providing effective treatment or even cure of tumors perhaps leaves some, even within the modern osteopathic profession, feeling rather incredulous of Still's claim.

Yet the theoretical value that manual osteopathic treatment might hold in these cases finds direct support in the modern work of Lisa Hodge, an immunologist conducting research at the University of North Texas. Hodge's many studies center around the osteopathic technique known as the "lymphatic pump". It appears that Hodge chose to study a single technique as it was much easier to quantify this empirically, compared to the holistic and never-the-same-twice approach advocated and implemented by Still. Despite Hodge's research-driven deviation from the full scope and foundational premise of osteopathic intervention, her important work has demonstrated that repeated application of even this single technique can have dramatic, measurable effects - such as

reducing the growth rate of malignant tumors induced in the lungs of rats (Pedrueza et al., 2010).

This profound result was theorized to be due to the changes in extracellular and lymphatic circulation induced in the tissues by the lymphatic pump technique. Hodge previously measured such changes in tissue circulation taking place in real time during application of the lymphatic pump technique (Hodge, 2011). The resultant increases in circulating fluids were also measured to contain greater levels of immune agents, both cellular and chemical - thereby making it logical to assume that this produced a greater exposure of the malignant tissues to the corrective influence of the immune system, thereby explaining the decrease in the rate of malignant growth (Hodge, 2011; Hodge et al., 2010). Thus Hodge's studies as a whole point to the existence of a principle extremely similar to that propounded above by Still - the restoration of normality of ratio of *inflow* and *outflow* in the local and global tissue environment can serve as a direct means of treating malignant growth.

It is also interesting to note that this is a strategy consisting of *enhancing immune efficacy*, i.e.: "*immunotherapy*". Immunotherapy is now being hailed as the next important paradigm shift taking place within the orthodox treatment of cancer (Bucktrout et al, 2018). This is then the opposite of the existing orthodox strategies in relation to cancer, wherein cancerous cells are directly antagonized using chemo- or radiotherapy. It seems that orthodox immunotherapy may well come to centrally augment or in some cases even replace radio- and chemotherapy in the future orthodox treatment of cancer (Bucktrout et al., 2018). In fact research is under way regarding immunotherapy as a

treatment for a vast variety of conditions - including auto-immune disorders and infectious disease (Bucktrout et al., 2018).

Yet the functional changes in circulation demonstrated within Hodge's above studies are not the only means by which osteopathic manual intervention would theoretically aid in the resolution of malignant growth. Recent orthodox medical research regarding cancer genesis and resolution has established the vital role played by abnormal extracellular matrix and intra-cellular **structure** in producing the abnormal cellular **function** commonly known as 'cancer'. A recent review paper regarding this topic summarized that:

...there is increasing evidence that the stiffness of the extracellular matrix modulates cancer and stromal cell mechanics and function, influencing such disease hallmarks as angiogenesis, migration, and metastasis ...

[This makes logical sense given] The fact that tumors are often stiffer than the surrounding uninvolved tissue has been known for as long as the disease has been identified. The rigid nature of tumors is the basis for using palpation as a diagnostic method in soft tissues like breast and abdomen, and more recently, as the basis for high-resolution detection of small lesions by MRI elastography or ultrasound. (Chin, Xia, Discher and Janmey, 2017)

Thus seeking to push the boundaries of the current understanding and treatment of malignant growth, many orthodox medical researchers have now begun to explore the **mechanical** realm, thereby proposing the theoretical use of interventions into tissue-*structure* as a means of normalizing cellular-*function*. A recent review paper summarizes the findings that have thus far been revealed along this line of inquiry:

Loss of tensional homeostasis in a tissue not only accompanies malignancy but may also *contribute to oncogenic transformation*. High mechanical stress in solid tumors can impede drug delivery [paraphrase from elsewhere in the same paper: **demonstrating the role that altered cellular *mechanics* play in the adaption of cancerous cells to resist the influence of chemotherapeutic agents**] and may additionally drive tumor progression and promote metastasis. Mechanistically, **biomechanical forces can drive tumor aggression** by inducing a mesenchymal-like switch in transformed cells so that they attain tumor-initiating or stem-like cell properties ...

Recent findings argue that mechanical stress and elevated mechanosignaling foster malignant transformation and metastasis. **Prolonged corruption of tissue tension may drive tumor aggression by altering cell fate specification.** Thus, *strategies that could reduce tumor mechanics might comprise effective approaches to prevent the emergence of treatment-resilient metastatic cancers.* [emphases added] (Northey, Przbyla, Weaver, 2017)

The above shocking statement is actually quite logical when one takes into account that the extracellular matrix is continuous not only with the walls of a cell, but also through that cell-wall, into each of its organelles, including the nucleus (Jahed, Shams, Mehrbod, Mofrad, 2014). This is to say that abnormal function, even on the genetic scale, cannot take place without accompanying abnormal *structure*. Phrased otherwise: the structure of intra- and extra-cellular elements have been demonstrated to be the holographic partner of cellular function. Normal or abnormal, all scales of biological life contain corresponding physical *motions*. Another recent review clearly states the modern scientific acceptance of this concept:

The intracellular molecular processes through which such physical cues are transformed into a biological response are collectively dubbed as mechanotransduction and are **of fundamental importance to help the cell timely adapt to the continuous dynamic modifications of the microenvironment**. ... Only lately, though, the importance of mechanical cues in controlling cell function (e.g., proliferation, differentiation, migration) has been acknowledged. ...**mechanical stimuli get transformed into a given biological response through the activation of a peculiar genetic program**. (Martino, Perestrelo, Vinarský, Pagliari, Forte, 2018)

All cellular *behaviour*, normal or abnormal, exists in reciprocity with corresponding mechanical *motion*. This is the case given that structure and function are but **two different aspects of the same holographic phenomenon**. It would seem that orthodox medical research is now beginning to justify Still's historical conception of life *as motion*, of life as a reciprocal dance between structure and function. Still defined *health* and *disease* via this principle, then leveraged an application of this understanding to provide an intervention into both structure and function *via a manipulation of structure*.

Furthermore, it is important to note that these modern findings emphasize the state of the global and local extracellular matrix as being of central influence upon cellular structure and function. This once again ties back directly to Still's own emphasis on the internal conditions of the tissue spaces, the "fascia" and "lymphatics", as being highly relevant to the processes of health and disease (see SECTIONS 3.3.8 STILL AND THE TRADITIONAL 'GERM' THEORY OF DISEASE (CORN ANALOGY) and 3.6.4 "FASCIA", "LYMPHATICS", AND THE "CELLULAR SYSTEM").

Both Hodge's lymphatic pump studies regarding fluid circulation of immune agents, as well as the above mechanotransduction research into the unity of cellular structure and function, both suggest theoretical validity for Still's claims to have successfully treated abnormal growths, even malignancies, using only his hands. This modern research then only serves to further validate the incredible potential that manual osteopathic treatment contains, as well as the benefit to today's practice of Osteopathy that may be gained through a modern reanalysis of Still's historical concepts and methods.

Still felt that in regards to the treatment of tumors: "Too much use has been made of the knife, and too little trust placed in Nature" (1902f, p.36), that "**Osteopathy is surgery from a physiological standpoint.** The osteopathic surgeon uses "the knife of blood" to keep out "the knife of steel" " (1902f, p.34).

Yet it should also be simultaneously kept in mind that Still described having personally provided "the benefit of surgery" to his own patients, even those who with conditions of abnormal growth as relatively minor as subdermal cysts on the scalp (1910, p.70). Throughout Still's writings he makes it clear that even in his own experience, he did not find manual osteopathic treatment to be a cure-all for abnormal growth:

No doubt many growths, when first seen by the surgeon, have gone so far into decay that to remove is wise, and we, as osteopaths of good judgement, would proceed to operate and do the best we could to prolong life by removing any dead flesh whose fumes of decomposition would cause disease by their poisonous effects. But all diseases of the organs of the abdomen **should have the wisest methods of osteopathy exhausted before the knife is invited to take part in the effort to rescue the life of the patient.** [emphasis added] (1902f, p.200)

Thus throughout his writings Still suggests just such a *triage of intervention* - which is to say that one should use each and any therapeutic method available - but in order, from least to most invasive.

3.6.6. STILL'S TRIAGE OF INTERVENTION

Idealistic as Still was, he was apparently an even deeper pragmatist, for in the end Still advocated for whatever worked best. In Still's final book he recommended the use of various therapeutic enemas no less than ten times (1910). Still disregarded no potential medical intervention on ideology alone. This included his acceptance of the implementation of surgery (including the use of anesthetic drugs as an aid to said surgery), or the use of a stomach pump or chemical antidote when poisoning had occurred. Still also recommended the use of chemical antidotes in bites by rabid animals or snakes (1910).

Still made this pragmatic stance clear by acknowledging the value of non-manual interventions throughout his writings. Of many possible instances see for example (1897f, p.2) or (1902f, p.34). Yet to reiterate, Still felt that surgery was to be used only "when all evidence with facts shows that blood cannot repair the injuries" (1902f, p.34):

What are its [Osteopathy's] claims or does it claim to offer a substitute for surgery to any degree? We want to book ourselves emphatically that **we do recommend the use of the knife when the wisest Osteopathic methods have failed**. By Osteopathy I think I am safe in saying that seventy-five times out of one hundred that the knife is used in the so-called appendicitis that the Osteopath could relieve the patient of his malady and save him from a torturous operation, the death list of which is appalling. In tumefaction [swelling, abnormal accumulation of fluid or solid], abdominal tumors, enlarged liver, gall-stones, bladder stones,

Bright's disease, diabetes and dropsy, the Osteopath is worth more to ninety-five patients in each one hundred than all the knives and skill of the best surgeons of the whole world, **provided he has a reasonably fair start with the disease. *The knife has an honourable claim to a place which we willingly grant and concede as meritorious.*** [emphases added] (1900a, p.228-9)

Osteopathy has no use for drugs as remedies, but **a great use for chemistry when dealing with poisons and antidotes.** [emphasis added] (1900e, p.419)

We teach the use and administration of anesthetics, and how to proceed [surgically] in gunshot, knife, saw and other wounds. [emphasis added] (1901f, p.67)

Perhaps Still's protocol of employing interventions in order from least to most invasive is also a useful lens through which to consider his rather self-contradictory promotion of the drug cantharidin as the best means of preventing and treating small-pox (see SECTION 3.2.4 STILL'S THEORY AND PRACTICE OF VACCINATION FOR INFECTIOUS DISEASE).

3.6.7. IMMUNITY AND FLUID FLOW

As established earlier in SECTION 3.4 A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY, within Still's model of reality, when in action the vitalistic force expresses itself as motion. Motion is the mechanism through which the vital force manifests itself in relation to matter. To Still, a "being" was literally formed by, perpetuated via, and composed of a self-organized coherence of this vital motion (see SECTIONS 3.4.12 LIFE DEFINED AS COHERENTLY ORGANIZED MOTION and 3.4.14 "ATOMS, BEINGS, WORLDS").

As described above in SECTION 3.6.3 RATIO AS HARMONY, these vital motions were seen by Still as having particular intent to *transport fluid*, *in* and *out* of various scales of nested self-organized units - this taking place within and between parts, as well as the whole and the exterior environment.

These movements of fluid were a means to allow the nourishment and waste-product removal for each interdependent self-organized unit. Further to this topic, Still discussed specialized fluids that are created in specific areas of the body, to be transported to distant areas, where they are then taken up and produce their intended effect. For example:

If a thousand kinds of fluids exist in our bodies a thousand uses require their help, or they would not appear. ... If the demand for a substance is absolute its chance to act and answer that call and obey such command must not be hindered while in preparation, nor on its journey to local destination, for by its power all action may depend. (1899b, p.149)

In descriptions such as the above, it is justifiable to suppose that Still was in part detailing what would be today described as *the endocrine system*: “the system of ductless glands which secrete into the blood stream hormones which act on a target elsewhere in the body” (“Endocrine System”, 2019).

Yet it also becomes clear when Still's writings are taken as a whole that his emphasis on what has here been described as the schema of *inflow* and *outflow*, was most closely aligned with what would be defined today as *metabolism*: “The chemical and physiological processes by which the body builds and maintains itself and by which it breaks down food and nutrients to enable its continued growth and functioning” (“Metabolism”, 2019). Still's central emphasis on the *inflow* and *outflow* to all scales of a

“being” can thus be understood as a focus on *metabolic supply and the removal of metabolic by-products via fluid circulation*. These metabolic movements were in large part what composed Still’s conception of life *as* motion. Still himself summarized this:

It is assumed that so long as every organ receives its normal amount of blood, lymph, nerve force, or other vital fluid, and so long as it is properly drained of the waste products of metabolism, health must follow as a logical necessity, and that whenever an organ fails in the performance of its function, that fact is *prima facie* [until proven otherwise] evidence of some obstruction to the incoming or outgoing forces. (1902g, p.276)

Given the larger context that has now been firmly established within this research it is clear that, in Still’s mind, what would today be termed “*metabolism*” and “*immunity*” were but *two different aspects of a single larger phenomenon*: universal self-organization.

This is the case given that both *metabolism* and *immunity* are functionally comprised of the regulation of the *motions* which cross the *boundaries* that delineate *internal* from *external* within various scales of self-organized units (i.e.: tissue, organ, bodily region, whole person). Take for example Still’s description of the actions of measles - this again being a clear example of Still’s schema of *inflow* versus *outflow* within the *collection space* of the microscopic tissue spaces of the “lymphatics” and “fascia”. In this example Still himself speaks as measles in the first-person:

When I take possession of the lungs my first thought is to close the secretions by filling them with dead substances as they pass out of the skin. My first strategic move is to close the mucous secretions of the lungs. Should they continue normal with the ability to combine oxygen and hydrogen, I would be washed out by the water renovation [drainage],

therefore I close both excretion and secretion until my work is done.
(1898d, p.104)

It is incredibly important to point out that within the above quotation Still presents *metabolic flow* and *immune function* as but ***two different facets of the same phenomenon***. From Still's perspective the behaviour and qualities of both metabolism and immunity were being understood as a *single force*. Still understood metabolism and immunity as but two different aspects of a single *holographic unity* - universal self-organization expressing itself as an individuated unit of coherent motion. Thus Still's medical interventions can be described using today's terminology by stating that, in part, ***Still treated immunologically via a normalization of metabolism.***

As stated by Still in an above block quotation (1902g, p.276), one would logically "assume" the existence of a mutual dynamic between metabolism and immunity – given that they are but two particular instances of a single general phenomenon. The implications of this will be further discussed in CHAPTER FOUR: STILL'S CONCEPTION OF IMMUNITY AS VIEWED FROM TODAY wherein Still's perspective on this subject is re-contextualized within modern orthodox medical research that has now also found a fundamental relationship to exist between *immune function* and *metabolism*. For now, suffice it to say that Still may have yet again been far ahead of his time in his recognition of and emphasis on the importance held by this dynamic.

3.6.8. UNLIMITED FREEDOM FOR THE ACTION OF THE UNKNOWABLE

Still applied the schema of a balanced and normal ratio of *inflow* versus *outflow* of *content* within a *collection space*, not only to tumors (as discussed earlier in SECTION 3.6.5 STILL'S TREATMENT FOR CANCER AND OTHER FORMS OF ABNORMAL GROWTH), but

to *all* disease conditions. Still utilized this same analytical framework to understand, and thereby treat, for example, not only *all* of the many types of infectious diseases he discussed within his writings, but many other seemingly disparate conditions such as obesity (1910, p.269), alcohol addiction (1910, p.406), mental illness - or as he terms it: “mental shortage or overplus” (1910, p.250), seizures (1899b, p.255), and even dandruff (1910, p.66). As Still’s early student M.A. Lane wrote regarding this:

To bring virtually all diseases under one main principle was, to the science of that day, a complete absurdity. To say that smallpox, tuberculosis, pneumonia, whooping cough, pimples on the face, leprosy, syphilis, typhoid fever, diarrhoea, a “cold” in the head and cancer were one and all referable to the same basic law (the state of the blood) and perhaps curable by the same method, were the whole problem in all its phases mastered, was not only “revolutionary” but was a wildly impossible and clearly absurd theory of disease in its causes and its cure. But let us ask, in the light of the scientific progress of the past quarter of a century just how absurd and impossible it really was? (Lane, 1918, p.29)

One begins to understand why the orthodox medical community was often incredulous of Still’s unorthodox framework - Still was proposing a *universally generalizable principle*, to be customized to suit every *particular instance*. Whereas the orthodox medical system was literally comprised of the classification of signs and symptoms of disease into *isolated entities*, to be perceived and dealt with as such. Thus Still’s omni-applicable principle of normal *in-* and *outflow* was in and of itself a refutation of the very presumptions that the orthodox medical community had built their paradigm upon. The orthodox community then used their own paradigm to assess the

potential value of what Still was presenting. This conceptual clash is described by Still within his *Autobiography*:

What is fever? Is it an effect, or is it a being, as commonly described by medical authors? I concluded it was only an effect, and on that line I have experimented and proven the position I then took to be a truth, wonderfully sustained by nature, responding every time in the affirmative. I have concluded after twenty-five years' close observation and experimenting that there is no such disease as fever, flux, diphtheria, typhus, typhoid, lung-fever, or any other fever classed under the common head of fever. Rheumatism, sciatica, gout, colic, liver disease, nettle-rash, or croup, on to the end of the list of diseases, do not exist as diseases. All these separate and combined are only effects. The cause can be found and does exist in the limited and excited action of the nerves only, which control the fluids of parts or the whole of the body. It appears perfectly reasonable to any person born above the condition of an idiot, who has familiarized himself with anatomy and its working with the machinery of life, that all diseases are effects, the cause being a partial or complete failure of the nerves to properly conduct the fluids of life. (1897a, p.107-8)

Still is thus stating that the orthodox etiological framework is not an accurate means to perceive the **pragmatically** relevant dynamics of the scenario. Rather, by viewing the situation through Still's chosen lens of universal self-organization, all instances of disease can be classified as but differing states of lack of normality in the motion of fluids, *these motions themselves being the movement of life - life as motion, life as self-organization*.

Still uses above reasoning to espouse - if fluids are normally produced, normally purified, and normally delivered and returned, on all scales and in all locations - then health must take place. The reverse is therefore also true.

Still understood immunological and metabolic functions as but different instances of the universal force of self-organization. Thus Still's stated clinical intervention of normalizing a patient's fluid flow thereby served as his means of directly enhancing the patient's capacity to appropriately self-organize. An increased capacity for self-organization therefore comprised an effective means of normalizing both the patient's defenses (*immunity*) and capacity for self-regeneration (*metabolism*).

Still presented this concept to his readers during a discussion of the embryological roles played by the heart:

It [the heart] builds its own workshop and works without assistance seeming to know its needs [i.e.: *self-organization*]. If it makes a turtle, it decides a shell is necessary and constructs one for the protection of the being within. It **builds** and **guards** [i.e.: *metabolism* and *immunity*] according to kind--man, beast, bird, fish and reptile; all by its native mental and physical powers.

... If the heart is the centre of force and **constructive intelligence** in the body, why not go to it for **repair**? Let the osteopath follow the course of the blood from the heart to its destination and return, and remove all obstructions, open all doors, for on it we depend for all joys of perfect form and functioning, which is health. [emphases added] (1904b, p.193-4)

Thus Still continually stated that his foundational clinical intent was for all *flows* to be granted "unlimited freedom" (1899b, p.44), whether they consisted of "blood or any fluids, magnetic, electric or life forces" (1902f, p.101). Simply put: "Keep the gates of life all open" (1910, p.155), and "Remove all obstructions. All means ALL, intelligently done to completion, **and nature will kindly do the rest**" [emphasis added] (1897h,

p.186). Or, restated using the modern terminology employed within this study - *clear the way for the action of the higher wisdom that manifests itself as innate self-organization.*

It is key to understand that this very same conclusion was the foundation of medical practice for many millennia before Still's own era. The influential ancient-Greek physician Galen encapsulated this approach and philosophy in the statement: "I bind the wound, God heals it" (Becker et al., 1946, p.3). Still himself reiterated this very sentiment:

...Osteopathy cures no disease—no not one; a skillful and wise Osteopath...adjusts everything to its normal position only and leaves the work of curing to be done by the physiological power to heal. (1899a, p.570)

Still's early students also present this same interpretation of his work:

[Still's Osteopathy relies upon the existence of] ...a defensive and curative force - the **old vis medicatrix naturae** (the healing force of nature) of the ancient doctors that was ever active and **automatically self-adjusting under favorable conditions.** [emphases added] (Lane, 1918, p.31-2)

...[osteopathic] adjustment is only a method whereby the organism is enabled to assert its [own] mechanism of **protection** and **repair** [i.e.: again, **immunity** and **metabolism**] [emphases added] (McConnell, 1913, p.505)

It [osteopathic treatment] increases the efficiency of the individual's adaptive functions thus rendering him capable of protecting himself. (Riley, 1938, p.8)

In Still's own words he directly tied the traditional concept of *vis medicatrix naturae* or *universal self-organization* to his above emphasized therapeutic method - the normalization of motion. Still stated that:

At this point I will say that an intelligent Osteopath is willing to be governed by the immutable laws of nature, and feel that he is justified to pass the fluid on from place to place and trust the results. (1899b, p.151-2)

It is worth restating that Still's medical intervention was **not** to free the patient of obstructions. Rather, his intention was to normalize 'flow' - *as a means of enabling the conditons for perfection of adaptation, or universal self-organization within (as) the individual*. Still defined health as normality, and a normal state fundamentally included a *normality of **autonomy***. Thus a physician may not *create* health, merely act to **facilitate** its fullest expression.

It is also important to note that even in the moments during which Still *applied* this principle, i.e.: *during* his manual intervention, even then Still fundamentally relied upon the unceasing presence and action of innate self-organization. For as Still described it, his manual application did **not** return structures to their normal state, rather, it only ***freed them** to the degree that was necessary so that **they** might then spontaneously organize **themselves** back towards normality*:

In his [an Osteopath's] manipulation he does not depend alone upon his ability to force a mechanically abnormal part back into its place, but also upon the fundamental principle that as soon as structural parts are dislodged from their false positions and relations, ***the normal tension of immediately adjacent and related parts will tend to restore the condition of mechanical integrity***. Hence is formulated **the foundation principle that nature constantly tends toward a normal condition of both**

structure and function, and the province of the physician is not in seeking a healing power from without, but in assisting the organism to maintain its structural integrity, which animated by the vital principle is sufficient of itself to generate and distribute every element necessary to normal functioning. [emphases added] (1902g, p.276)

As again stated in the above quotation, it was self-organization that informed Still's entire medical strategy. The presence of, and higher wisdom innate within universal self-organization within/as the individual was relied upon by Still *during* the intervention. Still's manual practice was therefore a literal moment-to-moment **palpable** dialogue with the life-force that gave rise to, and presented itself as, reality in particular and general. To again quote Still: "Thus we can do no more than feed and trust the laws of life as nature gives them to man" (1899b, p.150).

It is additionally key to note that given how Still emphasized the **ratio between** inflow and outflow, an accurate assessment of the patient's current **global** state needed to take place *before* applying manipulation to any particular **local** blockage. Otherwise an uninformed local intervention held the potential *to only create a deeper global imbalance*.

The *local* needed to be viewed in a *global* context, and the *global* interacted with directly **via** *local* manipulation (McKone, 2015). This was also likely based on Still's aforementioned *holographic* perspective (particular-general, micro-macro, see SECTION 3.4.4 THE WHOLE OF REALITY, HOLOGRAPHIC HUMANITY). It seems that Still's holographic conception of reality was applied by him **not only** as a foundation of his philosophical theories, but also **during** *his medical applications of them*. Still's manual

practice was a dance with the Unknowable Infinite as it was presenting here and now in the form of a *self-organized holographic universe-individual*.

In conclusion, it can be stated that, for Still, disease was therefore simply a lack of the capacity to appropriately self-organize. Disease was a symptom of the lack of capacity to *defend* and *repair* one's 'self'. In today's terminology: a lack of normal *immune* and *metabolic function*. Thus Still did not see death and disease as being caused by the **presence** of abnormal disease processes, rather, it he viewed disease as an **absence** of normality of autonomy.

At the end of Still's life, he presented a final conclusion to his students: "We talk much about diseases and their causes; their deadly effects are from insufficient power of the body to recuperate" (1910, p.34).

3.6.9. SUMMARY OF STILL'S APPLICATION OF HIS PERSONAL CONCEPTION OF IMMUNITY

As synthesized in this research, primarily through a historically contextualized reading of Still's total writings, it can be stated that the central aspect of Still's medical intervention consisted of (as described here using modern terminology) identification of the scale on which any abnormality of *inflow*, *outflow* and *content* within *collection spaces* was taking place (be that within an entire person, particular bodily region, specific organ/s, or specific section of tissue).

This was then followed by seeking to normalize the amount of *inflow* and *outflow*, the ratio of *inflow* versus *outflow*, and the quality of the *content*, within any scale/s where normality was found to be absent. This was often achieved via manipulation to allow normalization of the **regulatory mechanisms** that determine *inflow* and *outflow* - thereby bringing about a normalizing of the *ratio* between them, and with time, the level of

content present in the *collection space*. This was also executed with specific attention to the tissues that produce, assemble, purify and transport *content* - so that the quality of *content* was also normal, globally, to be then be utilized in all local locations.

These 'flows' could be understood as being in large part composed of *circulation of fluids*. These fluids being the mechanism by which *immunity* and *metabolism* functioned and were appropriately regulated. Normalization of these 'flows' was repeated as often as necessary to disrupt any *exponential loss of normality* via *degenerative positive feedback loops*. For once loss of normality occurred, exponential disruption was inevitable due to the holistic nature of the reciprocal relationship of all scales and levels to each other (see SECTION 3.5.8 TREATMENT).

This cycle of medical intervention was continued until the patient's *normality of autonomy* was completely restored. This was seen to be in place when external intervention was no longer required to maintain a *normal* state, i.e.: *self-organization* now had "*unlimited freedom*" to act out its inherent wisdom, to guide all 'flows' as appropriate. This primarily included *immune function* and *metabolism*.

3.7. SUMMARY OF FINDINGS IN RELATION TO RESEARCH QUESTION ONE

CHAPTER THREE: A.T. STILL'S CONCEPTION OF IMMUNITY was a means of addressing the first research question: *What was the essence and application of Andrew Taylor Still's conception of immunity?*

In SECTION 3.2 STILL'S OPINION OF VACCINATION, a history of smallpox, inoculation, and the discovery of vaccination by Jenner was presented. A historically contextualized presentation of Still's negative opinion of vaccination and inoculation was detailed. Still understood acquired immunity through his "law of possession", as well as

the concepts of '*like cures like*', and *opposites*, as likely respectively derived from the pre-existing traditions of Homeopathy and 'Allopathy'.

In SECTION 3.3 A.T. STILL'S CONCEPTION OF DISEASE, historical concepts and their terminology were defined and identified within Still's writings (i.e.: "*contagion*", *miasmatic* theory, "*fermentation*"), as a means of understanding Still's conception of disease. This was a means of helping to define Still's conception of immunity by contrasting it with disease - that which immunity seeks to restore to normality.

The work of Justus von Liebig was utilized as a historical lens through which to view the period wherein a *mix* occurred as *vitalism* began to transition into *materialism*, this being a central theme within Still's worldview and conception of reality. Still's concept of *infection* was shown to have incorporated Liebig's concept of disease as being a type of contagious, errant chemical reaction.

Still's concept of 'innate seeds of disease', was used by him as a theoretical framework to explain acquired immunity. This was shown to have a historical connection to the 1730 writings of the British orthodox physician Thomas Fuller.

Still's 'corn analogy' was presented and identified as a central concept in relation to what would be termed today 'innate immunity'. To Still, it was the *condition* of an individual's '*internal soil*', that dictated the growth or destruction of any "seeds of disease" that entered that individual.

Still's opinion and understanding of the revelations of the orthodox medical 'bacterial revolution' were presented. Still saw little relevance in bacteria as causative agents, steadfastly remaining focused on the much greater relevance of *internal 'soil' conditions*. A historical contextualization explained this to be a likely outcome, given

Still's geography and cultural context, amongst other factors. The same could be said of the subsequent orthodox immunological discoveries of the 1890s and onwards - Still likely saw them as but a different presentation of pre-existent theories. Theories for which Still had already developed a successful practical application, whereas the orthodox medical tradition had not, and did not.

Due simply to the timeline in which Still wrote, Still should not be credited with independent origination of the concept of immunity. Still's earliest publications on any topic whatsoever were well-preceded by orthodox immunological publications in Europe. The available evidence therefore cannot support any claim to Still's independent discovery of the immunological concept.

Still's conception of "fascia" was defined as being the total elements present within today's so-called *interstitial or extracellular* space - these being: the connective tissue, the region-specific parenchymal tissues, and the terminal structures of the nervous, vascular, and lymphatic systems. All of these elements were seen by Still as being bathed in a constant circulation of bodily fluids. It was at this scale which Still described the processes of growth and repair via normal "blood seeds", as well as the degeneration and disease that is then caused by the proliferation of abnormal "seeds of disease".

Still's theories regarding the origin and formation of bacteria were presented, these being: **internally** generated abnormal "blood seeds" giving rise to abnormal forms of life, **internal** *spontaneous generation* of bacteria via the decomposition of living bodily products, and in rare examples within Still's writings, the transfer of pre-existent **external** bacteria into the interior of the patient's body. This framework was demonstrated to be consistent with many of Still's orthodox contemporaries. Still gave

little relevance to bacteria as the origin of disease, his focus lay with normality of fluid circulation.

In SECTION 3.4 A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY, Still's personal conception of immunity was contextualized within his overall worldview. This especially included Still's "*general and particular*" mode of inquiry - wherein the *particular* was contextualized inside the *general*, and the *general* within the *particular*. The *particular* was also viewed as an instance of the *general* - this being (what would today be termed) a *holographic* perspective. This holographic quality was demonstrated to have been Still's perspective of both the individual and the divine whole, as well as their relation each to (as) the other.

Still had concluded that perceivable, *finite* reality was the many diverse manifestations of a *universal singularity* that consists of *infinite potential*. This conclusion and viewpoint was shown to be held and experienced by many individuals throughout a wide range of human history and culture.

Still's contemporary, the British philosopher Herbert Spencer, wrote the influential book *First Principles*. In this research *First Principles* was used as a guide to the sequence of logic contained within certain key terms Still employed to refer to the divine, these being: "the Infinite" and "the Unknowable". These terms were used by Still to refer to the above-mentioned *universal singularity consisting of infinite potential*. The similarity between the contents of Still and Spencer's writings were displayed as justification of the validity of this means of interpretation. Spencer's book was then further employed as a means of explicating Still's concept of *life as motion* - the transfer of *movement* to and from the '*interior/self*' and the '*exterior-non/self*', across a *boundary*

that serves to delineate the two regions from each other and manage their interaction. Still utilized this concept of *life as motion* to describe the universal process he observed wherein *perfectly appropriate organization of motion into coherent individuated units of structure-function* was taking place on all scales of reality - as described by Still through his recurrent use of the phrase “atoms, worlds, beings”. For the purposes of this research, this concept of Still’s was termed ‘*self-organization*’, i.e.: the process whereby a ‘self’ as an ongoing process of reorganization first emerges and is then perpetuated through time and space.

It was demonstrated how Still clearly identified *immunity* as being a **particular** instance of the universally **general** phenomenon of *perfectly appropriate self-organization*. It can be stated that Still viewed all of reality as a direct manifestation *of* “the Infinite” / “the Unknowable”. For Still, these manifestations come into being through this process of self-organization, with *immunity* being but one particular instance of that process. Thus to Still, *immunity* was best comprehended within this largest of contexts. Therefore within this research, placing *immunity* within this same context for a modern analysis was the means of revealing *Still’s personal conception of immunity*. This was presented in SECTION 3.4.16 STILL’S PERSONAL CONCEPTION OF IMMUNITY SUMMARIZED. In short, Still concluded that the innate organizational action of the universe manifests itself as the self-organizational force which first **creates** and then later **maintains** and **defends** the individual being.

In SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE, Still’s **application** of his personal conception of immunity was detailed. Still took a *pragmatic*, results-based approach to medical practice. This eventually led Still

away from using the orthodox reference point of *abnormality* (i.e.: signs and symptoms) towards a new unorthodox focus on *normality* of structure and function. Still's new unorthodox medical model crucially differentiated between the *origin* of a loss of normality in the patient's anatomy and physiology, and the *cause* of their disease. "Cause" was universally identified by Still as being the *exponential loss of normality*. This was thereby also Still's definition of disease. Thus for Still disease constituted a *process* - a *verb* rather than a *noun*. Whereas the *origin* of a disease, from Still's perspective, might be any combination of a multitude of initiating factors.

It was demonstrated how this central aspect of Still's unorthodox model, the pragmatic differentiation between *origin* vs. "cause", has been consistently misinterpreted by the osteopathic profession as meaning that all disease *originates* in mechanical trauma. This was clearly not the case, as was easily shown utilizing examples throughout Still's writings.

Still often emphasized the importance of what today would be termed a *feedback loop*. These *feedback loops* were both the *beneficial* processes by which the body maintained its self-coherence (i.e.: 'negative feedback'), as well as being the mechanism of the *degenerative* process of disease (i.e.: 'positive feedback'). This explained for Still the interdependent and *exponential* nature of both health and disease - his "law of reciprocity". Thus the *process* of disease and the *regenerative* action of *self-organization* were both identified by Still as consisting of *cascades* of cause and effect.

Thus it can be stated that from Still's perspective, whether an infectious agent was the *origin* of the *loss of normal internal conditions*, or was itself merely a **by-product** of the *loss of normal internal conditions*, the relevant aspect of the scenario was that an

infectious agent **requires** a **constant state** of *loss of normal internal conditions* if it is to **exist**.

Through this, Still identified *loss of normal conditions* as a *strategic intent* acted out by infectious agents - they sought to actively disable the *innate defensive mechanisms* of their host.

In Still's application, since disease was defined as the exponential process of loss of normality, and health was the regenerative outcomes of "the law of reciprocity", the *frequency* and *duration* of Still's treatment were determined in reference to the *exponential rate* of intensification of loss of normality. This yet again demonstrates that Still saw disease as a *process* to be normalized, rather than an *entity* to be banished. Still treated disease by *repeatedly interrupting the **process** of disease with adjustment towards normality*. This approach thereby first decreased and then eventually eliminated the *exponential* nature of the *process* of disease. This approach was applied by Still in all scenarios: acute, chronic, and even palliative.

In SECTION 3.6 APPLICATION OF THE ESSENCE, the centrality of Still's concept of "perfection" was illustrated. To Still "perfection" consisted of a perfection of *design*, not of *existence*. Still's "perfection" of design consisted of acting out *the* most appropriate **possible** adaptation. It was in this respect that Still saw adaptation (*self-organization*) as being "perfect". Thus Still focused his therapeutic interventions on providing better *conditions* for the self-organizational capacity of a 'self' (patient) to enact its inherent "perfection". It was the *dynamics that cross the **boundary** defining 'self' from 'non-self' onto which Still focused this intervention*.

A modern schema was employed as a means of analysis of the central scenario Still presented throughout his writings. This consisted of the process of *dynamic mutual transfer* occurring across the boundary between 'self' and 'non-self', i.e.: *inflows* and *outflows*. The *ratio* between these two directions of flow therefore determined the amount of *content* that accumulated in the internal *collection space*. Still used this schema to define both *health* and *disease* - health consisted of a balanced *ratio* between *inflow* and *outflow*, while diseases were the outcomes of various imbalances of this *ratio*.

Still often emphasized the processes of growth, repair and defense of the body as taking place via this *inflow* and *outflow* of fluid *content* within the *collection space*. "The fascia" and "lymphatics" were terms Still used to describe microscopic fluid-filled *tissue spaces*. In Still's understanding, infectious diseases disrupted the *ratio* of *inflow* versus *outflow* on all scales, thus creating the *loss of normal conditions*. It was only inside of these abnormal conditions that an infectious agent could take root, grow, and extend its influence.

Still used this same schema to understand the mechanisms that led to abnormal growth. Still explained abnormal growth as occurring when the *ratio* between *inflow* and *outflow* is imbalanced, resulting in an accumulation of *excess content* within a *collection space*. Rectification of this scenario thereby constituted the treatment for all types of abnormal growth - such as fibroid tumors and even malignant cancers. Modern research regarding the enhancement of the action of immune agents via circulatory changes induced via manual treatment was briefly reviewed. As well as the fact that even on the scale of cellular **function** there has modernly been found the existence of a unity with

structure (i.e.: “mechanotransduction”). This was presented as a means of modernly analyzing the theoretical value of Still’s historical manual treatment of abnormal growth.

Within Still’s therapeutic practices as a whole, he employed a triage of intervention from least to most invasive. This included manual adjustment towards normality, enemas, chemical antidotes, technological stomach pumping, anesthetics and surgery.

Within Still’s conception, *metabolic flow* and *immunity* were but two different facets of the same *holographic unity* - namely, universal appropriate *self-organization*. Thus, Still’s medical interventions can be described in today’s terminology by stating that, in part, *Still treated immunologically via a normalization of metabolism*. Still’s stated clinical intervention – i.e.: normalization of a patient’s motions (with a particular emphasis on fluid flow) - served as Still’s means of directly enhancing the patient’s capacity to *self-organize*. Greater capacity for *self-organization* therefore creates an effective means of normalizing both the patient’s defenses (*immunity*) and capacity for self-regeneration (*metabolism*).

Thus Still’s medical intervention did **not** consist of freeing the patient of obstructions or disease agents. Rather, Still’s intention was to normalize ‘flow’ - as a means of empowering the *perfection of adaptation*, or **universal self-organization within (as) the individual**. Still defined health as *normality*, and a normal *condition* fundamentally therefore was comprised of a **normality of autonomy**. Still concluded that a physician can not **create** health, merely **facilitate** its fullest expression. Therefore Still’s treatments were a dance with the Unknowable Infinite as it presents itself here and now as a *self-organizing holographic universe-individual*. From Still’s perspective, disease

consists not of the **presence** of a disease *process*, but rather of a **lack** of *normality of autonomy* - the ability to repair (*metabolism*) and defend (*immunity*) one's 'self'.

Still's total application was presented in summary within SECTION 3.6.9

SUMMARY OF STILL'S APPLICATION OF HIS PERSONAL CONCEPTION OF IMMUNITY.

This was the means by which Research Question One was addressed.

4 CHAPTER FOUR: STILL'S CONCEPTION OF IMMUNITY AS VIEWED FROM TODAY

4. STILL'S CONCEPTION OF IMMUNITY AS VIEWED FROM TODAY

4.1. INTRODUCTION

The following sections are a means of addressing the second and third research questions:

- *How can the understanding of A.T. Still's conception of immunity as determined in Question 1 be enhanced by contemporary Osteopaths who have an educated knowledge of him?*
- *What can external sources contribute to an understanding of Still's conception of immunity?*

These questions are addressed below using the results of the key informant interviews that were conducted for this research, as well as drawing from the historical and modern osteopathic literature, while furthermore also incorporating modern non-osteopathic literature that was found to be relevant to the emergent themes earlier identified.

These themes include:

- The pragmatic value to be had in perceiving the *cause* of disease as a *process*; rather than the presence of an entity, regardless of the type of mechanisms that *originated* the disease at the outset.
- The process of disease consisting of an exponentially increasing cascade of loss of normality within the structure-function unity.
- The *frequency* at which intervention is dosed therefore was revealed as being a central aspect in effective treatment. The ideal frequency of

treatment was therefore seen to be the rate necessary to disrupt the exponentiality that characterizes the process of disease.

In discussion with the thesis advisor, it was agreed that the second and third research questions would be best addressed simultaneously. Given that a criteria for key informants was that they had an informed knowledge of Still, and given that these informants also exist in the modern context - the key informants' knowledge of Still was often in reference to modern understandings and those concepts found within modern literature. For this reason it was logical and most appropriate to combine the two research questions and their discussion. This differs from the protocol but was agreed upon with the thesis advisor.

4.2. CYTOKINE STORMS

As voiced by Matvey Kiperstein during a key informant interview, some modern Osteopaths strongly question the applicability, even the overall validity of Still's immunological theories and their application in the modern era. As Kiperstein said during his interview, Still's immunological writings can appear "very poetic and not very applicable to real life". During Christian Hartmann's interview, he commented that such sentiments are one of a handful of common responses that he observes to occur in modern Osteopaths who engage with Still's historical writings. Though Hartmann himself was not of this opinion, he had encountered many Osteopaths who find Still's work to be "ridiculous", and "incomprehensible".

It appears that such interpretations of Still's immunological work are increasingly common within the osteopathic profession as a whole, both in its American birthplace

(Ching, 2009; Gevitz, 2006; see also the transcripts of Dr. Anthony Chila's key informant interviews) and where Osteopathy has spread internationally (Hartmann, 2018; Hartmann & Pöttner, 2011a, 2011b; McKone, 2007; SacralMusings, 2012).

Is Still's conception of immunity worthy of being taken seriously today? This can be addressed by revisiting and developing themes that emerged earlier within this study - as will be done in the following Sections.

This will begin with Still's concept of disease as a *exponential cascade of loss of normality* within the unity of structure and function. This is in contrast to the orthodox medical tradition at that time, who viewed disease as a foreign entity to be expelled (see SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE).

Still's concept of disease as a *process* rather than an *entity* harmonizes extremely well with what is referred to in today's scientific literature as a "cytokine storm" or "cytokine cascade". The term "cytokine storm" is now used to "describe the mechanism" of many orthodox disease conditions (Clark, 2007, p.271). A cytokine storm is defined as "an excessive or uncontrolled release of proinflammatory cytokines", wherein the "immune system has gone awry and an inflammatory response [is] flaring out of control" (Tisoncik et al., 2012, p.16).

A "cytokine storm" dynamic has now been identified as being a central factor within a wide spectrum of disease categories, as classified by the orthodox medical tradition. This includes both infectious and non-transmissible diseases (Tisoncik et al., 2012). For example: multiple sclerosis (Link, 1998), pancreatitis (Makhija & Kingsnorth, 2002), smallpox (Jarhling et al., 2004), and influenza (Peiris, Hui, Yen, 2010) have now all been identified as centrally incorporating the dynamics of a "cytokine storm".

In fact, sepsis, the leading immediate cause of death in all first-world intensive care units, has also now also come to be recognized as yet another instance of a cytokine storm (Clark, 2007). Yet it should be made clear that cytokines are not inherently pathological - they only take on such a role during a *dysregulation* of the immune system. During normal, balanced physiology cytokines are also present, and provide many vital functions:

Cytokines are a diverse group of small proteins that are secreted by cells for the purpose of intercellular signaling and communication. Specific cytokines have autocrine, paracrine, and/or endocrine activity and, through receptor binding, can elicit a variety of responses, depending upon the cytokine and the target cell. Among the many functions of cytokines are the control of **cell proliferation and differentiation and the regulation of angiogenesis and immune and inflammatory responses**. [emphasis added] (Tisoncik et al., 2012, p.17)

As Tisoncik et al. make clear in the above definition, cytokines are physiological agents intimately involved in **both** the *growth* and *defense* of an organism. This agrees well with the dynamics emphasized by Still in his personal conception of immunity (as discussed earlier in SECTION 3.4 A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY and Section 3.6 APPLICATION OF THE ESSENCE), wherein *universal self-organization* was seen by Still as being a common force that variously manifests itself as the processes of both *creation* and *defense* of an individual.

Tisoncik et al. go on to describe how: "Many cytokines have multiple and sometimes unrelated functions that depend on the target cell or on the presence or absence of other cytokines" (2012, p.17). This has led to a situation wherein attempts to identify and name individual cytokines based on their function has proved to be an

ongoing challenge to the scientific community – their function often depends entirely on the other total elements in the scenario in which they are present.

An example of this is the cytokine named Tumor Necrotizing Factor (TNF). The term TNF is a relic - it is a description of the first role that this particular cytokine was observed to play (Clark, 2007). At that time, this was then assumed to be it's sole function. Yet TNF has since been demonstrated it's interactivity with a wide variety of other cytokines, and cell types – each effect *dependent* upon the multiple factors of the larger context (Clark, 2007).

Thus given the fact that one original cytokine-type often modulates the release and expression of multiple other cytokine-types, all of whom also interact with each other, and then continue to interact with the original cytokine-type: under certain conditions a *pathological positive feedback loop* may occur within these dynamics. During such a situation, a circular chain-reaction takes place that results in a ceaselessly exponential increase in the concentration of multiple cytokines, this being the aforementioned “cytokine storm” (Tisoncik, 2012). If left uninterrupted, this scenario can be serious, even quickly fatal.

Yet as noted earlier, it is not only infectious diseases that can induce a cytokine storm. Given that a cytokine storm is the result of a dysregulation of the immune response, and given that inflammation itself is but a function of the immune response, *any* stimulus that initiates inflammation has the potential to bring about a cytokine storm. This includes direct trauma - whether mechanical, chemical or thermal (Clark, 2007). For example, if burns on the body are extensive enough, the resultant inflammatory immune response can induce a cytokine storm (commonly known as “shock”), which if left

uninterrupted will then result in “multiple organ dysfunction [i.e.: failure]” (Clark, 2007).

This was the case for Fred Mitchell Jr., DO, the co-originator of Muscle Energy Technique in conjunction with his father, Fred Mitchell Sr., DO. As a child in 1934 Mitchell Jr. fell into a burning pile of leaves, the resulting burns being so severe as to be “uniformly” taken to constitute a death sentence (Mitchell & Mitchell, 1995, p.4). Unable to accept his son's apparent imminent death, Mitchell Sr. contacted their family physician, the Osteopath Charles Owen, DO, who repeatedly and frequently applied a mastery of Chapman's reflexes to treat the injured child throughout the entire following night.

Owen's frequently repeated manual interventions apparently proved to act as an effective means of interrupting the degenerative inflammatory cascade - even including the organ failure which had already taken place as manual treatment was first initiated. Thus in all likelihood Owen's interventions were the decisive factor in saving Mitchell Jr.'s life (Mitchell & Mitchell, 1995). The probable means of this interruption will be discussed below, but for now another extreme example of cytokine storm interruption via manual osteopathic intervention is worth examining, this time with an infectious disease as the origin.

4.3. THE 1918 “SPANISH” INFLUENZA PANDEMIC

The so-called “Spanish” flu pandemic of 1918-19 occurred when an especially virulent influenza virus spread over the globe. In the end it resulted in the death of approximately 50 to 100 million humans - that being in excess of one percent of the world's total population at that time (Johnson & Mueller, 2002). Some regions

experienced significantly higher rates of mortality - peaking with the nation of Western Samoa, 23% of whose total population died (Johnson & Mueller, 2002).

In modern times, microbiologists have recreated the original 1918 influenza virus strain within laboratory conditions, and then tested it on our close primate relatives, yielding the understanding that it is not the virus itself that is inherently deadly, rather it is the dysregulation of immune response, that is the cytokine storm, that the virus *originates* that truly does the damage. The virus initiates the internal process, but it is the process *itself* that kills - not the presence of the pathogen (Kobasa et al., 2007).

This is the theorized reason explaining why the 1918 strain of this strain of the influenza virus proved to be most severe and deadly for *the young and healthy in particular*. The immune function of these individuals had a higher capacity for response pre-infection, thus when the virus initiated a loss of immune regulation, these robust individuals *were then capable of mounting a dysregulated immune response that was proportionately large* (Morens & Fauci, 2007). This is to say that in this case, *the host's own immune response is the mechanism of the disease* - this concept is known as "immunopathology" (Clark, 2007).

Interestingly enough, an understanding of this concept - that the host's own defensive capacity can be reflected back against itself - was already displayed by the Kirksville professor M.A. Lane in 1917. In Lane's book *Dr. A.T. Still Founder of Osteopathy*, which focuses on Still's conception of immunity, Lane wrote that with infectious diseases in general: "The destruction is not caused by the germ itself or its toxin but by the attempt of the body to overcome the germ - what pathologists call the reaction of the body against the invading organism" (1918, p.195). It is fascinating to

note that an understanding of immunopathology had already been incorporated into osteopathic training at this exceedingly early date.

Given that the 1918 “Spanish” flu produces the process of disease via immunopathology, it can be explicated that if the patient’s capacity for normal immune regulation were to be restored there would be a resultant termination of the disease process. This means that, once initial pathogen exposure and infection has taken place - the presence of the viral pathogen within the individual is ultimately not the *most* relevant factor at play: even within an extremely serious ‘infectious’ disease such as the 1918 flu. Rather, the decisive factor in such a scenario is the patient’s own capacity, or loss of capacity, to act out appropriate self-organization - given that self-organization is the genesis of self-regulation. In the presence of appropriate self-regulation, immunopathology cannot take place.

It then logically follows that an effective medical intervention would in this case consist of the retention or restoration of a patient’s innate capacity for self-organization. It seems that perhaps this was the understanding Still had reached when near the end of his life he stated that: “We talk much about diseases and their causes; their deadly effects are from insufficient power of the body to recuperate” (1910, p.34).

There has been much written both historically and recently within the osteopathic community regarding the successes that manual osteopathic treatment achieved during the 1918 “Spanish” flu pandemic (see for example: Chaitow, 2010; D’Alonzo, 2004; Howes, 1918; Hruby & Hoffman, 2007; Magoun, 2004; McConnell, 1919; McKone, 2007; Mueller, 2013; Patterson, 2005; Smith, 1920; Ward, 1937).

Many of these discussions of osteopathic manual intervention during the 1918 pandemic revolve around a certain glorified 1920 osteopathic study that was presented by a R. Kendrick Smith, MD, DO, to an orthodox medical convention, wherein it was:

...reported that the mortality rate for a total of 110,120 patients with influenza treated by 2445 DOs was 0.25%. Mortality due to influenza in patients receiving traditional medical care, however, was estimated to be 5% to 6%. Patients with pneumonia [as a result of the preceding influenza infection] treated with standard medical care had a mortality rate estimated at 33% overall, and as high as between 68% and 78% in some large cities. Of 6258 patients cared for by osteopathic physicians the death rate due to pneumonia [as sequelae to flu] was 10%. (Hruby & Hoffman, 2007, p.2; see also D'Alonzo, 2004; and for the original source: Smith, 1920)

As Matvey Kiperstein pointed out in his key informant interview, these statistics are suspect in that they were self-reported and compiled by Osteopaths, almost certainly in part simply as a means of validating and promoting their own profession. That this explicitly was the case is demonstrated by the fact that Smith's above presentation was reprinted in the *Journal of the American Osteopathic Association*, including a preface added by the editors of the *Journal*, which in part suggested that:

...it is urged that members distribute reprints [of this report] enough to cover the entire country, in order to show the people that the medical profession is ignorant of the truth no longer, but has been officially informed of osteopathic conquest of diseases in which medicine has failed. These reprints may be obtained from the Orange office at \$4.00 per hundred or \$30.00 per thousand. (Smith, 1920, p.172)

Despite this promotional campaign, the significant clinical results reported in the suspect 1920 study may now be contrasted with data from a modern, methodologically

proper study - in fact the largest ever manual osteopathic study to date. This is the Multi-Centre Osteopathic Pneumonia Study in the Elderly (MOPSE). A series of studies were released from this data set (see for example: Noll et al, 2010; Noll, Degenhart, Johnson, 2016). The MOPSE involved 406 patients, with 81 different osteopathic physicians providing manual treatment, in 7 different community hospitals situated across the United States. The elderly patients were divided into three groups, each of which received either:

- conventional care only (CCO), consisting of antibiotics (intravenous or oral), and supplementary oxygen or intravenous hydration and nutrition etc. if needed, as well as ventilator application upon respiratory failure; or
- conventional care and osteopathic manipulative treatment (OMT) for approximately 20 minutes, twice per day; or
- conventional care and Light Touch (LT), which “applied light touch to the same body regions in the same sequence and duration as the OMT protocol” (Noll et al., 2016, p.576).

The shocking results of a 2016 data subset analysis are reproduced here:

By per-protocol analysis of the younger age subgroup, LOS [length of stay in hospital] was shorter for the OMT group (median, 2.9 days; n=43) than the LT (median, 3.7 days; n=45) and CCO (median, 4.0 days; n=65) groups ($P=.006$). By intention-to-treat analysis of the older age subgroup, in-hospital mortality rates were lower for the OMT (1 of 66 [2%]) and LT (2 of 68 [3%]) groups than the CCO group (9 of 67 [13%]) ($P=.005$). By per-protocol analysis of the PSI class IV subgroup, the OMT group had a shorter LOS than the CCO group (median, 3.8 days [n=40] vs 5.0 days [n=50]; $P=.01$) and a lower ventilator-dependent respiratory failure rate than the CCO group (0 of 40 [0%] vs 5 of 50 [10%]; $P=.05$). By intention-

to-treat analysis, in-hospital mortality rates in the PSI class V subgroup were lower ($P=.05$) for the OMT group (1 of 22 [5%]) than the CCO group (6 of 19 [32%]) but not the LT group (2 of 15 [13%]). (Noll et al., p.574)

Thus given the modern results detailed above in the MOPSE, perhaps the highly significant “Spanish” flu statistics presented in 1920 *are* theoretically viable, given that they are within approximately the same range of results as were recorded in the MOPSE. It is important to note that in the MOPSE these results were obtained in **conjunction** with intravenous antibiotics / hydration / nutrition, as well as with supplementary oxygen, and respirators if warranted. None of these technological interventions were available to any of the 1918 patients - thus it is not directly comparable to place the results of the MOPSE beside those of the 1920 study.

Yet this all goes to support the proposition that, for *pragmatic* purposes, once infection has begun, it can be useful to conceive of even a pathogen-originated infectious disease as being a simply a *process* that the patient is experiencing, rather than the presence of an external *entity* that has invaded the patient and must be eradicated. The MOPSE demonstrates that this shift of focus may act as a key factor in facilitating recovery.

As discussed earlier in SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE, when disease is conceived of as a process, its defining quality is the ***exponential loss of normality*** of both function and structure. Illustrating this very same conclusion, the neurophysiologist Irvin Korr held that: "Through its somatic component [the osteopathic approach provides], an accessible, specific, responsive and

effective lever for the manipulation and interruption *of the disease process itself*" [emphasis added] (as cited in Hoover, 1963, p.491 original source unavailable).

This perspective and strategy of viewing disease as a process can be contrasted with today's orthodox medical tradition, which at this time is largely unsuccessful when attempting "cytokine storm" intervention. This is summarized by Tisoncik et al. in their review paper on the subject, concluding that: "We still do not understand the complex nature of the immune response and have probably underestimated its dynamic nature during acute infection" (2012, p.18).

Furthermore, it should be highlighted that in the MOPSE study the "light touch" intervention **also** yielded profound clinical results, *even to the degree of saving many lives*. In many categories the "light touch" intervention often produced benefits comparable to that of the osteopathic intervention (Noll et al., 2010). It must be emphasized that these findings do not in any way detract from the value of the osteopathic manual tradition, rather **it clearly demonstrates just how incredibly rudimentary and accessible a manual intervention can be, while nevertheless yielding life-saving results**.

As one modern Osteopath stated when discussing classical osteopathic treatment of infectious diseases: "The techniques used for critically ill patients were *so simple*." [original emphasis incorporated into transcription] (Institute of Classical Osteopathy, 2015a). So why are osteopathic concepts regarding infectious or acute inflammatory disease processes not commonly incorporated into modern osteopathic education (McKone, 2007)? Some potential reasons are discussed below in SECTION 5.2 LEGACY OF

TRANSMISSION LOSS. For now, the relevant characteristics that define these historical manual osteopathic interventions for acute inflammatory conditions are presented.

4.4. SEVERITY OF CONDITION DETERMINES THE DURATION AND FREQUENCY OF TREATMENT

Edward Yen, DOMP, discussed in his thesis, *An Exploration of the Changing Attitudes of Osteopaths Towards Diseases Over the Past Century*, how the above described model of treatment (frequently repeated, short duration interventions) was likely a source of Still's success in treatment of acute illnesses. Yen theorizes that Still focused on "remov[ing] the immediate threat of an inflammatory reaction" by repeatedly treating "secondary lesions ... directly related to the diseased organ" (2008, p.288). Essentially, Yen states that this may explain some of the difference in the results of historical versus modern osteopathic practice, in that historically, the frequency of treatment was dictated by the intensity of the patient's illness, whereas today it is more commonly determined by socioeconomic factors such as the cost of treatment and the schedule of both patient and practitioner.

This interpretation was repeated by Brian Degenhart, DO, during his key informant interview. Degenhart directly oversaw the intervention arm of the MOPSE which was discussed in the previous section. During the interview, Degenhart described the pre-study process undertaken by the MOPSE researchers, which included a search through the historical osteopathic literature to determine an appropriate frequency of treatment to be employed during the upcoming modern study. Degenhart relates the results of this investigation:

So what we found in the [historical osteopathic] literature was that, especially in the hospitals early on, they dosed their manipulative treatments based on the severity of the condition. The time in which they treated was inversely related to the severity of the condition - so the more severe it was, the shorter the duration it was. But when it came to the severity, then it was also directly correlated to the frequency in which they treated - so **the more severe it was, the more frequent they treated it, but the less amount of time they used to treat it.** [emphasis added]

Degenhart when on to relate how:

In modern medicine generally, physicians see a patient in a hospital once a day, on rounds. We decided that we were going to give treatments twice a day. It was more than what is typically expected, but it certainly didn't necessarily meet the ideal - we may have been wanting to see some of them [the elderly patients hospitalized with pneumonia] maybe four times a day, and treated them for just 2 to 3 minutes in order to just continue to keep fluids moving and breathing better and so forth.

Degenhart's above interpretation of the intent and methodology of historical osteopathic manual treatment in this case (i.e.: frequently repeated, short duration interventions) confirms the analysis of Still's methodology of *cascade interruption* that was presented earlier in SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE.

It seems that historically, the manual osteopathic treatments given during acute conditions were often *exceedingly* simple. Mervyn Waldman, a British-trained DO, and modern international leader in the practice and instruction of classical Osteopathy, describes a method that was apparently common during the early years of Osteopathy

(SacralMusings, 2012). This method was especially used in acute cases - regardless of the origin of the condition.

As Waldman describes it, in this method the Osteopath simply puts their hands on the patients back, assesses the erector spinae and paraspinal musculature for tension, and then via gentle and steady pressure, aids in the relaxation of the hypertonic spinal segments (SacralMusings, 2012). This treatment would be provided to the patient in any position, including while supine in a sick-bed. Waldman terms this procedure an “inhibition of the dorsal primary cutaneous nerve”, and describes it as having: “Saved more lives in the first 60 years of Osteopathy than anything else” (SacralMusings, 2012).

When understood from an osteopathic perspective, incredibly basic interventions such as this serve to not only relieve muscle tension, but are also a means of interrupting a viscerosomato-visceral and/or somatoviscerosomatic cascade – that is, a *degenerative positive feedback loop* - comprised of the spinal cord segments and both the local paraspinal musculature and distant viscera fed by those spinal cord segments.

Since both the associated regions of paraspinal musculature and the acute viscera are supplied by the same segment of spinal cord, a ‘vicious circle’ may be initiated wherein the toxicity associated with an infection or trauma irritates the viscera and/or musculature, thereby negatively influencing the state of their associated section of spinal cord, thus resulting in further dysfunction of the paraspinal musculature and dysregulation of the originally irritated viscera, which only further disrupts the shared section of spinal cord; in short, each of these interrelated elements continue to negatively influence each other, exponentially (as summarized from Lane, 1918; McConnell, 1918; SacralMusings, 2012).

During the 1918 “Spanish” influenza pandemic, it was extremely straight-forward manual interventions such as Waldman’s aforementioned “inhibition of the dorsal primary cutaneous nerve”, that produced the apparently life-saving results that Osteopaths were able to facilitate within their patients. As modernly summarized by Dr. Michael Patterson, PhD:

In 1918, C.P. McConnell, DO, reported that the most effective treatment during the influenza pandemic was begun early in the onset of symptoms (within the first 24 hours) and consisted of carefully applied muscular relaxation and, most importantly, relaxation of the deep and extensive contractions of the deep spinal musculature and mobilization of the spine. These treatments would be repeated two or three times early in the course of the infection, along with traditional supportive measures such as hydration. During later influenza epidemics, such as the 1928-1929 and the 1936-1937 outbreaks, various lymphatic pump treatments and more attention to the cervical and upper thoracic regions were added to this recommended treatment protocol. These treatments, individualized to each patient’s needs, were apparently the most commonly applied osteopathic medical procedures during the epidemics. (2005, p.500)

Writing the year before the 1918 pandemic, Kirksville professor M.A. Lane discussed osteopathic treatment of the conventional seasonal flu, while also making it clear that at that time manual Osteopathy was commonly employed as a treatment for this illness (Lane, 1918). Lane suggested a protocol of approximately one manual treatment per day, repeated for 5-6 consecutive days. Lane describes this methodology as yielding a consistent decrease in severity of symptoms, the duration of illness, and the development of serious complications such as pneumonia.

Walter McKone, a modern author and Osteopath practicing in Britain, describes a similar protocol for seasonal influenza, wherein he suggests that from his experience “treatment should be two to three times [total,] in two to three days” (2007).

Carl McConnell wrote about his experiences treating patients with the “Spanish” flu during the 1918 pandemic, and came to suggest a frequency of two treatments per day (1918). Anna Wood Howes, DO, an Osteopath who practiced in the emergency quarantine hospital established in Kirksville during the 1918 pandemic, also described her experiences after treating 16 “Spanish” flu patients (1918). Howes described providing her patients with a whole-body intervention, as determined by muscular tone, stating that in regards to frequency:

They were given osteopathic treatments three times a day, and for the first three nights had three treatments during the night [as well]. As soon as temperature was normal one treatment a day until discharged. (1918, p.703)

To be clear, Howes is describing that each of her patients received six osteopathic interventions per 24 hour period, repeated for three days running - that is to say, 18 treatments in the first 72 hours following their hospitalization.

It is worth noting that Osteopaths in practice during the 1918 pandemic also frequently employed traditional adjunctive measures including bed rest, hot baths, hot lemonade, and enhancement of elimination via therapeutic sweating (wrapping in a blanket after a hot bath), along with daily enemas (see for example Howes, 1918; McConnell, 1918).

4.5. OSTEOPATHY AND CYTOKINE CONCENTRATIONS

It is clear that historically, Osteopaths felt that manual intervention strongly benefited patients who were experiencing serious acute conditions. This intention is supported by the results of the modern MOPSE. Additional modern research also suggests that manual osteopathic intervention may beneficially interact with the inflammatory cascade or “cytokine storm” that constitutes a central element of the acute disease process in many, if not most, cases.

At the outset, a case-study may be a useful example. One of the practitioners interviewed for this research, Tajinder Deoora, is a British-trained Osteopath with experience manually treating patients with infectious diseases. At a recent conference, Deoora related her experience wherein a young Nepalese boy had contracted tetanus, and become paralyzed. Orthodox medical intervention, including antibiotics, had not been effective in restoring the boy's mobility. The boy had remained in a state of paralysis for some weeks under this care. Deoora and her colleagues employed manual osteopathic intervention, resulting in near-immediate improvement in the child's condition, to such a significant degree that the boy regained ambulatory capacity within days of manual intervention being initiated (Deoora, 2019b).

Along related lines, Deoora conducted her Master's degree in Immunology by studying the effect of osteopathic manual treatment on premature infants experiencing sepsis. Sepsis, as discussed earlier, is an immediately life-threatening condition, now classified as containing an important cytokine storm element (Clark, 2007). Tajinder's 1998 study, *Using urinary neopterin:creatinine to assess the role of osteopathy as adjunctive therapy in neonatal sepsis*, found that even a single osteopathic manual

intervention resulted in highly clinically relevant decreases of the proinflammatory cytokine neopterin, as measured in urine samples taken from the neonatal infants.

Neopterin is understood to be closely correlated with the intensity of infection, therefore to significantly decrease neopterin via manual intervention is a good indicator that a reduction of the overall sepsis is also taking place, as was also confirmed by the clinical outcomes (Deoora, 2019b).

Other researchers, for instance at the Arizona University of Osteopathic Medicine, have demonstrated *in vitro*, that osteopathic techniques are able to influence the rates of wound healing, muscle repair, and cytokine secretion in fibroblasts: a cell-type involved in all of these processes (Zein-Hammoud & Standley, 2015).

After taking blood samples before and after a manual intervention, researchers at the Ohio Heritage College of Osteopathic Medicine concluded that: "OMT is able to induce a rapid change in the immunological profile of particular circulating cytokines and leukocytes" (Walkowski et al., 2014).

The fact that osteopathic manual intervention is able to result in clinically significant decreases in proinflammatory cytokine levels was also documented in studies involving patients with chronic low-back pain, including subject-groups with and without diabetes mellitus (see respectively: Licciardone, Kearns, Hodge & Minotti, 2013; Licciardone, Kearns, Hodge, & Bergamini, 2012).

Osteopathic manual intervention was also found, in a small pilot study, to be a highly effective adjunctive treatment for hospitalized patients diagnosed with acute pancreatitis (Radjieski, Lumley, & Cantieri, 1998). Pancreatitis is a serious or even fatal condition, again also identified as containing an important cytokine storm element

(Makhija & Kingsnorth, 2002). The patients in the osteopathic pancreatitis pilot study received a mere 10 - 20 minutes of manual intervention per day of their hospitalization, with the intervention consisting of a standardized protocol that incorporated a limited number of osteopathic technique-types - such as myofascial release and strain-counterstrain. Despite these possible shortcomings in methodology, those patients who received adjunctive osteopathic manual treatment on average required a hospitalization 3.5 days shorter than their counterparts receiving conventional care alone (Radjeski et al., 1998).

The above studies, when taken in the context of the results of the current study up to this point, bolster the proposition that manual osteopathic intervention has the capacity to play a significant role in the treatment of serious acute disease processes, and yield these results in such conditions – whether classified as infectious or non-communicable. This may indicate that osteopathic manual intervention may provide a means of ‘calming’ a cytokine storm.

It should be emphasized here that manual osteopathic intervention would not hold this capacity only via an effect on cytokine levels, nor is it proposed that interaction with cytokines is the most appropriate means of perceiving manual osteopathic intervention's mechanism of action in such scenarios. Rather it should be understood that cytokine concentrations are a biomarker commonly recognized as being clinically significant within the orthodox conception of disease, and that when using modern research methods to investigate the action and potential efficacy of manual Osteopathy, these same orthodox means of measurement have been utilized and then found to validate the applicability of manual osteopathic intervention. A theoretical explanation for the

capacity of manual Osteopathy to provide efficacy in these situations is further explored in the following Sections.

4.6. DISEASE TOLERANCE MECHANISMS

4.6.1. THERE IS MORE THAN ONE WAY TO TIP A SCALE

During Still's lifetime, advancements in microscopy allowed the correlation of specific forms of bacteria with specific orthodox disease classifications - such as diphtheria, tuberculosis etc (see SECTIONS 3.3.8 STILL AND THE TRADITIONAL 'GERM' THEORY OF DISEASE (CORN ANALOGY) and SECTION 3.3.9 STILL'S OPINION OF THE BACTERIAL REVOLUTION AND ITS 'GERM THEORY' OF DISEASE). This tended to produce a culture within orthodox medicine wherein the simple presence or absence of a particular pathogen was now seen to be the primary - if not even the **sole** relevant factor - when understanding infectious diseases (see SECTION 3.3.9.1 THE RELEVANCE OF BACTERIAL 'GERMS'). The unprecedented successes observed during the introduction of antibiotics during the 1940s and '50s served to strongly reinforce the apparent validity of this simplistic orthodox model of infectious disease (Pelling, 2013).

Guided by this highly influential cultural impetus, for the past century or more orthodox research of infectious disease has focused almost exclusively on mechanisms by which pathological organisms may be eliminated - either via vaccination (thereby utilizing the capacity of the patient's own immune system to destroy the pathogen), or directly via pharmaceutical antimicrobials such as antibiotics, antivirals, antiparasitics and so forth (Ayres & Schneider, 2012; Soares, Gozzelino & Sebastian, 2014). Within this orthodox conceptual framework of infectious disease, a high level of pathogens indicates acute infectious disease, while a lower level of pathogens indicates a less severe

infectious disease, and an absence of pathogens indicates an absence of infectious disease (Ayres & Schneider, 2012; Soares et al., 2014).

The huge successes achieved through vaccination and antimicrobials over the past century can attest to the pragmatic validity of this essentially unifactorial orthodox conception of infectious diseases (Fauci & Morens, 2012). Yet, other infectious disease conditions such as pneumonia, the influenza virus, and the severe sepsis caused by multimicrobial infections remain resistant to the strategy of focusing solely on pathogen-elimination (Soares et al., 2014). Perhaps this points more to the short-comings of the orthodox conceptualization of infectious diseases itself, rather than the pathogen-elimination strategy that was developed from that conception.

For instance, when humans are infected with the Puumala hantavirus, they often experience “hemorrhagic fever with renal syndrome, called nephrophathia epidemica, *despite being able to clear the virus*” [emphasis added] (Ayres & Schneider, 2012, p.283). This is to say that the patient dies **despite** having successfully ‘waged war’ with the ‘invading’ pathogen. Cases such as this point to the fact that:

In some instances, however, immune- and/or pharmacologic-driven resistance mechanisms are not sufficient *per se* to prevent morbidity and/or mortality associated with infectious diseases, regardless of their capacity to exert a negative impact on pathogens. (Soares et al., 2012, p.483)

In light of such instances, some modern immunologists are proposing that:

We need a better way of discussing how we interact with microbes; our bodies are not just castles defending themselves against microbial invaders. Continuing with the castle metaphor, we need to consider all the things that go on in a fortress: The inhabitants must repair the walls, gather

and distribute food, raise their children, and decide when it is worth fighting, in addition to actually killing invaders with weapons. In modern immunology, we spend most of our time discussing the weapons. ... [Rather than giving much focus at all to] ... the physiological mechanisms that keep us healthy *while* we are fighting infections. [emphasis added] (Ayres & Schneider, 2014, p.272)

The position put forward by the above immunologists is in clear alignment with the unorthodox osteopathic perspective regarding infectious diseases. See for example a discussion put forward by George Northrup, DO, writing as a past president of the American Osteopathic Association and then editor of its *Journal*:

The belief that disease can be conquered through the use of drugs deserves special attention here because it is widely held. Its fallacy is that it fails to take into account the difficulties arising on the ecological complexity of human problems. Blind faith in drugs is an attitude comparable to the naive cowboy philosophy that permeates the wild west thriller. In the crime-ridden frontier town the hero single-handedly blasts out the desperadoes who have been running rampant through the settlement. The story ends on a happy note because it appears that peace has been restored. But in reality, the death of the villain does not solve the fundamental problem, for the rotten social **conditions** which opened the town to the desperadoes would soon allow others to come in unless something is done to correct the primary source of the trouble. The hero moves out of town without doing anything to solve this far more complex problem; in fact, he has no weapon to deal with it and is not even aware of its existence. Similarly, the accounts of miraculous cures rarely make clear that arresting an acute episode does not solve the problem of disease in the social body—or even in the individual concerned. [emphasis added] (1972, p.89-90)

These are the philosophical shortcomings of an orthodox conception of infectious diseases that only takes into account the presence or absence of a pathogen, and it is the clinical outcomes of the application of this over-simplified orthodox conception that has led to a call within the modern immunology community for a recognition of additional relevant factors within the scenario (Ayres & Schneider, 2012 ; Soares, et al., 2014). This proposed conceptual revision represents a reorientation of the historical orthodox conception of infectious disease, from a single measure (pathogen load) to the outcome of a **balance** between multiple sets of factors. The existing traditional focus on an organism's capacity to directly antagonize pathogens (now being termed "*disease resistance*") represents only one factor in that balance. There has now been identified a multitude of additional factors which are highly relevant, and interactive - now being termed "*disease tolerance*" (Ayres & Schneider, 2012 ; Soares, et al., 2014).

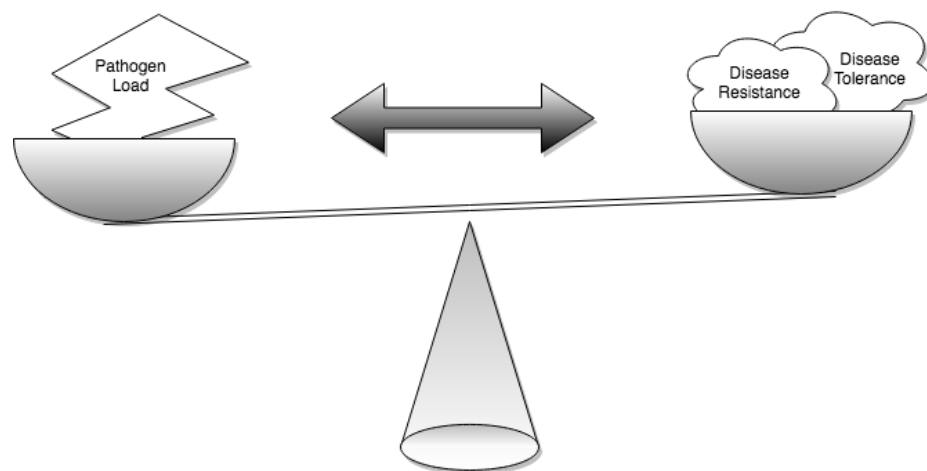


Figure: 19. Proposed revised model of the orthodox conception of infectious diseases.

By utilizing this more nuanced conception of infectious diseases, it becomes apparent that there is more than one possible means of benefiting a patient who is

experiencing a disease state: yes, the load of pathogens can be decreased (via disease resistance), or *the amount of **disease tolerance** can be increased* - either method results in a shift in balance towards health. Thus utilizing both strategies *simultaneously* has been proposed as the new ideal interventional methodology (Ayres & Schneider, 2012 ; Soares, et al., 2014).

In their respective review papers, Soares et al. (2012) and Ayres & Schneider (2014) describe disease tolerance mechanisms as essentially being the *dualistic counterpart* of immune function. By this, it is meant that disease tolerance mechanisms play two roles: enabling greater efficiency and efficacy of the immune reaction, while simultaneously *serving to limit and repair the collateral self-damage* caused by an immune response:

When faced with a pathogenic challenge, an organism would ideally avoid any self-harm; however, damage to host tissues is inevitable because of the inflammatory and cytotoxic nature of an immune response. (Ayres & Schneider, 2014, p.285)

Following this same line of thought, while again utilizing the earlier presented “castle metaphor” regarding the scenario of an infectious disease, Ayres and Schneider state that if disease *resistance* mechanisms (i.e.: defensive mechanisms) were to be compared to a **sword** used to attack invaders that threaten the castle and its citizens, then disease *tolerance* mechanisms could be conceptualized as **armor** that is distributed to the castle's residents before and during a battle. Ayers and Schneider illustrate that a **sword** (immune system responses) has the capacity to hurt both self, friends, and foes; while **armor** (disease tolerance) serves to protect one not only from inadvertent self-harm, but also any unintentional damage caused by one's friends - as well buffering the malicious

attacks of the invaders. Thus, in effect, *a stronger **defensive** capacity allows for a greater **offensive** efficacy* (Ayres & Schneider, 2014).

As Soares et al. similarly summarize, disease tolerance mechanisms “are functionally integrated with inflammatory responses, likely fine-tuning host immunity to specific classes of pathogens” (2012, p.485). Thus any means of enhancing disease tolerance would “hold promise because **they point to methods of treating infections that put evolutionary pressures on microbes different from antibiotics and vaccines**” [emphasis added] (Ayres & Schneider, 2014, p.271).

Soares et al. list the roles played by disease tolerance mechanisms. These include:

- “Neutralization of toxins and other virulence factors [released by pathogens]”
- “Immunoregulation mechanisms limiting the damaging effects of host resistance mechanisms [reduction of immune reaction collateral damage]”
- “Cellular and systemic adaptive responses limiting the deleterious effects associated with different forms of stress and damage imposed by pathogens and/or host resistance mechanisms” (Soares, 2012, p.484)

Ayres and Schneider also describe the delicate balance that must be navigated when a host initiates immune activation in response to a perceived pathogen. In essence, if this is to be successful the host must achieve a self-beneficial ratio between:

- The amount of energy expended by the host in efforts to harm the pathogen, versus the total energy available to the host for global functioning.

- The amount of harm done to the **pathogen** by the host's immune response, versus the amount of harm done to the **host** by the host's immune response. (Ayers & Schneider, 2014, p.279-85)

Ayers and Schneider use the concept inherent in the above ratios to emphasize the fact that, in both chronic and acute infectious diseases that become fatal, it is often *not* the tissue damage directly caused by the pathogen that kills the patient. Rather, it is a poor *ratio* between the amount of damage done *to the pathogen* by the patient's immune response, and the amount of damage done *to the patient* by the patient's own (dysregulated) immune response. One example of this given by the researchers is:

The chronic phase of infection in HIV-infected humans ... [which] is characterized by persistent pathological immune activation and **[the level of immune activation] is a stronger predictor of the progression rate to AIDS than is viral loads.** [emphasis added] (Ayers & Schnieder, 2014, p.284)

This again serves to illustrate that in this case, as in many, disease is pragmatically best understood as a loss of the capacity for normal self-organization. Thereby even infectious diseases may be conceptualized as consisting of a pathological *process* rather than a pathological *entity*. The host's inherent disease tolerance mechanisms attempt to regulate and normalize the exponential loss of normality - ie: the process of disease.

For instance, when attempting to minimise tissue damage occurring from microbial toxins during an infection, one could either seek to *decrease* the number of pathogens secreting toxins, or *increase* the rate at which pathogenic toxins are neutralized

by the host. Either method, or better yet, the maximization of **both** strategies simultaneously, would have the best chance of resulting in the desired outcome of host recovery.

The same can be said of tissue damage, including that caused by the host's own immune response. Given that disease tolerance mechanisms regulate the level of tissue damage that occurs in such cases, if there were a prophylactic increase in this resistance, or if it was possible to increase the rate at which subsequent damage repair takes place - then less damage would occur, and what damage did occur would be repaired in a shorter time frame. This would result in less tissue existing in a damaged state at any one point of the disease process timeline. Due to this, recovery would be more likely to take place, and require a shorter period of time to take place. This harkens back to the conclusion arrived at in SECTION 3.5.8 TREATMENT - if the process of disease is hindered from the outset, *there is less to recover from*.

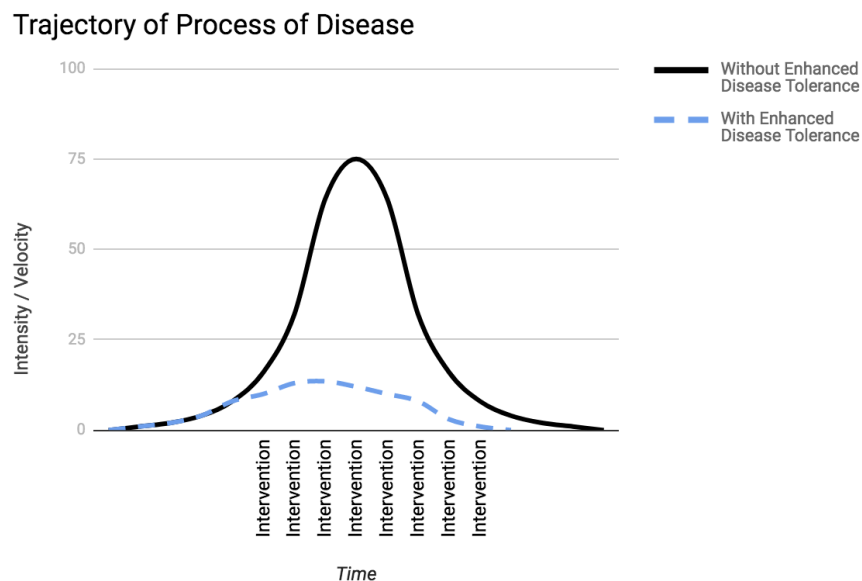


Figure: 20. There is less to recover from.

Thus it can be said that disease tolerance mechanisms thereby serve to circumvent the instigation and propagation of the degenerative positive feedback loops that characterize “cytokine storms”. Disease tolerance mechanisms effectively serve to slow or reverse any exponential dysregulation of immune function and the inflammatory self-damage that accompanys it. By this, disease tolerance mechanisms functionally provide a means of “*immunoregulation*” (Ayers & Schneider, 2014). This is why, as described earlier, disease tolerance mechanisms can be conceptualized as being the dualistic partner of immune function.

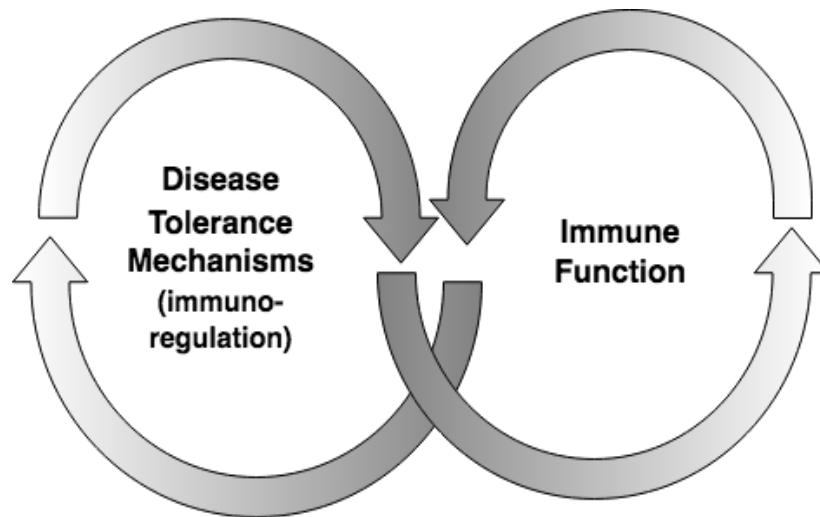


Figure: 21. The reciprocal relationship of immune function and disease tolerance mechanisms.

4.6.2. IMMUNOREGULATION

From the above it can be explicated that immunoregulation therefore also serves as a means of conserving the energy required to fuel immune function. As the *quantity* of immune activity is made appropriate over the short-term, energy reserves are retained for the future: resulting in an increase in the *quality* of immune efficacy over the long-term

(Ayers & Schneider, 2014; Soares et al, 2012). This is another instance of the regenerative negative feedback loops that typify appropriate self-organization.

This discovery, that disease tolerance serves to provide immunoregulation, agrees exactly with the mechanism by which osteopathic manual intervention is proposed to take effect, as discussed throughout SECTIONS 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE, and 3.6 APPLICATION OF THE ESSENCE. This is especially true of the emphasis in SECTION 3.5.8 TREATMENT, wherein the key intent of osteopathic intervention was identified as being an increase in the capacity for regulation of the *process* of infectious disease - thereby resulting in the circumvention of an exponential increase in both pathogen-load and tissue damage. Soares et al. state this in summary using modern orthodox terminology:

...the pathogenesis of infectious diseases is regulated to a large extent by the relative capacity of different stress and/or damage responses to provide metabolic adaptation and damage repair, at sufficient levels as to avoid cytotoxicity, tissue damage, and disease. (2014, p.487)

[Disease tolerance mechanisms] ...provide metabolic adaptation to the environmental changes driving different forms of stress while reducing, whenever possible, those forms of stress. (2014, p.484)

This is to say that the outcome of a disease process is in large part determined by the efficacy of **regulation** of the host's immune response. Meaning that, in the end, the determining factor is not so much the presence of the pathogen but rather the capacity for appropriate self-organization by the host when faced with the influences of a pathogen.

It should be made clear at this point, that although the discussion of disease tolerance mechanisms thus far have focused on the central role played within **infectious**

disease processes, these same concepts and actions of disease tolerance are also identified in the above review papers as playing just as critical a role in **non-communicable** diseases (Ayers & Schneider, 2014; Soares et al, 2012). Given that **all** diseases centrally involve the process of inflammation, and inflammation is itself an immune response - **immune function and regulation is a central factor in all diseases**, whether they be classified as infectious or non-communicable (Deoora, 2019a, 2019b).

For instance, Soares et al. discuss the foundational role that disease tolerance mechanisms play after a non-communicable disease such as a stroke or myocardial infarction (2012). The initial incident releases inflammatory and toxic damage to the surrounding tissues - if this can be appropriately regulated by disease tolerance mechanisms there will be an absence of exponential collateral damage, accompanied by the presence of an enhanced degree and rate of repair and recovery (Soares et al., 2012).

The same researchers review the growing body of literature demonstrating that disease tolerance mechanisms play a key role in regulating the intensity and progression of auto-immune conditions such as type I diabetes, systemic lupus erythematosus, multiple sclerosis and rheumatoid arthritis (Soares et al., 2012, p.487).

4.6.3. BACK TO THE FUTURE

At the conclusion of their review paper regarding disease tolerance as a source of immunoregulation during infectious diseases, Ayres and Schneider state in conclusion that:

We can harness the theoretical power of tolerance as described by ecological immunologists to increase the health of infected patients. To do this, we must study tolerance explicitly. It is critical that we measure both health effects and microbe levels in our experiments. It is equally important that we measure vigor; **we must define what is normal health**,

for we cannot understand what it means to be sick until we know what it means to be healthy. If we do this, we develop a new method of treating infected patients that will have a strong mechanistic and theoretical foundation, allowing us to limit illness while, at the same time, reducing microbe numbers. [emphases added] (2012, p.289)

The above is a rather exact description of the very strategy employed by Osteopaths during the 1918 “Spanish” influenza pandemic. It is also the very same mechanism that was proven to be a powerful adjunctive strategy in the modern MOPSE study of elderly patients experiencing pneumonia. Furthermore, it seems to mirror the Still’s famous statement from his 1899 *Philosophy of Osteopathy*: “To find health should be the object of the doctor. Anyone can find disease” (p.28).

4.7. ANOTHER “LAW OF RECIPROCITY”: METABOLISM AND IMMUNITY

4.7.1. IMMUNOMETABOLISM

As mentioned in the previous section by both Soares et al. (2012) and Ayers & Schneider (2014), an immune response constitutes a dramatic shift in physiology, and this shift requires a corresponding dramatic change in energy circulation and consumption, ie: **metabolism**. As Ayers and Schneider describe it: “Profound changes in energy distribution occur upon infection to feed energy to the immune response” (2014, p.282). It therefore follows that any “[d]isruption of these changes could reduce [disease] tolerance” (2014, p.282). In short, if the metabolic demands required to act out an ideal immune response are not available, an ideal immune response will not occur. This **clearly** agrees with Still’s central emphasis on the necessity of a continuous “unlimited freedom” of fluid flow into and out of all scales of the patient. This “freedom” was

observed by Still as a fundamental prerequisite for any and all effective resistance to disease (see SECTION 3.6. APPLICATION OF THE ESSENCE).

Still's body of work is saturated with detailed descriptions of the shifts in energy-supply and demand that must take place during a patient's prevention of and response to all types of disease. As perceived by Still, all manners of energy and waste are primarily transported within / as fluid (see SECTION 3.3 A.T. STILL'S CONCEPTION OF DISEASE as well as SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE). For this reason, Still focused much of his unorthodox medical interventions on the restoration of those mechanisms which allow a balance to occur in the supply and demand of bodily fluids - in all locations, on all scales. Still's emphasis on *fluids* as the primary means of energy-flow within an organism, led to the identification within this research of *metabolism* as being one of Still's primary means of interacting with *immunological efficacy* (see SECTION 3.6.7 IMMUNITY AND FLUID FLOW).

As noted above by Ayers and Scheider, modern orthodox research has now also come to share Still's opinion regarding the reciprocal and foundational relationship in place between metabolism and immune function. In fact, in recent years the mutual dynamic occurring between metabolism and immune function has become a major focus in a variety of scientific fields – and the implications are being described as revolutionary. As stated by the authors of a review paper on this topic titled *Metabolic Regulation of Immune Responses*:

The basic discovery that cellular metabolism, which acts through key regulatory metabolic nodes, controls immune cell function has not only introduced a novel paradigm in the field of immunology, but has also

raised the prospect that inflammatory or autoimmune disorders might be amenable to metabolic therapy. (Ganeshan & Chawla, 2014, p.610)

These findings are being regarded as warranting an entirely new field of study: “immunometabolism”. As summarized in another recent review on this topic, *An evolutionary perspective on immunometabolism*:

Recent studies of the immune system have demonstrated a dynamic and finely tuned connection between metabolic programs and the specialized cellular functions they support during the course of the immune response. A number of specific regulatory pathways demonstrating the crucial role of metabolism in immunity have been elegantly characterized and have resulted in the emergence of the new field of immunometabolism. ...on the cellular, tissue, and organismal level, there is a critical role for metabolism in controlling immunity and that inflammation, in turn, has a profound impact on metabolism. This reciprocal relationship is fundamental to the immune response and is at the center of a myriad of modern human diseases including obesity, diabetes, sepsis, and autoimmune/autoinflammatory diseases. (Wang, Luan, & Medzhitov, 2019)

Wang et al.'s description of a “reciprocal relationship” taking place between immune function and metabolism, one that is **repeated at every scale** of the “cellular, tissue, and organismal level[s]”, once again clearly mirrors own Still's holographic non-linear conclusions regarding this very topic, as first published by Still in the late 1800s (see SECTIONS 3.4.4 THE WHOLE OF REALITY, HOLOGRAPHIC HUMANITY and 3.5 APPLICATION OF THE ESSENCE).

As stated above by Wang et al., the modern orthodox discovery of “immunometabolism” has illustrated that a *universal* dynamic is at play within a huge

diversity of diseases which orthodox medicine previously conceptualized as existing within isolated categories delineated by mechanism of injury (ie: infectious, autoimmune and environmental). This yet again confirms Still's much earlier conclusions of the pragmatic value to be gained by therapeutically focusing on the *cause* of the process of disease, rather than its *originating* mechanism (see SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE).

Along these very same lines, modern orthodox researchers have begun to present findings that suggest that pathology in large part often consists of the *organism's own inappropriate **response** to pathogenic influences*. This is in contradiction to the pre-existing orthodox conception wherein it was held that abnormal effects are primarily *passively **imposed*** upon the organism via pathogenic external influences. As Wang et al. summarize, today's orthodox research has now clearly demonstrated that: "Dysregulation of metabolism and inflammation is a common feature of most of the prevalent modern human diseases" (2019). It is key to notice that Wang et al. choose the term "dysregulation" as being the most appropriate descriptor - given that this term denotes a *disorganization of **normal** processes*, rather than the *presence* of a foreign 'entity' (whether that 'entity' be a pathogen, or a specifically categorized type of non-communicable disease). Still's conclusion that normality is the appropriate point of reference from which to best understand disease processes is now beginning to be echoed in the conclusions of recent groundbreaking orthodox research.

4.7.2. SELF-ORGANIZATION: IMMUNITY AND METABOLISM

As was concluded in SECTION 3.6 APPLICATION OF THE ESSENCE, Still viewed immunity and metabolism as but two different manifestations of a **single underlying force: self-organization**. Still's conclusion that a single upstream source produces both

immunity and metabolism is predictive of the idea that these two processes would then be intrinsically linked within a deep reciprocal influence.

This has now been confirmed in a variety of ways within modern orthodox research, wherein self-organization expresses as both immune and metabolic function. This has been demonstrated to take place even on the microscopic scale of the individual cells of a multicellular lifeform. Take for example a single human macrophage, this being an immune cell-type which alternately participates in both tissue repair (ie: the metabolic processes of growth, regeneration) and defense (ie: immune function such as phagocytosis and pro-inflammatory cytokine secretion). A recent review published out of Harvard University, *Metabolism as a guiding force for immunity*, describes how a single macrophage may alternately participate in both of these functions (Jung, Horng, & Zeng, 2019, p.85). The fact that a single cell may play **both** of these roles, points to the fundamental misconception contained within the canonical orthodox conception of an “immune system” which exists separate from other organismal activities.

It should be noted here that the term “immune system” only emerged in the 1960s (Silverstein, 2009), and as such it is perhaps not surprising that it seems headed towards a fundamental redefinition. In light of recent findings, such as those regarding the dual roles of macrophages, utilization of the orthodox conceptualization of an “immune system” is in some regards misleading. The truth of the situation seems to lie somewhat closer to Still's historical perspective wherein a single force of self-organization manifests as **all** bodily functions, thereby simultaneously producing both growth and defense as directed by this single source of regulation. Or as stated by the Osteopath and

immunologist Tajinder Deeora: “What is the immune system? It is the whole body” (2019b).

Furthermore, to return to the example of a single human macrophage cell, a macrophage's particular mode of action (such as encouraging growth, or alternately participating in defense) has been found to be determined via the metabolic *conditions* within the interstitial environment that the macrophage exists within (Jung et al., 2019, p.85). This again immediately harkens back to Still's emphasis on the state of the 'internal soil' as being the key determining factor in the growth or destruction of any “seeds of disease” that might enter that soil (see SECTION 3.3.8 STILL AND THE TRADITIONAL 'GERM' THEORY OF DISEASE (CORN ANALOGY)). In Still's model of the above, if the fluid-flow (ie: immunometabolism) remains normal, then the “conditions” were never present in which “seeds of disease” could take root, grow and then reproduce.

Since both Still and modern findings seem to be in agreement that metabolism and immunity can be accurately conceptualized as but different sides of the same coin (for Still that coin being *self-organization*), it would follow that in reverse, immune function would also serve to regulate metabolism.

This has also been recently demonstrated to be the case, across all scales of an organism. As Gökhan Hotamisligil, MD, PhD, a leading researcher at Harvard University, describes in a review paper titled *Inflammation, Metainflammation and Immunometabolic Disorders*, immune cells exist and play crucial roles within the normal day-to-day physiology of most, if not all, tissues of the body (2017). Thus so-called 'immune' cells often serve to directly regulate the metabolism of the tissue they exist within, through a

variety of means. This includes beneficial forms of inflammation, or the direct secretion of growth-products which are then circulated within the surrounding tissues (Hotamisligil, 2017).

'Immune' cells also serve this function within those tissues that themselves serve to most directly regulate *systemic* metabolism (ie: such as the endocrine organs) - thus the functions of **local** immune cells within these tissues provide a direct and strong influence on **global** metabolism (Hotamisligil, 2017). Thus when immune function is normal, metabolism is also, yet when immune function becomes dysregulated, so too does metabolism, even on the most global of scales. Hotamisligil thereby states that: "From this perspective, an intriguing way to think about this paradigm would be to envision immune mediators, such as cytokines, as metabolic hormones" (2017, p.177).

4.7.3. METABOLIC MODES OF SELF-PRESERVATION

This all points to the importance of understanding that there is an inexorable correspondence between specific metabolic states and particular physiological processes. "Indeed, this paradigm of coupling a cell's metabolism to its functions..." has been investigated and subsequently proven to exist within many diverse cell-types such as "skeletal muscle, heart, and tissue-specific stem cells" (Ganeshan, 2014, p.625). Therefore, orthodox research is now beginning to point towards the idea that the reciprocal influence between metabolism and cell physiology are a universally generalizable concept that takes place for **all** cells - not only for those that directly participate in immune functions (Jung et al., 2019; Wang et al., 2019).

These findings thus suggest that the metabolic control of immune responses is representative of a much broader paradigm in biology, in

which a cell's identity, function, and destiny are all dictated by its underlying metabolic state. (Ganeshan & Chawla, 2014, p.615)

To paraphrase this, while using Still's terms, a "law of reciprocity" exists between all physiological processes and the *supply* and *demand* of fuel that is necessary to act out these processes. This is in strong agreement with the basic premises underlying Still's conception of growth, development, and repair on all scales - in that Still conceptualized these processes as being dependent on energy distribution and internal conditions as dictated by the circulation of bodily fluids (see SECTION 3.3.13 THE UTERINE PROPERTIES OF THE FASCIA AND "BLOOD SEED").

An article titled *An evolutionary perspective on immunometabolism* applies the lens of evolutionary theory to the study of this correspondence between metabolism and **all** organismal functions (Wang et al., 2019). The authors Wang et al. have conceptualized specific "programs", or 'modes' of correlated function, that are common to **all** species of organisms. Each of these respective "programs" contains a particular set of metabolic, immune, and other physiologic states that must occur in conjunction. As Wang et al. explain it, the reason that these particular "programs" are found in all species of organisms, is that ultimately all species exist as the branches of a common ancestor (2019). Each of the subsequently emergent life-forms have regularly experienced similar environmental conditions wherein either necessary nutrients were lacking, or pathogenic threats were present (Wang et al., 2019). In the face of these challenges, a means of adaptation to increase the chance of self-perpetuation was necessary.

As described by Wang et al., there are two types of "maintenance programs" that an organism can then enact as an adaptation strategy to these various types of

unfavourable environments. The first of these is “dormancy” (hibernation is one example of this). *Dormancy* involves the shift to a decreased metabolic rate, and the switch-over to a **lipid**-based metabolic cycle. This being a metabolic cycle wherein existing internal fat-based energy reserves are transformed into ketones - a cellular fuel that is distinctly different from the glucose that is burnt when **external** food sources have been recently taken in.

Thus dormancy is an evolutionary strategy that prioritizes metabolic *efficiency* in the face of an absence of external sources of energy (Wang et al., 2019). Given the fundamental reciprocity existing within metabolism and physiology, as discussed above, it is perhaps unsurprising as the dramatic shift to a lipid-based metabolic cycle occurs, many other profound physiological shifts occur in tandem. This will be discussed below shortly.

First it is necessary to detail the second type of “maintenance program” identified by Wang et al., this being “defense”. “Defense” is a means of adapting to the presence of pathogens and toxins within the individual organism’s local environment. It is necessary for a “defense program” to be enacted on as **short** a time frame as possible, therefore *efficiency* of energy consumption is not a priority during this state. For this reason, *defense* is associated with a large expenditure of energy, and utilization of that energy which is most easily mobilized. For this reason, *defense* utilizes a **glucose**-based metabolic cycle - as for example is documented in those cells which participate in a pro-inflammatory immune response (Wang et al, 2019; Ganeshan & Chawla, 2019; Jung et al., 2019).

Wang et al. point out that both defense and dormancy modes can be observed to occur simultaneously in the “sickness behaviour” displayed by many animals, wherein the individual becomes socially withdrawn, inactive and anorexic (ie: “dormancy”, with its switch to a lipid-based metabolism utilizing existing reserves), while the organism simultaneously also mounts an immune response (ie: “defense”, an increase in the glucose-based metabolism favoured by immune cells, as required to induce a fever etc).

Of huge relevance to the current discussion is the finding by Wang et al. that the metabolic and physiologic activities that define a “dormancy program” are associated with an *increased capacity for tissue protection* - ie: “disease tolerance” (see SECTION 4.6. DISEASE TOLERANCE MECHANISMS). Thus an organism enacting the “dormancy program” gains a greater resistance to anti-oxidant damage (thereby favouring both a decreased rate of damage and an increased rate of repair), as well as signalling for the down-regulation of inflammatory processes (in part as a means of conserving energy resources). In essence, during “dormancy”, an organism focuses simply on self-preservation, rather than growth and reproduction. Seeing as how immune responses necessitate a huge expenditure of energy, during dormancy immune responses are discouraged.

It is for this reason that purposeful inducement of the “dormant” lipid-based metabolic state, is gaining increasing credence as a physiologically powerful therapeutic intervention. By inducing a metabolically “dormant” state, one may thereby also induce the corresponding physiological modes, which in this case is tissue protective, anti-inflammatory and anti-proliferative (growth). These therapeutic methods are briefly discussed in the following section. While at this time it should again be noted that the

immunometabolic characteristics of “dormancy” correspond closely with those functions attributed to disease tolerance mechanisms, including immunoregulation (see SECTION 4.6.2 IMMUNOREGULATION).

4.7.4. THERAPEUTIC INTERVENTIONS BASED ON A “DORMANT” METABOLISM

The lipid-based metabolic cycle associated with Wang et al.'s “dormancy” is termed *ketosis*, in that the primary fuel of the body during this mode is the burning of “ketone bodies”, which are derived from the breakdown of fat (Weber, Aminazdeh-Gohari, & Kofler, 2018). The state of ketosis can be brought about via an insufficiency or absence of food intake (such as during a period of fasting) or alternately via a so-called “ketogenic diet” wherein the individual's intake of food consists in large part *of* lipids, thereby corraling the body towards the initiation of a lipid-based metabolic cycle (de Cabo & Mattson, 2019; Weber et al., 2018).

In humans, during the absence of food intake, a significant increase in circulating ketone bodies is usually reached within 8 - 12 hours, therefore an extended “fast” is not necessary to experience the metabolic switch from a glucose-based to a ketone-based metabolism (de Cabo & Mattson, 2019). In fact, it is theorized that a ketone-based metabolism was frequently, if not daily experienced by most humans throughout all of evolutionary history, but for the most recent years (de Cabo & Mattson, 2019). This has led prominent modern researchers to conclude that ketosis is a normal and **necessary** physiologic phase that was, and should be, experienced regularly (de Cabo & Mattson, 2019; Buono & Longo, 2019). This would be much the same as the necessary cyclic fluctuation between the active physiological state of wakefulness, and its restorative dualistic partner, sleep.

It appears that historically, the physiology corresponding with a glucose-based metabolic state was regularly balanced via periods of the reparative and resilience-enhancing physiology of ketosis. This evolutionary context is thus replicated within the modern therapeutic regime known as “intermittent fasting”, which consists of regular, intentional shifts into ketosis via a scheduled absence of food intake (de Cabo & Mattson, 2019; Buono & Longo, 2019).

The top paper of December 2019 in the prominent *New England Journal of Medicine* was written by a team of researchers from John Hopkins University School of Medicine, consisting of a review of the literature surrounding the effects of so-called “intermittent fasting” regimens (de Cabo & Mattson). The authors concluded that based on existing findings, it can now be stated that:

...intermittent fasting elicits evolutionarily conserved, adaptive cellular responses that are integrated between and within organs in a manner that improves glucose regulation, increases stress resistance, and suppresses inflammation. During fasting, cells activate pathways that enhance intrinsic defenses against oxidative and metabolic stress and those that remove or repair damaged molecules. (de Cabo & Mattson, 2019, p.2541)

Collectively, the organism responds to intermittent fasting by minimizing anabolic processes (synthesis, growth, and reproduction), favoring maintenance and repair systems, enhancing stress resistance, recycling damaged molecules, stimulating mitochondrial biogenesis, and promoting cell survival, all of which support improvements in health and disease resistance. (de Cabo & Mattson, p.2542)

In another recent review of the same topic, this time within the journal *Cell*, titled *When Fasting Gets Tough, the Tough Immune Cells Get Going - or Die*, the authors summarize how damaged or dysfunctional immune cells are stimulated to die-off during these regular periods of ketosis, thereby serving to decrease and discourage any instances of inflammatory dysregulation (Buono & Longo, 2019). It is via such immunometabolic mechanisms, amongst others, that the authors conclude that intermittent fasting may thus prove to be an effective primary treatment for autoimmune diseases (Buono & Longo, 2019). Yet this was but one of the many benefits and applications identified in this literature review, as well:

Cycles of fasting and re-feeding have been shown to promote hematopoietic stem cell activation [ie: the source within bone marrow of platelets, red blood cells, and white blood cells] and regeneration of immune cells, modulate gut microbiota, ameliorate pathology in various mouse autoimmunity models, and promote the T cell-dependent killing of cancer cells. (Buono & Longo, 2019, p.1039)

It is logical that the metabolic state of ketosis induced by fasting is antithetical to cancer, in that, as described in the section above by Wang et al., ketosis is evolutionarily associated with a “dormant” mode - thereby during “domancy” a global state of physiology exists which opposes the activities of growth and proliferation (2019). These being the exact behaviours that characterize cancer.

In fact, it has been demonstrated that malignant cells generally prefer a glucose-based metabolism and the associated physiological conditions, while on the other hand malignancies are disadvantaged and maladaptive to the immunometabolic environment that corresponds with ketosis (de Cabo & Mattson, 2019; Buono & Longo, 2019; Weber

et al., 2018). This has led the above review to conclude that: "...intermittent fasting may provide protection against cancer while bolstering the stress resistance of normal cells" (de Cabo & Mattson, 2019, p.2546).

Yet given that many cancer patients cannot afford to lose body-weight (this being an effect of some types of intermittent-fasting regimens), an alternate or even additional method of inducing ketosis is available, namely eating a diet composed primarily of lipids, in ratio to much smaller intake of carbohydrates and protein (Weber et al., 2018). This strategy, the so-called "ketogenic diet", has also demonstrated significant success in producing an internal environment that is strongly unfavourable to the growth and spread of many cancer types (Weber et al., 2018).

The chemist Otto Warburg, PhD, MD, who in 1931 was awarded the Nobel Prize in Physiology for his discovery of the enzyme which transfers oxygen during cellular respiration, went on later in his career to propose a theory of cancer wherein he describes its pathological mechanism as consisting primarily of a dysregulation of cellular metabolism (Brand, 2010). Using terminology and concepts very reminiscent of Still's own discussions of the generation and growth of "stale life" via "fermentation" (see for example Still, 1899b, p.133-5; 1908c, p.144-5), during a 1966 lecture to other Nobel Laureates Warburg stated that:

Cancer, above all other diseases, has countless secondary causes. But, even for cancer, there is only one prime cause. Summarized in a few words, the prime cause of cancer is the replacement of the respiration of oxygen in normal body cells by a fermentation of sugar. All normal body cells meet their energy needs by respiration of oxygen, whereas cancer cells meet their energy needs in great part by fermentation. (Warburg, 1969)

Warburg's so-called 'metabolic theory of cancer' is currently experiencing a resurgence within the "functional" and "integrative" medical communities (see for example Christofferson, 2017; Know, 2018).

The capacity for the ketogenic diet to stabilize and protect the nervous systems of children with treatment-resistant epileptic seizures has been recognized and utilized within orthodox medicine since the 1920s, and even today continues to be used as an effective treatment for in these cases (Lefevre & Aronson, 2000; Peterman, 1925). These effects can now be understood as being the result of the stabilizing, protective, and regulatory-enhancing physiology that is associated with and brought on by the "dormant" metabolism of ketosis (Wang et al., 2019).

The results of investigation into intermittent fasting and ketogenic diet serves to illustrate the well-established and profound power that therapeutic interventions which target immunometabolism hold. These strategies are a means to optimizing physiology in general, and immune function in particular. Both long-established and recent findings therefore strongly suggest the theoretical validity of immunometabolic intervention into many other, or perhaps even all, pathological processes. To use Still's words this would indicate the existence of a "universal law". In many ways Still's "Osteopathy" was an immunometabolic strategy (see SECTION 3.6.7 IMMUNITY AND FLUID FLOW).

4.8. DISEASE AS PROCESS RECOGNIZED

In Still's osteopathic conception of immunity, disease was seen as a loss of the capacity to appropriately self-organize. Self-organization was the source of self-regulation including both defense, growth and repair. Thus when self-organizational

capacity decreased for any reason, dysregulation of all types increased exponentially (see SECTION 3.4 A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY).

The preceding sections described the modern orthodox understanding of these same topics: the role of disease tolerance mechanisms to provide *immunoregulation*, as well as how a “law of reciprocity” has been demonstrated to exist between metabolism and immunity - this interrelationship now being termed *immunometabolism*. These modern findings have been identified as being of huge therapeutic significance:

The prediction is that immunoregulatory mechanisms will modulate stress and damage responses and hence tissue damage control and disease tolerance. It is expected that these endeavors will enable further understanding of host-pathogen interactions and the rational targeting of disease tolerance mechanisms in the treatment of infectious diseases. (Soares et al., 2014, p.488)

Whereas regulation of metabolism supports immune cell activities in physiological settings, dysregulated immunometabolism contributes to pathophysiology. (Jung et al., 2019, p.90)

Thus it seems that Still's previously described conceptions of both disease and immunity are not only theoretically viable in light of modern research findings, but that Still's conclusions are in fact exceedingly close to the **very strategies** that many orthodox medical researchers are now themselves suggesting be explored:

[The authors predict and hope to contribute to the] ...emergence of potential therapeutic interventions targeting immunometabolism. (Jung et al., 2019, p.91)

As such, it suggests that interference with or augmentation of certain metabolic programs might be clinically useful in dampening pathogenic autoimmunity or chronic inflammation in a diverse group of metabolic and degenerative diseases. (Ganeshan & Chawla, 2014, p.624)

The theme linking the variety of recent findings that were discussed within the preceding sections are summarized by Soares et al.:

The common outcome of stress responses is metabolic adaptation, which enables the maintenance of cellular, tissue, and organ function under different forms of stress. (2014, p.485)

As Soares et al. describe above, any stress requires an adaption. Any adaptation constitutes a shift in physiology. A shift in physiology requires a shift in the fuel used to drive that process, ie: a shift in metabolism.

To take this one step further, as Still did, it therefore logically follows that any shift in metabolism would require a corresponding shift in **fluid flow** - given that ***fluid is the primary means of energy transport within all known species*** (West, Brown, & Enquist, 1997). Therefore, if a manual osteopathic intervention can result in an increased appropriateness of fluid flow, this would logically enable better adaptation of all types - or described in other words: an enhanced capacity for *self-organization*. In essence, normalizing the regulation of fluid flow would allow an individual *life* to be more effectively perpetuated through time, in the face of any type of stress.

The ability of osteopathic manual intervention to enhance circulatory adaptation was tested in an interesting study undertaken by a group of American osteopathic physicians in 2005. Coronary bypass surgery patients were manually treated two hours or less after their surgical procedure. The resulting measurements, as compared against

patients who did not receive the adjunctive manual treatment, demonstrated a significant benefit in oxygen saturation, peripheral circulation, and cardiac index - all of this while the patient remained both “sedated and pharmacologically paralyzed” (O-Yurvati et al., 2005, p.475). This thereby also likely excludes any contribution to these results via the placebo effect (Institute of Classical Osteopathy, 2015a).

Thus if the capacity to appropriately regulate fluid flow can be enhanced via manual intervention, it follows that metabolic adaptation would also be enhanced by this intervention. Which in short is to say all physiological processes would be enhanced to one degree or another - importantly including the production and regulation of inflammation - this being a central factor in all diseases, of any origin, as earlier discussed (see SECTION 4.6.2 IMMUNOREGULATION).

It is becoming clear that Still demonstrated a great prescience when he perceived and synthesized a conception of disease as a *process*, and a conception of immunity as being comprised of the capacity for *self-organization*. Especially in Still's identification of fluid flow in particular as being the gross physical representation of metabolism. Today's orthodox researchers are only now “beginning to understand” the perspective wherein disease is understood to be a multifactorial *process*, rather than the simple presence or absence of a pathological ‘entity’ (Ayres & Schneider, 2012, p.271). These orthodox researchers themselves describe their understanding of this new paradigm as being “in its infancy” (Ayres & Schneider, 2012, p.271).

Furthermore, as detailed in the above review papers regarding both disease tolerance mechanisms and immunometabolism, modern orthodox researchers have as of yet no means of therapeutically **applying** these new concepts:

Metabolic and inflammatory disorders, such as diabetes, obesity, sepsis, and autoimmune and autoinflammatory diseases, are increasing at alarming rates, with little progress made toward mitigating mortality and morbidity despite substantial technological advancements. The evolutionary perspective on immunity and metabolism may provide a useful framework within which to understand the biology underlying these diseases. (Wang et al., 2019)

Outside of intermittent fasting and ketogenic diet regimens, all of the above discussed orthodox researchers state that with time and study they hope to understand and interact with disease tolerance mechanisms and immunometabolism on the level of genetics and molecular biochemistry. Yet as the immunologists Ayres and Schneider also note: "...tolerance can be caused by a myriad of mechanisms; tolerance is a concept that is not tied to one particular physiological mechanism" (2012, p.273). Thus there is no particular scale at which these phenomena must be engaged with, rather, pragmatically, it would seem that the *most easily accessible* level at which they could be accessed would be the most appropriate level at which to engage with these findings. Still chose the biomechanical, the humanly palpable (see SECTION 3.5.5 LOSS OF TRANSMISSION).

Thus, the results of this thesis indicate that by the late 1800s, Still had accurately innovated not only a highly prescient unorthodox *conception* of these topics, but even more impressively, Still had also generated an effective means of *applying* them - he called this "Osteopathy".

Described using today's terminology, Still's methods were an effective means of enhancing "disease tolerance mechanisms", thereby providing both enhanced tissue protection and appropriate immunoregulation. This served to decrease the risk of any

exponential cascade of dysregulation, such as seen for example in a “cytokine storm”.

Still's manual interventions were strongly informed by a recognition of the existence of immunometabolism, and the potent therapeutic potential it holds.

It is significant that it is via a **regulation** of immune action that much of this benefit takes place. This points to the fact that if individual *life*, as defined by Still, consists of a region of *self-organized coherence of motion*, then on the other hand, disease must consist of the *loss of the regulation* that brings about that coherence. This then pragmatically provides a nuanced perspective from which all disease conditions may be strategically prevented and treated.

Importantly, this also includes infectious disease. A definition of infectious disease based on *process* rather than the simple binary presence or absence of a pathogen, is only beginning to emerge within orthodox medical research - it is the cutting-edge understanding being compiled within diverse fields of study. Yet already so long ago, Still had not only richly explicated this perspective, he had also **refined and clinically tested interventions based upon it**. Given this, while it is interesting and useful to more deeply understand Still's conception of immunity through the use of today's research findings, it also points to the fact that today's osteopathic community must not rely on “evidence-based” practices **alone** - unless they wish to wait another one hundred and forty-four years for the emergence of the validation of the methods they currently employ.

The above sections were an attempt to enhance an understanding of Still's conception of immunity and his conception of disease by contrasting them with the

perspective and discoveries of modern research. The following sections investigate *how* and *why* Osteopathy achieves these results.

4.9. THE THERAPEUTIC SIGNIFICANCE OF MICROCIRCULATORY FLOW

4.9.1. OSTEOPATHIC MANUAL TREATMENT OF INFECTIOUS DISEASE: HOW?

As has been discussed up to this point, for pragmatic purposes, infectious disease is not accurately defined as the presence or absence of a particular pathogen. Rather, from the viewpoint displayed within A.T. Still's conception of immunity, infectious disease is a process that a particular pathogen may be the initial *originator* of, or in the later stages, a key *participant* in. Yet from Still's pragmatic viewpoint, the pathogen is only a single element within a much more complex scenario wherein many other central elements also interact in the process of disease.

From the first emergence of germ theory within Still's lifetime, up into the modern era, the tendency within orthodox medicine has been to focus on the presence or absence of the pathogen associated with a particular infectious disease (usually to the exclusion of all other elements) (see SECTIONS 3.3.8 STILL AND THE TRADITIONAL 'GERM' THEORY OF DISEASE (CORN ANALOGY) and SECTION 3.3.9 STILL'S OPINION OF THE BACTERIAL REVOLUTION AND ITS 'GERM THEORY' OF DISEASE, also see Ayres & Schneider, 2012; Pelling, 2013; Soares et al., 2014).

Still's Osteopathy on the other hand, chose to concentrate on the dynamics that take place *between* the variety of relevant elements reciprocally interacting during an infectious disease process. Still's chosen medical intervention therefore took the form of **literal** manipulation of the relevant elements and the dynamics **between** these elements, rather than focusing on the isolated presence or absence of a pathogen. By manipulating

the dynamics *between* these relevant elements, including with the dynamics between other elements and the pathogen, an Osteopath might thereby directly or indirectly influence *all* of the relevant elements and dynamics present within an infectious disease process – thereby including the presence of the pathogen. This is despite the fact that in some cases the pathogen may never explicitly be the focus of any stage of the osteopathic manual intervention. It is this strategy that explains Osteopathy's success in manually treating infectious diseases despite a lack of direct focus on addressing pathogen levels, or in Still's case, an often outright denial of the relevance or even *existence of* a pathogen (see SECTION 3.3 A.T. STILL'S CONCEPTION OF DISEASE).

Yet what are some of these other relevant elements and what dynamics take place between them during an infectious disease process?

4.9.2. MICROCIRCULATORY COMPARTMENTALIZATION

Mervyn Waldman, DO, is one of today's few manual Osteopaths to work in an orthodox hospital setting, treating a variety of both acute and chronic conditions (Institute of Classical Osteopathy, 2015a, 2020; SacralMusings, 2012). Waldman also has a short and strong lineage back to A.T. Still through Still's important and close student John Martin Littlejohn (Still - J.M. Littlejohn - John Wernham - Waldman). When describing osteopathic treatment of acute infectious processes within the lungs, Waldman emphasizes that:

One of the most important things you can do in your treatment is try to draw the deep hyperemia in the pulmonary field, that surrounds the inflammation and the infection, to the surface to get an exchange of deep and superficial circulation, to get a rapid blood flow - a fresh arterial blood flow through the lung field if you can, and to keep it going for a few hours to see you through the peak of the infection. (SacralMusings, 2012)

Waldman suggests that the T1-4 spinal segments are especially important in this regard (2012). As Waldman presents it, his clinical prerogative is to ensure that this circulatory exchange remains normal over time. Thus Waldman's intervention functions as a means of repeatedly interrupting the momentum of the disease process, thereby circumventing its exponential increase in both intensity and location. It is for this reason that Waldman advocates that treatment be repeated as often as necessary to maintain this state of normal circulation - he describes this as commonly being in the range of every few hours during most acute illnesses (SacralMusings, 2012).

This approach is echoed by one of the giants of early Osteopathy, Carl McConnell, who wrote regarding infectious disease in general that:

It is important, if possible, to locate the point of invasion and fortify the locality with as normal a circulation as can be secured. ... In fact, it is this very definiteness, the principle of which we are all agreed upon, that is so essential to attain, and still so often neglected. Right here, if seen in time, is the first opportunity of aborting the disorder, before systemic involvement, or comparatively little has taken place. The obtaining of local tissue resistance is the key. (as quoted in Smith, 1920, p.174)

The validity of this emphasis on restoring normality of highly specific circulatory fields is also reflected in contemporary findings within orthodox medical research, as presented by Tisoncik et al. in their review of the cytokine storm literature (2012). Tisonik et al. detail how modern researchers have only recently realized that for many years they had been studying the phenomenon of systemic inflammatory cascades via the taking of **peripheral** blood samples, whereas the truly relevant dynamics and data may in actuality be strongly "compartmentalized" deep within highly specific tissue regions

(2012). Tisoncik et al. go on to describe how modern investigation has made it apparent that in the *earlier* stages of a cytokine storm, there is often only a **localized** area of infection / inflammatory reaction, that nonetheless serves to release excessive concentrations of inflammatory agents into the rest of the body via the systemic fluid circulation, thereby eventually inducing a dysregulated inflammatory cascade in **all** bodily tissues (2012). Tisoncik et al. state that:

...it is probable that it is the immunological cascade that takes place directly in the deep tissues that is crucial to immunopathology rather than what can be measured as a “spillover” in the peripheral blood. **It is important to also consider the compartmentalization of tissue-specific microenvironments.** ... Similar compartmentalization is likely to be important in infections of the central nervous system (i.e., bacterial and tuberculous meningitis, encephalitis, and fungal infections) and perhaps in more subtle ways in infections such as dengue, in which the clinical syndrome is dominated by capillary permeability and plasma leakage. [emphasis added] (2012, p.19)

In Soares et al.'s review of disease tolerance mechanisms, they describe one of the mechanisms by which this takes place:

Systemic spreading of pathogens is countered by an immediate host response characterized by the activation of the clotting cascade... . One of the ‘trade-offs’ of this defense strategy is local deregulation of microvascular circulation, eventually leading to hypoxia, which depending upon the tissue can have more or less severe pathologic consequences. (2014, p.485)

This all yet again speaks to Still's central focus on the possibility for an area of localized fluid “stagnation” to eventually distribute this pathological influence to the

whole patient via the functional unity of systemic circulation (see SECTION 3.5.6 IMPLICATIONS OF DISEASE AS PROCESS). One of many possible examples would be Still's description of how: "Pneumonia begins by its oedematous accumulations of dead atoms, even to the death of the whole body, all having found a start in atoms only" (1899b, p.200). Many other examples of Still's concept in this regard were discussed in detail earlier in SECTION 3.5.6 IMPLICATIONS OF DISEASE AS PROCESS (see also Still's apple analogy in SECTION 3.3.2 "CONTAGION").

Still described this same pathological 'compartmentalization' process during one of his in-depth discussions of lung diseases (as analyzed earlier at the conclusion of SECTION 3.6.3 RATIO AS HARMONY). In this particular example, Still described how once an abnormal ratio of *inflow* versus *outflow* is present within a patient's lung-tissue, this results in an accumulation of excess fluid, or edema, within the "fascial" *collection space*. The resulting fluid pressure of this edema eventually becomes so extreme as to impinge the nerves and vasculature contained within the swollen "fascia". As Still put it, the "nerves of the fascia become powerless by surrounding pressure" (1902f, p.63). Over a century later, Tisoncik et al. echo this exact same function-structural pathological from the modern orthodox perspective:

Inflammation associated with a cytokine storm begins at a local site and spreads throughout the body via the systemic circulation. Rubor (redness), tumor (swelling or edema), calor (heat), dolor (pain), and "functio laesa" (loss of function) are the hallmarks of acute inflammation. ... These responses often occur at the expense of local organ function, particularly when tissue edema causes a rise in extravascular pressures and [thereby] a reduction in tissue perfusion. (2012, p.19)

Still's pragmatic intervention into the above scenario was to restore the patient's ability to once again normally *sense what level of drainage was appropriate*, thereby allowing the edema to be immediately self-regulated. It is crucial to note that Still's intervention does not enforce a specific outcome or state onto the system, but rather facilitates a renewed capacity for the patient as a whole to *self-regulate* and *self-adjust*, as needed, in on an ongoing basis. This is then another instance of Still's emphasis on the restoration of a *normality of autonomy*. Still saw the reinstatement and enhancement of the capacity for self-organization as the single overarching goal to be achieved by **any** appropriate medical intervention (see SECTION 3.6 APPLICATION OF THE ESSENCE).

4.9.3. PATHOGEN INTENT AND MALIGNANCY STRATEGY

It is highly relevant to contextualize the above discussion of the dysregulated fluid dynamics that characterize infectious diseases within further modern orthodox research. This research has now come to recognize that many pathogens directly and purposefully manipulate the immune responses of their host. It is important to note that the 1918 influenza virus has been identified as one of the pathogens to utilize this strategy (Kobasa et al., 2007). A review paper regarding the purposeful dysregulation of host immune responses of by pathogens explains that:

Infectious pathogens have spent a very long time developing mechanisms allowing the establishment of a close interaction with the cells and tissues of the host they infect and, at the same time, allowing the evasion from immune effectors that may impair their fitness. Evasion from the adaptive immune system involves various mechanisms, including escape from immune recognition, or the induction of immunosuppression, in a way and to an extent that will avoid destruction of the host before the pathogen has reproduced and propagated into another host. (Ameisen, Estaquier, & Idziorek, 1994, p.10)

Crucial to the current research is the fact that when a pathogen manipulates its host this often *includes strategic manipulation of vascular permeability*. This is one of a pathogen's primary strategic means of dysregulating a host's defenses (Ameisen, Estaquier, & Idziorek, 1994; see also Buhner 2012, 2013a, 2013b, 2015). An example of this was detailed above by Tisconcik et al. in regards to the "capillary permeability and plasma leakage" that characterizes dengue fever. This is to say that when pathogens strategically disable the immune defenses of their host, this goal is often accomplished via a *disruption of the normal ratio of inflow versus outflow of fluid* within the host's tissue that the pathogen has come to occupy.

This modern discovery coincides **exactly** with Still's description of pathogen intent. In one of many possible examples of this, Still described "Mr. Measels" as purposefully disrupting the ratio of *inflow* versus *outflow* within the lungs of the patient, as a means of barricading itself away from the patient's inherent defensive mechanisms (1898d, p.104). Even more revealing is that Still directly identified the host's defensive capacities as being dependent upon normal fluid flow. Still then further explicated how enacting this strategy provides "Mr. Measles" with the *conditions* (i.e.: stagnant fluids) inside of which the pathogen can then safely flourish - all the while also extending these same stagnant conditions to rest of the body, thereby clearing the way for exponential gains in the pathogen's domain (1898d, p.104; see also the previous discussion in SECTION 3.5.7 PATHOGEN INTENT AND MECHANISM OF ACTION).

This very same scenario has also been identified to occur in many types of cancer. A malignant tumor alters its local circulatory microenvironment, not only as a strategy to cultivate the metabolic environment it prefers, but also as a direct means of disabling the

systemic immune function that is seeking to destroy the tumor (Jung et al., 2019). Thus if the tumor can effectively **dictate** the metabolic (i.e.: circulatory) environment which surrounds it, it can also thereby decide the mode and activity level of the immune cells that enter that microenvironment (due to immunometabolism).

In one example of this, a tumor may create a metabolic environment surrounding it that stimulates macrophages to *secrete growth products in relation to the tumor* (thereby encouraging further angiogenesis or even metastasis of the malignancy), rather than the normal metabolic environment which would instead guide the very same macrophages to directly antagonize the tumor (Jung et al., 2019).

In another variation of this same strategy, a tumor may simply preferentially consume all of the glucose in its immediate surroundings, thereby resulting in a situation in which any cancer-killing T-cells sent to destroy the tumor will have no available fuel with which to act out their function once they come into proximity of the tumor (Ganeshan & Chawla, 2014; Jung et al., 2019). Still understood and discussed some of these same mechanisms, albeit using the terminology of his earlier era. For Still, fluid flow was a directly palpable representation of both metabolism and the building blocks of growth carried by it, as was discussed in detail in SECTION 3.3.13 THE UTERINE PROPERTIES OF THE FASCIA AND “BLOOD SEED”.

4.9.4. INFLAMMATION AND LYMPHATICS

Compartmentalized microcirculation has been found to be highly relevant in all scenarios involving inflammation, not only in relation to infectious diseases and cancer. Modern findings have revealed that the process of inflammation can itself be understood to **consist of** a change in the rates and ratio of *inflow* and *outflow*. For example, see the discussion by Willard and Ettlinger in *Foundations for Osteopathic Medicine* 3rd ed.,

wherein they once again detail how the transition to an inflammatory state within tissue involves the shift of fluid *out* of the vasculature (blood) and *into* the interstitial space (2011). This results in blood within the vessels having a thicker composition, while a corresponding overabundance of fluid is located within the extracellular space (Ettlinger & Willard, 2011). Using the earlier presented schema, this would be described as an excess of *content* in the *collection space*.

Willard and Ettlinger go on to detail how injured or infected tissue can only recover once the inflammatory process has transitioned through all its phases, thus once again allowing the microcirculatory environment to normalize:

Fibroblasts, which lay down the matrix of the scar tissue, are stimulated by the inflammatory exudate, as well as several complementary factors and cytokines. As the balance between proinflammatory and profibroblast forces shifts, the inflammatory process shifts to the healing phase. By continually clearing the interstitium of exudate, including inflammatory mediators [such as cytokines], the lymphatics can allow this shift to occur more rapidly and smoothly. **Should proinflammatory mediators [such as cytokines] remain in the interstitium, acute inflammation will persist, and healing will be delayed.** [emphasis added] (2011, p.192)

The orthodox researchers Ganeshan and Chawla reiterate this same scenario in specific relation to infectious disease:

After initiation of their microbicidal respiratory burst, neutrophils rapidly undergo apoptosis The timely clearance of these dying cells is critical, because in its absence inflammation can be perpetuated, resulting in unnecessary tissue damage. (2014, p.615)

The above authors are directly describing the means by which a “cytokine storm” may be first initiated and then exponentially perpetuated. It follows that it is then theoretically possible for the exponentiality of such a “storm” to be interrupted via manual osteopathic intervention - if it could be shown that such an intervention allowed for an increase in the *outflow* of interstitial fluid via optimized rates of lymphatic and venous drainage. This would be the case given that if proinflammatory mediators are removed from the tissue with appropriate timing, which is to say, if the ratio and rates of *inflow* versus *outflow* are appropriate, an exponential cascade of abnormality cannot be perpetuated, or even initiated. This would then be an instance of the previously discussed osteopathic enhancement of “disease tolerance mechanisms” (see SECTION 4.6 DISEASE TOLERANCE MECHANISMS).

Support for the above proposed model of osteopathic intervention into a cytokine storm can be found in the work of Hodge et al.. This team based out of the University of North Texas have demonstrated that exceedingly simple osteopathic manual interventions such as abdominal and thoracic lymphatic pumping techniques can bring about a dramatic increase in lymphatic flow rate, as well as changes in the composition of the lymph that is thereby drained (Hodge et al. 2007, 2010, 2011, 2012).

Willard and Ettlinger go on to discuss how during the onset of the altered fluid dynamics accompanying inflammation, it is not only fluid that is carried in excess into the interstitial space, but also what that fluid contains within it - proteins and other substances (2011). This has consequences, given that: “Plasma proteins, when trapped in the interstitium, attract monocytes” (Ettlinger & Willard, 2011, p.192). Monocytes are another cell-type that participates in immune function, including inflammation (Ettlinger

& Willard, 2011). When during inflammation excess plasma proteins are carried into the extracellular space via the altered vascular permeability, the monocytes themselves utilize further inflammation as well as phagocytosis as a mechanism to break down these large proteins so that they may be more easily transported out of the tissues via the lymphatic vessels.

This yet again coincides **exactly** with Still's descriptions of the process by which the body breaks down any sort of waste-product too large to pass through the vasculature (1899b, p.83-4). Still described a process of literal internal *combustion* (referred to by Still as "inflammation"), serving to break down these large trapped particles, so that they might then be passed through the available diameter of the draining vasculature. Still posited that this is the only means of exiting these particles from the tissues, other than forcing them to rise to the surface and break out of the surface of the skin.

Still provided an analogy of this process. Just the same as when particles are broken down in the tissue by inflammation so that they may then be the suitable diameter to exit via the vasculature, when instead one burns a solid object, it can thereby act as a means of transforming that solid object into smoke that is then capable of passing down the diameter of the pipe (Still, 1899b, p.83-4; see also the earlier discussion in SECTION 3.3.6 LIEBIG AND THE SHIFTING BORDER BETWEEN THE REALMS OF THE 'LIVING' AND 'NON-LIVING'). This again displays Still's amazing prescience of the microscopic and biochemical processes that have only been recently described and understood in modern orthodox terms. Lack of modern terminology did not limit Still's pragmatic understanding of these processes:

The blackened eye of the pugilist [boxer] soon fires up its furnaces and proceeds to generate gas from the dead blood that surrounds the eye.

Though it may be considerable quantities under the skin, the blood soon disappears leaving the face and eye normal to all appearances. No pus has formed, nor deposit left, fever [a term synonymous with “inflammation” at that time] disappears, the eye is well. What better effort could nature offer than through its gas generating furnace. (Still, 1899b, p.83-4)

...we find water to be much thicker as an element than either gas or steam. Then we have lymph as another element, albumen, fibrin, with all the elements found in arterial and venous blood, all of which forces required to circulate, pass through and out of the system, must be increased to suit. Therefore we are brought to this conclusion, that the different degrees of temperature [of fever, inflammation] do mark the density of the fluids with which the motor engine has to contend. (1899b, p.177-8)

Still's prescience only goes deeper, when taken in the context of the modern understanding of inflammatory processes. These processes are again described by Willard and Ettlinger:

Vasodilation and increased capillary permeability occur early in the inflammatory process, and together are responsible for the tremendous influx of fluid and plasma protein into the interstitium of the inflamed tissue. This leaves a preponderance of red blood cells in the intravascular space, greatly increasing its viscosity... The lymphatic system, therefore, becomes responsible for virtually all fluid drainage from inflamed tissues. The rate of blood supply, and the delivery of antibodies, centrally produced mediators, medications, and the oxygen and nutrients necessary to fuel cellular activities will be limited, or even determined, by the rate of lymph flow.

Normal venous drainage will be restored when the capillary permeability returns to normal and the osmotic gradient between the

interstitium and the vascular system permits sufficient fluid return to reduce the viscosity of the capillary blood. (2011, p.191).

Willard and Ettlinger then go on to reference a histology text by Pawlina (2016, p.463-4), which describes how during this inflammatory state, the osmotic-imbalance of the lymphatic versus vascular systems is normalized *via an exchange of fluid between these distinct systems **within their meeting place: inside of the lymph nodes***. This is the case as a lymph node is a junction between these three fluid channels (arterial, venous, lymphatic) thus providing a means of interaction (Ettlinger & Willard, 2011, p.194; Pawlina, 2016, p.463-4; see also Adair, Moffatt, Paulsen, 1982). Within the intersection of the lymph node, any excess fluid content held in the lymph is then osmotically transferred over to the arterial and venous blood (or vice-versa). By this means the balance is regained of each fluid-type unto itself and in relation to the others.

During the above-described imbalances that typify inflammation, if within the lymph node the lymph can appropriately rehydrate the blood, the downstream osmotic gradient at the localized site of inflammation will also be balanced - thereby preventing any pathological perpetuation of the inflammatory cycle (Ettlinger & Willard, 2011). Yet the lymph must be flowing *from* the inflamed area, and *into* the node at a sufficient rate to provide adequate fluid transfer if the blood is to be rehydrated before it enters and 'quenches' the inflamed tissue.

This process of osmotic lymph-node fluid-exchange was unfamiliar to this author and perhaps is uncommon knowledge even among those highly literate in the intricacies of physiology, for example the American osteopathic physician R. Paul Lee, who was also rather shocked to learn this information from Willard (Lee, 2018). Nonetheless, this

intricate concept was once again not only distinctly described by Still, and also identified by Still as being of significant therapeutic relevance, he wrote:

...the venous system with its great company of lymphatics, which supplies the water of life, used to reduce the too heavily thickened blood of the veins, as it approaches the heart on its journey... (1899b, p.163)

Is it not reasonable to suppose ... they [“the lymphatics”] accumulate and pass water through the whole secretory and excretory systems of the body, in order to reduce nourishment to that degree from thick to thin, that it may easily pass through all tubes, ducts and vessels interested in distribution, as nourishment first, and renovation second, through the excretory ducts. (1899b, p.107)

In the sky we have rain clouds, in the body lying alongside the veins are the lymphatics which prepare water and pass it into the veins thinning the crop of blood. [i.e.: this is predictable given the holographic nature of reality on all scales] (1895b, p. 6)

Still also invoked the above understanding of the key role the lymphatics thereby play in managing and resolving inflammatory cascades, when he wrote that:

With this fountain of life-saving water, provided by nature to wash away impurities as they accumulate in our bodies, would it not be great stupidity in us to see a human being burn to death by the fires of fever, or die from asphyxia, by allowing bad or dead lymph, albumen or any substance to load down the powers of nature to keep the blood washed to normal purity? (1899b, p.108)

The accuracy of Still's historical conceptualization is also displayed in his understanding of the role of the lymphatic system in regards to abnormal growth. As was

discussed above, the lymphatic system is responsible for removing proteins from the interstitial space. Thus when the flow of lymphatic drainage out of a tissue is insufficient over an extended period of time, an accumulation of these proteins occurs within the interstitial space of the tissue. When this state continues chronically, the fibrosis and hardening of tissues that characterize advanced lymphedema is thereby brought about (Ly, Kataru, & Mehrara, 2017). This pathological process has now also been identified as an exponential cascade involving immune function:

If collateral lymphatics are unable to compensate for the initial lymphatic injury, the resultant persistence of fluid accumulation in the interstitial space contributes to an ongoing [degenerative] positive feedback loop of inflammation that ultimately leads to the pathologic changes of lymphedema. Continued remodeling of the extracellular matrix alters soft-tissue compliance and decreases lymphatic function, eventually leading to the obliteration of lymphatic vessels, as seen in advanced stages of the disease. (Ly, Kataru, & Mehrara, 2017, p.6)

This is exactly the mechanism of abnormal growth, via an insufficiency of *outflow* repeatedly emphasized by Still (see SECTIONS 3.3.13 THE UTERINE PROPERTIES OF THE FASCIA AND “BLOOD SEED” and 3.6.5 STILL’S TREATMENT FOR CANCER AND OTHER FORMS OF ABNORMAL GROWTH). Willard and Ettlinger point to research indicating that fibrotic accumulation via insufficient lymphatic drainage may be a key feature of many prevalent disease processes:

Progressive interstitial fibrosis is a characteristic of chronic lymphedema. The pattern and time course of the fibrosis produced by experimental lymphedema is strikingly similar to a variety of diseases, including cirrhosis, interstitial lung diseases such as silicosis, regional ileitis, and even atherosclerosis. Each of these diseases involves repeated

inflammatory events with a progressive build-up of protein rich tissue fluid, influx of leukocytes, release of proinflammatory cytokines, and fibroblast stimulation, eventually leading to fibrosis. (2011, p.193)

4.9.5. BACK TO THE FUTURE II

Thus all of the above modern concepts regarding biochemical, microcirculatory and immune functionality all fall under the umbrella of Still's ceaseless emphasis that the *process* of disease consists of a loss of normal capacity to act out appropriate self-organization. Still centrally conveyed that this would then result in a loss of normal regulation, especially in regards to abnormalities of the ratio of *inflow* versus *outflow* of fluids, on all scales. Still focused on the most pragmatically relevant repercussions of this taking place within the *collection space* of the "cellular system of the fascia / lymphatics", or as this would be termed today, the extracellular or interstitial space (see SECTIONS 3.3.13 THE UTERINE PROPERTIES OF THE FASCIA AND "BLOOD SEED", and SECTION 3.6.4 "FASCIA", "LYMPHATICS", AND THE "CELLULAR SYSTEM").

The above modern research also confirms Still's foundational and repeated emphasis that *intensification of disease processes are crucially dependent upon bodily fluids remaining "stagnant"* (i.e.: in a deficient and/or imbalanced rate of exchange). Still termed this process "fermentation" and referenced it as a cornerstone of his conception of all processes of disease (see SECTION 3.3.4 "FERMENTATION"). This matches well with the central role inflammation plays in dysregulation of normal fluid dynamics. As demonstrated above, this has been modernly identified as a primary factor in all disease processes. Thus Still's assertion that the restoration of appropriate fluid flow would

constitute a logical treatment for both infectious and non-communicable diseases appears, in light of these modern research findings, as neither outlandish nor outdated.

4.10. DOSAGE AND FREQUENCY

4.10.1. HIGH-FREQUENCY, LOW-DURATION

One of the crucial findings of the current research has been an illumination of the central role that frequency and duration of treatment played within historical manual osteopathic intervention into acute disease processes. As was noted in SECTIONS 3.5.5 LOSS OF TRANSMISSION, and 4.4 SEVERITY OF CONDITION DETERMINES THE DURATION AND FREQUENCY OF TREATMENT, this understanding and methodology has largely *not* been carried forward into today's osteopathic training or practice.

Surprisingly, the current research has also demonstrated that historical osteopathic methods employed during these high-frequency, low-duration treatments of acute disease were often exceedingly simple, gentle approaches, that primarily incorporated the relaxation of any hypertonicity in the patient's paraspinal musculature (see again SECTION 4.4 SEVERITY OF CONDITION DETERMINES THE DURATION AND FREQUENCY OF TREATMENT). A further inquiry as to why the application of such methods would constitute an effective intervention are now discussed below.

4.10.2. LOW-DURATION, LOW-INTENSITY

As has emerged repeatedly in the findings of the current research, disease may be accurately described as a *process*, characterized by the exponential loss of normality in structure and function. Thus it only follows that ideally, barring the opportunity for prevention, intervention into a disease process should occur as **early** as possible - given that there is then less 'momentum' built up within the pathological cascade of

abnormality, and therefore less damage has occurred to the patient's tissues and less of the patient's finite resources have been depleted in defense, adaptation and regeneration.

In the case of an infectious disease, effective **early** intervention also results in a decrease in the otherwise exponential reproduction of pathogens within the patient. Regarding these summaries see SECTIONS 3.5.8 TREATMENT and 4.6 DISEASE TOLERANCE

MECHANISMS. All of these concepts were already summarized by M.A. Lane in 1918 when he stated that:

In other words, it is easier to repel the small advance of an invading army than it is to save the country after a horde of the enemy have ravaged and sacked it and killed half the population. (p.204)

It is for this reason that historically, Osteopaths strongly emphasized the need for a high frequency of treatment at the earliest possible outset of an illness. For example, commenting on treatment of patients suffering with the 1918 "Spanish" flu, Carl McConnell wrote:

In my experience much depends upon promptness and thoroughness of the treatment prosecuted within the first twenty-four hours. ... Two or three thorough early treatments will certainly prove very effective. (1918, p.83)

In the same article, McConnell then goes on to caution against treatment that is inappropriately intense or drawn-out:

...care has to be taken that it is correctly and carefully performed. Rough and prolonged treatment is strictly contraindicated. Prostration is one of the outstanding clinical features, and if great care is not taken over-zealous treatment will add to the exhaustion. ...

Ten or fifteen minutes is commonly ample time for treatment, but of course there are exceptions. Too long a time and too great an effort will certainly defeat the obtaining of maximum results. I believe consideration of these factors is of great importance. This has been an experience that has come to me forcibly during the present epidemic. One must make every effort count in a most expeditious manner that is compatible with desired physiologic reaction. One should be able to tell through experience when he has secured results. (1918, p.83-4)

This mirrors the understanding and experiences of the modern Osteopath Mervyn Waldman who similarly states that:

Treatment [in cases of acute illness] must be gentle, sedative, minimally invasive, analgesic and of a very short exposure to avoid exhausting the patient. ... Every treatment has to be incorporated by the patient. To do so involves energy expenditure that's drawn from the body's reserves. Anything you do to the patient [...] requires drawing on limited energy reserves. So the treatment should be short, concise, very controlled - watching the patient's response all the time to know when enough is enough. (Institute of Classical Osteopathy, 2015b)

A number of Osteopaths, both historical and modern, compared this high-frequency, low-intensity methodology to the dosage-frequencies commonly found in the orthodox prescription of pharmaceutical medications. Mervyn Waldman states that: "There are acute conditions, where you have to work just like a physician applying a steroid" [i.e.: repeatedly apply a palliative treatment simply as a control-measure until the acute phase of illness has passed] (Institute of Classical Osteopathy, 2015b). After practicing Osteopathy throughout the 1918 flu pandemic R. Kendrik Smith concluded that:

The able and skillful practitioner of this school regulates his dosage of his osteopathic therapeutics as carefully and as scientifically as any medical attendant will graduate the dose of his medicine. (1920, p.174)

Tajinder Deoora related in her key informant interview how:

...really it is no different than antibiotics, it is sort of like following a *course* of treatment - whereas with antibiotics you're sort of like building one [dose] on top of the other - this is what you're doing with the therapeutic process in Osteopathy. You're initiating the process and then allowing that process to get to work. And then making sure that it comes out the other side - that is what I mean by the cycle [phases]. At the beginning of the [immune response / disease process] cycle it goes up, it peaks, and then it wanes again. And then you've got to make sure it has come back to original neutrality again [original emphasis incorporated into transcription].

Still himself also described the same conclusion. Regarding the manual treatment of smallpox, Still urged that one must:

...work to save the organs of the body in at least working order or enough so as to begin repairs after the fire of the pox has been extinguished by exhaustion of all igniting substances of the body. (1899c, p.67)

In other words, this is to say that during Still's treatment of the acute inflammatory cascade brought on by a smallpox infection, his intention was simply to buffer the patient's resilience against the exponential nature of the disease, and thereby interrupt any progressive loss of normality. Still elsewhere described providing gentle, frequent interventions in such conditions (1910).

Still is stating that if this methodology of intervention can be successfully enacted by the practitioner, the process of disease will pass with time - given that it was not the pathogen itself that held the direct potential to kill the patient, rather it was the patient's loss of the ability to self-organize (and thus self-regulate well enough to maintain liveable internal conditions). Loss of normality was brought on both by the effects of the pathogen and by the patient's own dysregulated capacity to respond, leading to the creation of responses that were powerfully maladaptive. So Still's frequent, gentle manual treatments of the elements and dynamics at play the patient was better able to retain their capacity for appropriate self-organization. It followed from this that the patient would then be able to 'weather the storm' of the most dangerous and acute phase of the disease process.

As was discussed in SECTION 4.2 CYTOKINE STORMS, in relation to the "Spanish" flu pandemic, and modernly in relation to the MOPSE study, these types of manual intervention protocols, simple and gentle as they may outwardly appear, are capable of producing a powerful therapeutic influence on the *trajectory* of the patient's disease process. So powerful in fact as to be the deciding factor between life and death. How is it possible for such gentle interventions to produce such a powerful influence?

4.10.3. THE MORE SEVERE THE ILLNESS, THE MORE SUSCEPTIBLE TO INFLUENCE

During a modern lecture regarding manual treatment of acute diseases (infectious or otherwise), Mervyn Waldman describes one of the primary reasons that manual Osteopathy can provide such a potent influence on a patient who is in acute pain, or is severely ill. Waldman points out that in any such state there is a dramatic reduction in the afferent 'dampening' of the patient's nervous system (Institute of Classical Osteopathy, 2015a). Waldman describes this as a state of "central facilitation" or "central sensitization". As an example of this, Waldman points to the common experience

wherein during even a mild fever one experiences a marked hypersensitivity to sound / light / touch.

This is indicative of how during a state such as this, an individual has a reduced capacity for dampening external influences. Dampening takes energy, and during illness internal energetic and adaptive resources are in short supply given that these resources have been triaged and directed elsewhere as the best available adaptation to the current situation. Thus while in this state of “central facilitation / sensitization”, the patient is substantially more open to internal and external influences (Institute of Classical Osteopathy, 2015a).

For instance, Waldman surmises that the threshold for inducing a somatovisceral reflex is decreased during “central facilitation / sensitization” (SacralMusings, 2012). M.A. Lane also described this as being the case during infectious diseases. Lane related how the toxins released by the pathogen irritate the viscera, and this creates reflexive anatomical lesions - manifesting especially as tension in the paraspinal musculature that share spinal cord supply with the irritated viscera (1918). These secondary reflexive anatomical lesions demand additional finite adaptive and energetic resources from the patient, which then further decreases their available pool of resources to enact adaptation to the infectious disease process itself - thereby resulting in an exponential growth rate of both pathogen and toxin-load (Lane, 1918).

As another example of this hypersensitivity to external influences, during the 1918 “Spanish” flu pandemic in Kirksville, Anna Howes reported that during her treatment of flu patients they:

All were extremely sensitive in the sub-occipital region and sudden jars or loud noises were very irritating. ... The eyes were very sensitive to light or

touch. The muscles along the entire spine were very rigid with much discomfort and aching... (1918, p.702)

Still described much the same scenario to be common during acute episodes of malaria (1910, p.470-1).

Yet a patient's hypersensitivity can also be highly **advantageous** - so long as the external input the patient experiences is *supportive and encouraging of self-regulation*, rather than a further burden on their already overloaded system. Thus **the ability of manual intervention to influence a patient can be said to be in direct proportion to the intensity of disease that patient is suffering with.**

This was demonstrated in the results of an osteopathic study focused on circulating cytokine levels in patients experiencing low-back pain (Degenhart et al., 2007). The results recorded from patients with chronic low-back pain were measured against a control group of subjects who did not experience low-back pain. In the multiple post-treatment measurements that were taken from both groups, a significant and beneficial change occurred - there was a decrease in pro-inflammatory cytokines and an increase in anti-inflammatory cytokines. Yet in the levels that were taken thirty minutes after the Osteopathic treatment, the intensity of those beneficial changes indicated by cytokine levels was found to be **double** *in those patients who were experiencing chronic low-back pain*. This displays how those individuals in a disabled state were far more vulnerable to the beneficial influences of the manual intervention (Degenhart et al., 2007).

As is also explicable from the results of the above study, there is an intimate reciprocity in place between pain and immune function. Waldman emphasizes this point

when discussing treatment of patients experiencing infectious disease processes or inflammation of any origin: “If you can reduce the pain, the body’s immune response is more effective” (Institute of Classical Osteopathy, 2015b). Thus Waldman describes all acute care as being of an “inhibitory” nature, consisting of: “Using slow, rhythmic, oscillatory leverages and fulcrums to dampen the reflex and nociceptive overload” (Institute of Classical Osteopathy, 2015b).

The details of this physiologic relationship between pain and immune function is discussed in depth and then summarized by Elkiss, DO, and Jerome, DO, in their chapter on *Chronic Pain Management in Foundations of Osteopathic Medicine* 3rd Ed.:

The *immune system* responds to pain/stress with an inflammatory response. The combined effects of cytokines, lymphoid tissue, and immune active cells are to focus attention on internal directed vigilance. Tissue trauma elicits an elaboration of immune active molecules at the site of trauma and systemically, to trigger both the acute, inflammatory, phase reaction at the site of injury, and a more global acute phase reaction, which has been dubbed, the “sickness response”. ...

The immune system interacts with the nervous system. Nociceptor activation causes release of substance P and neurokinase A at the site of the disturbance. These are immune stimulating neuropeptides. The neurogenic inflammation is a part of the initiating mechanism and propagation of the immune defensive response. This inflammatory response is sensitive to sympathetic enhancement from primary nociceptor activation. [italics original] (2011, p.258)

As is made clear by the above, since there is a reciprocal influence between immune function and the experience of pain, by simply interrupting or decreasing a patient’s pain, immune responses are also intimately influenced. Given that dysregulation of immune response has now been identified as one of the fundamental contributors to

any and all disease processes (i.e.: via inflammation), simply relieving pain is one more mechanism by which a gentle and minimally invasive manual treatment can play an important role in the treatment of any disease process. As stated by R. Kendrick Smith, MD, DO, after his experiences during the 1918 "Spanish" flu pandemic:

The pathologic reaction which is taking place during acute diseases frequently requires only a little assistance in the way of osteopathic adjustment, if fundamental factors can be altered or influenced [thereby]. (Smith, 1920, p.174)

Or as summarized by M.A. Lane in his chapter regarding *Osteopathy in the Infectious Diseases*:

From the above facts it should be clear that any method which can increase the antibodies to disease - which can increase the defenses of the body against disease, which Nature has planted in the body itself - would be a prime and scientific method of treating disease and of producing results which would seem "marvelous" and "miraculous" to persons who did not understand the facts that lie at the root of the phenomenon. (1918, p.61)

The exact means of seeking these results obviously varies between practitioners. During the 1918 pandemic, Anna Howes described providing highly effective treatment that consisted primarily of muscular relaxation (1918). While McConnell's own experiences in 1918 led him to conclude that:

In my opinion, it is not enough in the potentially serious cases to simply relax the musculature. No doubt this is very beneficial, but it is only the first essential stage of the osteopathic treatment. The edematous barrier of the involved lymphatic tissues should be upset if possible in order to both enhance drainage and leucocytic activity. ... Then one is in a position, that

is the field of operation is prepared, to perform a certain amount of interosseous adjusting, which often goes a long way in eliminating predisposing factors. (as quoted in Smith, 1920, p.174-5)

Whatever method is deemed appropriate by the individual osteopathic practitioner, in the particular situation that they have encountered at that time, Waldman nicely summarizes that:

When we put our hands on the body of a patient with an intent to treat, it has to be done in such a way that it will convert that contact into one that produces profound effects on the **processes** underlying the disease or injury being treated. Furthermore it has to be done in such a way that it creates a train of therapeutic effects that lasts hours, days, or even longer. [emphasis added] (Institute of Classical Osteopathy, 2015b)

4.11. SUMMARY OF GOALS SOUGHT FOR PATIENTS EXPERIENCING THE DISEASE PROCESS

The results of the current research can be summarized to state that, during the disease process (acute, chronic or palliative), osteopathic manual treatment seeks to facilitate:

- Better self-regulation of immune function (i.e.: **immunoregulation**), thereby:
 - avoiding immunopathology, such as a “cytokine storm”
 - avoiding excessive collateral tissue damage created by the immune response itself
 - allowing more effective conservation of the finite energetic resources that are necessary to fuel appropriate immune function

- allowing appropriate and effective levels and locations of inflammation to occur: no more, no less
- Enhancing regulation of **immunometabolism**
 - primarily via the normalization of mechanisms that regulate fluid-circulation, as well as the resolution of mechanical blockages to fluid-flow
 - on all scales: cellular, tissue, and organismal
 - both to the advantage of the patient and to the disadvantage of any pathogens / malignant growth
- Enhancing the rate at which tissue repair occurs
- Decreasing the time period required to enact an innate immune response at the outset of illness, while also enhancing the intensity of its efficacy
- Decreasing the lag-time between initial exposure to an antigen and the production of an adaptive immune response, while also enhancing the intensity of its efficacy
- Decreasing the rate of reproduction of a pathogen, which in combination with the above two points serves to decrease the peak intensity reached during an infectious illness
- Decreasing pain
- Enhancing and participating in all of the above via normalization of mechanotransduction, on all scales: cellular, tissue, and organismal

Many of these goals would therefore be considered “disease tolerance mechanisms” from the modern orthodox perspective.

Ideally, each of these goals is accomplished in conjunction / relation with all of the other goals - therefore all are often engaged in simultaneously. The dynamics **between** these various factors are often the focus of manipulation rather than the factors themselves. The practitioner does *not* determine what they feel to be an appropriate state and then attempt to impose this onto the patient, rather, the patient's own self-organizational mechanisms are restored and encouraged by the practitioner - which allows appropriate states to occur within the patient: both immediately and adaptively over time in an ongoing basis.

The achievement of this overarching goal of normality of autonomy (self-organization) is what should determine the **duration** and **intensity** of treatment. The frequency of treatment is then best determined by the subsequent duration of time during which the patient possesses a sufficient capacity for self-organization. If self-organizational capacity begins to wane, treatment is again indicated. Each intervention is patient-specific, as dictated by the current circumstances the practitioner encounters during each moment of the treatment.

In short, the coherence of motion (especially that of fluid flow) which characterizes and defines the boundaries of an individual life, is sought to be enhanced via a general and particular increase in the capacity for self-organization.

4.12. SUMMARY OF FINDINGS IN RELATION TO RESEARCH QUESTIONS TWO AND THREE

CHAPTER FOUR: STILL'S CONCEPTION OF IMMUNITY AS VIEWED FROM TODAY was a means of addressing the second and third research questions:

- *How can the understanding of A.T. Still's conception of immunity as determined in Question 1 be enhanced by contemporary Osteopaths who have an educated knowledge of him?*
- *What can external sources contribute to a modern understanding of Still's conception of immunity?*

In SECTION 4.2 CYTOKINE STORMS, Still's conception of disease as a *process* to be interrupted, rather than an entity to be expelled, was contrasted with the modern concept of a 'cytokine storm'. The two were found to be in strong alignment both theoretically, and importantly also functionally in practice. A reliable intervention to interrupt cytokine storms remains absent within the modern orthodox medical system, yet seems to have been prominent historically within osteopathic manual practice.

An understanding of cytokine storms is based upon the abnormal dynamics that occur during a dysregulated immune response – i.e.: "immunopathology".

Immunopathology is a state wherein the individual's own immune response becomes an important mechanism of injury. In SECTION 4.3 THE 1918 "SPANISH" INFLUENZA PANDEMIC, this historical event was used as an example to illustrate these concepts and provide a discussion of osteopathic manual intervention in such cases.

SECTION 4.4 SEVERITY OF CONDITION DETERMINES THE DURATION AND FREQUENCY OF TREATMENT, detailed the frequently repeated, short duration interventions found to be typical within historical osteopathic literature of acute disease treatment.

SECTION 4.5 OSTEOPATHY AND CYTOKINE CONCENTRATIONS, reviewed the modern literature supporting the ability of manual osteopathic intervention to effectively produce clinically relevant changes, as measured by the biomarkers known as cytokines.

SECTION 4.6 DISEASE TOLERANCE MECHANISMS, explored the *multiple* relevant factors in play within infectious disease processes. A set of factors which support the individual in adapting to the presence of a disease (thereby serving to minimize the intensity and duration of their illness) were discussed. This set of factors have now been termed “disease tolerance mechanisms” by modern immunologists. Disease tolerance mechanisms thereby functionally comprise a means of “immunoregulation” - as they serve to limit the potential for a pathological degenerative cascade of dysregulated immune responses. This is a concept only recently arrived at within the orthodox medical tradition, yet it seems to be in alignment with the mechanisms of action and the therapeutic strategy that was historically employed within manual osteopathic treatment.

In SECTION 4.7 ANOTHER “LAW OF RECIPROCITY”: METABOLISM AND IMMUNITY, it was shown how modern orthodox research is abuzz with the recently discovered principle of “immunometabolism”. This was contrasted with Still’s work and found to be strongly reminiscent of the relationship Still laid out well over a century earlier in regards to the union between energy-transport and defensive capacity as represented by fluid-flow.

The 'two-way street' of reciprocal influence between immune function and metabolism, on all scales, that orthodox research has recently discovered was detailed in SECTION 4.7.2 SELF-ORGANIZATION: IMMUNITY AND METABOLISM.

SECTION 4.7.3 METABOLIC MODES OF SELF-PRESERVATION, illustrated the modern findings that have demonstrated an inexorable correspondence between specific metabolic states and particular physiological processes. This was detailed in relation to those physiological states that pair with glucose-based versus lipid-based metabolic cycles, as well as the evolutionary conditions that induce either mode. Purposefully employing a lipid-based metabolic cycle to induce the corresponding physiology that is strongly associated with enhancement of disease tolerance mechanisms is the health-strategy undertaken during so-called "intermittent fasting", and the "ketogenic diet". The research regarding these interventions was used to demonstrate the huge potential power of a therapeutic intervention based primarily upon immunometabolism in general, rather than particularly categorized disease 'entities' (see SECTION 4.7.4 THERAPEUTIC INTERVENTIONS BASED ON A "DORMANT" METABOLISM).

SECTION 4.8 DISEASE AS PROCESS RECOGNIZED gave Still credit where credit was due, for the prescience Still displayed by innovating not only a theory which incorporated a comprehension of immunometabolism, immunoregulation, and immunopathology, but even more so his development of a readily accessible therapeutic application *of* these principles.

SECTION 4.9.1 OSTEOPATHIC MANUAL TREATMENT OF INFECTIOUS DISEASE: HOW?, described theoretically how an osteopathic manual intervention into an infectious disease process manipulates multiple relevant elements that interact within the scenario,

as well as the relationships *between* these elements, rather than simply seeking to influence the pathogen or symptoms in isolation. This strategy allows osteopathic manual intervention to influence all elements and relationships, thereby also including the pathogen and symptoms.

In SECTION 4.9.2 MICROCIRCULATORY COMPARTMENTALIZATION, the importance of “compartmentalized” abnormality of microcirculation during infectious disease processes were detailed, as well as how it is that pathogens specifically induce this loss of normality as a strategy to propagate their influence outwards while also simultaneously protecting themselves from the defensive capacities of their host. This is to say that pathogens often specifically dysregulate the immune function of their host as a means of feeding on and defending themselves from that same host. Malignant tumors have recently been understood to do the same. Still not only described all of these dynamics in detail but also developed specific therapeutic means of intervention in relation to them.

SECTION 4.9.4 INFLAMMATION AND LYMPHATICS described in detail the role of the lymphatic system during the sequential phases of the inflammatory cycle, and how this cycle may become ‘stuck’ in a particular phase if bodily fluids are unable to circulate appropriately. It appears that Still accurately described these microscopic processes as well as their resultant role in pathology.

SECTION 4.10 DOSAGE AND FREQUENCY, described the historical and modern characteristics of manual osteopathic treatment of acute disease processes. These qualities were found to be a series of high-frequency, low-duration, low-intensity interventions; wherein early initiation of treatment was therefore seen to be a key factor

in desired outcome. Early timing of interventions served to prevent an exponential spread and intensification of loss of normality - this being what the disease process consists of.

SECTION 4.10.3 THE MORE SEVERE THE ILLNESS, THE MORE SUSCEPTIBLE TO INFLUENCE, detailed how during illness a patient is substantially more open to internal and external influences. Thus the ability of manual intervention to influence a patient can be said to be in direct proportion to the intensity of the disease which that patient is suffering. This is due in part to the reciprocity between the experience of pain and immune response.

In SECTION 4.11 a SUMMARY OF GOALS SOUGHT FOR PATIENTS EXPERIENCING THE DISEASE PROCESS was presented. Ideally, each of these goals was found to be accomplished in conjunction / relation with all of the other goals - therefore often simultaneously. The dynamics between these various factors themselves are often the focus of osteopathic manipulation. An osteopathic intervention in these cases serves as a means of preserving and restoring the patient's own self-regulatory capacity. The achievement of the overarching goal of normality of autonomy is what determines the duration and intensity of an osteopathic manual treatment. The subsequent duration of time during which the patient possesses a sufficient capacity for self-organization is what dictates the frequency of treatment.

Thus as can be extracted from the above summary, the findings that addressed Research Questions Two and Three were highly intertwined. To provide a specific example of this, the finding of a low-intensity, high-frequency, low-duration intervention in acute disease states was proposed by multiple modern practitioners including Mervyn Waldman (with his short and direct lineage back to Still, as well as his modernly rare

extensive experience treating infectious and serious acute conditions using only manual osteopathic intervention), as well as Brian Degenhart (who in his role as director of the clinical arm of the MOPSE studies arrived at these same conclusions via a synthesizing of the historical osteopathic literature, and verified the results via the MOPSE study itself). Tajinder Deoora also presented this same approach within her modern course material, utilizing a metaphor in how providing a course of sequential short, gentle manual treatments in such cases is similar to the sequential course of pharmaceutical medication that would be employed within modern orthodox medical practice (i.e.: the patient would be dosed multiple times per day until the acute crisis had passed). Mervyn Waldman also utilized this same metaphor modernly, while Carl McConnell was found to employ it historically in relation to osteopathic treatment of patients during the 1918 “Spanish” flu pandemic.

This corresponds well with the modern orthodox concept of a “cytokine storm”: an exponential process of loss of normality in function and structure driven by dysregulation of immune responses, wherein the immune response itself becomes the primary mechanism of injury, i.e.: “immunopathology”. Cytokine storms have been identified by orthodox research as being a central process within a wide variety of disease types, both infectious and non-communicable. Patients experiencing these same diseases have been found in modern osteopathic pilot studies to benefit strongly from manual treatment. Some modern immunologists were seen to have recently arrived at a new perspective wherein “disease tolerance mechanisms” were recognized as providing “immunoregulation” - thus containing the potential to prevent or interrupting the exponentiality of inflammation and tissue damage that characterizes a cytokine storm.

Enhancement of disease tolerance mechanisms was found to be in close correspondence with the strategies employed by historical osteopathic interventions in these same scenarios.

Furthermore, both the modern Osteopath Waldman, and the orthodox researchers into cytokine storms have found that specific “compartmentalized” tissue-regions experience abnormal microcirculation in these scenarios. These same localized regions then often act as the locus and engine of the early stages of scenarios involving acute inflammatory cascades. If the conditions in these localized regions are left unchecked, they may spread from the local to the global. The principle that a compartmentalized region of tissue may experience fluid stagnation and then spread this pathological influence systemically in an exponential cascade was a foundational concept repeated frequently within Still's own historical conception of the disease process. Still felt this then logically pointed to their appropriate treatment: normalization of fluid-flow, as early as possible, repeated as frequently as was found necessary to maintain a state of normality.

Thus it can also be stated that combining the addressing of Research Questions Two and Three provided not only a more coherent means of presenting these findings, but also an additional means of triangulating them.

This was the means by which Research Questions Two and Three were addressed.

5 CHAPTER FIVE: IMPLICATIONS AND APPLICATIONS IN MODERN OSTEOPATHIC PRACTICE

5. IMPLICATIONS AND APPLICATIONS IN MODERN OSTEOPATHIC PRACTICE

...the subject we are studying [human life and health], is as deep as eternity... (Still, 1896e, p.7)

5.1. INTRODUCTION

The following Chapter addresses the fourth, and final, research question:

From the information accumulated in questions 1 - 3, how might Still's conception of immunity contribute to modern osteopathic practice?

This question will be addressed using the results of the research up to this point, to be synthesized, reinforced and explicated as is found to be appropriate. This to say that, as per the title of this research, both the 'essence' and the 'application' of Still's conception of immunity, as illustrated up to this point, will now be discussed in specific relation to a modern conception and application of the same. Still's historical conception of immunity will be contrasted with its modern application and conceptualization within today's osteopathic community; any relevant implications for the near future will be highlighted.

5.2. LEGACY OF TRANSMISSION LOSS

5.2.1. THE CURRENT STATE

The previous Chapter focused on viewing Still's conception of immunity in contrast with evidence gleaned from the orthodox research that has occurred since Still's era. The result of this contrast gives one an idea of the prescience and potential held by Still's conception of immunity, even today. Yet it appears that this potential has been

largely unrealized, and this prescience unrecognized within the modern international osteopathic community.

In a series of personal communications (Feb 6-8, 2020), the key informants of this study were asked: *In your interactions with the broader osteopathic community, how often do you hear practitioners / instructors discuss osteopathic manual treatment of infectious disease? If so, in what context, and how common do you find this to be?* While there were exceptions, in general, the international response was similar:

Jane Stark (Canada): “Virtually never.” “You have to consider the circumstances of now versus then.”

Matvey Kiperstein (Canada):

“There are currently conflicting views in the modern interpretations of osteopathic treatments and their efficacy for infections and immunity. On one hand, osteopathic manipulative treatment during acute infection is contraindicated and warrants referral to a qualified physician. On the other hand, it is taught that osteopathic manipulation is beneficial for lymphatic function and therefore [also] for the immunity of the patient.”

R. Paul Lee (United States):

“The broader osteopathic community I am aware of does not utilize OMT much for anything. To treat URIs [Upper Respiratory Infections] is not different. Maybe some do lymphatic pumps (pedal pump or thoracic pump).”

Reuben Bell (United States):

"Manual therapy for respiratory disease is pretty commonly used, I believe. This would include mostly lymphatic pump techniques to enhance breathing in the case of bronchitis or pneumonia. Other techniques are applied directly to the supraorbital and infraorbital branches of the

trigeminal nerve, to promote drainage of the sinuses with the common cold.

I am not aware of a lot of interest in treating other infectious diseases, especially with techniques directed to the immune system in general. The treatment that I am aware of is more local and less general.”

Christian Hartmann (Germany):

“Only **general practitioner** (physicians), who became additionally **osteopathic physicians** have not only the qualification, but also the clinical possibility to treat acute severe infectious diseases osteopathically. I estimate that not even 1% of the German osteopaths are part of this category, thus it’s quite obvious that in Germany (severe acute) infectious diseases are nearly never treated by osteopaths/osteopathic physicians. Infectious diseases, with chronic aspects are rarely treated just osteopathically. Very often osteopathy [when it is applied at all in infectious diseases] is applied as an adjuvant method. [...] Schematically this can be transferred with slight modifications to all nearly all European countries.” [emphases original]

Tajinder Deora (Britain):

“Unfortunately the emphasis on modern osteopathy tends to be on the musculoskeletal system – ie: more orthopaedic/physiotherapy-like. This means more pain directed rather than immune directed.

When I give courses on the immune system, it certainly attracts large audiences and these generally tend to be the more experienced osteopaths. They have gone past the concept that osteopathy is only there for pain and are now on a different journey and recognise that osteopathy is about health.

When I was training we did not have osteopathy and immunity being taught. In fact I don’t even remember postgraduate courses [on the

topic of immunity being taught at that time].....I graduated in 1983 when the register was trying to gain recognition.”

Walter McKone, (Britain):

“None!!”

This was also discussed with Jane Stark during her key informant interview. In part, Stark stated that:

So, sick people nowadays don't go to Osteopaths, they go to the doctor, and they get medicated. They don't come to the Osteopath: so we don't know how to do it, and we don't see them. Back then, DOs were doing house-calls, they'd go at 10 o'clock, they'd go at 12 o'clock, they'd come back at 4 o'clock in the morning. Treatment might be 10 minutes, but they'd sit through the night if they had to. There were infirmaries where they were treated 2, 3 times a day - we can't make 3 appointments for the same person all the time, well, we have to book long appointments (20 minutes, 30 minutes, 45 minutes, even one hour) and wait for stillpoints. [Laughs] For what? I don't know what for, I don't get it.

So it is just now a completely different environment for sick people.

As Christian Hartmann relates in his 2016 book, *Thoughts on A.T. Still's Philosophy of Osteopathy: On the way to a philosophical Osteopathy* [translated from the German], Still's vision of an Osteopath as a truly **general** practice physician (who almost exclusively utilizes manual interventions), is something that has been rarely realized - even in the very first years of the osteopathic profession.

It appears that even the basic framework of the historical osteopathic manual treatment of acute disease is not commonly included within modern osteopathic

education. During Brian Degenhart's key informant interview he related how during the preparatory research for the large MOPSE study in the United States, the researchers found within the historical osteopathic literature regarding the treatment of pneumonia that: "...the more severe it was, the more frequent they treated it, but the less amount of time they used to treat it". Degenhart went on to state: "***We're never explicitly taught that*** and we thought that was very important" [emphasis added]. Even this basic framework and concept was not a part of the author's own osteopathic education in Canada.

Yet this appears to have also been the case historically as well, for as Carl McConnell tellingly wrote in 1930 regarding this very same subject:

Osteopathic dosage and its frequency are no idle terms. They are pregnant of the very essence of applied osteopathy. Still one hears very little of it.

... Timing and spacing of treatments are too often based on fancy of some sort and not on therapeutic requirements. **Probably more failures and dissatisfaction in osteopathy arise here than from all other sources combined. ... Success is dependent upon this as well as upon definite structural corrections.** [emphases added] (McConnell, 2011, p.29-31)

This all points to the *loss of transmission* that has occurred within the osteopathic profession regarding manual treatment of patients who are experiencing acute disease processes. This is perhaps unsurprising, for even outside of the influence of socioeconomic factors, such as those detailed above by Stark, simply Still's basic conceptualization of *what* disease consists of has apparently also been commonly and fundamentally misunderstood by the osteopathic community - even during Still's own

lifetime (see SECTION 3.5.5 LOSS OF TRANSMISSION for an extensive example which demonstrates and discusses this).

5.2.2. LACK OF ACCESS TO LITERATURE

A full explication of the many social and economic mechanisms that have contributed to this ‘loss of transmission’ are outside the focus of the current research, yet it is nevertheless relevant to note a number of early occurring, and therefore perhaps key, factors that may help explain how today’s situation came about. If these factors are identified, perhaps they may be addressed so that a modern application of the useful aspects of Still’s conception of immunity may begin. One of these factors is again detailed by Jane Stark, within her meticulously researched *Still’s Fascia* (2003, see especially p.113-5).

Stark’s work reveals how after the publication of Still’s third book *Philosophy and Mechanical Principles of Osteopathy (PMPO)*, for unknown reasons, soon after publication, Still quickly stopped all distribution of the text, and then even went so far as to personally acquire those copies in public circulation which he could manage to retract. This made *PMPO*, which is arguably Still’s most important text, exceedingly rare - even shortly after its publication. This meant that *PMPO* was essentially unread within the osteopathic profession until it’s reprinting in 1986 - when it then became widely accessible to the profession **for the very first time**. Furthermore, Still’s many articles written within the *Journal of Osteopathy*, which include many exclusive discussions of topics not addressed elsewhere by him, were difficult to access - even in the libraries of American osteopathic colleges - until a compilation and reprinting of these articles was produced by R.V. Schnucker in 1991 (Schnucker, 1991). Stark also notes how Still’s final book, *Osteopathy Research and Practice*, was itself also out of print for an

extensive period of time - again making it quite difficult to access until it was reprinted in 1992.

Thus the vast majority of the development and transmission of the osteopathic profession has occurred internationally via practitioners and teachers ***who themselves did not have exposure to at least approximately half, if not the majority of Still's writings.***

Steve Paulus, DO, describes the difficulties he had accessing Still's writings as an American osteopathic medical student during the early 1980s - despite being personally motivated to seek them out (2009b).

This lack of access to much of Still's writings is especially relevant given the format of Still's written works. Still's individual works are often 'collage'-like. Most of Still's books consist of a compilation of seemingly isolated sections of text. Due to this sometimes disjointed presentation, one of Still's terms or concepts (that is nevertheless a central focus of an entire chapter), may only be defined by Still a single time, if at all - and then only within a completely separate document, such as an obscure article within the *Journal of Osteopathy*. To miss one half of this paired information is to risk losing comprehension of both.

Take for example the question, "What is digestion?", which Still tantalizingly took an entire chapter to propose in his 1899 *Philosophy of Osteopathy* (p.103), only to intentionally leave the answer quite open-ended, so that the reader must attempt to answer it themselves via a personal process of reasoning. Yet this very same question is then explicitly defined by Still within his historically-rare 1902 *PMPO*, wherein he straight-forwardly provides the definition: "Digestion is food reduced to atoms of gas,

both by chemical union and animal heat” (p.187), going on to describe the process at length from his personal perspective.

Thus Still’s concepts are perhaps best interpreted only when *any one specific section of his text is interpreted within the context of the entire body of work.*

Furthermore, Still’s body of work is best understood by being contextualized within a study of Still’s own broader time, place and personal life-history.

As shown above, during the vast majority of the development of the osteopathic profession, this sort of contextualization has simply not been possible, or at best occurred as an exception through the efforts of certain highly motivated individuals. Thus, in general, broad foundational assumptions have been made within the osteopathic profession in the absence of a full exposure to Still’s work. These foundational assumptions have therefore often proven to be unconsciously formulated, inaccurate, and yet nevertheless highly influential as to how Osteopathy has been characterized and transmitted to generations of students. This will be further discussed below.

Even given simply the fact that there was an early-occurring and long-standing deficiency of access to much of Still’s writings, it is no wonder that his vision has been consistently misinterpreted by the profession that came after him. Thus while there are many other relevant factors that have also contributed to the loss of transmission of Still’s conception of immunity, this one factor may now easily be rectified: modern Osteopaths should read and study Still’s original texts. Still’s original work should be well integrated into osteopathic training and continuing education. This would be a large step towards allowing a modern application of Still’s conception of immunity.

5.2.3. ORTHODOX WORLDVIEW

Norman Gevitz is a well-respected sociologist and author regarding osteopathic history. Gevitz is also one of the few pure academics who have investigated this subject while not being also involved in the practice or promotion of Osteopathy. Gevitz's book, *The DOs: Osteopathic Medicine in America*, has now seen three editions with the most recent being in 2019. Gevitz's book details the rise and spread of Osteopathy, from Still's lifetime up to the present. In this account Gevitz makes it clear that from a very early date, as the practice of Osteopathy first spread throughout America, the profession fought ceaseless battles for legal recognition, often in response to outright persecution by the orthodox medical mainstream.

It was during this context that Osteopaths often made strong concessions regarding the incorporation of orthodox medical subjects into osteopathic training, as well as instituting the testing of Osteopaths to orthodox medical standards. These agreements in part allowed the osteopathic profession to gain both greater legal and societal acceptance. Yet this same process, amongst other factors, made for an early and deep influence of the orthodox medical worldview in the fledgling osteopathic profession (Gevitz, 2004). As the proverbial saying goes: 'As the twig is bent, so grows the tree'.

Still himself clearly foresaw this exact danger, writing in 1898, only six years after first opening his American School of Osteopathy, that:

A contemporary conglomerate Medical Journal has said that inside of five years there will not be an Osteopathic school in existence that has not [orthodox] medicine attached to it. We will acknowledge that there is danger of the sow returning to her wallow. ... If Osteopathy ever dies it will be by the encouragement it receives from such unthoughtful, conglomerate concessions... (1898f, p.164)

Arthur Hildreth, DO, was born in the outskirts of Kirksville and went on to become one of Still's closest and earliest students. In 1938 Hildreth wrote a historical and biographical book titled *The Lengthening Shadow of Dr. Andrew Taylor Still*. Hildreth's book makes it apparent that by that time (just over 20 years since Still's death), the osteopathic profession had won many legal and political battles and thereby gained a good deal of the legal recognition it sought, Hildreth himself personally played a central role in this. Yet in the same book Hildreth nevertheless already felt the need to write what can be interpreted as a call-to-arms for the osteopathic community. Hildreth pleads for a return to Still's original vision - an unorthodox medical practice based on a distinctive philosophy. Hildreth does so while explicitly cautioning his osteopathic colleagues against an encroaching loss of the aspects that serve to differentiate osteopathic from orthodox medicine. It appears that Hildreth already perceived this loss to be well on its way.

In a profound 1963 article titled: *A hopeful road ahead for osteopathy*, Harold Hoover, DO, focused on defining the distinction between osteopathic and orthodox medicine. Hoover describes how even Osteopaths themselves are often unconscious of what this distinction is composed of:

It seems that an error did creep into osteopathic teaching very early, an error which was not corrected because it was not obvious to most, and those who did notice it and protested were impotent to correct it because they were either inarticulate or misunderstood. The error started when the functional thinking and language which Still gave to the profession was lost and its place taken by conventional nonfunctional language and thinking. And because this started almost in the beginning, present-day

educators, though improving and perfecting the limited medicine they have been taught, seem not to realize what is happening or that they are perpetuating and compounding this error. (p.492)

[Thus Hoover concludes that:] Many osteopathic physicians practice etiological [orthodox] medicine while believing that they practice osteopathic ecological medicine. (p.489)

This points to a key aspect of the scenario that today's international osteopathic profession finds itself in - claiming a unique efficacy and distinction from the orthodox medical tradition while simultaneously attempting to validate this position *through efforts to accumulate evidence that is exclusively formatted to be compatible with the framework dictated by the orthodox tradition*. This process has thus often resulted in the osteopathic community discarding its defining *philosophical* foundation, in an attempt to gain orthodox validation of its *methods*. An American osteopathic physician, Leslie Mae-Geen Ching, DO, discusses this in a starkly worded 2009 article, stating that:

...we teach all subjects, including osteopathic medicine, allopathically: that is, with a reductionist approach. ... In short, we cannot see the forest for the trees. (p.17)

Reductionist thinking when treating with OMM [Osteopathic Manual Medicine], as taught in the schools, changes osteopathic physicians into **allopathic practitioners of osteopathic manipulation**. [emphasis added] (p.20)

5.2.4. IMPLICATIONS OF TRANSMISSION LOSS TO A MODERN APPLICATION OF STILL'S CONCEPTION OF IMMUNITY

At this point, it must be again stated that the focus of this research is not to detail the mechanisms *by which* a loss of transmission of Still's conception of immunity has occurred, nor to pass judgment on the current state of the osteopathic profession. Rather, the reason the preceding information has been presented is that current circumstances must be illuminated if they are to then be appropriately engaged with - and such an engagement must be undertaken if a successful understanding and then application of the useful aspects of Still's conception of immunity is to take place within today's osteopathic community.

The material presented in the above section again points back to the fact that Still's shift in worldview was the pre-existing *basis* of what he then later *applied as* "Osteopathy". Manual intervention was simply Still's subsequent means of **enacting** his preceding shift in worldview (as was detailed in SECTION 3.4 A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY). As has therefore hopefully been made clear by the current research, to practice Still's "Osteopathy", including his conception of immunity, would be to practice medicine from a consciously self-determined vantage point. This then implies a *worldview* that is distinct from the worldview inherent to orthodox medicine. Osteopathy is not simply distinct from orthodox medicine in regards to the method of intervention, rather the philosophical underpinings of each tradition are also distinct, and of far greater relevance.

This is to say that Still's unorthodox conception of immunity was not simply a matter of substitution, for example, of replacing medication with manipulation.

Rather, Still's conception was composed of a fundamentally distinct philosophical vantage point, from which one may then perceive health, disease, and even *what* an 'individual' consists *of*. This viewpoint was deeply informed by contextualizing *reality as an integrated, functional whole*, that manifests itself as the patterns that may be personally observed to be repeated on all scales. For Still, both in his personal discovery of Osteopathy, and during his subsequent instruction of students, these "philosophical" foundations were held by him as being a necessary *prerequisite* for effective medical assessment and intervention. Still felt that one needed to first accurately perceive the scenario at hand before one could become able of successfully intervening within it.

As described by Robert Lever, a prominent British Osteopath of some 40 years clinical experience:

...technique, it should be remembered, is the window, not the view. ... Above all, the various forms of manipulation we employ are not synonymous with 'osteopathy', which is a highly specialised approach that *employs* manipulation. In the same way, technique is not treatment but merely a tool that we use in the implementation of a healing, therapeutic strategy. [italics original] (2016, p.63)

Or as described by Walter McKone: "Manipulation is mesmerising but it is the end not the beginning of osteopathy. Many professions have an end in manipulation but no professions have a beginning like osteopathy" (2005). Christian Hartman, in his key informant interview, stated that Still was: "...primar[il]y, in my opinion, a philosopher who acted as a physician. So he was a medical philosopher and not a philosophical physician".

George Northrup, DO, writing as a past president of the American Osteopathic Association and then editor of its *Journal*, agreed with this interpretation: “His [Still’s] major contribution to medicine was not so much the emphasis on a method of treatment but rather the establishment of a medical philosophy from which the usefulness of manipulative therapy evolved” (1972, p.89).

The corollary of Northrup’s above statement, is that if one were to attempt to study or practice Still’s conception of immunity from within the same worldview that gives rise to orthodox medicine, one would then only succeed instead in vivisectioning Still’s Osteopathy, and thereby destroying exactly what one was attempting to investigate. As Ching puts it, today: “Schools are not teaching osteopathic thinking. In fact, they are teaching osteopathy in an allopathic paradigm, [thereby] rendering osteopathy incomprehensible” (2009, p.18). Based on the resultant state of confusion, Christian Hartmann describes the modern international osteopathic community as being “plunged into a serious identity crisis” [translated from the German] (2016, p.17). It appears this is a primary factor hindering the modern application of Still’s conception of immunity.

In an article discussing the increasing loss of identity within today’s osteopathic community, the sociologist and historian Norman Gevitz writes:

For more than 150 years, the American Medical Association has pointedly rejected the adoption of any philosophical belief system governing health and disease and has argued that its profession’s approach to medicine is based solely on scientific evidence. ...The embodiment of a philosophy makes the osteopathic medical profession different from the [orthodox] profession it parallels. (2006, p.121)

Yet later in the same article, Gevitz also unwittingly illustrates the bind that the osteopathic community finds itself in given this state of affairs, writing: "...how does one directly measure 'inherent therapeutic potency'? The answer is, one cannot make such a measure" (2006, p.125). A few paragraphs below, Gevitz contrasts the above statement with what is here interpreted to be an unconsciously self-contradictory stance. Gevitz states that: "Science is an indispensable key to the future of distinctive osteopathic medicine" (2006, p.125).

By presenting these two statements in juxtaposition, Gevitz has inadvertently well illustrated the 'rock and a hard place' that the osteopathic profession has seemingly found itself within from the very outset - for if the osteopathic community cannot, or will not, provide an explanation of their practice that is **compatible** with the orthodox worldview and its corresponding system of denoting validity, then the osteopathic profession is doomed to be viewed by society's larger economic and legal frameworks as presenting a lack of evidence, therefore being perceived as presenting little value, and therefore deserving of a very limited scope of practice. This would seem to be a primary reason that Still's conception of immunity is largely unimplemented and unemphasized in modern osteopathic training programs.

Yet on the other hand, if, in an attempt to gain acknowledgement from the dominant cultural mainstream, the osteopathic community then *does* assent to the demands for explanations and evidence that are compatible with the worldview inherent to orthodox medicine, Osteopathy is then quickly *conformed* and *transformed* into **only** that which is *easily* measurable and understandable within the orthodox medical worldview - a worldview which itself is antithetical to the very basis of Still's conception

of immunity. The outcome of this bind is described in the most gentle of terms by the American osteopathic physician Zachary Comeaux:

...in the current climate of “evidence based medicine” or parity with mainstream medicine, the tendency in osteopathy has been to recognize the practical or sensibly scientific aspects of the tradition and downplay the more reflective aspects. (2009, p.80)

Thus when this route is taken, the foundation that informs Still’s conception of immunity is again quickly lost, this time in attempts to gain orthodox compatibility, thus discarding the essence of Still’s conception of immunity, leaving it yet again unimplemented by today’s osteopathic profession.

Still intended his conception of immunity to be a *subversion*, a replacement, for orthodox medicine (for one of many possible examples see Still, 1899b, p.227-8). Yet when the osteopathic profession attempts compatibility with the orthodox system of validation, Osteopathy becomes but a *sub-version* of orthodox medicine – this is to say, simply another instance *of* orthodox medicine.

An orthodox-compatible Osteopathy is one that, like orthodox medicine, espouses the existence of categorical ‘disease-entities’, but perhaps interprets these entities in relation to, or even *as*, ‘osteopathic lesions’, while then at best merely seeking to replace pharmaceutical medications with the prescription of predetermined manual *techniques* in an attempt to destroy or expell these entities (Hoover, 1963).

This is to lose Still’s vision of Osteopathy, for as noted by a number of the above authors, Osteopathy is not distinctive due to its use of therapeutic manipulation, but rather because it is a particular personal philosophical *mode of inquiry* that is utilized in

relation to **all** aspects of **one's own** experience of phenomena - both inside and outside of the clinic room.

This is a key reason that Still's Osteopathy cannot be easily or ever completely studied via the orthodox worldview's single *mode of inquiry* that is deemed valid. Just as Osteopathy is foundationally defined by its own particular philosophical basis, so too is the orthodox medical tradition – it too is defined by a set of foundational **philosophical** assumptions. A particular philosophy is the ultimate origin of the orthodox medical system's subsequent actions, value-system and chosen *mode of inquiry*. To repeat Gevitz's statement from above:

For more than 150 years, the American Medical Association has pointedly rejected the adoption of any philosophical belief system governing health and disease and has argued that its profession's approach to medicine is based solely on scientific evidence. ... (2006, p.121)

Yet as must be clearly stated here, the above espoused orthodox position - that value should only be recognized as existing within a single *mode of inquiry* (i.e.: the scientific *method*), is to thereby a defacto statemtn that validity can be **only** be denoted via that single mode of inquiry. Which is to then to hold that this single mode of inquiry is the *only* valid means of investigating **any** and **all** phenomena. This is the puzzling but rather familiar “unblinking assumption that science has cornered the market on truth” (Kimmerer, 2013, p.160).

This set of orthodox assumptions are clearly the presentation of a distinctly **philosophical** standpoint, a philosophy that acts as the **cultural** foundation from which subsequent orthodox action and interpretation takes place (Lewontin, 1996). As described

in a lecture series titled *Biology as Ideology* that addresses this very topic, the Harvard geneticist Richard Lewontin states:

Science is a social institution. Scientists do not begin life as scientists, after all, but as social beings immersed in a family, a state, a productive structure, and they view nature through a lens that has been molded by their social experience. ... Science, like the Church before it, is a supremely social institution, reflecting and reinforcing the dominant values and vices of society at each historical epoch. (CBC, 1990)

In the current research, this concept will be referred to as ‘scientific *culture*’.

‘Scientific *culture*’ therefore denotes the above listed set of philosophical assumptions regarding the **universal** applicability and **singular** validity of the ‘scientific *method*’.

This is a crucial distinction: it should be recognized that a human *culture* is the origin of the scientific *method* (Lewontin, 1996). It is these same *cultural* forces that then guide and shape each stage of enacting the scientific *method* - from planning and funding, to implementation, then subsequent interpretation, and social dissemination (Lewontin, 1996). This was one of the central points that the science historian Thomas Kuhn brought to light within his hugely influential 1962 book, *The Structure of Scientific Revolutions* (2012). Kuhn brought to light his understanding of the way in which scientific discoveries take place in deep relationship to the particular moment of scientific culture in which they arise (2012).

To confuse the roles played by scientific *culture*, versus those played by the scientific *method* is common. When this confusion occurs it serves to strongly distort a clear understanding of the roles played by either. As Lewontin illustrates, at each stage of their history, the output of the sciences have been generated from a distinct set of

philosophical assumptions that are particular to the time and space of the human culture enacting them - today is no exception (1996). The cultural genesis of today's scientific paradigm and the historical sequence of versions that have preceded it are well documented and contextualized by Capra and Luisi (2016).

That today's scientific culture does not recognize or acknowledge its own set of philosophical assumptions *as* philosophical assumptions does not change the fact of the matter: simply because one staunchly does not recognize that one's ideology *is* an ideology (stating instead that it is a universal truth which transcends human culture) does not thereby provide evidence for the correctness of such a position. Rather it instead demonstrates the rigid perspective characteristic of any type of fundamentalism (Lewontin, 1996). As put forward by the authors of *Foundations of Biophilosophy*:

...every human belief and action involves some metaphysical presuppositions. Thus as has been remarked many times, and rightly so, an anti-metaphysician is just one who holds primitive and unexplained metaphysical beliefs. (Mahner & Bunge, 1997, p.3)

APPENDIX G: COMPARISON AND IMPLICATIONS OF ORTHODOX AND UNORTHODOX WORLDVIEWS – RHE EQUATION OF INTUITIVE KNOWLEDGE? explores this topic further, while the main body of this study continues to address the implications of the above to a modern implementation of Still's conception of immunity.

5.3. EDUCATION AND PARADIGM SHIFT

An obvious first step in rectifying the above described scenario, thereby allowing the modern osteopathic community to apply those aspects of Still's conception of immunity that have been identified here as useful, would be the restoration of instruction

in the historically existing approaches for osteopathic manual treatment of patients who are experiencing the process of disease.

In the most basic sense, this would entail the modern osteopathic community being re-informed of its historical scope of practice, and the modern and historical evidence that supports the validity of such a practice (SacralMusings, 2012).

Followed by, at the very least, a familiarization of practitioners and students with the basic historical framework for treatment of patients in an acute or frail condition - this being the aforementioned high-frequency, low-duration, low-intensity intervention methodology (see SECTIONS: 3.5.8 TREATMENT, 4.4 SEVERITY OF CONDITION DETERMINES THE DURATION AND FREQUENCY OF TREATMENT, and 4.11 SUMMARY OF GOALS SOUGHT FOR PATIENTS EXPERIENCING THE DISEASE PROCESS). It may very well be that even a highly generalized framework such as this may in time be refined, or innovated from. This evolution of practice may take place both on the level of the entire osteopathic profession moving forward, and also on the scale of the individual practitioner who over time may develop their skills and perspective through the accumulation of experience. Yet it seems prudent that the pre-existing historical framework should only be altered once it has first been re-explored - again, both within the wider osteopathic profession and within each Osteopath's personal clinical experience.

Yet underlying all of this is the need, as emphasized in the preceding sections of this chapter, for a broad *perceptual* shift within the osteopathic community. This would be a shift wherein an engagement is made that personally and clearly defines the perspective, the philosophy, which distinguishes Osteopathy from the orthodox medical

paradigm. The differing worldviews that are inherent to each tradition must come to be acknowledged, and only then may the osteopathic paradigm be *experientially* engaged with - inside the classroom, treatment room, and research lab. For since, as illustrated earlier, the essence of Osteopathy is defined by a distinct philosophy - it must logically follow that this philosophy must play a central role within osteopathic training, practice, and research.

The results of the current research indicate that at least one fundamental difference underpinning the osteopathic versus orthodox worldviews is the central acknowledgement of and reliance upon the innate self-organizing force inherent to reality. This is discussed in further depth below in SECTION 5.4.4 LIFE, SELF-ORGANIZATION AND IMPOSITION.

Yet while the above contrast is somewhat easily stated, it is an extremely tall order to ask for its discussion, nevermind implementation - for this would more or less comprise a broad, fundamental shift in modern osteopathic culture and the worldview held by the community and the individuals within it. Thus at the very least, or perhaps as the place from which this larger discussion may begin, disease needs to be comprehended by Osteopaths as a verb, a *process* which the living patient is living out. The process of disease is the exponential **loss**, the **absence**, of normality of autonomy.

This is in contrast to applying Osteopathy - by unexamined default - from an orthodox medical perspective: wherein disease is viewed as a noun - an entity to be first named and then exorcised. This importantly includes the common conception of “osteopathic lesions” as pathological ‘objects’ one is seeking to *remove* from the patient. For an extensive discussion of this difference of conceptualization and the pervasiveness

of it within modern osteopathic culture see Hoover's profound 1963 article *A Hopeful Road Ahead for Osteopathy*.

This will be a great challenge, as it appears that from the outset when Still first attempted to convey the art and science of Osteopathy to his students, up until today, this sort of perceptual shift has been very difficult to transmit (see SECTIONS 3.5.5 LOSS OF TRANSMISSION and 5.2 LEGACY OF TRANSMISSION LOSS). Perhaps this is because philosophical inquiry is not a set of 'facts' that can be easily *taught* by an instructor and then *memorized* by a student (McKone, 2005). Rather philosophical inquiry might be described as an ever-developing and ongoing *mode of existence* - one which the individual student can at best be *guided* towards an encounter with, which they then navigate for themselves (Comeaux, 2005; Paulus, 2009b). In reference to this, Walter McKone concludes: "...you can not teach osteopathy, you can only teach how to osteopathize as a method of coming to an idea" (2005). Still himself described how the most appropriate means of transmitting Osteopathy was to:

Take the students hand and put it on the normal frame and show him why it is normal or abnormal. Talk more to his hand and less to his head.

It is not theory that teaches him; it is work done by his own hands that convinces him and starts him to see and feel and know what is meant by the word treatment. (1900g, p.314)

I would advise you to take up the philosophy, and learn all you can about it, for you know the questions will come. I am satisfied and pleased to have the people ask questions and receive all the answers they can get. And after I have answered all I can through the papers or with my own mouth, I cannot even answer a majority of them. To answer all the questions that are suggested by a human thighbone would open and close

an eternity. Therefore you must not expect me to answer all of them. Neither must you expect this school to do that for you. You can get enough demonstrations to put you on the right track to become a self-generating philosopher. (1908c, p.331)

E.E. Tucker, an early student who received Still's direct instruction, described it this way:

His [Still's] real effort with us was not to teach the details of the science - they would come of themselves in time - but to carry us to the source, the springs, to make us appreciate that point of view, to give us understanding of that sort of osteopathy. (Tucker, 1918, p.247)

Thus the vantage from which one's own perspective occurs, and an ongoing active engagement with recognizing and appropriately modifying that vantage point, must itself be recognized as a crucially determinative *context* inside of which the more technical *contents* of osteopathic education and professional development should take place.

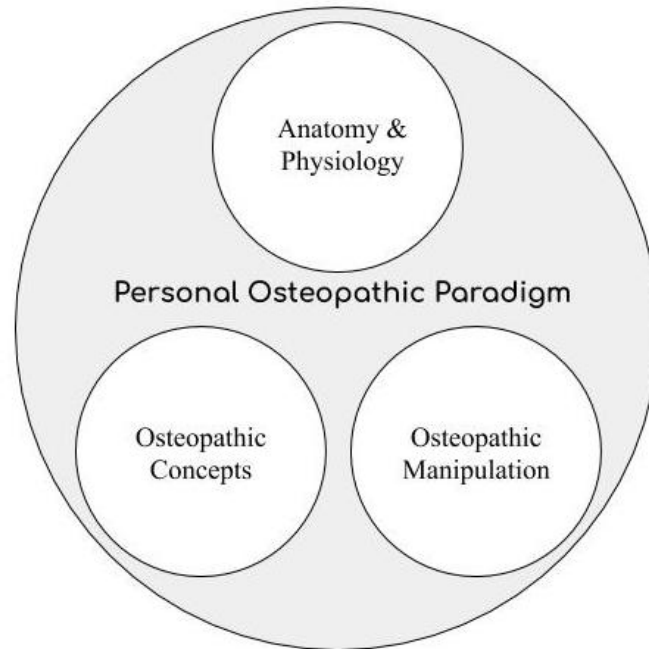


Figure: 22. A personally encountered osteopathic paradigm is an important context inside of which the content of osteopathic education and practice should take place - if the full diversity of relevant meanings of that content are to be experienced by the individual. This occurs in an ongoing basis, in the moment, never completed (adapted from McKone, 2018; Hartmann, 2016).

This is simply to say that, just as we cannot best comprehend Still's work without also engaging with the wider context of his own time, place and personal experiences - **so too can today's Osteopaths perhaps only best comprehend their *own* work when viewing it in the context of their own time, place, and personal experience.** To do so would necessitate an ongoing conscious examination of the *context* inside which one is existing, so that the assumptions one makes are personally *arrived at*, rather than unconsciously *inherited*. Still discussed the necessity of personal inquiry to bring about an appropriate (i.e.: pragmatically useful) personal paradigm shift:

I hate a hen that sits on a nest that has no eggs in it just because her grandmother sat there. If she sits on nothing but rotten eggs, what will she get but rotten chickens... (1908c, p.275)

The theorist never changes, because he is too cowardly to launch out on the open sea of defiance, on which none but the free men cruise and catch the fat whales of everlasting truth. (1900f, p.469)

The explorer for truth must first declare his independence of all obligations and brotherhoods of any kind whatsoever. He must be free to reason and think. He must establish his observatory upon hills of his own; he must establish them above the imaginary high planes of rulers, kings, professors, and schools of all kinds and denominations. He must be the czar of his own mental empire, unencumbered with anything that will annoy him while he makes his observations. (1902f, p.134)

In fact, two years into operating his American School of Osteopathy, Still decided to implement a policy of no longer accepting any students beyond a certain age. When a new potential-student was older than forty-five Still felt that “there is little chance of making a good reasoner in this science” (Still as republished in Schnucker, 1991, p.42). This was also true for those who had preexisting orthodox medical training and were now seeking to learn Osteopathy: “After some bad experiences, Still tried to discourage M.D.s from studying osteopathy because he had found it was too difficult for them to change their approach to the human body” (Trowbridge, 1991, p.165-6). The reasoning behind these decisions on Still’s part seems to be his conclusion, based on experience, that in either situation an individual had likely become too rigid, their mental ‘wagon-ruts’ had become so deep, that their wheels were unlikely to find a new and radically different orientation moving forward. Or as Still put it, once again employing an allegory:

A man dreads to give up his old boots for fear the new ones will pinch his feet. We have gone on from generation to generation imitating the habits of our ancestors. (1896c, p.1)

It seems this was the reason why at the outset of two of Still's four books he began by emphasizing that he would "quote no authors but God and experience" (1899, p.12; 1902, p.9). By doing so, Still was displaying his opinion that one should not unthinkingly accept any external source of authority, including Still himself, but rather seek to verify via *personal* experience the subject that was being inquired into. (Again, this certainly does not then exclude utilization of the scientific *method*, but it is also at complete odds with today's dominant scientific *culture* - which holds that personal experience is not only *suspect* but ultimately *invalid*).

Christian Hartmann within his key informant interview emphasized this "independent mind" as being a key to the learning and practice of Osteopathy, going on to state:

...you are independent and *stay* independent, don't follow teachers and gurus. Mentors, they are important, be open to what they say, try to do it, but be critical and skeptical and *test it*. And you have a brain, and you have to use it. No?

...the Socratic way, when he was teaching, when Still was teaching, it very often asks questions, he didn't teach things: technique or basic things. He always asked the students, "What would you do? Why would you do it?". And that is called in philosophy "maieutic", that comes from Socrates, it's when you ask people and start to think for themselves about the answer and there's the process where they get to the answer without any advice just by their own, and [then] that's *their* knowledge. When they get to this knowledge, that's *your* knowledge, never will forget that, and

you will *understand* what you know. Still wanted that you *understand* what you know. Not only that you know and can [do] techniques and a lot of people will think like that, ya? That you should understand what you do. Not because someone said it to you that it works like that. And this is another thing that collides *completely* with the way that we learn today Osteopathy. It undermines the authority of teachers. Especially of big heads. And no one of the big heads I know teach in a Socratic way. This is one of these things where discussions could be done. The next generations in my opinion [it] is their task to force that.

....it gives you *a lot* of opportunities to look at things. Probably authorities die. Authority dies in a way that you feel, like, respect, okay? [original emphases incorporated into transcription]

Within Hartmann's recent book, he describes the original form of Osteopathy as an "***applied philosophy***" [emphasis added, translated from the German] (2016, p.326). It would seem, that if one were today to attempt to apply those aspects of Still's conception of immunity found to be useful, it would have to also include aspects of this philosophical approach - given that Still's conception of immunity itself was but a product of this same approach. If this was undertaken, one would then not so much engage with any *particular* conclusion which Still arrived *at* in his conception of immunity, but more so one would engage Still's general method of *arriving* at his conclusions - along with his methods of discerning how to embody them into personal action. As Still himself directed his students:

An imitator is a failure at all times. To succeed as an imitator your work must be the same as that of the original. Therefore you must use your own way even though you adopt the same profession as he who is successful. (1895c, p.6)

Now make yourself a child of inquiry and a student of Nature. (1902f, p.203)

5.4. MODERN FIELDS OF APPLICABILITY FOR STILL'S CONCEPTION OF IMMUNITY

Given the findings of the study up to this point, a number of potential venues have been identified wherein a modern application of Still's conception of immunity would be appropriate. Each is presented and below discussed briefly.

5.4.1. PREVENTATIVE MEDICINE

As was found earlier in this study, disease is best understood as a process, one whose key characteristic is *exponentiality* (see SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE). It then follows that the easiest and best time to intervene in any disease process is as early as possible. Thus if a means of *prevention* of the actual onset of a disease process is possible, then this is the absolute ideal. This implies that extremely undramatic prevention-based interventions should yield the most dramatic outcomes – when they are consistently applied over a long timeline.

As has also been identified in the study up to this point, an individual's ability to adapt (i.e.: appropriately self-organize) is often the deciding factor as to whether any particular mechanism of injury is able to 'take root' within the 'internal soil' of the individual and go on to propagate further abnormalities of structure and function. This concept has been demonstrated to hold true no matter what the particular mechanism of injury might consist of - for example: pathogen, mechanical injury, or a shift of environmental conditions surrounding the individual (see SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE).

Due to this, Still's unorthodox conception of immunity is ideally situated to provide a means of preventative treatment for *all* types of disease, owing to Still's universal focus on therapeutically enhancing an individual's capacity to appropriately self-organize. As stated by Carl McConnell:

The root of the medical problem, prevention in its broadest sense, has barely been touched [within the orthodox medical tradition]. Osteopathy is certainly destined to enter as a marked feature in this field, for its tenets are coextensive, as no other system can be, with the basic properties of growth, development and correction of the human mechanism. (McConnell, 1913, p.530)

Once disease is understood as a process consisting of an exponential increase in the intensity and location of abnormality, it is thereby revealed that *any* abnormality, no matter how subtle or seemingly irrelevant, is in actuality fully worthy of attention and care. For even if simply the sequelae of a stubbed pinky toe, when the resultant loss of normality in structure and function then exists over a long enough duration of time, it must inescapably create an increasingly serious cascade of degeneration - via the innate relationship of the injured elements to the rest of the whole individual. For one of many possible examples along these lines, see Still's *Osteopathy Research and Practice* (1910, p.17).

It is this understanding that informs the prerogative that a patient must be returned to as full and complete a state of normalcy as possible, of both structure and function, if health is to exist over the longest possible period of time. This remains true regardless of any symptoms that may have already ceased during a course of treatment. For if any loss of normality remains, on any scale, it only stands to reason that a degenerative cascade

also remains in play, albeit acting with a reduced momentum. Yet even the smallest loss of normality will exponentially increase and become prominent and significant over time.

Thus:

Instead of devoting almost all our health-related resources to the too-late treatment of established diseases and to the quest for individual causes and cures, we should invest in diminishing and eliminating factors that contribute to vulnerability to diseases in general and especially the enhancement of health as the most comprehensive form of disease prevention. (Korr & McGovern, 2008, p.236-7)

It follows from this premise that when any *permanent* loss of normality is present (such as any type of scar, ruptured ligament, spondylolisthesis, dental implant, irreversible arthrosis, amputation, joint replacement or the insertion of other orthopedic surgical hardware, etc.), these instances will then forever act as *continuous* origins of the exponential process of disease, ceaselessly, throughout the remainder of the individual's life.

While the overall dimensions and intensity of these permanent abnormalities may be *reduced* via osteopathic treatment, and this is of supreme value, it is crucial to nevertheless recognise that a permanent abnormality can nevertheless never be restored to actual normality. Thus in cases where permanent abnormality is present, it would follow that these patients would ideally receive treatment both regularly and consistently, throughout the duration of their lifetime. The same would hold true for patients experiencing any ongoing non-permanent abnormality - they too should be treated regularly and consistently, *not* until symptoms resolve and the patient is satisfied, but rather until all observable loss of normality is resolved. This would also hold true in cases

of primarily *physiological* abnormality, for example in the case of chronic Lyme disease. The results of this research indicate that this enhanced frequency and long-term consistency of treatment would be the best means of serving such patients.

In practice, this would consist of a therapeutic encounter wherein normalization takes place of the inevitable secondary losses of normality that have emerged in relation to any original permanent or lingering absence of normality. A repeated reduction of the intensity and dimensions of a permanent abnormality itself is also indicated at each of these instances, to whatever degree is available at that time. Non-permanent abnormalities should also be addressed as much as possible.

Such a protocol thereby serves as a valuable means of ‘pruning’ the ‘branches’ of secondary abnormality ‘growing’ out of the original permanent or as-of-yet-unresolved absence of normality. To summarize this approach by using yet another analogy - if one had to choose, it is better to have fifty car accidents at 1 kilometer per hour, than to experience one car accident at 50 kilometers per hour. The total energy expressed within the two outcomes is the same, but the outcomes of the two scenarios are exceedingly different.

Due to this, this ‘regularly scheduled pruning’ methodology would be of extreme benefit all patients, especially regarding long-term outcomes. An osteopathic practitioner should therefore be cognizant of the dynamics surrounding permanent and as-of-yet unresolved absence of normality, as this will be of foundational relevance within patient education and the formulation of appropriate treatment plans.

Ideally, treatment of such dynamics would be scheduled at a frequency that allows for osteopathic intervention to take place well *before* any symptoms emerge into

the patient's experience. It must be understood by both parties that any lack of normality will exponentially gain in momentum. If possible, patients should be scheduled at a frequency reflecting this. A human being is not a machine that remains static between treatment sessions. A human does not await further intervention in a stable state but instead constantly evolves - for better or worse.

It would seem that a steady accumulation of various permanent or as-of-yet unresolved losses of normality is an inevitable part of any human life. Thus it might be stated that the above described process (wherein even a small and seemingly insignificant loss of normality then exponentially spreads and intensifies over long periods of time) is a functional means of describing a foundational mechanism driving the **aging** process. It follows from this that a well-executed osteopathic manual treatment plan, applied at the appropriate frequency, should functionally allow for a decrease in the rate of biological aging (Korr & McGovern, 2008). In fact, this was one of the primary outcomes to which Still felt Osteopathy should be applied: "Turn the waters of life loose at the brain, remove all hinderances and the work will be done, and give us the eternal legacy, LONGEVITY" (1899b, p.79). As Still saw it, a primary goal of Osteopathy was to "procrastinate death" (n.d.-a, p.9).

5.4.2. AUTO-IMMUNITY

As was discussed in SECTION 3.4.11 INTELLIGENT INTENT TOWARDS INDIVIDUATION and SECTION 3.4.13 LIFE DEFINED AS COHERENTLY ORGANIZED MOTION, Still conceived of individualized life as being comprised of a coherence of motion occupying a specific region. It seems likely that Still was strongly influenced in this regard by the writings of Herbert Spencer (1863, see especially Chapter XI *The Rhythm of Motion*). Though Still questioned whether or not it was "...useless to try, or hope to

know what life is...”, his reasoning nevertheless led him to conclude that “...we do know that life can only display its natural forces by the visible action of the forms it produces” (1899b, p.195). Some modern scientists, such as the physicist, systems theorist and deep ecologist Fritjof Capra, have arrived at the same conclusion:

...living organisms are intrinsically dynamic, their visible forms being stable manifestations of underlying processes. Process and stability, however, are compatible only if the processes form rhythmic patterns - fluctuations, oscillations, waves, vibrations. Ordered structures arise from rhythmic patterns. (Capra, 1983, p.300)

Norbert Wiener, an American mathematician who founded the field of Cybernetics, presents the same conclusion:

Our tissues change as we live: the food we eat and the air we breathe become flesh and bone of our bone, and the momentary elements of our flesh and bone pass out of our body every day with our excreta. We are but whirlpools in a river of ever-flowing water. We are not stuff that abides, but patterns that perpetuate themselves. (Wiener, 1988, p.96)

This all points back to the discussion in SECTION 3.4.12 LIFE DEFINED AS COHERENTLY ORGANIZED MOTION, wherein the components of individualized life were discussed as a coherence of motion (i.e.: ‘internal/self’), surrounded by differential motions (‘external/non-self’), the two regions being delineated by the existence of a boundary between them. The functions of a boundary therefore are to:

1. Prevent the passage of any ‘external/non-self’ into the ‘internal/self’, and prevent the loss of desired aspects of ‘self’ into the ‘non-self’ (i.e.: self-defense, self-preservation).

2. Allow the passage of extraneous or now-undesirable aspects of ‘self’ to exit and thus functionally transform into ‘non-self’ (i.e.: the excretion of ‘waste’).
3. When energy need be taken from ‘non-self’ into the ‘self’ to fuel ongoing coherence and growth, the boundary must regulate the motion of these engulfed instances of ‘non-self’ into a new harmony with the distinct oscillatory frequency of the ‘self’, thus functionally rendering these units of ‘non-self’ into but another current aspect of ‘self’.

The function of a boundary is therefore to provide a means of propagating the ‘self’ through time, via management of the ‘internal / external’ interface, with oscillatory frequency being the means of discernment and transformation between these two.

Thus when the boundary of a ‘self’ is disrupted, dysregulated, or is for any reason unable to fulfill the above functions, an unregulated and therefore pathological interaction occurs between ‘self’ in relation to ‘non-self’. In such cases, aspects of ‘non-self’ may freely enter into the ‘self’ while remaining unharmonized to the ‘self’. As well, extraneous aspects of ‘self’ (waste) may not exit to become ‘non-self’, but rather may linger within the ‘interior’ while having lost their coherence to the ‘self’.

It would seem that the above scenario involving boundary-dysfunction aptly describes the genesis of most if not all auto-immune conditions. From this analysis, auto-immune conditions are preceded by a failure of various boundaries to act out their above functions. Whether this consists of a pathological increase of the permeability of the gut - the so-called “leaky-gut syndrome” (Fasano, 2012), or the entrance of an external

pathogen which then serves to chronically dysregulate immune function towards abnormal pro-inflammatory cytokine cascades (Sathyabama, Khan, & Agrewala, 2014; see also Buhner 2013a, 2013b, 2015), or the breakdown and/or incomplete development of appropriate psycho-emotional boundaries within an individual's personality (Mate, 2003).

Thus it would seem that this single concept, the disruption of the boundaries between 'internal/self' and 'external/non-self', holds true for anatomy, physiology and psychology. The above analysis is then in perfect alignment with the reasoning employed by Still wherein a "universal principle" can be observed to holographically act uniformly on each level of "mind, matter, and motion".

The Canadian author and M.D. Gabor Mate discusses this topic extensively in his best-selling book *When the Body Says No*:

When our psychological capacity to distinguish the self from non-self is disabled, the impairment is bound to extend to our physiology as well. Repressed anger will lead to disordered immunity. The inability to process and express feelings effectively, and the tendency to serve the needs of others before even considering one's own, are common patterns in people who develop chronic illness. These coping styles represent a blurring of **boundaries**, a confusion of self and non-self on the psychological level. The same confusion will follow on the level of cells, tissues and body organs. The immune system becomes too confused to know self from other or too disabled to defend against danger. [emphasis added] (2003, p.176)

Mate's above assessment also serves to point to the remedy of this scenario - appropriate boundaries must be restored to normality, on all levels. Given that boundary

restoration, maintenance, and functionality are one and all but particular manifestations of the general force of self-organization, it would follow that osteopathic manual treatment should be of great service in this undertaking, no matter what level a boundary disfunction occurs.

The spontaneous emergence of the most *appropriate* solution is the innate behaviour of any self-organized unit. Ideal solutions occur when the self-organized unit is *free* to act. Thus an auto-immune condition may thereby be defined simply as *inappropriate* solutions arrived at by a self-organized unit that is currently *encumbered*. It then once again follows that the role of an Osteopath is not to provide pre-determined solutions, nor even to seek the direct reestablishment of a patient's malfunctioning boundaries, but rather to simply facilitate an increase in the individual's own capacity to autonomously restore and express their boundaries.

5.4.3. ENVIRONMENTAL TOXICITY

The above discussion of boundary functions is also relevant in regards to the environmental toxicity that is becoming pervasive within our modern industrialized planet (Landrigan et al., 2016). Normally functioning boundaries should serve to reduce the amount of environmental toxicity that enters a patient.

For that external toxicity which nevertheless *does* inevitably manage to penetrate the boundary and enter the internal, it is important to understand that adaptive immune function occurs not only in relation to the antigens present on pathogenic organisms - the same highly targeted immune process is also used in identifying and then inactivate or remove environmental toxins. Just as pathogens are identified, memorized, and then addressed via adaptive immune functions, so too are toxins - whether that toxin is derived from a pathogen (for example, as in the case of the diphtheria bacillus), or from the wider

environment (Kreitinger, Beamer, & Shepherd, 2016). In the current industrial era, exposure to environmental toxins is omnipresent and increasingly intense (Landrigan et al., 2016), thus immunocompetence in this regard is highly necessary, and will only become more so over time.

Given the benefits to immunocompetence and immunoregulation that osteopathic manual intervention provides (as discussed in SECTION 4.6 DISEASE TOLERANCE MECHANISMS), Osteopathy likely also has a helpful role to play in gaining and maintaining ideal immune functionality with respect to adaptation to environmental toxicity.

5.4.4. LIFE, SELF-ORGANIZATION AND IMPOSITION

A repeatedly emergent theme within this research was Still's conclusion that, given the infinite nature of reality and its innate tendency towards appropriate self-organization into individuated units of coherence, the wisest course of action when treating an individual patient is simply to facilitate the expression of this underlying universal process. This is in contrast to the alternate approach utilized within the orthodox medical tradition - wherein one seeks to understand the complete intimacies of all dynamics which are at play within a patient. After this analysis is complete, the practitioner then imposes onto the patient's dynamics the outcome or state which the *practitioner* has deemed to be appropriate.

There are exceptions to Still's above approach of facilitating self-organization. Still's reliance on self-organization took place within his larger methodology of a triage of intervention (see SECTION 3.6.6 STILL'S TRIAGE OF INTERVENTION). In extreme cases of acute injury or chronic degeneration, Still felt that surgery, antidotes to poison, and in the case of smallpox, the medication cantharidin, were warranted as the 'lesser of two

evils'. A pragmatic approach was taken to each scenario by Still, while the ideal of simple facilitation of self-organization was acknowledged throughout. When surgery was employed, it was to be used as a means to restore as much normality of autonomy as possible.

This remains in contrast to orthodox medical practice, wherein it would seem that orthodox interventions that serve to dictate a predetermined outcome or state are the initial, primary and often sole type of intervention to be utilized. From Still's assessment, utilizing any type of impositional intervention inherently decreases the organism's own capacity to appropriately self-regulate, and thus should be avoided when any other effective means of intervention is available. Furthermore, a personal history of impositional intervention means that it is even more difficult to successfully apply subsequent impositional interventions. As stated by Still:

Before you begin to experiment with any dangerous poison, of cut, try and hope, you find just as great mysteries in the effect of any single drug as in the whole human body. Thus in our ignorance of one law of life as a machine, we increase perplexity when we add a new or foreign element to the competition. (1898c, p.3)

When dealing with complex dynamics, the strategy of impositional intervention can thus *itself* lead to the collapse of what one is seeking to maintain:

Our first instinct in the wake of a failure is to add more safety systems, to just add more and more and more and more layers, which is a very understandable human instinct, but often those layers themselves add more complexity, and then later on it is those things that end up confusing us. (Clearfield & Tilcsik, 2018).

Thus it engenders no surprise to witness the ongoing litany of unexpected consequences accompanying impositional medical intervention. Take for example the non-steroidal anti-inflammatory ibuprofen, which has now been found to not only reduce inflammation, but also disrupt endocrine balance (Kristensen et al., 2018). Or the finding that post-operative morphine not only decreases acute pain but may also substantially increase the subsequent occurrence of chronic pain (Grace et al., 2019). Or how the class of statin-drugs used to lower blood-cholesterol levels have now also been identified as inducing a global metabolic shift strongly predisposing patients to the onset of type 2 diabetes (Zigmont et al., 2019). In fact, of the total pharmaceutical medications that have been introduced to the public in recent years, one third were only later found to cause unforeseen and dangerous additional ‘side’-effects (Downing et al., 2017).

Hotamisligil, the leading researcher in immunometabolism whose work was discussed earlier, warns of the outcomes of impositional intervention in regards to immune function:

An active immune system is required for acute responses and organismal maintenance, and thus integrity of the tissue function as well as metabolic homeostasis cannot be sustained without the immune response. Hence, general disruption of inflammatory pathways may not only compromise the ability to combat invaders but also result in tissue damage and even induce systemic inflammation through the disruption of repair and remodelling or by creating dysbiosis. A thoughtful consideration of the implications of manipulating immune responses to treat chronic diseases is therefore warranted. (2017, p.183)

The above conclusions demonstrate the urgent need for an overall shift within our cultural paradigm of health and healing. The findings of this research indicate that an

appropriate therapeutic methodology would necessarily consist of a revised protocol of interventional triage. This protocol would be in alignment with the one utilized by Still, wherein both prevention and intervention consist first, and if possible exclusively, of facilitation of the individual's capacity to **autonomously** self-regulate. Impositional intervention would only be employed within scenarios wherein emergency or advanced chronicity present no other option (Hartman, 2020). A protocol such as this would certainly not be limited to manual intervention alone, but would include all aspects of human life and well-being - thus moving the focus beyond the individual to the levels of household, extended family, community, and natural environment (Fahlgren, Nima, Archer, Garcia, 2015).

A shift such as this in the cultural conception of health and healing would lead to greater resilience in the face of unavoidable acute disease and injuries, a decreased incidence of disease of all types, and the cultivation of health and health-care as the foundation of medical intervention, rather than a focus on disease-management.

5.4.5. MULTIDRUG-RESISTANT ORGANISMS

When navigating infectious diseases, the orthodox medical tradition has often strategized to eliminate the presence of pathogenic organisms. There has been many great advances and tremendous successes in the history of the application of this orthodox approach to infectious disease (Fauci & Morens, 2012). Yet it must also be understood that in the relatively short period of time over which this approach has been implemented, many pathogenic organisms have quickly evolved a resistance to some, or even all, of the available pharmaceutical interventions used to enact the orthodox strategy of pathogen-elimination (Tacconelli & Margin, 2017). Especially in regards to pathological bacteria, it seems a new ecological reality is taking place wherein pharmaceutical antibiotics will

inevitably and sequentially become rendered obsolete through rapid bacterial evolution (Centers for Disease Control and Prevention [CDC], 2017).

If a wide-spread cessation of antibiotic efficacy were to take place, or even a complete cessation of efficacy for a single common strain of pathological bacteria, it follows that a collateral effect would likely be the obsolescence of most surgical procedures (CDC, 2013). This would be due to the risk of acquiring an infection during the surgical procedure, for which no treatment would then be available. The same obsolescence would also then take place for immunosuppressive protocols, such as those commonly employed to treat auto-immune conditions, or avoid the rejection of transplanted organs, or as a side-effect of many cancer treatments. In conjunction with all of this, increased mortality rates from commonplace community-transferred infections would also be expected to take place (CDC, 2013).

While novel drugs are currently in development, there are also other effective means of addressing the above concerns. First and foremost is a general enhancement of resilience to infectious disease, simultaneous with the prevention of conditions which necessitate these risk-associated medical intervention (as detailed in the previous SECTION 5.4.1 PREVENTATIVE MEDICINE).

Yet even in the case of an already occurring and active infection by a multidrug-resistant organism, the strategy of enhancing disease tolerance would once again be of supreme value (Hodge, 2011; Soares et al., 2012). This was previously discussed in SECTION 4.6 DISEASE TOLERANCE MECHANISMS, including the work of Soares et al., a group of immunologists who concluded that: “Targeting tissue damage control and

disease tolerance might be a major therapeutic option when treating infectious diseases caused by multidrug-resistant pathogens” (Soares et al., 2012, p.488).

It then follows that this same strategy would also be of primary value for those infectious diseases for which there is *already*, **currently** no viable orthodox treatment - such as most viral diseases in general, or for example chronic Lyme borreliosis and its common co-infections.

5.4.6. PANDEMICS

Given the conclusions of the current study up to this point, it then follows that osteopathic manual treatment would also be a valuable primary intervention within the scenario of a modern global pandemic. It appears that Osteopathy may have previously fulfilled this role with great success during the 1918 “Spanish” flu pandemic, as was discussed in SECTIONS 4.3 THE 1918 “SPANISH” INFLUENZA PANDEMIC and 4.4 SEVERITY OF CONDITION DETERMINES THE DURATION AND FREQUENCY OF TREATMENT.

One of the primary reasons that Osteopathy could be of such value within a global pandemic scenario is that osteopathic manual intervention can be implemented:

- preventatively - thus bolstering all types of disease resistance *before* the epidemic pathogen is encountered by the individuals of a particular community
- in the absence of finite technological resources that would be in short supply during such a scenario: such as diagnostic lab work, medications, ventilators, hospital beds
- as a means of reducing the severity and progression of existing cases of the disease, thus serving to reduce the demand for the above listed finite technological resources

- as a means of bolstering the resilience of other health-care workers, whose personal reserves would be over-stretched when dealing with the overwhelming demands of providing care during the health-care system surge that would accompany a pandemic

As noted by Patterson (2005) and D'Alonzo (2004), while vaccination would be extremely valuable in the scenario of a global pandemic, an effective vaccine that was specific to a novel pathogen would likely necessitate an extremely lengthy period of time for its sequential development, production, distribution, and then implementation. In all likelihood this would be far too long of a timeline to allow a vaccine to be of any utility during the brunt of a rapidly spreading global pandemic.

Whereas in contrast, osteopathic manual treatment would be available at any time, in advance of the arrival of the pathogen within a community, and throughout the duration of the pandemic. If and when a vaccine was eventually made locally available, osteopathic manual practice would again be valuable as a means of decreasing the time required for the vaccine to take effect, while also enhancing the efficacy of the vaccine - especially in those populations most at risk such as the elderly and others experiencing a decrease in immunocompetence (Measel, 1982; Jackson et al., 1998).

5.4.7. TWO 'WORLDS' WITH A SHARED DILEMMA

Many of the factors in play during a global pandemic - such as the simple lack of the resources required to enact orthodox medical intervention - is the very same scenario in which much of the world's population exists day-to-day. The basis for most orthodox diagnosis and treatment is a framework of expensive and sophisticated. The simple result is that orthodox healthcare is thus inaccessible to the majority of the world's population (Marmot, 2005; Whitehead, 1992; World Health Organization [WHO], n.d.-a). This

situation is likely to remain in place, or become even more prevalent as economic inequality continues to grow between and within nations (Organization for Economic Cooperation and Development [OECD], 2011).

Yet even within economically wealthy nations, chronic disease is so increasingly prevalent as to be almost ubiquitous (WHO, n.d.-b). In this so-called ‘first-world’ context, care primarily consists of technology-based interventions that are expensive: both economically (Law et al., 2012; Morgan, Li, Yau, Persaud, 2017) and ecologically (Buhner, 2002), while nevertheless producing often unsatisfactory patient outcomes (WHO, n.d.b).

Simply residing in a remote location often dictates a lack of access to orthodox medicine. Funding for technological medical care is often not available to the economically poor, no matter what region of the world they live in. Existing access to technological medical supplies and equipment can become limited by a sudden increase in demand.

Yet in all of these cases, osteopathic manual treatment holds the potential to provide primary and foundational prevention and care for most conditions - all while necessitating no more resources than the presence of the practitioner. Furthermore, the training of additional practitioners requires nothing more than a capable mentor, access to anatomical information, and a passion to aid one’s community. In fact this was the very scenario that the first students of Osteopathy engaged in with the direct tutelage of A.T. Still.

5.4.8. REASONABLE EXPECTATIONS

The above rather glowing assessment of the potential which osteopathic manual therapy holds must also be balanced with an understanding of its very real limitations.

Take for example the case of the early Osteopath and former secretary of the American School of Osteopathy [ASO], Henry Patterson, DO, who died as a result of an “injury sustained while raising a heavy window in his office”, this being the mechanism by which he “wrenched his spine in the dorsal region” (Still, 1902c, p.178). Soon afterwards Patterson died “of peritonitis superinduced by inflammation of the liver” (Still, 1902c, p.178). One can only guess that from the very onset of his injury Patterson received adequate osteopathic care of his injury, given that his wife was also a graduate of the ASO.

Indeed one need only look to the writings of A.T. Still himself to see the limitations of Osteopathy readily acknowledged. In a number of places Still described how of those patients suffering from a particular condition, a certain percentage will recover completely, while some lesser percentage will be relieved to one degree or another, while some will not even experience a temporary reduction in their symptoms (Still, 1898h). In *The Journal of Osteopathy* Still wrote:

Some die and we cannot help it. We would save all if we could, but many come too late; disease has got in its work, and the case is without hope. I would give worlds to be able to cure and send all home well. (1898h, p.209)

You say there are some failures. Yes, who would not expect it. You are called to treat people who have been poisoned and diseased beyond the possibility of anything except a little temporary relief... (1908b, p.562)

In fact in the years immediately after Still began to teach Osteopathy, his beloved son Fred was “crushed between a horse and the wall of a barn, causing a complete displacement of the heart, inflicting an injury, the adjustment of which was beyond the

reach of human power” (“Obituary”, 1894, p.1). Still was unable to save his son, though his full skill must have been employed in the attempt.

While osteopathic manual intervention is powerful, and applicable across a huge diversity of scenarios, it is also no guarantee of a particular outcome in any given scenario. When dealing with an exponential process such as the cascade of disease, the most effective time to intervene is as early as possible. Yet even then, some mechanisms of injury are so severe as to preclude manual intervention from being useful for anything other than palliative care.

5.5. ENACTING FINDINGS WITHIN A MODERN OSTEOPATHIC PRACTICE

5.5.1. APPROPRIATE FREQUENCY OF TREATMENT

One of the major findings of this study is that the frequency of treatment found within historical osteopathic practice is far higher than is commonly found within modern Osteopathy. Furthermore, it was demonstrated that based upon the osteopathic conception of health and disease, a modern increase in frequency would likely bring about better outcomes for patients experiencing both acute and chronic conditions. Some potential solutions are provided below in regards to transitioning or accommodating an increased frequency of treatment within a modern osteopathic practice. The challenges to this are then subsequently discussed.

5.5.2. STRATEGIES FOR INCREASING FREQUENCY OF TREATMENT

Patients must be educated in advance, that when they are acutely ill - even with a mild or moderate infectious disease - they need not cancel their existing osteopathic appointment. Rather they should be encouraged instead that osteopathic manual treatment is all the more warranted in their distressed state.

Thus it also holds that patients should be educated in advance, that should they experience an future acute illness when they do not have an upcoming appointment, it would be appropriate to contact their osteopathic practitioner and make additional appointments at that time so as to aid their swift and complete recovery.

Given this approach, additional factors in need of consideration are the implementation of proper protocols involving hygiene so as to prevent transmission of a pathogen within the community. As well, ill patients must not exhaust themselves in commuting to and from an appointment - thus in some instances, the burden of travelling to receiving an osteopathic treatment may outweigh the benefits of that treatment. This must be closely understood and assessed by both parties. Patients must also be clearly informed that osteopathic manual treatment is *adjunctive* to orthodox care, patients must not be discouraged from orthodox care, rather encouraged and referred to orthodox care when appropriate.

In the above scenario of acute illness, a single, long-duration treatment may be inappropriate as it would deplete the patient's already strained ability to adapt. Thus one possible means of providing shorter-duration, higher-frequency care plans to such patients would be to schedule them in for a 15-minute treatment at the beginning or end of the osteopathic practitioner's regular work-day. This could then be repeated for as long as appropriate: daily, multiple times per week, or perhaps even book-ending the practitioners starting and ending of the same work-day. While not an expert in this field, the above strategy has been enacted by Paul Putska, DOMP with good anecdotal results (personal communication, March 25 2020).

Ill patients could also be encouraged to have a family member accompany them to their appointment so that the family member might observe and be instructed in simple and appropriate manual care. This would allow treatment to be repeated at an ideal frequency within the comfort of the home-setting, while also off-setting the financial cost of illness.

Still himself taught his patients to treat themselves osteopathically as a means of achieving an ideal frequency of treatment. For example, in patients with constipation Still advised his students to:

Teach your patient how to take the knee-chest position [i.e.: a “child’s pose”-like posture] and gently draw the contents of the pelvis and lower abdomen up, and direct him to do it every night at bed time. (1910, p.209)
[See another description of the same instructions by Still in 1902f, p.192]

Still felt this procedure of “abdominal lifting” in the “knee-and-chest” position was a specifically warranted aspect of treating many conditions, including menopausal symptoms (1910, p.296), dysmenorrhea (1910, p.292), appendicitis (1910, p.221), morning-sickness (1902f, p.309; 1910, p.313), bed-wetting (1910, p.326), dysentery (1910, p.217), and relapsing fevers or infections (1910, p.497-8). Thus it seems that teaching this procedure to patients as a part of their regular self-care would be warranted in a wide spectrum of scenarios.

Still also describes instructing mothers in how to treat their children using manual and hydrotherapy approaches, such as when an infant suffers from a upper respiratory condition such as diphtheria and croup (1899b, p.63). One modern osteopathic physician describes teaching the parents of children who are experiencing otitis media how to perform the “Galbreath technique” at home (Pratt-Harrington, 2000). This allows the

procedure to be repeated at an ideal frequency - both during an acute infection and then as a preventative measure to avoid future incidents.

It would follow that osteopathic practitioners would do well to post a variety of simple instructional videos online, to be viewed as needed by patients and their care-takers. Through this, simple osteopathic interventions could become a part of family-life and commonplace home-care. The incredible benefit demonstrated by the “light-touch” intervention group of the MOPSE studies demonstrates the supreme value of encouraging this type of interaction within the community at large (Noll et al., 2010, 2016).

It should also be noted that Still employed a variety of mechanical aides in his osteopathic practice, including a horizontally-slung rope on which one could rest the suboccipital region during a headache or migraine (Still, 1908c, p.32); a wooden “truss” as an intervention for inguinal hernia to continuously treat the myofascia via the patient’s own movements while simultaneously providing a support for the prolapsed abdominal contents (Still, 1910, p.238); and reportedly, “domes” of various sizes which he used to treat patient’s feet (Purdom, 1936, p.8). The iconic osteopathic physician Rollin Becker, DO, describes prescribing the use of crutches to patients experiencing frozen shoulder - as a means of providing a therapeutic fulcrum with which to treat the dysfunctional region in an ongoing basis (Becker, 1997). Thus approaches that utilize mechanical aids have been and could still be used by modern Osteopaths as a means of increasing the frequency with which their patients receive osteopathic intervention.

This would also include the prescription of the body-mind-spirit healing systems long-established and refined by cultures distant to Still’s own time and place, yet that are now readily available to the modern student. For example, it is postulated that yoga, tai

chi, and qi gong all seem to share a foundational symmetry with Still's own conception of health and disease, wherein the profound therapeutic potential contained within a physical engagement of the individual with the flow of the vitalistic whole serves to act as a powerful medical intervention for all levels of being. The breathwork that acts as the foundation of many of these healing systems could also be a powerful tool to incorporate into osteopathic patient self-care (see for example Weil, 1999, 2014). The renowned osteopathic physician Robert Fulford, DO, incorporated a series of simple breath-body exercises into the care of his patients. Fulford found that with the incorporation of these exercises clinical outcomes surpassed those of manual care alone (Fulford & Stone, 1996, p.173-84).

All of the above mentioned body-breath-movement interventions could then themselves be described, and prescribed, as "osteopathic interventions". Wilborn Deason, discussed this very topic:

...there are those who insist that this or that is not "osteopathic." Often the old-timers are guilty of urging that only "ten finger treatment" is osteopathic. Actually, Dr. Still's early concept of health and disease was wholly a biological explanation and had nothing to do with treatment of any kind. His therapeutics came later, based upon other researches. (1934, p.24)

Harrison H. Fryette, DO, agreed:

If a thing is physiologic it is osteopathic. If it is not physiological it is not osteopathic. Osteopaths are not restricted to manipulation but they are restricted to physiological principles. (1946, p.70)

It is along these lines that the many benefits of intermittent fasting, as discussed earlier (see SECTION 4.7.4 THERAPEUTIC INTERVENTIONS BASED ON A “DORMANT” METABOLISM), could be described as being an osteopathic intervention, and thus their appropriate use encouraged. Surely a wide diversity of beneficial lifestyle practices fall under this same description of ‘non-manual osteopathic intervention’.

Within direct clinical practice itself, Osteopaths would perhaps do well to keep in mind that two **years** of **weekly** treatment were required for Still’s manual interventions to facilitate a complete cure of Margaret Hildreth’s granulated eyelids (Hildreth, 1938). This speaks to the fact that simply because results are not quickly apparent does not mean that they will not come with time. Robert Lever, speaking from his many decades of clinical experience states that: “...the overcoming of a chronic state is a constitutional matter that requires strategy, process and perseverance” (2016, p.109). If Osteopaths do not understand *how* acute and chronic treatment is supposed to work, they are far less likely to be able to enact interventions that *do* work. When disease is understood as an exponential process of increasing loss of normality, enacting an appropriate frequency of treatment becomes a primary concern. In many respects, the frequency of modern osteopathic treatment has become defined by economic and social factors, yet if Osteopathy is to have its full potential efficacy, frequency of treatment must be determined by **biological** factors.

Needless to say, determining which cases warrant what frequency of treatment should be based upon the individual Osteopath’s ever-growing experience base, as well as historical guidelines.

So it is that the findings of this research suggest that, for example, in many cases rather than scheduling a patient for a 60-minute treatment session that occurs once per month, for 5 months, an osteopathic practitioner would likely be of much more use to their patient by instead providing 30 minute treatment sessions, twice per week, for 5 weeks. Or perhaps even 15-minute treatment sessions, three times per week, for just under 7 weeks. Though the total duration of treatment time and cost to the patient would remain the same in each of these above scenarios, the clinical outcomes would likely be very different.

Furthermore, scheduling of this type would allow acute patients to gain access to treatment on short timelines - thereby acknowledging the exponential nature of loss of normality - as well as allowing the practitioner to gain greater experience treating highly acute conditions, including infectious illnesses of short duration. Scheduling in this format was recommended by the experience of Dr. Anthony Chila, an American DO who graduated osteopathic medical school in 1965. Chila went on to a diverse (and ongoing) practice, as well as being the editor of *Foundations for Osteopathic Medicine*. Chila relates how he formatted his busy early practice:

Scheduling for this volume of patients [i.e.: seeing 40-50 patients per day, many of whom received OMT], then, became the Gold Standard for the success which I enjoyed during those years [of general practice in the mid-1960s into the '70s]. Each of my professional offices had a minimum of three (3) treatment rooms. Scheduling for the volume patients was done on the "Crest and Trough" concept (15-20 minutes per patient for x-number of slots of time, followed by a blank period of time for catch-up). It was in learning to use this approach that I considerably expedited my use of time, exemplifying this by being always able to find a slot for the unexpected acute situation! No overloaded, stagnant waiting rooms! No

telling patients: "Doctor's schedule is booked six weeks / months out from today"?! If one is in the business of caring for people, then get on about it and care for people! (personal communication, March 29, 2020)

5.5.3. CHALLENGES TO MODERN APPLICATIONS OF STILL'S CONCEPTION OF IMMUNITY

The serious limitations of modern manual osteopathic treatment in acute conditions must also be acknowledged so that they may be appropriately engaged with moving forward. As is occurring during the current covid-19 global pandemic, osteopathic manual practitioners (outside of those osteopathic physicians trained within the United States) do not have the practice rights to treat within hospitals, and are thus unable to enact the potentially life-saving roles that manual intervention could play inside the current scenario (see SECTION 5.4.6 PANDEMICS). Furthermore, even if an Osteopath was simply to practice only within the community during the current pandemic, given that osteopathic manual intervention must be applied in-person, the risks of pathogen-transmission during the therapeutic encounter is high. Thus the benefit of treatment to the individual is likely outweighed by the associated increase of risk to the community at large. One possible solution to this is to simply teach the general public how to enact simple and effective manual interventions for those who they are already in close contact with (Patterson, 2005, p.500).

Outside of the current pandemic, when during an intense condition a patient is too ill to allow departure from home for manual care but not yet ill enough to warrant hospitalization, or is hospitalized (outside of a pandemic scenario) one mechanism by which osteopathic care could be nonetheless delivered would be to establish a mobile-practice. This would be similar to the practices of Still and the other 'horse-and-buggy'

physicians of his day. Perhaps within any particular community, a willing Osteopath could take on this role as a dedicated specialty, or simply when necessary. Then the entire local area's osteopathic community would be able to refer out to their mobile counterpart when patients were hospitalized, or in those cases when home-based care was seen as the most appropriate option. This mobile practice might thereby also serve an ambassadorial role, introducing hospital staff to the presence and observable effects of osteopathic manual treatment. Perhaps the role of mobile-practitioner would be appealing to an Osteopath at the beginning of their practice as they first establish a referral base, or towards the end of their career as they transition from a full-time practice into retirement.

5.6. SUMMARY OF FINDINGS IN RELATION TO RESEARCH QUESTION FOUR

SECTION 5.2 LEGACY OF TRANSMISSION LOSS related how the basic framework and concept of "...the more severe it was, the more frequent they treated it, but the less amount of time they used to treat it" has not been transmitted forward into modern osteopathic training and practice. A historical factor that helped to create this loss of transmission was the physical absence of access to Still's writings. This was only rectified relatively recently. It was concluded that more Osteopaths should study Still's original texts as a means of encountering and thus being capable of comprehending and applying the useful aspects of his conception of immunity within the modern context.

Osteopathy is formed philosophically. Still's Osteopathy, including his conception of immunity, were an applied philosophy, not a method. The worldview inherent to the orthodox medical tradition is not compatible with the philosophical basis of Osteopathy. Therefore, Osteopathy cannot maintain its essence while also attaining compatibility with a system of validation derived from the orthodox medical tradition.

This must be understood if the osteopathic tradition is to continue moving forward. This is also required if the useful aspects of Still's conception of immunity are then to be implemented by today's osteopathic community.

SECTION 5.3 EDUCATION AND PARADIGM SHIFT discussed how to address the above. It was suggested that an appropriate first step would be for education to take place within the modern osteopathic community regarding the historical scope of osteopathic practice, and the generalized methodology that this historical practice utilized (i.e.: duration and intensity of treatment being inverse to severity, while frequency of treatment and severity increase in parallel).

This would then ideally be accompanied by a wide-spread but deeply personal process of philosophical inquiry within the osteopathic community. This would seek to consciously define what constitutes Osteopathy, what makes Osteopathy distinct, and how it is to be best enacted. This is to say that each Osteopath within the community would thereby become a "self-generating philosopher" (Still, 1908c, p.331).

SECTION 5.4.1 PREVENTATIVE MEDICINE detailed that due to the findings of this research, wherein it was shown that the best and easiest time to intervene in the process of disease is as early as possible, the ideal is then prevention itself. The trajectory and appropriate treatment plans for subtle, permanent, and non-permanent losses of normality were then discussed in relation to prevention. Subsequent relevance to the mechanism of aging and implications for longevity were presented.

SECTION 5.4.2 AUTO-IMMUNITY utilized Still's earlier explicated model of individualized life. This model consists of a self-organized unit of coherent motion surrounded by a boundary. This boundary then interfaces and dynamically interacts with

the ‘non-self’. The normal functions of a boundary were reviewed. The implications of a non-normally functioning boundary were then overlaid with the orthodox conception of ‘auto-immune’ diseases. The two concepts were found to be relevant on the levels of anatomy, physiology and psychology. This was then related back to Still’s model of treatment - seeking to restore a normality of autonomy - as a therapeutic approach to be taken with individuals experiencing such a condition.

SECTION 5.4.3 ENVIRONMENTAL TOXICITY discussed the role of normally functioning boundaries and adaptive immune function in relation to the increasingly pervasive amounts of environmental toxicity experienced within the modern industrialized environment.

SECTION 5.4.4 LIFE, SELF-ORGANIZATION AND IMPOSITION provided suggestions for a pragmatically appropriate cultural paradigm in regards to health and healing. In short, emphasis would shift towards prevention and early intervention based upon facilitation of self-organization, rather than the imposition of predetermined outcomes when overt disease management has already become necessary. This new paradigm would also take place with a view of the multiple relevant interconnected scales of individual, household, extended family, community and natural environment.

SECTION 5.4.5 MULTIDRUG-RESISTANT ORGANISMS illustrated the increasing significance that such organisms will play in the future of healthcare. The potential important roles which osteopathic manual intervention may play in this regard, both as prevention and intervention, were also discussed.

SECTION 5.4.6 PANDEMICS illustrated the utility of osteopathic manual intervention during a pandemic. It was identified that osteopathic manual practice would

be able to fulfill many important roles and complement orthodox care in crucial ways during such a scenario.

SECTION 5.4.7 TWO ‘WORLDS’ WITH A SHARED DILEMMA discussed the lack of accessibility that typifies orthodox medical interventions due to dependence on expensive technological equipment and supplies. This was contrasted with the potential that manual osteopathic practice holds to effectively provide care within these same scenarios.

SECTION 5.4.8 REASONABLE EXPECTATIONS contrasted the above glowing assessments of the power and broad utility of osteopathic care with stark real-world instances wherein manual care was shown to be insufficient, even in the most able of hands.

In SECTION 5.5 ENACTING FINDINGS WITHIN A MODERN OSTEOPATHIC PRACTICE were discussed. This was necessary given that this research found a dramatic incongruence between the frequency, duration and intensity of historical and modern osteopathic treatment. Given that the findings of this research also indicated that better outcomes would likely occur with the adoption of a methodology more in line with the historical findings, strategies for appropriate transition were then discussed. These included: educating patients; fitting acute patients into a practitioner’s schedule on short notice for short treatments; teaching patient’s family members and the patients themselves means of providing themselves basic osteopathic care; and encouraging the adoption of non-manual osteopathic lifestyle self-care. Simply reducing the duration of treatments while increasing their frequency was also seen as being appropriate in most cases. This would require a reformatting of the work schedule of a modern osteopathic practitioner, an example was presented.

SECTION 5.5.3 CHALLENGES TO MODERN APPLICATIONS OF STILL'S CONCEPTION OF IMMUNITY of osteopathic manual care in the above scenarios were addressed. These included the risk of practitioners themselves directly transmitting pathogens within the community during a pandemic, thus necessitating the education of the community to osteopathically treat those whom they are already in close contact with. Access to osteopathic treatment for patients who are house-bound or hospitalized during normal circumstances was also addressed.

This was the means by which Research Question Four was addressed.

6 CHAPTER SIX: SELF-CRITIQUE

6. SELF-CRITIQUE

6.1. OVERVIEW

This chapter addresses the research as a whole and evaluates its successes and shortcomings. Indications for future research are also provided.

6.2. SELF-CRITIQUE

In an article titled *The Pen of An Osteopathic Writer*, A.T. Still posits:

Suppose an incompetent writer, or one who has just finished the course and received his diploma, should take his pen and begin to dilate on Osteopathy, how much farther can his pen reach than what he has learned to say by rote as questions and answers? He has never lead as a teacher of the principles of any branch; all he knows is what has been told to him by books and professors, which leaves him wisely prepared to drill himself in the school of experience, which is the place to reduce theory to knowledge, in which place he must learn all he will ever know of Osteopathy; as not blind faith in what we have, but what he proves and knows is what is demanded of him. (1899d, p.476)

It is hoped that the above description does not apply to the current research, yet it surely does to one degree or another.

6.2.1. ON TARGET

This research transformed many of the biases and assumptions of this author. This was most evident in the shift that occurred from the research proposal (wherein it was a stated bias of this author that Still *had* independently originated the conception of immunity), to the finalized thesis - wherein this same position was then roundly refuted due to the contextualized historical timeline that had been compiled (see SECTION 3.3.12

SHOULD STILL BE CREDITED WITH ORIGINATING THE ORTHODOX CONCEPTION OF IMMUNITY).

This research was of benefit to the pre-existing literature regarding Still's conception of immunity via the location and interconnection of historical evidence with Still's own writings. For example, this research was the first instance (to the best of the author's knowledge) wherein Still's concept of acquired immunity was identified as being an exact match for the same theory proposed by the orthodox British physician Thomas Fuller in 1730 (see SECTION 3.3.8.1 "SEEDS OF DISEASE"). Or how Still's analogy of the human mind (as a bird with a finite realm inside of which it can only possibly exist) was identified as exactly matching Sir Hamilton's earlier writings within Herbert Spencer's *First Principles* - a book which other authors had previously identified as strongly influencing Still (see SECTION 3.4.10 IMPLICATIONS OF THE UNKNOWABLE). Or simply the discussion surrounding Still's opinion of vaccination - such a discussion was not encountered anywhere else in the literature analyzed in the course of this study (see SECTION 3.2 STILL'S OPINION OF VACCINATION).

This was also true of much of the historical terminology employed by Still that was demonstrated to be crucial to understanding his concepts. This centrally included Still's concept of "fermentation" (see SECTION 3.3.4 "FERMENTATION") - nowhere else in the literature was a discussion of this term found. This despite the fact that it held a central location within Still's conception of the disease process, as well as having a deep historical precedence within the orthodox medical tradition.

Still's use of the term "cell" and "cellular" were another instance of this lack of precedence (see SECTION 3.6.4 "FASCIA", "LYMPHATICS", AND THE "CELLULAR

SYSTEM”). Understanding the definition implied by Still’s use of this term was foundational to Still’s theories regarding health and disease – yet strangely his “cellular” concept seems to not have been identified as meaning ‘tissue spaces’ by any author up to this point.

Along these same lines, it seems that very few modern osteopathic writers (have dared?) write about Still’s conception of the divine. Admittedly this is tricky ground to navigate. Yet it also seems essential that a discussion of Still’s conception of the divine must take place. It served as the basis of Still’s entire holographic philosophy of reality and it was only from this philosophy that Still’s Osteopathy later emerged - as an application *of* this preceding paradigm-shift (see SECTION 3.4 A.T. STILL’S PERSONAL CONCEPTION OF IMMUNITY). Thus discussing any aspect of Still’s Osteopathy outside the context of his conception of the divine is as inappropriate and ultimately unmeaningful as discussing symptoms outside the context of their causes.

This research was conducted from 2016 - 2020, this long duration allowed the relevance of the research topic to be revealed by a series of external sources and circumstances that served to emphasize the importance of the subject. This took place in regards to the discovery of the ‘new organ’ the interstitium (see SECTION 3.6.4 “FASCIA”, “LYMPHATICS”, AND THE “CELLULAR SYSTEM”), the emergent field of immunometabolism entering into prominence within orthodox research (see SECTION 4.7 ANOTHER “LAW OF RECIPROCITY”: METABOLISM AND IMMUNITY), and the current Covid-19 global pandemic - which has itself dramatically displayed the necessity of a quickly-enacted, non-technological intervention for infectious disease processes. Covid-19 may

be a novel human pathogen, but the pathological process it induces is universally common.

6.2.2. MISSED THE MARK

Throughout the journey of this research it has held true that: “The paradox of education is precisely this - that as one begins to become conscious [through education] one begins to examine the society in which he is being educated” (Baldwin, 1963). The above process was advantageous in regards to evolving the author’s own version of Osteopathy. In light of the diversity of opinions and international osteopathic traditions (both historical and modern) to which the author was exposed in the course of this research, a more personal vision has continued to emerge as to what Osteopathy is and how it may be practiced.

Yet in other ways, during this process of educational paradigm-shift the author perhaps fell-short in critiquing Still *himself*. It may have been appropriate and more balanced to give additional emphasis to the instances in which Still was the *opposite* of prescient - when Still was simply outright wrong. For example, when Still asserts that a union of hydrogen and oxygen takes place within the lungs, thus producing water that is then distributed by “the lymphatics” to the rest of the body (ex: Still, 1910, p.463-4). If additional instances wherein Still’s theories were incorrect had been incorporated into this research it may have lent greater balance to the presentation of the overall findings.

On the more technical side of things, in an attempt to meet the original (shorter) research timeline, key informant interviews were conducted much earlier in the research process than the researcher would have preferred. Interviews had originally been planned to begin only once all of the primary literature had been coded and the primary themes had emerged. Yet as the process of coding dragged on, and the body of material to be

coded only exponentially grew as the topic expanded, it was decided that key informant interviews should nevertheless be initiated at that point in time.

This was advantageous in that in some ways it course-corrected the early direction of the research through exposure to others who had deeply engaged with Still's work, but was disadvantageous in that many of the novel findings that only emerged much later in this research process had not yet come to light at the time that the interviews were conducted. Thus some of the central emergent topics were not discussed with interviewees during the initial interview. This short-coming was then compounded by the fact that follow-up communications were rare - given that the time of the key informants is understandably in high demand. As a result, the availability of follow-up communications with key informants was often limited or absent.

The enormous scope of this research was itself both a blessing and a curse. The researcher wanted to hold true to investigating and defining Still's own *personal* conception of immunity. Yet in short order it was revealed that Still's personal conception of immunity quite literally incorporates the whole of reality in both general and particular. Engaging with Still's all-encompassing perspective on immunity was fascinating, rewarding - and exhausting. Thus many threads were left unexplored due simply to lack of time rather than lack of relevance. A number of these threads are described below so that they may hopefully be taken up and followed by subsequent researchers.

6.3. SUGGESTIONS FOR FUTURE RESEARCH

We have given a few thoughts on this line of life, hoping the osteopath will take up the subject and travel a few miles farther toward the fountain of this great source of knowledge and apply the results to the relief and

comfort of the afflicted who come for counsel and advice. (Still, 1902f, p.258)

Below are suggestions for avenues of future research that have emerged through the current study. These include:

- How best to determine what cases warrant which ideal frequency, duration, and intensity of treatment. This may also include quantitative clinical studies.
- The findings of this research as the context for an investigation into an osteopathic theory and practice of manual treatment for anaphylaxis (ie: what is the genesis of the condition from an osteopathic perspective, thus informing both preventative and acute treatment).
- What is the relevance of the findings of this research regarding Still's conception of immunometabolism to the embryological metabolic flows that were identified and discussed by Blechschmidt? (Blechschmidt, 2004) [Thanks to thesis advisor Paul Psutka for pointing this out].
- Herbert Spencer describes each oscillating self-organized unit as consisting of a coherence of motion, this motion then has an axis around which it orbits and organizes (ex: 1863, p.445). Given the unity between structure and function, this must then also hold true in many instances highly relevant to osteopathic practice. What are the axes of motion around which are organized particular pathogens, disease processes, or normal and abnormal immune functions? How are these axes best osteopathically assessed and treated?
- How does Still's version of 'self-organization' compare with the concept of 'emergentism' displayed in John Stuart Mill's popular 1843 book *A System of*

Logic? Would this comparison help one better understand Still's concept of 'self-organization' as identified in the current research?

- How did the American Transcendentalist movement (as typified by Emerson and Thoreau) influence A.T. Still's worldview? What are the similarities and differences? (Nichols, n.d.)
- How did A.T. Still himself define Osteopathy? How does this compare with modern education and practice?
- What is Still attempting to convey when he employs the term "biogen"? (Still, 1899b, 1902f; Comeaux, 2009)
- What was A.T. Still's conception of life (individuated and general)? How does this compare to modern analyses? (ex: Margulis & Sagan, 1995; Capra & Luisi, 2016; Schwenk, 1996) How might this influence modern osteopathic theory and practice?
- What results would come from a deeper investigation into the historical osteopathic approach employed during the 1918 "Spanish" flu pandemic? (Kirksville Museum of Osteopathic Medicine, 2020)
- The topic of Still's concept of "blood seeds" was discussed in this research (see SECTION 3.3.13 THE UTERINE PROPERTIES OF THE FASCIA AND "BLOOD SEED"), yet Still had an entire distinct schema of bodily physiology that was not detailed here. Still's complete schema should be fully identified and discussed in general and particular. Just as the '*lungs / blood seeds / lymphatics*' concept was detailed within this research, so too should be Still's concepts regarding the heart and

brain. This might perhaps be investigated in contrast with the concepts presented by Swedenborg (Fuller, 2012).

- A contrast needs to be presented of what distinguishes Still's Osteopathy from the philosophy underlying orthodox medical practice. Still perceived that the orthodox medical community judges the appendix to be useless, whereas he understood it as an integral 'part' of the holographic 'whole'. Still used this distinction in perspective as a means of contrasting the two worldviews (Still, 1899b, p.223-7; 1902f, p.175). Still felt the underlying essence of this particular example typified an important general difference between the two medical approaches (Still, 1898f, p.161; 1899b, p.222; 1902f, p.85; 1908d, p.434; n.d.-b). Does it? What else constitutes this distinction (from Still's perspective, and in the modern era)?
- Still viewed the holographic structure and function of reality as being central to his conception of reality, and thereby also centrally informing his medical interventions (see SECTION 3.4 A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY). Take for example Still's statement: "In the sky we have constellations of worlds, in the body constellations of molecules. In the sky we have rain clouds, in the body lying alongside the veins are the lymphatics which prepare water and pass it into the veins thinning the crop of blood. This analogy may be carried out indefinitely" (Still, 1895b, p.6). This very same schema, especially in relation to natural structures and fluid flow (PBS Nova, 2011; Clarke, 1995) is now held to be a means of explaining the allometric scaling laws that universally apply to the metabolism of all known species of organisms (West et al., 1997). This same 'fractal' structure/function relationship is then ubiquitous throughout most aspects of biology (Bassingthwaighte, Liebovitch, & West, 1994). 'Fractal' theory (Mandelbrot & Pignoni, 1983) should be investigated more closely and contrasted with the worldview and osteopathic principles proposed by A.T. Still as a potential means of enhancing modern osteopathic manual theory and practice.

- The above topic is also intimately related to Still's interest in (Allego, 2015) and experience of "intuitive consciousness" (Still, 1898e) or psychic phenomena. See APPENDIX G: COMPARISON AND IMPLICATIONS OF ORTHODOX AND UNORTHODOX WORLDVIEWS – RHE EQUATION OF INTUITIVE KNOWLEDGE? for a discussion of this. Apparently such experiences ran in Still's family (Still, 1908c, p.333). What were Still's views regarding intuitive knowing? How did this influence his development and practice of Osteopathy?
- Still reports that his mother's theory regarding cantharidin and smallpox was validated during a smallpox outbreak in Kirksville around 1902, wherein Still's cantharidin protocol was then applied to "2,000 to 2,500" citizens with superb results (1910, p.453; 1902e, p.67). Did this actually take place? If so, what were the results? What do the newspapers etc. from that period report regarding this incident and its outcomes? Answering these questions would help to gain a better overall perspective on Still's time, place, and life history. This enhancement would allow for better interpretation of Still's writings.
- Still frequently mentions an apparently exceedingly common and highly clinically relevant pathological cascade, wherein for various reasons the abdominal viscera slacken and 'droop' into the pelvic bowl, compacting these contents and straining the entire individual with serious repercussions (1902f, p.192, p.309; 1910, p.209, p.217, p.221, p.292, p.296, p.309, p.313, p.326, p.497-8; many additional instances occur within the *Journal of Osteopathy*). Apparently Still also frequently emphasized this within his classroom instruction (Purdum, 1936). A full explication of this process, its assessment and treatment seems to be warranted.
- Very few modern osteopathic sources even so much as mention Still's concepts regarding the influences of weather and season on health (see SECTION 3.3.3 MIASMATIC THEORY). Yet modern orthodox research has now identified clinically

relevant seasonal fluctuations in immune function (Ter Horst et al., 2016), and the importance of circadian rhythm in both parasite / host interactions (Reece, Prior, & Mideo, 2017) and infection in general (Westwood et al., 2019). Along these same lines Still felt it was of utmost importance to understand other environmental influences, such as how “...the membranes which hold the organs of the body in place lengthen by heat and contract by cold” (Still, 1902f, p.241). Traditional medical concepts such as these seem to have been discarded by the modern osteopathic community. Yet exceedingly similar concepts can be found as a central aspect of long-standing medical systems such as Chinese Medicine (Kaptchuk, 1983) and Ayurveda (Lad, 2001). It would seem that Still’s traditional concepts related to the influences of weather and season warrant re-evaluation by the modern Osteopathic community.

6.4. SUMMARY

This chapter presented the successes and short-comings of this research. Novel findings relating Still’s writing to historical evidence included: Still’s concept of acquired immunity being identified as an exact match for the theory proposed by Thomas Fuller in 1730; Still’s analogy of the human mind as a bird which can only experience / exist a finite realm of total reality as matching Sir Hamilton’s earlier same analogy; and the discussion surrounding Still’s opinion of vaccination; the historically contextualized definition of Still’s central concept of *fermentation*; as well as Still’s definition of “cell” and “cellular” as meaning ‘microscopic tissue spaces’; and the indepth discussion of Still’s conception of divinity and how this was foundational to all subsequent concepts within his worldview – all of these points were unique to this research.

Challenges regarding the scope and methodology of the research were discussed. This included the duration of the research timeline, which led to many of the key informant interviews taking place before central themes had emerged.

Many potential suggestions for future research were detailed, including: how to best determine what cases warrant which ideal frequency, duration and intensity of treatment; osteopathic theory and practice regarding anaphylaxis; Still's conception of immunometabolism and its possible relation to the embryological metabolic flows that were identified and discussed by Blechschmidt; identification of the axes of motion for particular pathogens, disease processes, and normal and abnormal immune function; Still's concept of self-organization in relation to his contemporary John Stuart Mill's conception of the same: does this help facilitate a better understanding of Still's thought in this regard?; contrasting Still's worldview with that of the American Transcendentalists; Still's own definitions of Osteopathy versus those presented by the modern osteopathic profession; what was Still attempting to convey when employing the term 'biogen'?; a deeper investigation of the historical osteopathic approach employed during the 1918 "Spanish" flu pandemic; Still's unique schema of bodily physiology should be illuminated and contrasted with that of Swedenborg; Still felt that the implication of teleological intent to reality separated Osteopathy from the perspective inherent to orthodox medical practice – does it?; Still's holographic conception of reality has huge implications for osteopathic theory and practice, it also corresponds closely with the 'fractal theory' that has arisen in mathematics in the 20th century – these two should be contrasted and explicated for further development of the osteopathic profession; the influence of Still's experience of "intuitive consciousness" on the development and

practice of Osteopathy; was Still's cantharidin protocol for smallpox actually widely implemented in Kirksville around 1902? If so, what were the results?; Still's common and extremely clinically relevant pathological scenario wherein the viscera move inferiorly and compress and strain related structures should be investigated and assessed for modern utility; Still's traditional concepts regarding changes and influences of weather and season on human health should be modernly investigated for value.

7 CHAPTER SEVEN: CONCLUSION

7. CONCLUSION

...I can interconnect near and distant patterns by shifting my focus back and forth between them. Nearby patterns give meaning to distant details, which help reveal patterns too large to notice right around me. (Krafel, 1999, p.72)

7.1. OVERVIEW

This Chapter will summarize the study and its findings, as well as present a final commentary based on these.

7.2. SUMMARY OF STUDY

CHAPTER ONE: INTRODUCTION, discussed how this qualitative study was designed to utilize a combination of *documentary-historical* and *field* styles, seeking to examine, attempt to understand and then discuss the essence and application of Andrew Taylor Still's conception of immunity.

The background of this study began with the researcher's own questioning as to whether the traditional concepts found in Still's work are relevant to the modern era. This led to the specific topic of Still's conception of immunity as an avenue of investigation. Still's personal time, place, and experiences are a necessary lens through which to conduct this investigation as, along with a modern perspective, they will yield the best possible interpretation of Still's work in this regard.

The purpose of the thesis is to determine if there is modern practical value contained within Still's conception of immunity. This then involves elucidating: what Still's conception of immunity was, what factors influenced its development, how Still applied

his conception practically, and if any facets of the previous categories may be of use in modern osteopathic practice.

This was justified as being valid due to the manner in which this research itself came to identify a trend in modern key informant interviews, and historical and current osteopathic literature, which demonstrated the loss, lack of application and misinterpretation of Still's conception of immunity in both the historic and modern osteopathic profession. The modern utility and value of Still's conception has been indicated by the results of modern quantitative studies of the effects of its application.

The four research questions were stated and the conceptual design behind the answering of each was detailed. Answering the research questions involved a literature review of the topic. This found but two previous studies, that were assessed as being only indirectly related to the current topic (Stark, 2003; Yen, 2008). A literature review for the topic was also conducted. This included an osteopathic review of all of Still's written works, as well as the web of interrelated biographies, commentaries and modern and historical documents surrounding Still's life and work. Of primary importance in this osteopathic review was Lane's historical book written in direct reference to the topic of Still's conception of immunity (1918). Also included in the literature review of the topic was an external source review, this incorporated modern research overviews from outside of the osteopathic tradition that were identified as being highly related to the current topic.

Assumptions were identified in relation to the researcher's own subjective perception and worldview. Limitations were stated, primarily including the limitations involving a single researcher who only speaks the English language.

In CHAPTER TWO: METHODOLOGY, it was discussed how this qualitative study was designed to utilize a combination of *documentary-historical* and *field* styles. These styles were implemented in reference to the body of literature surrounding and including Still's own writings, as well as emergent themes that were then further developed via interaction with key informants.

The research proposal and acceptance by committee took place in the calendar years 2016-2017.

The variety of qualitative terminology to be implemented within this study were listed and defined.

The four research questions were listed and the means by which they were addressed were briefly discussed. For the first research question this included an osteopathic literature review for the topic, consisting of Still's writings and the constellation of related texts. For the second research question this primarily included the results of key informant interviews. For the third research question this involved an external source literature review for the topic consisting of research overviews and related quantitative studies. For the fourth research question this involved a synthesis of the previous information by the researcher into a coherent set of recommendations and summaries to be presented to the modern osteopathic community.

The literature sample that was incorporated into the study was based on either need or referral, meaning that when new literature was needed to inform a basic understanding of a topic, it was then actively sought out. The initial literature reviews identified the "key conceptual domains" (Crabtree and Miller, 1999, p.94), or themes related to Still's conception of immunity.

The following stage of the study was then conducted utilizing a *criterion* sample of subjects: a sampling method wherein a specific criteria is set for inclusion into the sample population (Crabtree and Miller, 1999). The criterion sample of this study was the inclusion of *key informants*, these being defined as individuals possessing a *specialized knowledge* of the works of A.T. Still.

Potential key informants with specialized knowledge of the themes that had emerged from the literature studies were then sought out, so that topic-focused *unstructured* interviews might be conducted via phone, email, video-chat, or in-person. Interview transcripts were *member checked* by the key informants. Additional appropriate key informants were then acquired via *snowball* sampling. When a key informant or other existing literature referred to another document this also necessitated its inclusion in the ongoing literature reviews.

Reference materials were weighted. Primary rating was given to formal research papers, journal articles, and Still's own writings. Secondary rating was given to directly related osteopathic literature, writings by the key informants in relation to the general topic of Osteopathy, and conference proceedings. Tertiary rating was given to websites and textbooks.

Data was analyzed via two organization styles. 1 - the *editing organization* style, wherein the researcher acts as an editor: cutting, pasting and organizing meaningful information by the creation of various categories to store it within, until the point at which an interpretation develops from these condensed results. 2 - the *immersion / crystallization* (I/C) style, wherein the researcher cyclically immerses themselves in the material until a meaningful synthesis spontaneously arises.

The data analysis process also included *coding*, and an example of coding within this study was provided.

7.3. SUMMARY OF FINDINGS

An essential reading and view list has also been included as APPENDIX H: ESSENTIAL READING AND VIEWING LIST. Review of these essential sources will provide an enhanced context through which to view the below summarized findings.

7.3.1. RESEARCH QUESTION ONE

CHAPTER THREE: A.T. STILL'S CONCEPTION OF IMMUNITY was a means of addressing the first research question: *What was the essence and application of Andrew Taylor Still's conception of immunity?*

In SECTION 3.2 STILL'S OPINION OF VACCINATION, a history of smallpox, inoculation, and the discovery of vaccination by Jenner was presented. A historically contextualized presentation of Still's negative opinion of vaccination and inoculation was detailed. Still understood acquired immunity through his "law of possession", as well as the concepts of '*like cures like*', and *opposites*, as likely respectively derived from the pre-existing traditions of Homeopathy and 'Allopathy'.

In SECTION 3.3 A.T. STILL'S CONCEPTION OF DISEASE, historical concepts and their terminology were defined and identified within Still's writings (ie: "*contagion*", *miasmatic* theory, "*fermentation*"), as a means of understanding Still's conception of disease. This was a means of helping to define Still's conception of immunity by contrasting it with disease - that which immunity seeks to restore to normality.

The work of Justus von Liebig was utilized as a historical lens through which to view the period wherein a *mix* occurred as *vitalism* began to transition into *materialism*,

this being a central theme within Still's worldview and conception of reality. Still's concept of *infection* was shown to have incorporated Liebig's concept of disease as being a type of contagious, errant chemical reaction.

Still's concept of 'innate seeds of disease', was used by him as a theoretical framework to explain acquired immunity. This was shown to have a historical connection to the 1730 writings of the British orthodox physician Thomas Fuller.

Still's 'corn analogy' was presented and identified as a central concept in relation to what would be termed today 'innate immunity'. To Still, it was the *condition* of an individual's '*internal soil*', that dictated the growth or destruction of "seeds of disease" that entered that individual.

Still's opinion and understanding of the revelations brought by the orthodox medical 'bacterial revolution' were presented. Still saw little relevance in bacteria as causative agents, steadfastly remaining focused on the much greater relevance of *internal 'soil' conditions*. The historical contextualization explained this as a likely outcome, given Still's geography and cultural context, amongst other factors. The same could be said of the subsequent orthodox immunological discoveries of the 1890s and onwards - Still likely saw them as but a different presentation of pre-existent theories. Theories for which Still had already developed a successful practical application, whereas the orthodox medical tradition had not, and did not.

Due simply to the fact of the timeline in which Still wrote, Still should not be credited with independent origination of the concept of immunity. Still's earliest publications on any topic whatsoever were well-preceded by orthodox immunological

publications in Europe. The available evidence therefore cannot support any claim to Still's independent discovery of the immunological concept.

Still's conception of "fascia" was defined as being the total elements present within today's so-called *interstitial or extracellular* space - these being: the connective tissue, the region-specific parenchymal tissues, and the terminal structures of the nervous, vascular, and lymphatic systems. All of these elements were seen by Still as being bathed in a constant circulation of bodily fluids. It was at this scale which Still describes the processes of growth and repair via normal "blood seeds", as well as the degeneration and disease that is then caused by the proliferation of abnormal "seeds of disease".

Still's theories regarding the origin and formation of bacteria were presented, these being: **internally** generated abnormal "blood seeds" giving rise to abnormal forms of life, **internal** *spontaneous generation* of bacteria via the decomposition of living bodily products, and in rare examples within Still's writings, the transfer of pre-existent **external** bacteria into the interior of the patient's body. This framework was demonstrated to be consistent with many of Still's contemporaries. Still gave little relevance to bacteria as the origin of disease, his focus lay with normality of fluid circulation.

In SECTION 3.4 A.T. STILL'S PERSONAL CONCEPTION OF IMMUNITY, Still's personal conception of immunity was contextualized within his overall worldview. This especially included Still's "*general and particular*" mode of inquiry - wherein the *particular* was contextualized inside the *general*, and the *general* within the *particular*. The *particular* was also viewed as an instance **of** the *general* - this being (what would today be termed) a *holographic* perspective. This holographic quality was demonstrated

to have been Still's perspective of the individual, the divine whole, and their relation each to (as) the other.

Still had concluded that perceivable, *finite* reality was the many diverse manifestations of a *universal singularity* which consists of *infinite potential*. This conclusion and viewpoint was shown to be held and experienced by many individuals. In fact it is a cultural notion held throughout a wide range of human history and culture.

Still's contemporary the British philosopher Herbert Spencer, wrote the influential book *First Principles*. In this research *First Principles* was used as a guide to the sequence of logic contained within certain key terms Still employs to refer to the divine, these being: "the Infinite" and "the Unknowable". These terms were used by Still to refer to the above mentioned *universal singularity consisting of infinite potential*. The similarity between the contents of Still and Spencer's writings were displayed as justification of the validity of this means of interpretation. Spencer's book was then further employed as a means of explicating Still's concept of *life as motion* - the transfer of *movement* to and from the 'interior/self' and the 'exterior-non/self', across a *boundary* which serves to delineate the two regions from each other and manage their interaction. Still utilized this concept of *life as motion* to describe the universal process he observed wherein *perfectly appropriate organization of motion into coherent individuated units of structure-function* was taking place on all scales of reality - as described by Still through his recurrent use of the phrase "atoms, worlds, beings" within his writings. For the purposes of this research, this concept of Still's was termed '*self-organization*', ie: the process whereby a 'self' as an ongoing process of reorganization first emerges and is then perpetuated through time and space.

It was demonstrated how Still clearly identified *immunity* to be a **particular** instance of the universally **general** phenomenon of *perfectly appropriate self-organization*. Therefore it can be stated that Still viewed all of reality as a direct manifestation *of* “the Infinite” / “the Unknowable”. For Still, these manifestations come into being through this process of self-organization, with *immunity* being but one particular instance of that process. Thus to Still, *immunity* was best comprehended within this context. Therefore by placing *immunity* within this same context for analysis was the means of revealing *Still’s personal conception of immunity* within this research. This was presented in SECTION 3.4.16 STILL’S PERSONAL CONCEPTION OF IMMUNITY SUMMARIZED. In short, Still concluded that the innate organizational action of the universe manifests itself as the self-organizational force which first **creates** and then later **maintains** and **defends** the individual being.

In SECTION 3.5 THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE, Still’s **application** of his personal conception of immunity was detailed. Still took a *pragmatic*, results-based approach to medical practice. This eventually led Still away from using the orthodox reference point of *abnormality* (ie: signs and symptoms) towards a new unorthodox focus on *normality* of structure and function. Still’s new unorthodox medical model crucially differentiated between the *origin* of a loss of normality in the patient’s anatomy and physiology, and the *cause* of their disease. “Cause” was universally identified by Still as being the *exponential loss of normality*. This was thereby also Still’s definition of disease. Thus for Still disease constituted a *process* - a *verb* rather than a *noun*. Whereas the *origin* of a disease, from Still’s perspective, might be any combination of a multitude of initiating factors.

It was demonstrated how this central aspect of Still's unorthodox model, the pragmatic differentiation between *origin* vs. "cause", has been consistently misinterpreted by the osteopathic profession as meaning that all disease *originates* in mechanical trauma. This was clearly not the case, as was easily shown utilizing examples throughout Still's writings.

Still often emphasized the importance of, what would be today be termed, *feedback loops*. These *feedback loops* were both the *beneficial* processes by which the body maintained its self-coherence (ie: 'negative feedback'), as well as the *degenerative* process of disease (ie: 'positive feedback'). This explained for Still the interdependent and *exponential* nature of both health and disease - his "*law of reciprocity*". Thus both the *process* of disease and the *regenerative* action of *self-organization* were identified by Still as both consisting of *cascades* of cause and effect.

Thus from Still's perspective, whether an infectious agent was the *origin* of the *loss of normal internal conditions*, or was itself merely a **by-product** of the *loss of normal internal conditions*, the relevant aspect of the scenario was that an infectious agent **requires** a **constant state** of *loss of normal internal conditions* if it is to **exist**.

Thus Still identified *loss of normal conditions* as a *strategic intent* acted out by infectious agents - they sought to actively disable the *innate defensive mechanisms* of their host.

In Still's application, since disease was defined as the process of exponential loss of normality, and health was the regenerative outcomes of "the law of reciprocity", the *frequency* and *duration* of Still's treatment were determined in reference to the *exponential rate* of intensification of loss of normality. This yet again demonstrates that

Still saw disease as a *process* to be normalized, rather than an *entity* to be banished. Still treated disease by *repeatedly interrupting the **process** of disease with adjustment towards normality*. This approach thereby first decreased and then eventually eliminated the *exponential* nature of the *process* of disease. This approach was applied by Still in all scenarios: acute, chronic, and even palliative.

In SECTION 3.6 APPLICATION OF THE ESSENCE, the centrality of Still's concept of "perfection" was illustrated. To Still "perfection" consisted of a perfection of *design*, not *existence*. Still's "perfection" of design consisted of acting out *the* most appropriate **possible** adaptation. It was in this respect that Still saw adaptation (*self-organization*) as being "perfect". Thus Still focused his therapeutic interventions on providing better *conditions* for the self-organizational capacity of a 'self' (patient) to enact "perfection". It was the *dynamics which cross the **boundary** defining 'self' from 'non-self' onto which Still focused this intervention*.

A modern schema was employed as a means of analysis of the central scenario Still presents throughout his writings. This consisted of the process of *dynamic mutual transfer* occurring across the boundary between 'self' and 'non-self', ie: *inflows* and *outflows*. The *ratio* between these two directions of flow therefore determined the amount of *content* that accumulated in the internal *collection space*. Still used this schema to define both *health* and *disease* - health consisted of a balanced *ratio* between *inflow* and *outflow*, while diseases were the outcomes of various imbalances of this *ratio*.

Still often emphasized the processes of growth, repair and defense of the body as also taking place via this *inflow* and *outflow* of fluid *content* within the *collection space*. "The fascia" and "lymphatics" were terms Still used to describe microscopic fluid-filled

tissue spaces. In Still's understanding, infectious diseases disrupted the *ratio* of *inflow* versus *outflow* on all scales, thus creating the *loss of normal conditions*. It was only inside of these abnormal conditions that an infectious agent could take root, grow, and extend its influence.

Still used this same schema to understand the mechanisms that led to abnormal growth. Still explained abnormal growth as occurring when the *ratio* between *inflow* and *outflow* is imbalanced, resulting in an accumulation of *excess content* within a *collection space*. Rectification of this scenario thereby constituted the treatment for all types of abnormal growth - such as fibroid tumors and even malignant cancers. Modern research regarding the enhancement of the action of immune agents via circulatory changes induced via manual treatment was briefly reviewed. As well as the fact that even on the scale of cellular **function** there has modernly been found the existence of a unity with **structure** (ie: "mechanotransduction"). This was presented as a means of modernly analyzing the theoretical value of Still's historical manual treatment of abnormal growth.

Within Still's therapeutic practices as a whole, he employed a triage of intervention from least to most invasive. This included manual adjustment towards normality, enemas, chemical antidotes, technological stomach pumping, anesthetics and surgery.

Within Still's conception, *metabolic flow* and *immunity* were but two different facets of the same *holographic unity* - namely, universal appropriate *self-organization*. Thus, Still's medical interventions can be described in today's terminology by stating that, in part, *Still treated immunologically via a normalization of metabolism*. Still's stated clinical intervention - ie: normalization of a patient's motions (with a particular

emphasis on fluid flow) - served as Still's means of directly enhancing the patient's capacity to *self-organize*. Greater capacity for *self-organization* therefore creates an effective means of normalizing both the patient's defenses (*immunity*) and capacity for self-regeneration (*metabolism*).

Thus Still's medical intervention did **not** consist of freeing the patient of obstructions or disease agents. Rather, Still's intention was to normalize 'flow' - as a means of empowering the *perfection of adaptation*, or **universal self-organization within (as) the individual**. Still defined health as *normality*, and a normal *condition* fundamentally therefore was comprised of a **normality of autonomy**. Still concluded that a physician can not **create** health, merely **facilitate** its fullest expression. Therefore Still's treatments were a dance with the Unknowable Infinite as it presents itself here and now as a *self-organizing holographic universe-individual*. From Still's perspective, disease consists not of the **presence** of a disease *process*, but rather of a **lack** of *normality of autonomy* - the ability to repair (*metabolism*) and defend (*immunity*) one's 'self'.

This was the means by which Research Question one was addressed.

7.3.2. RESEARCH QUESTIONS TWO AND THREE

In discussion with the thesis advisor, it was agreed that the second and third research questions would be best addressed simultaneously.

Thus CHAPTER FOUR: STILL'S CONCEPTION OF IMMUNITY AS VIEWED FROM TODAY was the means of addressing the second and third research questions:

- ***How can the understanding of A.T. Still's conception of immunity as determined in Question 1 be enhanced by contemporary Osteopaths who have an educated knowledge of him?***

- *What can external sources contribute to a modern understanding of Still's conception of immunity?*

In SECTION 4.2 CYTOKINE STORMS, Still's conception of disease as a *process* to be interrupted, rather than an entity to be expelled, was contrasted with the modern concept of a 'cytokine storm'. The two were found to be in strong alignment both theoretically, and also functionally in practice. A reliable intervention to interrupt cytokine storms remains absent within the modern orthodox medical system, yet seems to have been prominent historically within osteopathic manual practice.

An understanding of cytokine storms is based upon the abnormal dynamics that occur during a dysregulated immune response - ie: "immunopathology". Immunopathology is a state wherein the individual's own maladaptive immune response becomes an important mechanism of injury. In SECTION 4.3 THE 1918 "SPANISH" INFLUENZA PANDEMIC was used as an example to illustrate these concepts and provide a discussion of osteopathic manual intervention in such cases.

SECTION 4.4 SEVERITY OF CONDITION DETERMINES THE DURATION AND FREQUENCY OF TREATMENT, detailed the frequently repeated, short duration interventions found to be typical within historical osteopathic treatment.

SECTION 4.5 OSTEOPATHY AND CYTOKINE CONCENTRATIONS, reviewed the modern literature supporting the ability of manual osteopathic intervention to effectively produce clinically relevant changes, as measured by the biomarkers known as cytokines.

SECTION 4.6 DISEASE TOLERANCE MECHANISMS, explored the *multiple* highly relevant factors in play during infectious disease processes. A distinct set of factors which

support the individual in adapting to the presence of a disease (thereby serving to minimize the intensity and duration of their illness) were discussed. This set of factors have now been termed “disease tolerance mechanisms” by modern immunologists. Disease tolerance mechanisms thereby functionally comprise a means of “immunoregulation” - as they serve to limit the potential for a pathological degenerative cascade of dysregulated immune responses. This is a concept only recently arrived at within the orthodox medical tradition, yet it seems to be in alignment with both the mechanisms of action and the therapeutic strategy that was historically employed within manual osteopathic treatment.

In SECTION 4.7 ANOTHER “LAW OF RECIPROCITY”: METABOLISM AND IMMUNITY, it was shown how the modern orthodox research world is abuzz with the recently discovered principle of “immunometabolism”. This was contrasted with Still’s theories and found to be strongly reminiscent of the relationship Still laid out well over a century earlier regarding the union between energy-transport and defensive capacity as represented by fluid-flow. This ‘two-way street’ of reciprocal influence between immune function and metabolism, on all scales, that orthodox research has recently discovered was detailed in SECTION 4.7.2 SELF-ORGANIZATION: IMMUNITY AND METABOLISM.

SECTION 4.7.3 METABOLIC MODES OF SELF-PRESERVATION, illustrated the modern findings that have demonstrated an inexorable correspondence between specific metabolic states and particular physiological processes. This was detailed in relation to those physiological states that pair with glucose-based versus lipid-based metabolic cycles, as well as the evolutionary conditions that serve to induce either mode.

Employing a lipid-based metabolic cycle induces corresponding physiology that is strongly associated with enhancement of disease tolerance mechanisms.

SECTION 4.7.4 THERAPEUTIC INTERVENTIONS BASED ON A “DORMANT” METABOLISM, described how purposefully inducing this state is the health-strategy undertaken during so-called “intermittent fasting”, and the “ketogenic diet”. The research regarding these interventions was used to demonstrate the huge potential held by a therapeutic intervention that focuses primarily upon immunometabolism in general, rather than particularly categorized disease ‘entities’

SECTION 4.8 DISEASE AS PROCESS RECOGNIZED gave Still credit where credit was due, for the prescience Still displayed by innovating not only a theory which incorporated a deep comprehension of immunometabolism, immunoregulation, and immunopathology, but even more so Still’s further development of a readily accessible therapeutic application *of* these principles.

SECTION 4.9.1 OSTEOPATHIC MANUAL TREATMENT OF INFECTIOUS DISEASE: HOW?, theoretically described how an osteopathic manual intervention into an infectious disease process might take effect. This can be explained by the ability to manipulate multiple relevant elements that interact within the scenario, as well as the relationships *between* these elements, rather than simply seeking to influence the pathogen or symptoms in isolation. This strategy thereby allows osteopathic manual intervention to directly or indirectly influence all elements and relationships, thereby including the pathogen and symptoms as well.

In SECTION 4.9.2 MICROCIRCULATORY COMPARTMENTALIZATION, the importance of “compartmentalized” abnormality of microcirculation during infectious disease

processes were detailed, as well as how it is that pathogens specifically induce this loss of normality as a strategy to extend their influence while also simultaneously protecting themselves from the defensive capacities of their host. This is to say that pathogens often specifically dysregulate the immune function of their host as a means of feeding on and defending themselves from that same host. Malignant tumors have recently been understood to utilize the very same strategy. Still not only described many of these dynamics in detail but also developed specific therapeutic strategies in relation to them.

SECTION 4.9.4 INFLAMMATION AND LYMPHATICS described in detail the role of the lymphatic system during the sequential phases of the inflammatory cycle, and how this cycle may become ‘stuck’ in a particular phase if bodily fluids are unable to circulate appropriately. It appears that Still accurately identified and described these microscopic processes, as well as their resultant roles in pathology.

SECTION 4.10. DOSAGE AND FREQUENCY, described the historical and modern characteristics of manual osteopathic treatment of acute disease processes. These qualities were found to be a series of high-frequency, low-duration, low-intensity interventions; wherein early initiation of treatment was therefore seen to be a key factor in desired outcome. Early timing of interventions serve to prevent an exponential spread and intensification of loss of normality - this being what the disease process consists of.

SECTION 4.10.3 THE MORE SEVERE THE ILLNESS, THE MORE SUSCEPTIBLE TO INFLUENCE, detailed how, for better or worse, during illness a patient is substantially more open to both internal and external influences. Thus the ability of manual intervention to influence a patient can be said to be in direct proportion to the intensity of

the disease which that patient is suffering with. This is due in part to the reciprocity between immune responses and the experience of pain.

In SECTION 4.11 a SUMMARY OF GOALS SOUGHT FOR PATIENTS EXPERIENCING THE DISEASE PROCESS was presented. Ideally, each of these goals was found to be accomplished in conjunction / relation each of the other goals - therefore all were often engaged in simultaneously. The dynamics **between** these various factors are themselves often the focus of osteopathic manipulation. An osteopathic intervention in these cases serves as a means of preserving and restoring the patient's own self-regulatory capacity. The achievement of the overarching goal of normality of autonomy is what should determine the duration and intensity of an osteopathic manual treatment. The frequency of treatment is then best determined by the subsequent duration of time during which the patient possesses a sufficient capacity for self-organization. If self-organizational capacity begins to wane, treatment is again indicated.

This was the means by which Research Questions Two and Three were addressed.

7.3.3. RESEARCH QUESTION FOUR

CHAPTER FIVE: IMPLICATIONS AND APPLICATIONS IN MODERN

OSTEOPATHIC PRACTICE addressed the fourth, and final, research question: ***From the information accumulated in questions 1 - 3, how might Still's conception of immunity contribute to modern osteopathic practice?***

SECTION 5.2 LEGACY OF TRANSMISSION LOSS related how the basic framework and concept of "...the more severe it was, the more frequent they treated it, but the less amount of time they used to treat it" has not been transmitted forward into modern osteopathic training and practice. A historical factor which helped to create this loss of transmission was the absence of access to Still's writings. This was only rectified

relatively recently. It was concluded that more Osteopaths should study Still's original texts as a means of encountering and thus being capable of comprehending and applying the useful aspects of Still's conception of immunity within the modern context.

Osteopathy operates from a philosophical basis. Still's Osteopathy, including his conception of immunity, were a philosophy - not a method. The worldview inherent to the orthodox medical tradition is not compatible with the philosophical basis of Osteopathy given that the orthodox tradition only recognizes a single valid means of inquiry. Therefore, Osteopathy cannot maintain its essence while also attaining compatibility with the sole mechanism of validation dictated from the orthodox medical tradition. This must be understood if the useful aspects of Still's conception of immunity are to be implemented by today's osteopathic community.

SECTION 5.3 EDUCATION AND PARADIGM SHIFT discussed how to address the above. It was suggested that an appropriate first step would be for education to take place within the modern osteopathic community regarding the historical scope of osteopathic practice, and the generalized methodology which this historical practice utilized (ie: duration and intensity of treatment being inverse to severity, while frequency of treatment and severity increasing in parallel).

This would then ideally be accompanied by a wide-spread but deeply personal process of philosophical inquiry within the osteopathic community. This would seek to consciously define what constitutes Osteopathy, what makes Osteopathy distinct, and how it is to be best enacted. While this process would involve the entire community, ultimately, due to the very nature of Osteopathy itself, each practitioner must become a "self-generating philosopher" (Still, 1908c, p.331).

SECTION 5.4.1 PREVENTATIVE MEDICINE detailed that due to the findings of this research, wherein it was shown that the best and easiest time to intervene in the process of disease is as early as possible, the ideal time for intervention is to enact prevention. Theoretical trajectories and appropriate treatment plans were discussed for subtle, permanent, and non-permanent losses of normality. Prevention was emphasized. Subsequent relevance to the mechanism of aging and implications for longevity were thereby also presented.

SECTION 5.4.2 AUTO-IMMUNITY discussed this topic through a utilization of Still's earlier explicated model of individualized life. This model consists of a self-organized unit of coherent motion surrounded by a boundary. This boundary then interfaces and dynamically interacts with the 'non-self'. The normal functions of a boundary were reviewed. The implications of a non-normally functioning boundary were overlaid with the orthodox characterization of 'auto-immune' diseases. The two concepts were found to be relevant to each other on the levels of both body and mind. In regards to theoretical appropriate intervention, Still's model of treatment was again referred to - ie: seeking to restore a normality of autonomy. This was determined to be an appropriate therapeutic approach to be taken with individuals experiencing these conditions.

SECTION 5.4.3 ENVIRONMENTAL TOXICITY discussed the role of normally functioning boundaries and adaptive immune function in relation to the increasingly pervasive amounts of environmental toxicity experienced in the modern industrialized environment. Theoretical benefits were discussed.

SECTION 5.4.4 MODERN FIELDS OF APPLICABILITY FOR STILL'S CONCEPTION OF IMMUNITY provided suggestions for a pragmatically appropriate cultural paradigm-shift

in regards to health and healing. In short, emphasis would move towards prevention and early intervention based upon facilitation of self-organization, rather than the imposition of predetermined outcomes. Avoiding the necessity of overt disease management was to become the primary focus of intervention, rather than overt disease management itself. This new paradigm would also take place with a view of the multiple relevant interconnected scales of assessment and treatment: individual, household, extended family, community and natural environment.

SECTION 5.4.5 MULTIDRUG-RESISTANT ORGANISMS illustrated the increasing significance that multidrug-resistant organisms will play in the future of healthcare. The potential important roles which osteopathic manual intervention may play in this regard, both as prevention and intervention, were discussed.

SECTION 5.4.6 PANDEMICS illustrated the theoretical utility of osteopathic manual intervention during a pandemic. It was identified that osteopathic manual practice would be able to fulfill many important roles and complement orthodox care in crucial ways during such a scenario.

SECTION 5.4.7 TWO ‘WORLDS’ WITH A SHARED DILEMMA discussed the lack of accessibility which typifies orthodox medical interventions due to reliance on expensive technological equipment and supplies. This was contrasted with the potential roles which manual osteopathic practice may provide within these same scenarios.

SECTION 5.4.8 REASONABLE EXPECTATIONS contrasted the above glowing assessments of the broad utility and power of osteopathic care with stark real-world instances wherein manual care alone was proven insufficient, even in the most able of hands.

In SECTION 5.5 ENACTING FINDINGS WITHIN A MODERN OSTEOPATHIC PRACTICE were discussed. This was necessary given that this research found a dramatic incongruence between the frequency, duration and intensity of historical and modern osteopathic treatment. Given that the findings of this research also indicated that better outcomes would likely occur with the adoption of a methodology more in line with the historical framework, strategies for an appropriate transition were then discussed. These included: educating patients, fitting acute patients into a practitioner's schedule on short notice for short treatments, teaching patient's family members and the patients themselves means of providing their own basic osteopathic care, and encouraging the general adoption of a variety of non-manual osteopathic lifestyle self-care strategies. Simply reducing the duration of treatments while increasing their frequency was also seen as being appropriate in most cases. This would require a reformatting of the work schedule of a modern osteopathic practitioner, an example of this was then presented.

SECTION 5.5.3 CHALLENGES TO MODERN APPLICATIONS OF STILL'S CONCEPTION OF IMMUNITY in the above scenarios were addressed. These included the risk of practitioners themselves directly transmitting pathogens within the community. Means to provide access to osteopathic treatment for patients who are house-bound or hospitalized was also addressed.

This was the means by which Research Question Four was addressed.

7.4. SELF-CRITIQUE

CHAPTER SIX: Self-Critique presented the successes and short-comings of this research. Novel findings relating Still's writing to historical evidence included: Still's concept of acquired immunity being identified as an exact match for the theory proposed

by Thomas Fuller in 1730; Still's analogy of the human mind as a bird which can only experience / exist a finite realm of total reality as matching Sir Hamilton's earlier same analogy; and the discussion surrounding Still's opinion of vaccination; the historically contextualized definition of Still's central concept of *fermentation*; as well as Still's definition of "cell" and "cellular" as meaning 'microscopic tissue spaces'; and the indepth discussion of Still's conception of divinity and how this was foundation to all subsequent concepts within his worldview – all of these points were unique to this research.

Challenges regarding the scope, and methodology of the research were discussed. This included the duration of the research timeline.

Many potential suggestions for future research were detailed, including: how to best determine what cases warrant which ideal frequency, duration and intensity of treatment; osteopathic theory and practice regarding anaphylaxis; Still's conception of immunometabolism and its possible relation to the embryological metabolic flows that were identified and discussed by Blechschmidt; identification of the axes of motion for particular pathogens, disease processes, and normal and abnormal immune function; Still's concept of self-organization in relation to his contemporary John Stuart Mill's conception of the same: does this help facilitate a better understanding of Still's though in this regard?; contrasting Still's worldview with that of the American Transcendentalists; Still's own definitions of Osteopathy versus those presented by the modern osteopathic profession; what was Still attempting to convey when employing the term 'biogen'?; a deeper investigation of the historical osteopathic approach employed during the 1918 "Spanish" flu pandemic; Still's unique schema of bodily physiology should be

illuminated and contrasted with that of Swedenborg; Still felt that the implication of teleological intent to reality separated Osteopathy from the perspective inherent to orthodox medical practice – does it?; Still’s holographic conception of reality has huge implications for osteopathic theory and practice, it also corresponds closely with the ‘fractal theory’ that has arisen in mathematics in the 20th century – these two should be contrasted and explicated for further development of the osteopathic profession; the influence of Still’s experience of “intuitive consciousness” on the development and practice of Osteopathy; was Still’s cantharidin protocol for smallpox actually widely implemented in Kirksville around 1902? If so, what were the results?; Still’s common and extremely clinically relevant pathological scenario wherein the viscera move inferiorly and compress and strain related structures should be investigated and assessed for modern utility; Still’s traditional concepts regarding changes and influences of weather and season on human health should be modernly investigated for value.

FINAL COMMENTARY

...my methods of navigation have their advantages. I may not have gone where I intended to go, but I think I have ended up where I needed to be.
(Adams, 1988, p.292)

The above quotation about sums up this author’s own sentiments at the end of this research. The arrived-at results now feel complete, yet this path has also led to a place that would have been completely unfamiliar at the outset of this project. That is taken as a good sign.

Of the many sources for this study, an essential reading and view list has been included as APPENDIX H: ESSENTIAL READING AND VIEWING LIST. Readers are

encouraged to selectively engage with this source material before, during and after reading the main body of this study.

One of the most surprising outcomes of this study for the author has been the realization of how chronically misunderstood and misinterpreted Still is (and has been) within the osteopathic community itself. Looking back, the author includes himself in this assessment. It would seem that Still is the revered founder who many selectively quote, yet very few actually read and historically contextualize. Hopefully this research will spur a few more motivated individuals to do so.

Or as the osteopathic historian Jane Stark suggested in her key informant interview:

I don't know that we can say we can ever understand him because we can never ask him to clarify what he meant. But I don't think anybody else should tell you what Still meant. I think it behooves you as an osteopathic student to take the time to read at least the first three of his books, and let it mean whatever it means to you, because it will... it will touch you at a level that is not conscious to you. You won't know when and where and how but it will reach you at a level that will change how you think about Osteopathy. So you'll get to appreciate him, I think you'll appreciate him... and if you appreciate him, you will understand, you will come to understand that you have to think in Osteopathy, you have to analyze and synthesize, and not rely on someone else to tell you how it works, or what to do. I think it will help you, should you open your mind at least, realize that the answers, a lot of the answers are already out there, and you don't even need Andrew Taylor Still to tell you. You just have to be in nature and spend enough time with it.

The findings of this study hold many implications for modern osteopathic practice. The simple introduction into modern osteopathic education of the historical framework of *‘the more severe it was, the more frequent they treated it, but the less amount of time they used to treat it and the more often they treated it’* holds so much promise for such a small investment of time and effort in transmission to the profession. Furthermore, the fact that this principle applies just as much to deeply chronic conditions (which seem to typify modern osteopathic practice) as to intensely acute conditions, should serve to re-invigorate modern osteopathic practice. *If we don’t understand how Osteopathy is supposed to work, we won’t be able to practice Osteopathy to its full potential.* These historical findings should be explored and challenged in practice.

Another key finding of this study was regarding the timeline to be expected in treating chronic conditions while utilizing the above framework. As stated by Still:

In some cases the obstruction which is the cause of the trouble can be removed directly by the Osteopathic operation. In others, where the trouble is more complicated or deeply seated, the operator must give such assistance as will enable nature to remove the obstruction herself, and nature, like [sic - like?] the mills of God, grinds slow but exceedingly well. (1897g, p.6)

This approach, of simply repeatedly and consistently seeking to enhance self-organization, rather than ‘remove lesions’, should act as encouragement to the modern osteopathic practitioner. Hopefully this will lead them to more frequent success, and better comprehension of the dynamics in play during those instances in which results (initially?) fail to materialize. The implementation of this approach (historical frequency,

duration, intensity and overall timeline of treatment) has led to greater personal healing for this author than has otherwise been available up to this point.

Along those same lines, the true unceasing globality of Still's original approach was made clear to the author during the course of this research. In individuals with both acute and chronic concerns, the removal of particular 'osteopathic lesions' is no longer sought, rather Still's instruction to seek the means of *normalizing internal conditions* has become the intention. Sometimes this is enacted via interaction with highly specific anatomical locations. Yet as Still said: "When a child dies by disease, he dies all over" (1902f, p.89).

It is hoped that the correlation between Still's historical findings regarding the treatment of abnormal growth and the modern research regarding both immunometabolism and mechanotransduction will be particularly exciting to the modern osteopathic community. These findings also serve to again drive home the point that modern Osteopathy must not rely on evidence-based practices alone - not unless our profession wishes to wait further decades or centuries for the orthodox validation of our methods. Methods which already exist and can be currently safely implemented. The principles revealed by this study can certainly be practiced as an adjunctive measure in instances of abnormal growth, in fact with all patients - with a keen eye towards prevention.

This is itself another finding of this study which it is hoped will invigorate the modern osteopathic community - the central role our modality can play in prevention of loss of health, and promotion of longevity and vitality. *Having a symptom is not the prerequisite for rebooking a patient. Being able to resolve all symptoms is not the*

prerequisite for dramatically benefitting the trajectory of a patient's quality of life. This is especially true for those patients experiencing permanent loss of normality, or as-of-yet unresolved loss of normality. Regular and consistent 'pruning of the branches' of these patients is of supreme importance and benefit.

The initial unfolding of the global pandemic in March and April of 2020 (as these final sections have been written), has also served to emphasize to this author how clearly the need exists for an accessible and effective paradigm, and practice, of health and healing. This holds true both even in the current circumstances and into an uncertain future.

The findings of this study could be a means towards a renewed and hopeful engagement, exploration and implementation of the full potential of Osteopathy as conceived by A.T. Still. A broad-scale application of the useful aspects of Still's conception of immunity, acted out within the context of manual osteopathic care, holds the potential to efficiently meet many urgent needs - and decrease the frequency of future emergencies. The findings of this research point to the fact that the modern osteopathic community can do what they are already doing with even greater effectiveness. Even more so, the findings of this research indicate that the modern osteopathic community has the potential to engage with a far wider scope of practice than is currently conventional. The osteopathic method has accomplished this in the past. Yet it can only do so today if its essence is first understood - so that it may then be effectively applied. An enhancement of community care was the main goal sought for as an outcome of this research, the modern osteopathic community is challenged to enact it.

7.5. SUMMARY

This Chapter summarized the study and its findings. These findings included revelations regarding Still's historical context, the implications of Still's worldview to his development and practice of his unorthodox medical system named "Osteopathy", as well as the basic framework of factors he used to determine the ideal frequency, duration, intensity and timeline of treatment. Final commentary on this was provided by the author.

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APPENDICES

APPENDIX A: SAMPLE LETTER OF INTRODUCTION

Dear (name of potential key-informant),

Please allow me to introduce myself. My name is Michael Thys, and I recently completed the five year program of clinical training at the Canadian College of Osteopathy in Winnipeg, Canada. I am currently conducting the research requirement of a Diploma of Osteopathic Manual Practice (D.O.M.P.), under the supervision of Paul Psutka, D.O.M.P..

Due to your knowledge of the osteopathic profession, you have been identified as a potential source of valuable insight into this thesis-research entitled:

Andrew Taylor Still's Conception of Immunity: Its Essence and Application.

The modern understanding and application of Still's conception of immunity seems to be incomplete. Understanding of both Still's conclusions, and the manner by which he reached them, would benefit from deeper inquiry. The purpose of this study is to explore these topics so that the findings may benefit both the osteopathic profession and the communities served by it. I would like to invite you to participate as a key informant.

Your participation would involve an informal interview conducted in the method of your preference: in-person (conditions permitting), via internet-based video conferencing, by telephone, or email. Subsequent communication may follow if clarification is needed as data analysis proceeds. Your name and your statements will not be published in the thesis without your express written consent.

Your perspective and contribution would be genuinely appreciated. Should you have questions or interest in participating, I can be reached by one of the means listed on the reverse.

In health,

Michael H. Thys, Adv. RMT

Candidate for: Diploma of Osteopathic Manual Practice

In your response please include your preferred means of correspondence.

Email: (author's contact information)

Telephone:

Mail:

APPENDIX B: SAMPLE KEY-INFORMANT CONSENT FORM

I have read the information presented in the information letter about a study being conducted by Michael Thys at the Canadian College of Osteopathy. I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted.

I am aware that my interview will be digitally recorded to ensure an accurate recording of my responses.

I am also aware that excerpts from the interview may be included in the thesis and/or publications resulting from this research.

I was informed that I may withdraw my consent at any time without penalty by advising the researcher.

With full knowledge of the foregoing, I agree, of my own free will, to participate in this study. ☐ YES ☐ NO

I agree to have my interview digitally recorded. ☐ YES ☐ NO

I agree to the use of quotations in any thesis or publication resulting from this research. I understand that I will have the opportunity to clarify, correct or omit any quotations taken from my interview. I prefer the use of:

☐ ANONYMOUS QUOTATIONS ☐ MY NAME WITH QUOTATIONS

Participant Name: _____ (Please print)

Participant Signature: _____

Date: _____

APPENDIX C: LIST OF KEY-INFORMANTS

Listed alphabetically, with a brief biography:

Anthony Chila, D.O., F.A.A.O. *dist*, F.C.A., an American osteopathic physician who graduated in 1965. Chila went on to a long and varied practice, also providing many decades of osteopathic instruction. Editor of the first three editions of the textbook: *Foundations of Osteopathic Medicine*. Professor Emeritus at Ohio University Heritage College of Osteopathic Medicine.

Brian Degenhart, D.O., an American osteopathic physician who graduated in 1989. Clinical director of the MOPSE studies - these being the largest osteopathic clinical studies to date. Current Assistant Vice-President for Osteopathic Research at Andrew Taylor Still's original school of Osteopathy - the Kirksville College of Osteopathic Medicine.

Reuben Bell, M.S. & B.S., Zoology, D.O., an American osteopathic physician. Bell's trajectory has been unique. After an initial ten years in general practice Bell entered the seminary, wherein he earned a Master of Divinity and was ordained by the Church of the New Jerusalem (Swedenborgian). Bell then returned to practice in geriatric medicine, with interest in end-of-life care. He now once again practices family medicine, as well as having recently completed a PhD, the dissertation of which has been adapted and published as the book *Intelligent Default: Swedenborg's Theistic Science and the Problem of Organic Form*.

Tajinder Deoora, MSc, DO(Hons), Dip Phyt, a British Osteopath who graduated in 1983. In 1998 went on to obtain a Masters in Immunology for her clinical study titled: *Using urinary neopterin:creatinine to assess the role of osteopathy as adjunctive therapy in neonatal sepsis*. Author of a number of books, including *Healing through Cranial Osteopathy* (2003). Conducts international osteopathic continuing education regarding immunology. Current faculty at Osteopathie-Schule Deutschland and the Sutherland Cranial College.

Christian Hartmann, MD. Has since left clinical practice to pursue publication and instruction regarding osteopathic history and philosophy. Runs the German publishing house Jolandos. Has published many articles and editorials in a variety of journals (many of which are available at www.jolandos.de). In 2016 Hartmann authored the book *Gedanken zu A.T. Stills Philosophie der Osteopathie: Auf dem Weg zu einer Philosophischen Osteopathie* [Translated from the German as: *Thoughts on A.T. Stills philosophy of Osteopathy: On the way to a philosophical Osteopathy*. Hartmann's many publications are easily and well translated via www.deepl.com].

Matvey Kiperschtein, R.M.T., D.O.M.P, a Canadian osteopathic manual practitioner. Author of the 2014 thesis *The Merit of Philosophy in Modern Osteopathic Practice*. Teacher's Assistant at the Canadian College of Osteopathy.

R. Paul Lee, D.O., F.A.A.O., an American osteopathic physician who graduated in 1976. Conducts osteopathic continuing education including a number of his own innovative approaches and focuses. Author of the 2005 book *Interface: Mechanisms of Spirit in*

Osteopathy which especially discusses the role of fluids in the interstitial milieu. Many of Lee's journal articles are available on his website: <https://cranialosteopathy.com/articles/>

Walter McKone, D.O., a British Osteopath who graduated in 1984. Focuses on Osteopathy's historical philosophical foundation. Author of many articles (a great number of which are available via his website: <https://waltermckone.wordpress.com/>), and a variety of books, including *Osteopathic Medicine: Philosophy, Principles and Practice* (2001). McKone is an international teacher of osteopathic continuing education.

Jane Stark, D.O.M.P., MS, D.Sc.O., a Canadian osteopathic manual practitioner who graduated in 2003. Stark is faculty at the Canadian College of Osteopathy and frequently conducts osteopathic education and continuing education internationally. Stark is widely regarded as an authoritative osteopathic historian. Her thesis, *Still's Fascia: A qualitative investigation to enrich the meaning behind Andrew Taylor Still's concepts of fascia*, has since been published in book-format, in both English and a German translation, through Jolandos publishing house (www.jolandos.de).

APPENDIX D: KEY-INFORMANT INTERVIEW TRANSCRIPTS

Listed in alphabetical order.

Date and means of interview also included.

ANTHONY CHILA**Interview #1, December 12, 2018****Via phone call**

AC: Alright Michael, what's on your mind these days?

MT: Did you want to jump straight into the interview then?

AC: [Chuckles] I have your communications -

MT: Ok, sounds good, ok.

AC: - and I want to have some idea of where you think you're going with this.

MT: Sure, ok. Interesting. So I was just interested to try and understand Still's thinking better, not only the conclusions that he came to but how he got to those conclusions. And then, I'm also interested in - 'How do we then filter that'? How do we decide what is still relevant from his conclusions and what isn't, as we move forward, you know?

AC: Ok that's basically a two-pronged description -

MT: Ok.

AC: Isn't it? First of all you're asking about his conclusions and how he got there, and secondly you're asking how you deal with it, or how you make up your mind what you're going to do with it or can or can't do with it, if I understand you correctly.

MT: Yes, yeah.

AC: Alright, let's talk about Still first. How much in-depth have you read anything that you can put your hands on about what he's written?

MT: Well I've gotten through all of his books, I've gotten through almost all of them twice [thus far], I've read everything that he wrote in the Journal of Osteopathy, and I've read a smattering of what is available through the archives.

AC: Alright, we're going to confine this to Still. If you've read that much of Still, what have you learned?

MT: [Laughs] Hey I thought I was going to be asking the questions here! [Laughs]

AC: Oh the only way I can answer a question is if I understand how the question is being informed.

MT: Fair enough, that is a very good point.

AC: This is a thesis, this is a thesis and I may... what do you want to say... I'm not a devil's advocate, or maybe I am a devil's advocate, but I'm giving you a very straight-forward answer.

MT: Fair enough. So -

AC: So what have you learned from Still?

MT: [Big exhale] What haven't I learned from Still? There's been a whole number of things that as I was reading through it, I thought - "Oh, he was off base here, out-of-date thinking, or out-of-date- information that he was working off of." And then -

AC: Oh! You're one of the enlightened ones of the newer generation, ok go on.

MT: [Laughs] And then, as I continued to read his stuff and then investigate those topics which I had felt that about, I've time and again come to the conclusion that it was only my interpretation of what he was saying that was wrong, or it was plain that the information as it has been presented to me up until this point has been inaccurate and Still was actually correct.

AC: I... incline a bit more toward the latter.

MT: Mm-hmm?

AC: Information being presented may not really be doing justice to Still's original thought.

MT: Yeah.

AC: So I think the question is - if you have read that much, how well prepared are you to be concise in forming a question along the lines of what he actually said about the body's organization in relation to immunity?

MT: And that has been a challenge because just as you were saying earlier, when you were saying that you wanted to hear the context that my question is coming from to better understand it - I've felt that I've had to go into the context that Still was framing his statements inside of, sort of his worldview, because it seemed to me that he was never looking at one thing in isolation, he was always viewing it within the context of reality as a whole, as he experienced it, and as he conceived of it. And so -

AC: You paid attention to the significance of the family circumstances? Loss of family members, acceptable medical management that did not salvage his loved ones? And what this might do on his thinking?

MT: Mm-hmm, mm-hmm [affirmative]. Yeah I feel that his spirituality was likely provoked -

AC: That's not spirituality, that's just fundamental knowledge, day by day.

MT: Yes but I feel that he, having gone through those experiences, that he was searching for some way to understand them or to digest them, that he could find comprehensible. And he -

AC: Which may or may not have anything to do with spirituality at this point of discussion.

MT: Alright. [Pause] So, yeah, it seems to me that he always framed the specific within the general, and so it has been a challenge to try and present his thinking in a concise manner, because it seems necessary to go into such a large context, because his thinking took place in such a large context.

AC: Are you taught to practice osteopathic manipulative treatment or to give displays of osteopathic manipulative techniques?

MT: I'm not sure I understand -

AC: You should. Are you taught, to understand, the implications of the use of osteopathic manipulative treatment?

MT: Hmm.

AC: Or to attempt to deal with, absorb, quasi-synthesize some variable number of osteopathic technical approaches?

MT: I would say that in my training it has been a presentation of both - that the technique has been presented as a means to understand the concept, or become familiarized with the concept which underlies the technique - that the technique is a bridge to not... - to being able to innovate an application as appropriate in the future.

AC: What about thee... possibility of what the body as a body requires in order to be immunologically sufficient and efficient?

MT: Yeah it was a topic that wasn't particularly, that wasn't specifically emphasized within the training, which is one of the reasons that I was interested -

AC: I'm not saying it was any more so down here - that's why I'm asking the question.

MT: Mm-hmm [affirmative].

AC: So is it a fair statement: what are we taught about what the body as a body requires or needs in order to be *able* to sustain and maintain itself as an effective and an efficient organized unit?

MT: It needs unimpinged flow.

AC: Ok, I think that is an underpinning for a consideration of immunity.

MT: Mm-hmm?

AC: And... then that would suggest to both of us that aspects of our training may be lacking?

MT: Yes, yeah.

AC: When we go to all these wonderful things about biomechanics, bio-this, bio-something else, bio-dynamic, up one level, down two, over three and wherever the hell we go and don't define whatever it is that the focus requires. And the focus is the patient, the person, the body!

MT: Mm-hmm.

AC: It's not the quasi-genius of a so-called hand-technical-miracle-worker and all that garbage.

MT: Yes.

AC: Follow me a little bit?

MT: Yes, yes I do.

AC: Ok. When we talk about immunity, before we break it down to some of the things that you have listed as items or ways that you'd like to progress -

MT: Mm-hmm [affirmative].

AC: I would suggest that we begin to formulate a point of view - what is it about this body that *it* requires in order to establish, sustain, maintain itself, as a functional unit within its *environment*?

MT: Mm-hmm.

AC: I think that if you've read a lot of Still Michael that oughta be a week's work before we talk again!
[Laughs]

MT: [Laughs] Oh boy.

AC: And you could be sorry you asked me before this is all over - but I'm not making fun, I'm dead serious.

MT: [Laughs]

AC: [Laughs] So you'll have to accept me on those terms.

MT: Fair enough.

AC: [Laughs] You're thinking about it?

MT: Can I hear the question one more time?

AC: I'm suggesting, that the focal point of a discussion of immunity begin with an organization of thought... to address - what is necessary for this body, this patient, to have, to work with, in order to sustain itself, maintain itself, in its environment.

MT: Hmm... I mean I almost feel inclined to give the same answer as before - that it just... it is like water making its way downhill, we don't need to move the water itself, we just need to make sure that there is nothing retaining the water *from* moving.

AC: Well if you apply that line of thought then we're talking more about osteopathic treatment then we are osteopathic therapy or multiple technical approaches. [Pause]

MT: And so what is the difference between osteopathic treatment and, would it be fair to say osteopathic *technique*?

AC: I'll let you find that out, you're writing the thesis.

MT: [Laughs] Ok. Hmm... I'm curious, you were trained in a very different era than I have been -

AC: That may be true, trained in the year of, let's see, 1961-65 that I was a student - so I've got over 50 years -

MT: Yes.

AC: - so it *was* a different era.

MT: So what was it like at that time? How were you originally trained to, say, access organ systems? Or to influence acute disease processes at that time?

AC: Well let's see... anatomy was probably 2 full years, pathology was a full year, obstetrics and gynecology was extremely intense - a half a year, surgery, internal medicine and other things occupied half a year, so somewhere around half way through my second year, I began to be assigned obstetrical cases, which I was obligated to manage from diagnosis of pregnancy to circumcision of a newborn male.

MT: Hmm.

AC: And I had to complete fifteen before I graduated.

MT: Wow.

AC: And if I didn't complete fifteen obstetrical cases I could walk across the stage with my class and receive an unsigned diploma. Because the dean would notify the head of the educational institution where I planned to intern and say that "Dr. Chila will be at your institution but it may be a few months down the line, he needs 3 more deliveries" and so on and so forth.

MT: Hmm!

AC: Mm-hmm. We also made house-calls, pairs of students in my class, assigned to answer requests for house-calls, complete with responsible management of the pharmacy bag, accountability to the pharmacist, accountability to any physician, specialist or what-have you that we deemed necessary in the course. Also had to document 1000 OMTs [Osteopathic Manipulative Treatments] on clinic patients.

MT: Hmm. Yeah I'd like to get a better idea of how your intention was acted out in treatment at that time, how your training at that time informed that? When you were adjusting the joints of the body, what was your intention? What is your intention?

AC: Wasn't really taught to adjust the joints of the body. It's true that there were only 6 colleges of osteopathic medicine when I started, and 5 when finished, because California merged -

MT: Mm-hmm [affirmative].

AC: - at that period of time. So all the colleges had a uniform curriculum which was easier for faculty to manage and teach given the usual story of short-handed faculty, poor budgets and all this stuff. So we were not really taught to mobilize joints, we were taught to analyze the senses to resistance to motion challenge.

MT: Ok.

AC: And consequently, without calling it twenty-five hundred different names: which is on the CME [Continuing Medical Education] these days, it was the tactile sense, of how the tissue responded, with the active, or passive, or suggestive introduction of motion challenge anywhere beneath my fingertips. As a result, the standard for success was, at the time I thought that I was going to quote "adjust the joint" -

MT: Mm-hmm.

AC: - end-quote, if the tissue did not spontaneously respond before I chose that force I failed the exam. [Pause] Got the idea?

MT: I don't follow the last part - how do you mean the tissue spontaneously responded before you apply the force?

AC: Michael! The joint is a joint, everything that supports it is what's at play - respiration is *thee* major key.

MT: Hmm.

AC: Come now Michael, come.

MT: No I just didn't understand, I thought you meant an intuitive sense of permission being given by the tissue or something like that.

AC: What do you think your fingertips are? Thinking, feeling, seeing, knowing, touching fingers?

MT: [Chuckles] Yes.

AC: Alright. Ok. So that is the way we were taught. And force was just the 5-letter word.

MT: Mm-hmm, mm-hmm [affirmative].

AC: So we were also taught that in any practice, regardless of what we ended up doing, as the indications for this kind of analysis arose, we should use our heads for something besides decoration and pay attention to thought process. That meant surgery, internal medicine, orthopedics, obstetrics, gynecology, anything else. Which is not what happens today, but that's what it meant then. [Pause]

MT: And how large of a role did manual treatment play in your practice at that time?

AC: As a student Doctor or when I graduated and began my own practice?

MT: Once you were in your own practice.

AC: Played every role. Because I was in a community that was heavily populated by MDs and DOs, and DOs in their own right. The community in which I practiced had the problem of many doctors running through it after a period of time, and people became a little leary just because of a new name on the front of the building, you understand?

MT: Mm-hmm [affirmative].

AC: So when I got there, 1966 after my internship, was not at all uncommon for me to have people on their way downtown to work, from work, poking their head in the door, telling my secretary they wanted to ask the Doc a question, wanted to know if she could answer it, "He's a DO: does he use manipulation or doesn't he?". Does that help answer it?

MT: Mm-hmm [affirmative].

AC: Ok. So what I refined for myself was, after I got my feet on the ground and became a very steady and very active practitioner, I had certain protocols. I maintained an ongoing list of particular diagnostic entities in which I was *more* than passingly interested: respiratory, diabetes, terminal patients - you know something like this.

MT: Mm-hmm.

AC: Those people wherever I was always received manual analysis and intervention. Others, if I did not feel that they needed it, and there mostly for a medical check-up / touch-up what-have-you I didn't put so much emphasis.

MT: Mm-hmm.

AC: All obstetrical patients, I had a protocol of manual analysis and intervention. Every hospitalized patient: I had a protocol. Every newborn I had a protocol.

MT: Hmm.

AC: Every nursing home patient, I had a protocol. Every house-call patient, I had a protocol. Does that answer the question?

MT: Mm-hmm, mm-hmm [affirmative]. See I'm interested in, you know you've given these sort of profiles of generalized groups of patients - for a patient with something like an auto-immune disorder, how would we look at that from an osteopathic perspective?

AC: What are some of the fundamental things Still talked about? What did he consider to be the origin of the disease process? What in terms of what you're taught in terms of body physiology or what we think we should understand better about body physiology, leads us into that arena? What's the role of the lymphatic system?

MT: Mm-hmm [agreeing].

AC: Why do we have to pay attention to the circulatory perfusion throughout the body at all? [Pause]

MT: So do you feel that we've been successful as an osteopathic profession in... [sighs] I don't know how to say this exactly, but, in providing an adequate theory *behind* our practice? Because I mean -

AC: Yeah, I think we've lost our focus.

MT: Hmm. [Pause]

AC: Because I do think that teaching in recent years across the board, and I'm not excusing anybody, I think the focus of the kind of things I'm trying to suggest to you, or what I'm discussing with you right now - I think a focus like that has been lost. [Pause]

MT: [Sighs] Hmm. [Pause]

AC: It's never to say it can't be regained but I would say it's a shame that it was lost at all because it was a gem of a viewpoint.

MT: Mm-hmm [affirmative]. So what role do you see for manual osteopathic treatment, or what direction do you see that going into the future?

AC: In my case, I'm looking at this with very much interest right now, because you may or may not know that there's been for the last few years now an ongoing process where residency training, specialty training, between the AOA [American Osteopathic Association] group and the AMA [American Medical Association] group is combining it's path along the ACGME: the American Committee or College of Medical Education - you've probably heard that this is what's going on.

MT: Mm-hmm, yes.

AC: Ok. I'm interested in this very much since the outcome will probably be known during the next year or year and a half when the so-called formal process of this is completed. I'm interested in what happens to people like me, who had practiced for so many years, or been taught under a different viewpoint, or maybe came into certification status without the benefit of formal residencies when they didn't exist you know.

MT: Mm-hmm.

AC: Ok I'm interested to see what that outcome is because if it's gonna be something that's gonna be negative for me, then really I'm talkin' about a *world* different situation than what people are talking about today. That should be obvious.

MT: Mm-hmm [affirmative].

AC: So I'm watching that very very closely because I have avenues in which I teach still. Although I have left Ohio University - I'm no longer formally connected with them.

MT: Mm-hmm [affirmative].

AC: I'm an emeritus professor so that's my status from the board of trustees from the university, but I'm no longer connected with the daily life of the Heritage College. So still I teach, you know by invitation, I go different places and I've obviously already edited and written and all that *stuff*.

MT: Mm-hmm [affirmative].

AC: But I'm just interested in watching that last outcome because that will certainly tell me what I think I might want to do with the few years that I have left. You know how I might want to structure an invitation for a practice, or what kind of age-group or patient I might look for - I think you can understand what I'm driving at there.

MT: Mm-hmm [affirmative].

AC: It's not like you're talking to a 40 year old Michael, you're talking to an 80 year old.

MT: Yes.

AC: [Laughs].

MT: [Laughs]. It is one of the reasons I wanted to talk to you Dr. Chila, you've had a lot longer than I have to gain experience and to feed your curiosity.

AC: Which I'm trying to share with you [laughs].

MT: So here's another question about Still and how we bring that into our modern osteopathic profession - in his writings he talks about the use of cantharidin (I believe I'm pronouncing that correctly?) as a prophylactic and a treatment for smallpox. And he went so far as talking about personally supplying it to Osteopaths: they could write in and he would mail it to them, to ensure that the quality of it was high. And at the same time, Still consistently makes these statements saying that "An Osteopath who uses both manual treatment and drugs is not a true Osteopath". It is almost from month-to-month in the Journal, he'll make the two statements, like "Go down to the pharmacy and pick up some cantharidin", and "A DO who uses drugs is not a true DO in my opinion". So -

AC: Yeah ok, we run across that frequently and that does bother people and maybe it should bother people. What about the fact that the kind of stuff he's talking about *may not have been* the very undesirable type of medicinal agent that was favoured by many medical professionals at his time.

MT: Mm-hmm.

AC: So perhaps, to try to understand that conundrum, perhaps that is what he was driving at: there are some things that are extraneous, that can be useful because they're not as harmful as if you used this kind of substance.

MT: Mm-hmm [interested].

AC: That's one way I've thought about that question myself Michael. I'll just give you that answer for now.

MT: So we could probably pull out a number of other examples of instances where Still contradicts himself -

AC: Or seems to.

MT: - uh yes, yeah, so how do we as a modern osteopathic profession, so how do we filter that? How do we determine -

AC: By being appropriately *analytical* according to the mental disciplines we've been brought up in. For example -

MT: Mm-hmm?

AC: - you probably know there is a now ongoing series of international workshops called, uh... Fascial, uh, Connective Tissue type things that began back in Boston in 2007.

MT: Oh the World Fascia Congress?

AC: Yes.

MT: Yes, yup.

AC: Ok. The most recent one was just held in Berlin Germany last month.

MT: Mm-hmm [affirmative].

AC: That was about number five. I'd been to four of them, and I have all the proceedings, and I'll get the proceedings of the fifth. But. If you have access to the proceedings of the first and second Congresses in particular, where Thomas Findley and Robert Schliep were really the big organizers of those two -

MT: Yes.

AC: Findley, at the urging of a New York Touro University clinical student who was doing a rotation with him, wrote an excellent paper "Fascia at the 100 year Mark and the Understanding of Andrew Taylor Still", have you seen that paper?

MT: No I haven't.

AC: Well, I... I'll tell you what, hang on one second. [Pause as Dr. Chila looks for paper] Ok. Findley, that's his last name, his initials are T.W., Thomas W.

MT: Ok.

AC: Findley, T.W.; Shalwala, first initial "M" as in Mary. Ok? Those are authors -

MT: Mm-hmm [affirmative].

AC: Shalwala was the student, Findley was the primary author. This is the title of the paper: "Fascia Research Congress Evidence from the 100 Year Perspective of Andrew Taylor Still".

MT: Ok.

AC: That's the title of the article.

MT: Ok.

AC: It was published in the Journal of Bodywork and Movement Therapies, in 2013.

MT: Ok.

AC: Volume 17, pages 356-364.

MT: Ok.

AC: Maybe that's a good place to start looking at how you want to discuss aspects of immunity, there are others, but maybe that's a good place to start. That's getting into things that are very near and dear to my heart, look up that article and read it.

MT: Ok, will do.

AC: And when you have, let me know when you want to call again and talk again Michael [chuckles].

MT: No that sounds good.

AC: [Laughs] I'm enjoying this Michael I hope we have some place to go with these conversations.

ANTHONY CHILA

Interview #2, December 19, 2018

Via phone call

AC: Ok, you told me you picked up the article by Findley and Shalwala - did you find anything to help you understand your own idea about immunity?

MT: Yeah there was a number of things in there that I hadn't seen before...honestly most of it I had already come across, and I think it was beautiful in how it displayed how prescient Still was in everything that he was putting forward so long ago compared to the cutting-edge now. One thing that was in there, referenced in a study in there, that I hadn't heard before was how the contractility of the fascia can regulate the volume of fluid held in the interstitial space and how that can be related to edema.

AC: I don't know why that should be so difficult to understand.

MT: Yeah, I just had never seen it framed that way before.

AC: Well besides the fact of giving credit to Still, one reason I suggested that article was one of your comments about general behaviours, publications, research studies and what have you, this particular article is backed up to the hilt with contemporary research studies that specifically address those premises of Still - I hope you recognize that.

MT: Mm-hmm, yep.

AC: Alright so then I'm back to my question - did it do anything to make it more useful to you to fashion your own ideas about immunity?

MT: Yeah I -

AC: Reason I'm asking is I re-read your initial communications -

MT: Mm-hmm, yes.

AC: Alright, you have 5 questions: 1 - did Still display a conception of immunity? 2 - What do I feel his conception was and on what do I base my answer? 3 - Do I observe that modern osteopaths and osteopathic physicians have incorporated a distinctly osteopathic conception of immunity into their practice? 4 - What is that conception, what form does it take? Last - what advantages or disadvantages do you notice or

foresee in utilizing or not utilizing? Ok, you never did say what your definition of immunity was - do you have one?

MT: Well that was kind of the thing that I wanted to try and figure out - what immunity was from Still's perspective.

AC: No. You. You. Do *you* have a definition of immunity?

MT: Hmm. I mean -

AC: Yes or no? That's a yes or no question.

MT: I would suppose yes but it would be -

AC: Michael I'm not interested in suppositions - you're writing a thesis. Do you have a definition of immunity which is something that you plan to be using in the working out of the questions of your thesis?

MT: I do not have a concise definition of immunity -

AC: Ok, fine, because I'm going to strongly suggest that that's a priority item. [Pause]

MT: Ok, yeah I -

AC: The reason I suggest that is because immunity is additionally classified as active, passive, acquired, or natural.

MT: Mm-hmm [affirmative].

AC: And there are definitions for all of those.

MT: Yes.

AC: If you are supposed to be into osteopathic philosophy and you already told me how much Still you've read -

MT: Mm-hmm [affirmative].

AC: I'm nailing you down. What is your definition of immunity? The point from which you are starting to formulate these very questions that I just acknowledged on your paper? I think that's important, because I do think there is a lot of open-ended stuff there that may be confusing to some of your potential contact people.

MT: Yeah and I purposefully left it open ended because I didn't want to impose my viewpoint too much, I wanted to see how you interpreted those questions.

AC: Well I've given you all sorts of answers, I think the Findley paper does a great deal for you in a few pages, you can digest a tremendous amount of that.

MT: Mm-hmm [affirmative].

AC: So your question number 1 [did Still display a conception of immunity?] - the answer would be yes. Now, you can go back and dig through all your readings and see how that fits, and put it against Findley's paper.

MT: Mm-hmm [affirmative].

AC: Now, question number 2 - what the conception of immunity was. Well, what did you get out of your reading about how he viewed the person? The totality of the organism? The environment? You told me you read all those things, what did you get out of it? That is the basis of an answer for question 2.

MT: Mm-hmm [affirmative].

AC: Question 3 [Do you observe that modern osteopaths and osteopathic physicians have incorporated a distinctly osteopathic conception of immunity into their practice?] - No, I don't believe the incorporation is a distinctly osteopathic conception.

MT: And do you feel that that is warranted or not?

AC: That's not the point - I'm answering your question.

MT: Ok?

AC: You asked me a question, I gave you an answer.

MT: I'm just trying to understand your answer... a little bit better.

AC: I'm being as clear as I can Michael.

MT: Yeah, I'm just wondering, do you see validity for the existence of a distinctly osteopathic conception of immunity or do you feel that the osteopathic conception of immunity would just be a variation on the more conventional mainstream conception of it?

AC: Well see I think you could stand to re-phrase the question - now you understand what I'm driving at.

MT: Mm-hmm, I was just hoping for those questions to be a springing off point for our conversation.

AC: Ok, number 4 [What is that conception, what form does it take?]. If I answered no then I can't give you an answer beyond the point of saying that I think the profession at large, osteopaths and physicians, have lost some of their ability to grasp the vision of Still. That would be my answer to question 4.

MT: Mm-hmm [affirmative].

AC: So once again, one has to go back to readings of his writings, his publications, and fashion the idea - just what kind of a vision just did this man have? If Findley took this long to get through 100 years and it was primarily just the fascia, not even the rest of it, then he must have had a lot more vision than just that.

MT: Mm-hmm [affirmative].

AC: And question 5 [what advantages or disadvantages do you notice or foresee in utilizing or not utilizing a distinctly osteopathic conception of immunity?]. Why have programs called colleges of osteopathic medicine in the United States, colleges of osteopathy elsewhere in the world - unless one is going to be a legitimate promoter, demonstrator, utilizer of distinct concepts? Why have 'em? After all medicine is medicine, we should all be under one banner.

MT: Mm-hmm. So how do we go about turning that imbalance around then?

AC: I think Findley's paper does a lot to go ahead and show by direct quotation of the work, what some of the issues are connected with the current understanding, and where validity is shown or not shown in support of research - and what more can one ask for?

MT: Mm-hmm. So you must have encountered, as you were the editor of *Foundations of Osteopathic Medicine* through all those editions, you must have encountered the situation where you were trying to decide, just as we've been discussing here - what from the existing tradition is still applicable, or still...I don't want to use the word "valid" but I can't think of a better word, but - what is still *valid* from the tradition. Or what needs to be emphasized and what isn't the most relevant thing to be discussed.

AC: That has been true since the beginning of the profession, not just in the last 10 years.

MT: So from your point of view, how do we as a profession make that distinction? How do we decide what is the most relevant thing and what can be -

AC: Through the kind of digging work and spade work, what-have you that Findley displays in his paper.

MT: Ok.

AC: Or Willard in his teaching. Or Korr in his writings about the osteopathic profession.

MT: Mm-hmm.

AC: There are precedents. There are people who can demonstrate this - Denslow in his research activity. Louisa Burns - you want a historical perspective? Ok!

MT: Mm-hmm [affirmative]. Ok. So would you have a concise definition of immunity from an osteopathic perspective?

AC: I have a definition of immunity that is acceptable to the common language uses of the English tongue.

MT: Ok.

AC: Ok?

MT: Mm-hmm [affirmative].

AC: That definition happens to be: a condition of being able or the capacity to resist a particular disease, especially through preventing the development of a pathogenic microorganism, or by counteracting the effects of its products.

MT: Mm-hmm.

AC: That's immunity, happens to come from the French - immunité, meaning "immun-" plus "é" then "ity", immunité.

MT: Ok.

AC: Now that wasn't so overwhelming that it could not be useful to people of many different disciplines of practice.

MT: Mm-hmm. [Pause] So when you're practicing osteopathy manually, do you find that you're focusing on, or your intention is towards the immune system, or immune function? Or is that simply incorporated within the whole-person approach?

AC: My practice for many many years has focused on learning how to interact to the maximum possibility and capacity with the patient. [Pause].

MT: Mm-hmm?

AC: [Pause]. Names and labels lose their interest after a certain point of time.

MT: Mm-hmm. So would it be fair to say then that within the context of the interaction of treatment that that sort of theory-based perspective is not the one that you utilize, that it is more experiential? Am I interpreting that correctly?

AC: Experiential is probably the right word or is close to being the right word, yup.

MT: Ok. [Pause] Yeah it seems to me that Dr. Still, that that was sort of his mode of operation as well, that he would have experiences within his treatment, and that he would think about them and formulate theories on them after his treatments. It wasn't so much that he was taking his theory and acting it out within the treatment.

AC: I think that's fair. I think that's fair, because if in his time he was regarded as such a rabble-rouser and castigated so roundly, I strongly believe that would have been the indication of what he was talking about was something very different, something unique if you will.

MT: Mm-hmm [affirmative]. [Pause]

AC: And might that not be suggestive of a reason why the good doctor never really left a cook-book for the peasants to follow?

MT: [chuckles] Yeah it seemed to be that he thought the only way to really learn was to figure it out for yourself, ya?

AC: Ohh! Oohoho! The need for a thinking preacher instead of a braying jack-ass huh?

MT: That's one way of putting it, yup.

AC: It's appropriate.

MT: Yup. So last time we were speaking, you described the body as a "functional unit within its environment" - can you tell me a little bit more what you mean by that term "a functional unit"?

AC: How do you treat people? You use treatment tables?

MT: Yes.

AC: You suspend them in slings hung from the ceiling so you can move 'em around and wiggle 'em and jiggle 'em while you do something?

MT: [chuckles]

AC: [also chuckling] You use a treatment table?

MT: Yes.

AC: Most everybody does. Yeah. It is possible you can do it other ways though.

MT: Mm-hmm.

AC: Ok, if you use a treatment table and you treat, quote "osteopathically" end-quote, to the best of your ability or your mind-set or your skills or whatever-have you - what has to happen when the patient is thought to be finished with the treatment you've administered at that time? What has to happen?

MT: Hmm. They have to be adapted to the situation that they're in.

AC: Ok, but what about the rest of it? How about - they have to be able to get up off the table, put their feet back on the ground and start walking in their environment, with some improvement, some way, somewhere, somehow, with some system, with some part of a system, with some functional increment, that is no longer part of the baggage?

MT: Mm-hmm [affirmative].

AC: Ok. [Pause] That should be fair, shouldn't have any trouble understanding that.

MT: No, yup. [Pause] The term "functional unit" it connected to something I've been thinking about with Still - how Still was looking at people as an instance of a phenomenon that he saw other instances of, on other scales. You know, he wrote about, there is one particular quote, I wish I had it at hand here, but he was talking about how out in the sky he saw constellations of stars, and in the human body he saw constellations of atoms, and how he saw the clouds of rain up in the sky returning the water to the soil, and he saw the lymphatics laying next to the veins returning water to the veins. ["In the sky we have constellations of worlds, in the body constellations of molecules. In the sky we have rain clouds, in the body lying alongside the veins are the lymphatics which prepare water and pass it into the veins thinning the crop of blood. This analogy may be carried out indefinitely" (Still,(1895) Recollections of Baldwin Kansas. Journal of Osteopathy, January:1(9), p.6).]

AC: It's perfectly logical.

MT: So that's how I was interpreting your term "functional unit" of the person, something like that, where it is one instance of the pattern, but you can see the pattern on a larger scale - so a larger functional unit, and you could go to a smaller functional unit. Would that be correct?

AC: Look, see, perceive. Those are three different things. [Pause]

MT: Can you tell me a little bit more?

AC: No, you figure it out.

MT: [Laughs]

AC: It is a triad, not difficult words: Look, see, perceive. It is one part of my personal paradigm of practice. Ok fine. [Pause] That can be part of your homework Michael. [chuckles]

MT: Are you talking about the difference between the content of a situation and the meaning of a situation?

AC: If you look at something that's one thing. If you see something don't you think you've picked up a little more information for whatever caused you to see something a bit differently than the first time you looked at it?

MT: Mm-hmm [affirmative].

AC: And if you finally get your head out of your behind and perceive something - don't you think you've been able to make an astronomical jump into the picture of the human's entire environment and universal relationships?

MT: Yes, yeah.

AC: Well ok.

MT: So it is a different context that we're framing each of those perceptions within.

AC: Well I am, I don't know what other people do. I don't care about them.

MT: Ok! [laughs] That kind of comes full circle to something we were discussing in our last conversation - where you were asking me how I was going to be concise with what Still wrote, and I was saying to you how difficult I'm finding that, because it seems he was *perceiving* all the time, rather than looking or seeing. He was placing everything in such a large context to -

AC: Well that is exactly one of the fundamental problems. We all know a teacher with a capacity like *that*, is going to really be an overwhelming contest against the usual capacity of many or most of the students. You know that, that happens all the time. But Still was an exceptional individual, so that effect is that much more magnified with him. Sutherland is the nice example there. Sutherland is all but canonized by the cranial people for having discovered the cranial rhythm and all this other stuff and what-have you. You know I've been brought up in that, I do a lot of other things too, but anyhow. What the cranial people don't say regularly, is that Sutherland always, underline *always*, credited Still with the origin of the idea that he Sutherland spent his life working with. You don't hear that in the cranial group do ya?

MT: Mm-hmm.

AC: Alright, further it is true, that Sutherland developed a clinical model which was able to be demonstrated, discussed, articulated, put into a reasonable format useable for treating the human condition, and it was heavily based on fascia and fluid. Yes or no?

MT: Yeah I would agree.

AC: You have to agree, because otherwise you're going to have to tell me why don't we make use of that Lippincott document that talks about treatment in other areas of the body, and why don't we talk about continuity between Sutherland's use of ligamentous articular strain, and cranial membranous articular strain? Why don't we clarify that for people? Why don't we talk about that?

MT: Hmm.

AC: Hmm! Yeah. [Pause] So my point is, that was a very early student, Sutherland, he was not the only one, he happens to be the one who's name is most prominent today in most of the osteopathic-Osteopathy world, and I talk about people like F P Millard - [providing luke-warm replies] "Well I don't know maybe...", talk about Edith E Dovesmith - "I don't know, maybe." Talk about Charles H Kaufmann - "Oh well, hum hum hum...".

MT: Yeah I've got to admit these aren't even names that I've heard.

AC: I think then you see the point that I'm driving at.

MT: Mm-hmm [affirmative].

AC: Sutherland was an example of a very very early student. He said in so many words, that he was intrigued enough by teaching and learning from Still, and overwhelmed enough by things he didn't understand that Still said, that it stimulated his own behaviour to develop a model that today it is a world-wide model, it is used all over the world!

MT: Mm-hmm [affirmative].

AC: And I'm not going to say that I think people all over the world have a helluva lot better understanding than just tinker-toy, I don't think they do. But the point is, the man himself, attributed the impetus for that effort to Still's teaching. And that is a fair, illustrative example because contemporary use of personalities and names and so on Michael.

MT: Mm-hmm [affirmative]. [Pause] It almost makes me feel sort of hopeless for the future of osteopathic education in a way though because the idea of guiding the student toward their own self-discovery of the principles in action is... that is a pretty high bill when you look at the social and economic factors and everything at play largely stacked against that occurring.

AC: I have to agree with you much more than I would disagree with you Michael. I'm not happy saying it, but the fact is a fact ok? I mean... that is where the world is right now.

MT: Yeah.

AC: Ok so I agree with you much more than less [laughs].

MT: [laughs] Hmm. So you must have... going through your osteopathic training in '61-'65, you must have had a much more direct connection to those initial generations of osteopathic practitioners. What was that like?

AC: Well... it could be a yes or no thing - for example, when I was a senior student the SCTF [Sutherland Cranial Teaching Foundation] was putting on a course in Kansas City where I went to school.

MT: Mm-hmm?

AC: And the flyer was circulated to the school - other words they were open to taking students or inviting students to attend with practitioners and so on. So I took one of these flyers off the billboard one time, and I walked up to a clinician. In those days we had a small number of floating clinicians who supervised our patient care, make sure we were doing things correctly and we didn't have licences so they would sign prescriptions - you know that way of doing things.

MT: Mm-hmm [affirmative].

AC: So I took it to a clinician, and I just said "Doc, you know I've always been interested in manipulative work, this course sounds like it might be interesting. Think I could get in if I contact somebody there?" And I still remember to this day [chuckles], he looked at the flyer, he looked at me, he held it in his hand, he looked back at me and he said "If you do, I'll see to it that you don't graduate."

MT: Wow.

AC: Nice way to make an impression huh?

MT: Mm-hmm!

AC: “Ok, ok...” [Chila as student in the story backing away]. So I’m not going to say it was easy, however there were private practitioners in and around the Kansas City area, at that time Dr. Kenneth Little, who is the patient being photographed in Lippincott’s document about Sutherland’s ligamentous-articular work.

MT: Hmm!

AC: The patient in all of those is Ken Little. Esther Smoot - her brother was a general surgeon in Tulsa, Oklahoma, which was once Oklahoma Osteopathic Hospital, and I did much of my clinical work there, got to know him and we talked about his work in surgery, his knowledge and interest in manipulation. His sister, I didn’t have a chance to meet her but I learned some things from Dr. Joe. And even Lou Hasbrook started out in Kansas City for a long period of time. So it was actually much in the way of happenstance, and less that we had somebody like Wilbur Cole, that we did have on our faculty. Dr. Cole was one of those very very unique individuals that was obsessed with research studies, legitimate research studies, and developed his own stain to analyze the myo-neural junction.

MT: Hmm.

AC: One of the breakthrough studies of that time. But he was part of an AOA team that investigated the work of Louisa Burns, to update validity, some of the things that she did. And Wilbur could talk and demonstrate a good treatment and gave many lectures and had a nice set of hands. Hell-yell it wasn’t perfect, but it was there and you could find your way around.

MT: Hmm.

AC: So when I look at it today, it is like, it is there, but then you have a lot of people blowing their own trumpets and you don’t know which trumpet has the best tone.

MT: Hmm.

AC: And on top of that you might have some question about what is actually being said, so it is actually like a reverse position.

MT: Hmm. [Pause]

AC: I don’t think I’m being unfair, I mean I lived 50 plus years through this in my own active practice.

MT: Yeah for sure.

AC: So I mean I’m not being unfair.

MT: No, I don’t feel that. So something else that I pulled out of our previous conversation was that I felt I was asking you questions and you would kind of deflect me back towards the principles, the foundations,

and saying again this concept - that to really understand it, or to really learn it you need to have that lightbulb for yourself, or reach your own conclusions through experience.

AC: Well I think that is a strong indicator of personal intellectual honesty and maturity.

MT: Mm-hmm.

AC: That is why I say these things. [Pause]

MT: And yet there must also be a place for that hyper-specific accumulation of information and things like that, no? Because I mean I see that evidenced in the Foundations of Osteopathic Medicine textbooks, there is both the principles in them but then there is also incredibly dense information. So how do we navigate that relationship between those two extremes?

AC: Well, one way might be for some of our authors, not only in the osteopathic world, but in the medical world, and the research world in general to take a cue from an old Chinese teacher Lao Tzu - "Those who talk don't know, and those who don't talk know."

MT: [Laughs]

AC: [chuckles] So the question is - I don't know if PowerPoints are as popular today as they have been in recent years, maybe they're still being used.

MT: Mm-hmm [affirmative].

AC: But the original PowerPoint idea as a vehicle was to trust the instructor to present certain essential easily visualized points about a given topic. Essential, easily visualized, so that understanding could be provided by the instructor. Are you with me there?

MT: Mm-hmm [affirmative], yes.

AC: Fine. Didn't it end up something like a god-awful all over the world, off-the-wall pictorial-audio, visual-audio whatever anal-retentive whatever system of presentations of who's got the best graphics -

MT: [laughs]

AC: Who has found what kind of beautiful pictures? Who can claim the most text in a slide? It ended up that way didn't it?

MT: Mm-hmm [affirmative], yes.

AC: To the point where what could you expect except the student would be so confused that the only safety factor was to demand that stupid PowerPoint so she or he could study.

MT: Yeah, yeah.

AC: Now I know I'm absolutely right on that, that's one time I'm going to say I'm absolutely right. So where does the student think and believe that she or he is on the path to intellectual honesty, challenge and perfection - with that kind of behaviour? Come on. And who is at fault? The teacher. And because having started down that pathway the only thing that is going to be automatic is going to be the increasing demand of the student for all that information because "All that information represents everything I need to know". Right?

MT: Yeah, it is like filling out a form.

AC: Mm-hmm [affirmative]. I don't have that PowerPoint - I don't have everything I need to know, and if I fail you're at fault. Has nothing to do with did you think or not. Did you give me something to think about or not? Did you help me unravel a question or not? No, it has nothing to do with that. It has to do with a stupid collection of pictures and words.

MT: [chuckles]

AC: You must be getting a little amusement out of me Michael.

MT: Yeah you can't see me but I'm smiling. [Laughs]

AC: [Laughs] That's why I didn't say Skype, we don't need Skype, we can talk.

MT: That's good. I'll have to get that Lippincott document from you.

AC: Your library should have Teachings in the Science of Osteopathy.

MT: Ok, I'm familiar with that book.

AC: That particular document is built into it, it is worked in like an addendum at the tail-end of some of Sutherland's discussions and what-have you.

MT: Yes, ok.

AC: Now if you look at the document that Lippincott wrote, he tells you up front, at the beginning, that he's aware that Sutherland's teaching has been a challenge even to the mature members of the profession even at that time, he tells you that. However he goes on to say what he's trying to portray in his description of Sutherland's work, is the fact that Sutherland was an early dedicated student of Still, and the result is those 24 pages come very very close to representing a mini-textbook if you will of quote "Still's techniques" endquote.

MT: Hmm!

AC: So my question there is - why is that document not *thee* foundational document of the first one or two or maybe even three years of quote "osteopathic training" endquote ?

MT: Yeah I can't wait to read it.

AC: And on that note [...]

REUBEN BELL

May 29, 2018

Via phone call

[These quotations from Still were presented to the interviewee in advance via email, to act as a starting point for the discussion:

"... discard the idea that Osteopathy is a special gift to its founder and cannot be taught to others. On the contrary it is placed before the world the same as the science of electricity, and one principle after another has been discovered till an unbroken chain of principles has been formed, strong enough to stand the test of eternity, natural enough to live as long as nature's well defined lines remain unchanged. Who could ask for more? Who wants more? All mysteries are hidden in nature, all discoveries are made in nature. Then does it not follow that nature's unchangeable laws must be followed in order to find what you seek? Osteopathy is one of the natural sciences; Osteopathy is found in nature; Osteopathy is founded on nature; Osteopathy is natural; Osteopathy is NATURE."

Journal of Osteopathy, December 1894, Vol. 1 No.8, p.1, "History of Osteopathy"

"... honor the unknowable law of life, by which it does the work of its mysterious construction of all forms found in the parts of man. In all our efforts to learn what it is, what it is made of, and what enters it as life and gives it the building powers with that intelligence it displays in building, that we see in daily observation, is to us such an incomprehensible wonder, that with the "sacred writers" we are constrained to say, Great is the mystery of "Godliness." ...we must silently sit by and willingly receive the work when handed out for use by the producer. At this point I will say that an intelligent Osteopath is willing to be governed by the immutable laws of nature, and feel that he is justified to pass the fluid on from place to place and trust the results."

The Philosophy of Osteopathy, 1899, p.151

"It is our fortune at this time to raise our heads above the muddy water far enough to have a glimpse of a law that we chose to call the Divine Law. That law we use in healing. We have traced it by reason, by philosophy, under microscope, in the light and in the dark; and we hear a response. That response is so intelligent, its answer is so correct that man is forced to believe there is knowledge in it. ... I see the deltoid muscle that God himself has placed on your shoulder formed and attached as it is and working as it does with his intelligence, I feel able through Osteopathy to look at Saturn as a small corpuscle of blood in the body of the great universe. When I look at the earth, and the moon, and take the solar system, I find that the Directing mind has numbered every corpuscle in the solar system, and each one of them come on time - no mistakes. ... I want to tell you that I worship a respectable, intelligent and mathematical God. ... We take up Osteopathy. How old is it? Give me the age of God and I will give you the age of Osteopathy. It is the law of mind, matter, and motion."

Journal of Osteopathy, February 1896, Vol. 2 No. 10, p.1, "Dr. Still's Address"

"Osteopathy is no magic secret, it is a principle old as time, true as Deity, lasting as eternity. This principle runs through the entire universe- in the sky we have constellations of worlds, in the body, constellations of molecules. In the sky we have rain clouds, in the body lying alongside the veins are the lymphatics which prepare water and pass it into the veins thinning the crop of blood. This analogy may be carried out indefinitely."

Journal of Osteopathy, January 1895, Vol. 1 No. 9, p. 6, "Recollections of Baldwin, Kansas"

"This science reveals not its treasures lightly and exhibits the full depth of its wealth only to those, who by constant research delve in its mines and gather rare jewels with which to decorate their mental fabric. It is Truth, its laws emanate from the great central heart of the universe and govern man with the divine simplicity that reigns throughout all nature."

Journal of Osteopathy, December 1894, Vol. 1 No. 8, p. 2, "Annual Talk to the Students and Diplomates of Osteopathy by A.T. Still, Dec 25, 1894"

"I am convinced that as far as I comprehend, and I cannot assert beyond that, that the works of God do prove His perfection in all places, at all times, and under all circumstances. I drew a line of debtor and creditor. On the one side I placed the works of God and the acts of man, who is claimed to be the handiwork of God. The intelligence of an association of mind, matter and spirit, the child of God who is the author and constructor of all worlds and all things therein. All patterns for the mechanic to imitate in all his inventions are found in man. You remember that all patterns are borrowed from this one place, be it God, be it the devil or be it man, who is the originator of all things. All patterns for all things are imitations of what is found in that constructed being, man. We see in man, as we comprehend it, the attributes of Deity."

Journal of Osteopathy, July 1896, Vol. 3 No. 2, p.1, "Anniversary Celebration of the Founding of Osteopathy"

"The human form indicates an object. In the first place, it is constructed as a hieroglyphical representation of all beings and principles interested physically or mentally in the production of worlds, with their material forms, their living motions, and their mental governments. Man represents the mind of God to the degree of his endowments."

The Philosophy and Mechanical Principles of Osteopathy, 1902, p.27

"... this vital , self-constructing and self-moving wonder, commonly know as man; wherein life and matter do unite, and express their friendly relation one with the other; ...the living man ... expressing and proving the relation that can exist between life and matter, from the lowest living atom, to the greatest worlds."

The Philosophy of Osteopathy, 1899, p.103

"Thus we can do no more than feed and trust the laws of life as nature gives them to man. We must arrange our bodies in such true lines that ample nature can select and associate by its definite measures, weights and choices of kinds, that which can make all fluids needed for our bodily uses, from the crude blood to the active flames of life, as seen when marshalled for the duties of that stands and obey the edicts of the mind of the infinite."

The Philosophy of Osteopathy, 1899, p.77]

[Rebuen asked me about my background, and we were discussing niceties before turning on the recorder...]

MT: I was hoping to just basically hear your thoughts on it and just have a open ended discussion.

RB: He [Still] sees the universe as holographic. It's obvious in there that he sees that the same processes are at work on one level, and other levels, all the levels, up and down, from the whole universe into the smallest part of the human, and he was talking about planets and blood cells. So to him it is all the same, it's the same process at work at on all those levels.

And then at another place, he uses the term...I'm throwing some stuff together here, I might be putting words in his mouth, but he uses the term, there is "a hierarchy of forms", that's not his term, but he's talking about it, and he uses the term "hieroglyphical representation".

MT: Yes.

RB: And that's an interesting use of words because he's really talking about... first of all, the word "representation", means something that is existing on one level, that is a representation of something on *another* level, and then hieroglyphical just means he's talking about one thing standing for another but, I mean, he's really onto an idea of this holographic universe that's constructed along the lines of many, many, many levels, but whatever's happening at one level corresponds to what's happening on another level - in terms of form, he's always looking at form. So yeah, I find this in a lot of places, in a lot of these quotations. I'll tell you which one. Well, I'm just going to number them one to three. The third one in line, he talks about the fourth one in line, and then he's talking about the form. And so then again, in the next to last one he's talking about it, and so he's all over the place on that.

Then having said that, there's another observation that I made, one is that the very first quote: it's very important to us that you understand that osteopathy is a science, it's a physical science and not some kind of metaphysical thing, because if it were a metaphysical thing then it would be unique only to him and there wouldn't be anything we could learn or teach, and so he says in that that quotation but he also said that in other places too. He's really big on the fact that he wants you to know it's a science, it's a natural thing, it's a phenomena of the natural world and we discover it using natural means. But then, the cool thing is he drops down a couple of, well, in the first paragraph, and he drops into the second paragraph, and all of a sudden now, he's talking about "Great is the mystery of Godliness" and "intelligence", so I think what he's trying to show us here, and again, I'm just assuming this, he's talking about science but he's really talking about what I would call *theistic* science: science that is done according to the plain old rules and regulations of doing science, and yet, the source of all this stuff is theistic, and so I would call that theistic science rather than atheistic science, but he wants us to know that it is science and then the next time around, he says, "Well don't forget that Great is the mystery of Godliness", and he uses the term "intelligence" in that way. And then in that second paragraph, he also...let me see here, I made a note, yeah...in the second paragraph, he uses the word "life" in an interesting way..."...honor the unknowable law of life, by which it does the work of its mysterious construction of all forms..." so he's turning forms, well, in the parts of man and human stuff, he's tying "forms" to "life" itself, which is a very powerful concept because forms have to come from somewhere, and somewhere in here he shows us that they actually descend in this hierarchy from the "Divine", that's what he calls it. "We see in man as we comprehend it the attributes of Deity."

MT: Yes.

RB: So forms descends from Deity, God, whatever, so it's definitely theistic, but how does it descend? Well, it somehow bundled up into this thing we call "life" and he shows here that we don't know really what it is and "...all our efforts to learn what it is, what it's made of, and what it enters as life and gives it the building powers with the intelligence that displays in building...", on and on. Then he ends up by saying that "Great is the mystery of Godliness". So he's a theistic scientist, he's identified the fact that forms descend from the Deity by levels and he reiterates this idea of levels over and over, but at some point, we find the forms in man anyway, have to do come from this thing called "life", which, he is very fascinated in it, as far as what it is. Let's see what else I made a note of.

MT: Can I ask you one question branching off from there?

RB: Go ahead!

MT: I feel like he's trying to emphasize that there's definitive things that we can know, like you're saying earlier with the scientific approach, you know, that he's emphasizing it's a science, it's not unique to him, but I feel like he's also trying to emphasize that there's things that we *can't* know, that they're permanently *unknowable*. Would you say that that's fair or –

RB: He would probably believe that. I'm trying to see where in these quotes he implies that. Well, the unknowable law of life, he's talking about life in such a form but he's right up front with the fact that it's unknowable, although we don't know what it does, we don't know what it is.

MT: Yes.

RB: He says “unknowable law of life, does its work of its mysterious construction, ... in all our efforts to learn what it is, what it is made of, and what entered it as life, and gives it the building power with the intelligence it displays, it is as such an incomprehensible wonder. Now with the sacred writers we are constrained to say, Great is the mystery of God.” So yeah, I would definitely agree with that. And see, he doesn't mind the fact it's unknowable, he's going to go after it anyway and know as much about it as he can.

MT: Yes.

RB: And that's A.T. Still for you.

MT: Okay. Great.

RB: Yup. Now let's see, also, in a couple of places, he talked about the fluids, he's big on fluids. Apparently, the fluids do all the work and in these quotes, in this group of quotations... he doesn't really define them in any way, but he talked about the fluid in the second paragraph, in “Osteopathy is governed by immutable laws of nature, and feel he is justified to pass the fluid on from place to place and trust the results.” So you, an Osteopath, what you do according to this, is you pass the fluid on from place to place. I love that little image because I kind of think we do that, we focus it, move it, pass it I guess you could say, and yet he's onto fluid in a big way but in this group of quotations, he doesn't go after it, in other places, he talks about cerebrospinal fluid is the highest element and all that stuff. So I think we know what he's talking about, but this mechanism is governed by this fluid, and I find that as an important part of what he's doing. See, those are my notes that I made here, he's very emphatic that we understand that Osteopathy is a science, however, it's a theistic science and it's a science, excuse me, it's a science of forms. Forms descend from Deity across myriad levels, but whatever's going on at one level is going on at another level in the same way, as a representative you might say.

MT: Uh-hmm.

RB: And he's got it all worked out in his head, and so somewhere, I think, he says or implies that this really is, that all of the structure is really the mind of God.

MT: Uh-hmm.

RB: Hold on now, it's here somewhere. Here it is. “...its laws emanate from the great central heart of the universe and govern man with the divine simplicity that reigns throughout all nature.” It is divine. So I think he's talking, here it is talking, here it is, “...man represents the mind of God to the degree of his endowments.” Well, I think he's onto it, human form is in some way a representative of the divine and of

course, he says, “What do we know about that? Not much.” But he knows that it comes in as forms. And it comes in riding on “life”. So that's what I get out of these quotes, I like them, they're good. You've picked really good words.

MT: One thing that I've been trying to determine in his thinking, and it's not you know, perhaps, the case that there's only one thing he's thinking...but do you see that he's seeing the reality, the universe, manifest... do you think that he's seeing that as a manifestation from God, or as a manifestation of God?

RB: Well, I think it'd be from, because, from God as a representative. There's a fine line there between God *being* the universe and the universe *reflective of* God.

MT: Uh-hmm.

RB: One is a pantheistic universe, and I don't think he would've agreed with that, but at the same time, all these forms then are hieroglyphical representations of higher forms that are God. And see, I'm always up to my neck in Swedenborg's teachings and I'm thinking that he probably was following that line, Swedenborg was really careful to keep that line separate. We're not extensions of God, we are analogous to God, we correspond. We aren't. And so I think he's following that line.

MT: Okay.

RB: He wouldn't say we're *of* God, we're *from* God, and we're removed by a series of steps, levels.

MT: Uh-hmm.

RB: And then these levels are...he keeps talking about a kind of a holographic system that he sees.

MT: And by holographic, you mean that each part contains the whole?

RB: Each part is reflective of the whole. Each part is doing the whole as well as it can do, and they're all related in a series, is the way I see holographic universe. And each part is reflective of the whole in its own way you might say. That's one use of the word holographic, I guess you could use it in other ways too.

MT: Uh-hmm, uh-hmm.

RB: But I think that's the way he sees it. Whatever's going on in the blood, is the same thing that's going on in the universe with galaxies and solar systems. So it's the same thing but it's not the same thing but it's representative, they're both representative of the same process.

MT: Uh-hmm. So do you think that he's – sorry, go ahead.

RB: I was just going to say, he wouldn't see separate processes of going on for each level, they're all the same process. Worked out at each level.

MT: And by that process, do you think that that was what he was calling “Life”, with a capital “L”?

RB: Yes! I think so! Because see, I would call that divine form. I would call it that. It's the form of Deity and it's being worked out in the natural world, but he would call that "Life" and then life imparts form, and I think he believed that.

MT: Hmm... So one thing that I've found confusing about Still's writing is you know how he's consistently referring to "mind and matter"?

RB: Yes.

MT: And that life needs to come into the matter to animate it.

RB: Yes.

MT: And yet he seems to talk about galaxies and worlds as having Life because they're in motion and they're animated, they've become organized into a form. So then what in reality would *not* be alive?

RB: Well, you're right though, he's confusing that way. The reason he's confusing is he stays vague about it. He doesn't launch into some philosophical explanation of non-living matter as supposed to living organisms, he sees it all as some thing flowing from Deity, that then arranges nature into such a way that we see these forms and processes played out. He doesn't make a big distinction between living stuff and not living stuff. So I think he would probably think that Life... that he would probably equate the two to some degree, it's hard not to when you think about it, but we know that a planet is not alive, but it follows that same pattern of behavior, it's part of the same larger thing that is going on, and in living things are able then to take on that life in a much greater and fuller manner, and it becomes what we call living.

MT: Uh-hmm.

RB: But life...life's a funny thing. Swedenborg says that the divine actually has two parts. Which is already an absurdity because there's only one God, but he said that the unknowable creator is unknowable but as it proceeds towards creation, it proceeds in two manners. One is what he calls divine love, and the other is divine wisdom, and it's the divine love that imparts life to things and I think probably imparts to some degree, this organizational scheme, it's active. Whereas divine wisdom tends to be what gives things their actual forms and so that's the way he sees it, and I don't think Still is being that detailed with it, he just sees life coming from the Deity and it's causing all this process, and he just leaves it at that. He goes through talking about life...pardon me, "mind, matter, and motion", that's what he talks about, those three things.

MT: Uh-hmm.

RB: But yeah, he's ambiguous, we know he's ambiguous, good grief.

MT: Yeah. (laughs)

RB: He changes any terms on us, and sometimes he says things, and it's like, "Why are you saying that?" So, that's just him. I don't think he did a lot of editing, I think he just sat down and wrote stuff.

MT: Yup. (laughs)

RB: And he said, "Great. Let's publish it." He didn't spend a lot of time wondering if this matched something else that he wrote two years ago, and so it's a little inconsistent. With a guy like that, you have to back off a little bit and see him in the larger picture. But we can find little things to pick at, but I think his biggest...the thing that drives us most crazy is that he stays very general, in many places, we wish he would be more specific but he's just "moving along, moving along..."

MT: So do you think it'd be fair to say that we can't really draw a definitive understanding from any one statement? We're going to have to look at his works as a whole?

RB: I think that's good. I wouldn't make that a hard and fast rule, because sometimes he says something and you just think, "Okay, that's good. I like it." But I would say, I would always look at what he's talking about in comparison with other things he has said before and maybe that he said after. That will keep you grounded in what he's really trying to say.

MT: Okay.

RB: Yeah, because he's inconsistent. I get the idea that he's always in a hurry...

MT: (laughs)

RB: ...and he's just jotting down stuff that he's been thinking about, and he didn't spend a lot of time, he just writes it down. Sometimes almost...what do you call it? Stream of consciousness.

MT: Yeah. In one his books, he mentions drinking two really strong cups of coffee each morning and that explained a lot to me about his writing, after reading that.

RB: Yeah. (Laughs) You're right, he gets going.

MT: So I have a more specific question for you and if you prefer, I can send you these particular quotes that this is referring to and then we can discuss that at a later point, but his concept of "stale life" where he talks about fluids that –

RB: What kind of life?

MT: Stale.

RB: Stale? Okay, gotcha.

MT: Yeah. He talks about fluids becoming stagnant and then they die, and then a different order of life begins to occupy the fluids or utilize the fluids?

RB: Uh-huh.

MT: Are you familiar, off the top of your head with –

RB: No, I'm not familiar with those quotations, I'll have to read them.

MT: Okay.

RB: Well, you know him, he's big on lymphatics, he's big on the rule of the artery's supreme: you got to have good blood in, you got to have blood coming out, and you got to have lymphatics "draining the swamp" in other words. And so I think he's talking about, this "staleness" is what happens when the proper circulation of all these fluids slows down and you get...an old term called "vitiation" of the blood and lymph, I'm sure he's talking about that and see, the trouble is the part won't necessarily die, I mean, look at all the unhealthy people walking around. They just exemplify this just by looking at 'em, they're barely alive! And yet, they don't die, they just don't live really well. But yeah, I'd have to see those quotes.

MT: Okay.

RB: To really say anything about them, but I know that's what he's talking about though.

MT: Okay. Yeah, I'll send those to you. One term that I was wondering if it's coming from Swedenborg is Still's the use of the term "animal life".

RB: Well, I don't know. I'd have to see how he's using it.

MT: Okay.

RB: Swedenborg uses the term "animation" to imply that's what causes a living thing to live, he says a living thing is *animated*, and that the brain is animated, and you get that word from the Latin word *Animus* which really means soul: there's something flowing in causing that thing to be soul-ed, in other words, it becomes living. And so I don't know...if you're talking about "animal life", that's what I think Still is talking about, and it's hard to say whether he got that term straight from Swedenborg or not, but Swedenborg does use that term "animation" a lot when he's talking about brain motion, and Still, he definitely would've had Swedenborg's one work on the brain called *The Brain*. That was published in 1874 and it's a two-volume work, if he didn't have that I'll kiss your foot because everybody had that.

MT: (laughs)

RB: So "animation" is a big term. Maybe, maybe not, I can't say for sure.

MT: Okay. And Still talks about the corpus callosum being the seat of reason. Does that correlate with Swedenborg as well?

RB: Yeah, I've got a great quote somewhere, I don't know where, if I could even find it, but he talks about the importance of the corpus callosum...in something. I'll have to look for that, I kept that out because it was such a weird quote, that was a *long* time ago but I bet I can find it.

MT: Okay.

RB: Yeah. And I'm not even sure, I'm sure it's scientific stuff...corpus callosum...I'll find it.

MT: That'd be appreciated, thank you.

RB: Yeah.

MT: Okay.

RB: And Still says it's the seat of what?

MT: The seat of reason.

RB: Reason? That's interesting. I can't remember what Swedenborg said about the corpus callosum. I'll find it though, I know where to look, and I'll go diggin' around for that.

MT: Okay. So are you okay for time yet?

RB: Yeah, keep going.

MT: Okay. So when Still is constantly talking about the perfection of God's creations, including man, then how do we understand that, when it's contrasted with the fact that Still also recognizes that man can lose that capacity to...to act out that perfection, do you know what I mean?

RB: Sure, yeah.

MT: It's like Still's constantly saying, "We don't need external sources of remedies, because we have our own internal remedies" but at the same point how do we reconcile that perfection of God with the fact that it doesn't seem to be acting out that perfection in terms of disease. I don't know if I'm wording this clearly but –

RB: No, I know exactly what you mean. If we are made in the image of God, how come we wear out, and breakdown, and get sick?

MT: Uh-hmm.

RB: Well, again, he's working on the natural level, and he's looking at the body kind of like a machine, he would understand that that wears out. There's a quote here, I'm going to show it to you, the one you gave me. Okay. Here's how he would answer that, the very last quotation: "...you can do no more than feed and trust the laws of life... ..we must arrange our bodies in such true lines that ample nature can select and associate by its definite measured weight and choices of kinds, that which can make all fluids needed for our bodily uses, from the crude blood to the active flames of life, as seen when marshalled for the duties of that stands and obey the mind of the infinite."

So the mind of the infinite, it is trying to bring your body into perfect harmony with it, by means, I would say, by means of correspondence. However, we know that bodies wear out and people die. So I think Still would just be okay with that, and then as a mechanic, he says what we're going to do, we're going to arrange people's bodies in such true lines that ample nature can work, do its thing, and that's all we can do, and then keeping in mind that some people are still going to get sick and die. I don't think he had any problem with that, I don't think he saw that as a some kind of a miscarriage of nature or something.

MT: Uh-hmm.

RB: I think he saw that as the condition we live in and just like if you cut your leg off at the knee, well, I'm not going to try restoring that leg, it's just there's some things you can't do, and that's from some kind of accident in the natural world, and just like your liver wears out, and just like your kidneys will wear out one of these days, I think he probably just understood that as fact, and then disease, he didn't understand disease very well as we do, but at the same time, he saw it as a natural world phenomenon and something that you couldn't deny, and then our job, as Osteopaths, is to do the best we can to get those true lines and let ample nature do its work. I don't think he would argue that that's some kind of abnormal thing, it's just the way it is.

MT: Uh-hmm.

RB: And machines wear out, is what it amounts to.

MT: So when he says perfection, what do you think he means by that then?

RB: Well, say that all in a sentence, you said something about perfection?

MT: Yeah. When Still uses that term of perfection and says that man, as God's work, is perfection...if he understands that, that of course it's going to wear out and degrade, what does –

RB: Oh! I think what he means is that the model that it's working from is the model of perfection.

MT: Hmm.

RB: Perfect human form, and then what we have to do is... now that perfect human form which is a spiritual entity, now, that's going to be translated into natural form which is a reflection of, let's say a representative of that same human form but it's going to be less than perfect and then as it ages, and wears, and gets injured, then it's going to be less and less perfect but nonetheless, it's in a reflection of a perfect human form. We just don't have it but we are based on it you might say, that's the model that gives us our form.

MT: Uh-hmm.

RB: And we're not actually not very good representations of it but nonetheless, that's where it comes from, it comes from a perfection of form... and then Swedenborg would be readily, would say, "Well, your spiritual body is in its perfection at all times, your natural body, it's worse and worse as time goes on." It's like if you ever saw like a one year old kid, they're almost perfection in all things but then you look at me and you think, "Whoa, where did the perfection go?" And it's because nature slowly takes its toll on this perfection.

MT: Uh-hmm.

RB: Nonetheless, even my old crummy body that's beat up with a bad knee, is a really good representation of the human form divine, just not a very good one.

MT: Hmm. Okay. No, that clears that up for me, thank you.

RB: Mm-hmm.

MT: Okay. Is there anything... I'm currently working my way through Fuller's book on Osteopathy and Swedenborg.

RB: Yeah, uh-huh.

MT: And I'm also reading Carol Trowbridge's biography of Still, I'm into many books at the same time right now...

RB: I know how it is.

MT: But is there anything in particular that you would point me towards to shine some further light on this?

RB: You mean other references?

MT: Uh-hmm.

RB: And you're interested in Swedenborg too as well as this idea of human form, well, I wrote a thing here about two years ago that's four hundred pages. And it has to do with form and Swedenborg, and I could send it to you in a PDF if you want.

MT: Yes, I would love that.

RB: I don't know exactly what you might want. It's a Ph.D. dissertation and I finished it about three years ago and submitted it I think in January 2016 and so it's fairly recent and I will send that to you if you want, it's a long thing but it breaks into pieces, the first third really is a biography of Swedenborg the scientist, nobody's ever done that, they always want to talk about, there's a lot of biographies of Swedenborg, but they're all Swedenborg the theologian, and they all start with him being a scientist, they'd be, "He's a great scientist. Now enough of that, let's go with his theological period." And they start with him about midlife. I'm starting with him as a young man, a scientist and that's what I'm interested in, so I've developed that at some length, that's one reason it's so long, I spent a long time on Swedenborg *the scientist*.

MT: Uh-hmm.

RB: Then I move towards these grand concepts of his that he developed along the way, as a scientist, that he's trying to solve, and the second half really, I'm using those concepts of his, about four of them, to look at the problem of evolution from a modern standpoint, from the modern scientific point of view. If evolution is theistic, if there is a Creator who's perfect form is being played out in the natural world then evolution is driven in some way by this process and I'm trying to figure it out so that it doesn't break all the rules of natural science. And so if you want, I'll send that to you today.

MT: Yeah, that sounds wonderful.

RB: And there's a quote in there somewhere, I don't know where right now but it's in there somewhere, about, there's a guy...I'm quoting this same concept of processes from quantum level all the way to the

universe itself, being the same process, exactly what we've been talking about, and I quote a guy, a letter to the editor of a science news, he saw something and he thought it was a picture of the cosmos or something, and it turned out it was a picture of pond scum or something and he was so shocked that two different processes could look the same, and I thought, "What a moron. It's the same process." What's shocking is that the same process could be working its way out in the cosmos *and* in a pond.

MT: Yeah. (laughs)

RB: And he missed the boat, and he totally missed boat because he's a materialistic scientist, see. And it would never occur to him that some cosmic process would be going on. Anyway so you'll find that in there somewhere if you look around.

MT: Okay.

RB: Bmut I'll send that to you because that might answer a lot of questions as to Swedenborg. Now there is nothing in there about A.T. Still but this was coming from an entirely different direction.

MT: Um-hmm.

RB: But I'm trying to think what else, Fuller's book is really good, and let's see, and you're looking at which biography?

MT: Carol Trowbridge.

RB: Yes, Trowbridge. It's a really good one.

MT: Uh-hmm.

RB: Yeah. So you're on the right track but I'll send you that dissertation and you could find a lot of stuff in it, it's such a big file but I'll send it to you.

MT: Uh-hmm. That sounds –

RB: If you want.

MT: Yeah.

RB: It's funny because I did touch on that topic of similar process on all levels. The point I'm trying to make is things are simpler than they seem.

MT: Yes.

RB: In fact in one of these quotes, he even talked about the simplicity of the Deity, and he's got that wrong. Things are not as complicated as they look. One author I ran across a long time ago said the problem with complication is we look at nature and we try to model it using mathematics and of course, nature's so

complex that the mathematics immediately gets out of hand and looks nutty, and then we think it's all complicated when in fact it's not, what's complicated is our math!

MT: (laughs)

RB: I've always been struck by that, it's amazing. Amazing and true. So anyway, I'll send you that.

MT: Okay. No, that would be great and I will send you those quotations about "animal life" and "stale life".

RB: Yup.

MT: Okay.

RB: I know who that was, it's a guy named Wolfram, he wrote a book called a New Kind of Science and I won't send you that directly because that has nothing to do with what we're talking about but he's the one, he's a computer guy and he says, "Things are simpler than they seem." And he said, "We've complicated things by trying to look at them mathematically." He said, "Throw the math away and just take a look at what they really are." And he says all this complexity comes from very simply starting programs and so anyways, that's just a sidetrack but well send me those other quotes and then I'll send you a copy of that dissertation.

MT: Okay. Wonderful.

RB: And see what's in there. I think there's some stuff in there you could use.

MT: Uh-hmm.

RB: And looking at these quotations, I'm really trying to stick with Still and not to confuse him with my thoughts of Swedenborg. I always think about what Swedenborg would say about all of these same things but I think Still is coming from Swedenborg in a general way, he gets Swedenborg's general system and this idea of divine human form, this idea of levels, and this holographic idea, I think that's all from Swedenborg, although, Still, was a frontier doctor and he did not spend hours on end pouring over Swedenborg's books, you see what I'm saying.

MT: Uh-hmm.

RB: But he would look at a guy like Swedenborg, steal all of his good ideas, and move on.

MT: (laughs!)

RB: He just wasn't going to be a scholar in this stuff. And then I think Fuller will point out too, but I've always thought the same thing: he lived in a place that was *crawling* with Swedenborgians, and some Swedenborg kind of intellectual-type guys. I think he learned a lot of what he knew about Swedenborg from his friends, from these guys in Lawrence, Kansas.

MT: Mm-hmm.

RB: I think David Fuller points that out in his book, that he was in Lawrence, Kansas at a time when the politics had to do with abolition and slavery and there was a group in Boston that sent people down to Kansas to pack the state so that when they voted, they would vote free instead of slave, and these people actually, they were just like fanatics, they went down there and lived there, and it was Lawrence mostly, and they lived there to turn this vote in the right direction, and then the biggest part of those people were all Swedenborgians, they were just that dedicated. So they go down there and they set up shops, he runs into all these Boston intellectuals and they're all spouting Swedenborg, and I think he really learned most of what he learned through them rather than sitting in the library reading all of Swedenborg's books.

MT: Uh-hmm.

RB: That's my thought and I think Fuller pretty much agreed, we talked about it a lot. So I think that's kind of the story. So he gets Swedenborg's main lines and just runs with them. But he's not going to quote chapter and verse because he didn't spend that much time in the books. So anyway...

MT: No, that makes sense to me.

RB: Yup. So send me that stuff and I'll send you that my dissertation, you'll find some good stuff in there, that you're lookin' for.

MT: That sounds good. Thank you very much Dr. Bell.

BRIAN DEGENHART

Nov 4, 2018

In-person

MT: Yesterday in class you were saying "We are a universe in and of ourselves", and that really reminded me of a quote by Still where he said "I see in man a miniature universe". I don't know if you were consciously referencing that?

BD: No.

MT: It seemed you were pulling us back and forth between the "zoomed-in" and the "zoomed-out" perspective, and that reminded me of a fractal or a holographic principle.

BD: Mm-hmm, mm-hmm.

MT: Is that something that you... what is the relevance of actively engaging in that process of zooming-in and out, what is the relevance of that to learning Osteopathy?

BD: I guess I'll ramble and I guess I'll let you pull out whatever you think is relevant, ok?

MT: That sounds good. [chuckles]

BD: Ok [laughs]. So any time that you're dealing with kind of a structure/function paradigm, structures can be broken down into smaller and smaller parts, and so the ability to zoom in and out is our ability to shift our awareness, our perception from what might be happening within a particular joint or tissue, at a particular location, to how that area contributes to a particular motor pattern, or performance of a region of the body, to its effect on how the body provides the nutrients and all the other components that are necessary for that body region to function. Let alone then talking about how its ability to function (in how the person intends), how that relates to their own self-perception of meaning to what they do and their role within a society or within a community.

All of those things are happening all at the same time when we're engaging with the patient. Our ability to be able to identify, as precisely as we can, local areas of tissue tightness, tenderness, restriction, asymmetry - whatever that might be, and be able to begin zooming in and out and asking the question "Well why is it there?". Is it because of a local biomechanical issue and some form of trauma that occurred? Is it because of changes in neurologic programming, so it is more secondary, compensatory to some other area of the body - whether that is due to direct hardwiring of it, or if it is actually due to a tensegrity-model where a change in one area of the body has created changes in tensions that needed to be redistributed in the body and as a result coalesced into an area of tension in this area that you've identified - but really it is not the problem, it is more of a subsequent reaction of the body to that other primary problem.

Just as we go from looking at something close, to looking at far away and changing our ability to see things clearly - that is really what has to be done perceptually: in the information that we're perceiving in our hands, as well as consciously as we're processing the data that we're perceiving; to try to understand why it is there the way it is.

MT: Mm-hmm. Ok, we may come back to that a little bit more. So could you speak about the relevance of cytokines to osteopathic practice?

BD: Well, so basically our body is structured and communicates based off of proteins. Cytokines is one of many *many* forms of proteins. Cytokines are... there's a broad array of these types of proteins, many sub-classes within the category of cytokines. Some of them are inhibitory, some of them are excitatory, but all can be based off of some of the molecular relationships of the individual cytokines, but also can be because of its what we call "quaternary" or three-dimensional shape that can dictate how it interacts with the cells around it.

So cytokines are known to be related with inflammation, with the GI tract, within the central nervous system. I think the last time I did some reading on this, there were at least 20 different sub-groups of cytokines and with them having very diverse and often opposite actions or reactions depending upon the location of where it is secreted.

So basically it is: how do we manage all of these molecules, these biomarkers, so that they have whatever the optimal result that was intended by the body, so first of all you have to ask - "Was it produced for the right reason?" and the production of these molecules... there is a structure/function relationship for the cell.

We know that if the cell is healthy it is going to be producing the right type of information, the right molecules to function normally within its tissue, and within the structure in general. If it is under stress, if has been distorted, if within the environment there is... you know Dr. Still uses the term "fermentation", I think that the more modern term would be "oxidative stress". The oxidative stress has a direct relationship to a lot of things, and one of the other things we'll talk about is the acidity or the pH or the environment around the cells.

These things determine what the cell produces, it will determine the shape in which the proteins are produced, and so first of all, having a healthy environment for the cell is going to make sure that its signaling, its proteins, the biomarkers it is producing are the ones that are going to be most productive and interacts in a healthy manner with its environment.

If the cell is distorted - we'll use the simple situation of perhaps a car accident and there is bad torsion, strain, secondary fibrosis in the scenario (that was never really released of those strains after the trauma), then all of a sudden the structure of the cell is distorted, the circulation in and out of around that

cell - so its environment gets distorted. It becomes more acidic, it has poor oxygenation, the molecules on the surface of the cell become misshapen so it doesn't communicate well with the environment, it doesn't connect well, it doesn't move well within the environment. That stress then causes a change of shape within the cell, and the cytoskeleton will and does penetrate actually into the nucleus and they have been able to show how the cell cytoskeleton, when it is twisted, it will change the production of mRNA that is leaving that nucleus. All the way down to very basic aspects of cellular function will get affected by these distortions.

Now most of the time, our bodies carry along with it a history of traumas, a history of strains, that our bodies can often tolerate very well. It is often a *cumulative* effect of various forms of stressors that will determine if the body manifests a pathology or a condition that would be considered quantifiable from the current medical model.

I think for the osteopathic physician we've got to see that if we're going to be trying to optimize the biomarkers, the communication that is going on within the body, first of all we have to maintain healthy nutrition, and relieve the strains on those tissues so that the cell is actually producing the right molecules for communication and those molecules are able to sustain the right shape to be able to then interact with the other molecules from other cells as well.

MT: That was great, you anticipated one of my later questions. But how about from a more acute infectious process, the cytokine "storm" concept? Historically in Dr. Still's days, Osteopathy was used very frequently to treat infectious disease processes. I'm curious what the potential connection between the cytokine-storm type of situation and effective osteopathic intervention would be.

BD: What I'm hearing is that in my response it would be good to talk about a variety of specific molecules.

MT: Ok.

BD: So we have various pro-inflammatory molecules, substance-P, things that are neurogenic in origin, some that are intracellular - inside of infection, some that have been carried on by the white blood cells or the macrophages in that area.

Let me do a little bit more explicit review, let me update on that so that I can be more specific on the pathways cause I think that is what you're asking about.

MT: Sure.

BD: Ok.

MT: Ok. So you were involved in the pneumonia in the elderly series of studies - how did you determine what the appropriate frequency of osteopathic treatment would be for that?

BD: Yeah, and that's a challenge for the profession, because we haven't done a lot of dose-response studies in our work. So what we did, is we went back to all stages of our history to pull out the literature that was relevant to treating infectious diseases, pneumonia specifically. We looked at the scope of techniques that were done, we looked at the frequencies at which techniques were done, and then we looked at modern expectations of medical care to find a balance of that.

So what we found in the literature was that, especially in the hospitals early on, they dosed their manipulative treatments based on the severity of the condition. The time in which they treated was inversely related to the severity of the condition - so the more severe it was, the shorter the duration it was. But when it came to the severity, then it was also directly correlated to the frequency in which they treated - so the more severe it was, the more frequent they treated it, but the less amount of time they used to treat it.

MT: Hmm!

BD: We're never explicitly taught that, and we thought that was very important.

In modern medicine generally, physicians see a patient in a hospital once a day, on rounds. We decided that we were going to give treatments twice a day. It was more than what is typically expected, but it certainly didn't necessarily meet the ideal - we may have been wanting to see some of them maybe four times a day, and treated them for just 2 - 3 minutes in order to just continue to keep fluids moving and breathing better and so forth. So, we kind of came to a happy medium in regards to frequency and dosage.

Now we did feel it was very important to establish somewhat of a "standard intervention". Some people would call that a "protocol" or a "recipe" type of model - which they inherently don't feel is very osteopathic. We acknowledge and support and respect that general concept, but we do believe that there are specific principles that apply to various conditions, that really set a foundation for a sequence of treatments for that. And that is what we found for the pneumonia study. We found that consistently in the literature there was a series of seven techniques that were consistently applied to people who had pneumonia. That created our core-structure for the intervention. We really wanted all of the people who were providing the treatments, (and we had 81 clinicians providing the treatments in the study - as far as we know that is the largest and most diverse set of treaters in any study to date), we wanted them all to do a basic examination and really then use the overall structure of that treatment and focus it within the dysfunctions that were seen within that particular individual.

So there was an ability of the clinician to adjust it for the unique findings that they had on their musculoskeletal exam, and to adjust the dosage of the individual techniques. We recommended them to do rib-raising for up to 2 minutes on each side of the rib-cage, and we gave a certain kind of general time-expectation for the seven techniques. We had given a general guideline of about 15 minutes for the treatment, with the expectation that another 5 minutes could be used for further diagnostic testing or to add-in or adjust any of those techniques for the specific conditions that they were finding.

So if they found a particular area of the rib-cage that was just very resistant to the outlying protocol, they could use any technique they felt was necessary to make a change in that body. I led the intervention arm of the study, and so basically we went around to each site, and there were 7 hospitals throughout the 3 year study, throughout the United States where this study was done. I would go 2 - 3 times per year to each site to give training and reinforcement and recalibration to all of those 81 examiners. Basically I said to all of them, "Yes, you have a protocol in which to work from, but the bottom line is - when you leave that room you need to have total confidence that you've made a change in that condition. And if you're not finding a structural change based off of the protocol, based off the historical accounts of what's been successful, then you use your clinical judgement at that time and make adaptations to that."

So we thought we found a good balance between the need of science to characterize and quantify the interventions being done, but also to give the flexibility to the clinician to do things uniquely necessary for that individual patient.

MT: It sounds again like the balance between that zoomed-in reductionistic, and the zoomed-out or "inductive" view as Reuben Bell called it yesterday.

BD: Right, mm-hmm.

MT: Ok. That's one of the things that has really struck me in reading some of the old literature, is how frequently they were treating. I look at a lot of the studies that my colleagues have been doing, and the frequency is *dramatically* less, and the results are not nearly so good as what has historically been recorded. So I'm seeing a potential connection between those two.

BD: Mm-hmm.

MT: I don't want to put words in your mouth here, but do you think it would be fair to say that... is there a connection between that balance between the "zoomed-in" and the "zoomed-out" view, and what makes for a distinctly osteopathic view of health and disease?

BD: Say that one more time.

MT: Taking that approach - of trying to find that balance between valuing the "zoomed-in" view and the "zoomed-out" view, and finding the appropriate middle-ground between them, or the best of both worlds, is there a connection between that process and what makes for a distinctly osteopathic conception of health and disease?

BD: Yeah, absolutely. That "zooming-in" and "zooming-out" is a real-time process, it isn't a "stop-and-go", it is one that is dynamic flux in that interaction between the osteopathic clinician and the patient. That begins from the first observations, through the history as well, because even in the way in which we ask our questions it is constantly "zooming-in", "zooming-out", being able to understand that mind-body-spirit or that totality of why they've come and presented to you as a clinician. How whatever is motivating them, how that has influenced their life.

A lot of times, in other health-care models, they want to "zoom-in" to - "this the organ", "this is the cell group", "this is the functional local area", "this is the strain", and then everything just focuses in the treatment of that. That is *clearly* not osteopathic. There is context for every condition, and that context is something that an Osteopath is challenged to understand. Dr. Still made that quite clear.

Even though there are a lot of people that have brought in a broader view, a biopsychosocial view, that was brought in in the late 1970s - even that has less range than what the osteopathic view was, and clearly less than what Dr. Still articulated. From the quotes that you had provided - I mean he was thinking on electrical-magnetic levels all the way up to the total and spiritual level - and who is to say that that big-view is not the same as that microscopic-view? I mean you can see both of those really being manifestations of one and the same thing. It just depends once again on which level are we willing to identify it and claim it. You know a lot of people aren't very comfortable with claiming some of those global concepts which truly Dr. Still's not afraid of doing.

MT: Ok. So what are the potential benefits then of utilizing that distinctly osteopathic conception of health and disease? I know that is a big question but...

BD: [pauses] ...If we "zoom-out" for the beginning of the answer to that - cause we really "zoom-in" and say the focus is on the patient. But if we "zoom-out" and we see that really we are a... [self-reflecting:] how far out do I want to go?

MT: [chuckles]

BD: Alright, let's try it this way. So if we look inside our gastrointestinal system, we have billions of microbes, bacteria, so forth, that dwell in there and they all have to work together for the greater good of the system, for the organism. Well if you look at our planet and you look at us growing on it, within it, as the microbes in our GI tract - there is an interconnectedness.

So when you're dealing with an osteopathic model, certainly there is value in that dynamic for the clinician and the patient in that whole diagnostic treatment process. I don't think you cannot treat a patient well and not be healthier yourself as a result of it. If you are healthier, that extends to the next patient, and to the society at large. You know, Dr. Korr, in that one quote I had at the end of the presentation, he basically said "Osteopathy is a way of life", and I truly believe that. I knew when I chose to apply to osteopathic school, I knew that there were things that were significantly different and I didn't want to limit my skill-set to other medical models, because it was clear that there was something more within that osteopathic model. But I had no idea the complexity and the totality of what Osteopathy really is. To this day, there is no question, I am still challenged and still struggle with that, because there are so many

aspects in our modern living that really aren't healthy, and really causes us to react and make choices that compromise *who we are*. And if we listen to our gut we know that that's the case, but we feel because of the greater social pressures that really that's what we need to do, and that makes us a more unhealthy society. So Osteopathy holds us true to the health of the cell, to the tissue, to the organism, to the community, to the planet, the macroscopic.

MT: Yeah, beautiful. So do you see any potential disadvantages from taking that viewpoint then?

BD: [smiles] Well the disadvantage is that your work is going to engage you on a far greater level, it is going to require more of your time, more of your focus, more of your energy, more of your reflective time, than it would be using other medical models.

I'll give you an example: shortly after completing my residency, I joined the faculty in Kirksville and I worked at a free community clinic. It was designed to provide healthcare for the working-poor, for people that were trying to do their best but couldn't afford insurance and as a result couldn't afford getting healthcare. I had a woman come in, she was probably in her early 30s and just had a lot of GI symptoms. So I examined her and clearly she had gastritis, potentially ulcers, but a lot of upper GI symptomatology - so that's great, that's easy enough, I can write a medication and I bet she's going to feel better. So I wrote the medication, and I left feeling good that I did what I needed to do for that patient - that's what the textbooks told me to do, so on and so forth.

6 weeks later, when the medication ran-out she was back in, with the exact same symptoms. It had helped for that period of time but... I said, "Well tell me more about your life". And she goes, "Well, I have 3 kids. I have an ex-husband who abused me, I have a boyfriend now who's abusive. They don't help at all with the kids, I don't get any financial support from anyone. My parents have disowned me...", and all of a sudden it's like: the problem, this stomach symptom, is just the mere superficial layer of a person that is struggling on so many different levels. So I realized that I needed a very different approach to try to give her some relief. Part of that was being more engaged and more empathetic, having conversation with her and understanding the challenges that she faces. So I think a lot of people when they have a sense that somebody understands what they are experiencing - that in and of itself has healing potential. Highlighting the importance and the challenges of the needs of the children, the financial needs of the family and so forth.

You know, one of the challenges that we have at times as clinicians is that, 1 - we can't expect to heal everything. Life is complicated, just seems like it gets more complicated as our world evolves. We have to understand what we can address and what we can't address. What is it that is appropriate for us to take on, and have a certain level of responsibility for our patients, versus not. And I basically, clinically, I kinda manage this. I'm going to do this in my clinic one of these days, I haven't done it yet, but we have mirrors on the wall, and around the mirrors is a curtain that closes off an area in case a patient has to get undressed. And I'm going to have that closed, and I'm going to have a sign outside of it that says "If you want to see your best doctor open up this screen". And then they will see a reflection of themselves.

So I basically say that, "I have resources, that you may not be aware of, that's why I've gone through all this training. I am here to give you some insights, to give you some experiences that should help make your challenges easier. But the reality is is that nobody knows you better than yourself. You need to have an open mind to what your body is telling you physically, emotionally, and spiritually. And communicate that to your caregivers. Because that will help them to give you more tools to be healthier as you face whatever those challenges are".

MT: [Nods. Looks over at time, interviewee must begin teaching course soon.] Looks like we should probably start wrapping up, but is there anything else that is relevant to the conversation that we've had here this morning, or any questions that you wish that I would have asked you?

BD: So I would just like to make some comments about the challenges of practicing Osteopathy in the modern world.

Throughout its 125 year history, the profession has had a variety of challenges: in establishing itself in a very hostile environment, in establishing training programs for training Osteopaths on a variety of

levels, and as well as trying to ask very important questions about understanding better the nature of the human being.

A lot of times we look to the past feeling that they've had better insights than what we might immediately have available. And certainly, the strengths of that earlier time in Osteopathy is that, 1 - they were much more attentive I think: to observing their patients and building insightful diagnostic skills, more than perhaps we are doing in our current training. But they were also very limited in the ways in which they could *systematically* collect their observations about their patients and to know what groups of patients actually should be categorized in a similar fashion. Their diagnostic ability to say, "Yes, this is pneumonia" versus "This may be COPD or emphysema or some other pneumonic condition" was very limited.

So their observations have to be seen with a certain level of scrutiny, that 1 - they were limited in how they could categorize the populations they saw, how they could systematically collect their data. So we have to ask the questions - "Were they seeing associations in the conditions and the complaints and the dysfunctions that we're seeing out there? Were they seeing cause and effect in regards to that?". That is one of the most difficult things we have in any aspect of life, at any stage of human existence, is to be able to differentiate between things that are just associated because of timing, because of life, or things that really were cause and effect.

We are only beginning to really understand the human body, and we can look to the past, like the pneumonia study, to get some foundational platform, but that only gives us a foundation for us to ask modern questions of the cytokine-issues, to use modern tools to actually better define what condition *is* actually going on, what is actually the structural phenomenon that is going on? You know, is it hardware? Our scanning is at a *far* different level than what it was 100 years ago. Our ability to look at the programming, the neurologic components, through various forms of EMG, testing. We have a way of objectifying, understanding, categorizing, and as a result, specifically treating in a way that we couldn't have done in any other time. It is our responsibility to use those tools to really continue to advance Osteopathy. Dr. Still never said that he knew it all. All he said was, "I'm giving you a platform for you to take to continue and advance it." He would be without a doubt on the cutting-edge of science, he would be using fMRIs, he would be doing that stuff to better understand the human body in a very global but very local and focused area.

I think that's the challenge we have as a profession. Some of us think, "Well we knew it all 100 years ago. Dr. Still knew it all and we're just going to continue, to repeat doing and only working at that". That is absolutely not what Osteopathy should be in the 21st century. I think that we are called to a greater level of understanding and activity than Dr. Still ever had. Hopefully we will be up to that challenge, as a profession.

MT: That's a great note to end on. Thank you for your time.

TAJINDER DEOORA

November 3, 2019

In-person

MT: Do you see in the modern osteopathic community that we have a *distinctly osteopathic* conception of immunity or are we simply transplanting the [orthodox] medical conception of immunity into Osteopathy?

TD: I think it is all across the board [that we are transplanting the orthodox medical paradigm into Osteopathy], not just immunity. We have to remember that the medical paradigm is a disease-oriented paradigm.

MT: Mm-hmm.

TD: It looks at lesions, it looks at diseases, and then it wants to treat the symptoms of those diseases. Rather than trying to understand a health-based system, which is: why does *this* particular person, got *this* particular illness, at *this* moment in time?

MT: Mm-hmm.

TD: And within all of those factors, in addition, to the *phase* where that person is in that disorder. Is he at the beginning of the illness? At the middle of the illness? At the end of the illness? If he's had an illness, has he recovered appropriately?

MT: Mm-hmm.

TD: Or is he stuck in any one of those phases?

MT: Getting all the way back to normal.

TD: Or what is normal *for that person*.

MT: Yup.

TD: But that really does mean listening to the patient and listening to their tissues. But also knowing the clinical phases of that pathology and that disease.

MT: I find that an interesting contrast, in that it is like... maybe you can clarify that in my mind, how it is like - 'we shouldn't be using a disease-based model yet we also need to know the individual diseases'.

TD: We also need to know the individual diseases so that you know what is happening under your hands, and you can recognise that. But you shouldn't be just treating the symptoms.

MT: Ok that makes sense.

TD: But also it is worth knowing - what are the effects of that disease? For example as I was saying earlier on [in the course on Immunity which she was teaching that weekend] - when you've got an acutely infectious disease such as a meningitis that a patient has had in the past, years and years and years ago, or maybe something like mono[nucleosis] in their childhood - you can actually feel the effects of that in the patient's tissues. And each disorder has its own quality in the tissues, which is palpable. And then if a patient say for example has had meningitis in the past, and now they're their coming in with an acute prolapsed disc, you've done everything you can to try to help the inflammation around that disc, and the mechanics around there, but they're still not resolving - you need to go back and look at the tension within those membranes, especially the spinal meningeal membranes, because you'll tend to find that they've still got the quality left within them of unresolved meningitis, or the after-effects of meningitis, which is often dehydration and dry, very dry membranes.

So you're looking at the footprints which have been left behind by the disease. We find this typically in something like a cough for example. Patients are often caught in that cough-posture after they've had acute respiratory tract infection and have been coughing and coughing and coughing. So you've got quite a lot of muscular contractions which are happening within the substernal muscles - the intercostals, the transversus and even the diaphragmatic tethers. So they're caught in this almost like a

cough-position, and if that is not resolved that is already setting the patient up for a secondary cough or upper respiratory tract infection at a later date.

MT: Mmm.

TD: Because they're not able to fully expand their chest.

MT: Mm-hmm.

TD: And if you don't have the full excursion of the thorax, you're not going to have lymphatic drainage, you're not going to have proper breathing, and so you begin to get secondary effects, including shortening of the neck muscles.

MT: Mm-hmm. The structure is already waiting for -

TD: For something to go wrong.

MT: Yeah, for that pathological function to return. Yeah ok, that makes sense.

TD: It is about flow really. Good blood-flow, good lymphatic-flow, good **air**-flow as well.

MT: Mmm!

TD: So the footprints of a disease, or the after-effects of a disease, will often in the beginning change the shape of the organs in which they are sitting within their container. And if that then continues for a long time, a long long long period of time: because of the altered structure it will increase the potential to be prone to disorders.

MT: That makes sense [pause].

And could we return to that universal pattern thing we discussed earlier today, where you were saying earlier that 'That is what we do. That's *it*.' I'm putting words in your mouth here, but 'That's Osteopathy in a nutshell'. Would you agree with that statement or?

TD: I haven't a clue what I said [smiles and laughs].

MT: Ok [smiles and laughs]. Well we'll go back to the leaves - the leaves bring the vitality down to the midline, and the lymphatics doing the same thing, from the periphery down into the center [summarizing what TD had said earlier in class that morning].

TD: I'm with you, right. So what really is happening is that you're beginning with things at the peripheral level, the peripheral being at the cellular level. So you're talking about the small capillaries, the small spaces where the lymph fluid is being formed - that should be the area of attention, of treatment. Because by the time you get to treating the lymphatics, the great trunks, in a way you've already had a dis-ease, a discomfort, disfunction, which has already set in. And a good way of getting gently back into the system is starting at the periphery and then working your way towards the center.

But yeah these phases are also there, and it is good to recognise these phases - for example: in an immune response, one of the phases of an immune response actually is inflammation. And you need to have inflammation in order for there to be a fever response. So it is recognizing that inflammatory phase by... in a way you get the sense that when an immune response is about to happen, or at the beginning of it, everything is just expanding outwards and outwards and outwards. And so that is the whole body that is doing that.

MT: Mm-hmm.

TD: And then with the resolution, once the body has sorted out the infection, or the disorder, it comes back to that state of boundaries - of the organs, the fluids, the anatomy, the physiology, which comes back to the midline. And physiologically that makes sense as well, because in inflammation you've got to have porosity of the blood vessels for things like cytokines, prostaglandins, the complement system, to be able to *leak* into tissue spaces. So actually you're supporting that process at that stage. When it goes wrong is when it can't go back to having a fever, or it can't go back to consolidating after inflammation. And then you begin to get chronic inflammation. And that's not such a good thing.

But actually there is a low-grade inflammation which is there which is actually quite healthy, especially in the gut. We now know scientifically that there is always a low-grade healthy and inverted-commerce. And it always needs to be there to pick up opportunistic microbes. And so in a way the body is already primed, it is heightened.

MT: Hmm! Ok.

TD: Yeah. And it is when that inflammation cannot go down that it begins to have more serious effects. So it really is a question of *balance* and *harmony*. It is not a question of 'boosting the immune system', or suppressing the immune system - it is actually taking it in its context, at that moment in time, and then extrapolating - where is it going?

MT: [Breathes deeply]. And so is that how you would approach an acute infectious process? If you were treating the Spanish Flu today type of situation, that would be perspective that you would approach it with?

TD: I'm not sure. I'd say for me the first thing what is really important is to calm the nervous system down. The nervous system needs to be quiet in order for the immune system to get to work. So really I would just settle them down. If I was going to break it down into stages then I mean certainly calming them down would be a process.

But Anne Wales, when she is talking about the treatment of flu, pneumonia, that's a really really good application when she's talking about treating the rib heads, and... I can't remember how many minutes per... I think she was treating them for about 7 minutes every 15 minutes or so, when she was in hospital. I could look that up for you a little bit later if you wanted.

MT: Sure that would be wonderful.

TD: But really you know, this is pre-antibiotics and pre-vitamin C even. The frequency of treatment was really really quite often per day, because that's all they had.

MT: So they're sort of interrupting the cascade over and over and over again.

TD: Mm-hmm, absolutely! And reinforcing it. And really it is no different than antibiotics, it is sort of like following a *course* of treatment - whereas with antibiotics you're sort of like building one [dose] on top of the other - this is what you're doing with the therapeutic process in Osteopathy. You're initiating process and then allowing that process to get to work. And then making sure that it comes out the other side - that is what I mean by the cycle [phases]. At the beginning of the cycle it goes up, it peaks, and then it wanes again. And then you've got to make it has come back to original neutrality again.

MT: Yeah, so we're always using normal as our reference point.

TD: Well it depends what the normal is - it could be varied, what is normal *to that person*?

MT: Yeah, ok.

TD: And you know then we also do need to look at environmental factors, as you say, the moon phases - what is the function of the moon? It is to raise high tide, full moon you get high tide, we are 75 percent water, so on a full moon a patient is going to be more congested.

MT: Hmm! Oh interesting yeah.

TD: They are going to get more sinus problems.

MT: Mm-hmm.

TD: And premenstrual women will feel very bloated and full of water - that is what it does!

MT: Yeah, interesting.

TD: So we do need to look at environmental and seasonal effects on the body too. I see a lot of patients that... I try not to be away during the autumnal times, because that is when a lot of people come in, as we're heading towards winter, it is almost as if the tide has gone out of the body. They're more run down, they're more tired, and they're fatigued, more prone to coughs and colds: because the tide has gone out. It is like - these bodies should be hibernating. And that is what the body wants to do but we just keep going...

MT: Yeah.

TD: ...we've got to get to work at 7 o'clock in the morning, we've got to leave at 5 or be home at 5 or whatever ridiculous hours that we tend to do these days. There's no stopping.

MT: Is there anything that I haven't talked to you about here that you feel is relevant?

TD: Yeah! How the circadian rhythms are getting bugged up.

MT: Ok?

TD: Which is all part of it all. I mean circadian rhythms are being interrupted from natural cycles because of electricity and because of E.D.U.s and what-have-you. And that is already interrupting our sleep-wake cycles and over a period of time that is going to effect our melatonin, our hormones and so on.

MT: Yeah, metabolism. Ok, yup.

So I guess when we're talking about 'self' and 'non-self', we can only define 'self' in reference to the environment.

TD: There has always got to be reference, before you define anything there has to be a reference. Then you question yourself - what is the reference point? Which is why I was saying that when we say 'normal', what is your reference point for normal?

MT: Yeah, yeah [agreeing]. Ok yeah. It is always relative.

TD: Yeah, it is *always* relative. [pause]

So I'll give an example of normal. For a long while we were treating this child who was really badly cerebral palsy, and very very severely debilitated. And so we treated him for years, he was I think 14 years of age. And one day his Mom came in and she was really really upset because he was spitting everywhere. It was his new habit he'd picked up, he was just spitting everywhere. But we all got terribly excited, because spitting was a precursor to him mobilizing his vocal cords.

MT: Mmm!

TD: He was beginning to use his tongue, he was beginning to use the muscles of the mouth. So although if you looked at spitting by itself you could see that it was an antisocial habit, if you looked at it from the perspective of what was *his* normal, he was actually doing brilliantly - he'd reached a milestone [smiles].

MT: Yeah, yup. Hmm [pause].

TD: So the important thing is not to put our own judgement onto the patient and really approaching them with a neutral mind and acceptance, that this is how it is for this person. And not put a judgement on them. I mean this child with the spitting, one could put a judgement on him and say 'Oh, he's developed an antisocial behaviour', but when you step out of that judgement and really look at him, *in his context*, in his environment - what is he doing? He's actually making great leaps.

CHRISTIAN HARTMANN

June 12, 2018

Via Google Hang-outs video chat

(There were some technical difficulties getting video-connected and we started 15 minutes late because of it. Stressed out and forgot to turn on the recorder for the first few seconds... Christian was discussing his

own journey with Osteopathy and the stages it has gone through. Also note that his first language is German, this comes through in his phrasing etc.)

CH: ...the text, a very, very good interpretation. To incorporate it with philosophers, linguists, Humanists, who studied Still's texts as well, and I exchanged with them about the content and the meanings and all that. So it was *not* from a therapeutic point of view. And that opened my eyes totally. I don't know the truth like that, huh? But it opened my eyes that it *is* about philosophy, but not philosophy as we know it from the university, like academic philosophy, but it is about the ancient way of *doing* philosophy.

MT: Yeah. When I read your book, I got the e-book, and I put it through Google Translate.

CH: Ah, ok.

MT: So it was a little bit like reading a book written by Yoda.

CH: Ok! (laughs)

MT: The sentence structure is very different from German to English...

CH: Yeah, that it is.

MT: ...but I still really enjoyed it. Which is then saying a lot. So, it seems like you placed a lot of importance on putting Still *in his context* to understand him.

CH: Yup, yeah.

MT: So why is it, I guess we'll start with that question, why is it so important to put Still into that context to accurately understand him?

CH: Mainly because of two reasons. The first reason is that he lived at a time where certain things, influenced the peoples, as computers and internet influence the people today. They influence them in the way of their thinking and the way of talking.

Just one example is, if we read that "the man is a machine", in the nineteenth century a machine was not seen as a machine as today, it was always seen with the creator *within* the machine, the ghost in the machine, as they said at that time, and machines were not just made of dead parts, it was always the inventor, the idea of the inventor, the idea of the creator, was an integral part of the machine. So when they talk about the machine, they are not talking about the dead machine, but a machine with an idea inside that gives them life, a sort of life. And this is an example if you read Still and he's talking about machines, okay, we know it's a human body, it's an organism, but, he uses the word "machine", and he means machine, but he means "machine" in the sense the people of the nineteenth century used it.

Another example is why it's important to know about the circumstances. He lived in frontierland, and for me, the most important thing is that in the frontierland, the people have been self-sustained. They had to organize *themselves*. And so the idea of self-organizing is very natural in this circumstances.

MT: Uh-hmm!

CH: We had in the history only once a similar milieu, and that was in the ancient Greek. It was not a kingdom, it was cities that tried to solve their problems within the city themselves. So they start to self-organize politically and is not happening by chance that the idea of the self-organization of the human body starts in the antique. We know it today as like “*vis medicatrix naturae*” [translated as “the healing power of nature”]. This is the idea that the human organism is self-organizing, is self-healing, and it is 2400 years old, this idea. And it is not, it did not happen by chance that it started in *this* environment. And the same environment was at the time when Still was in the continent: they had been self-sustaining, so the idea of self-organizing was absolutely natural. In my opinion, it is a very personal opinion, it was not Still’s idea, it was the way people lived together at that time in that area, that the kind of thinking was just more or less copied in the way of thinking about the human body and medicine.

And of course there was a confrontation to the system that established, especially after the fall of the Roman Empire, with their [inaudible] of the Roman Catholic church, but this idea of self-organizing, the possibilities of human beings, the possibilities that they have of thinking and doing things, totally vanished, and were replaced by a hierarchy where things are very clear, the rituals are very clear, and there are strict rules you have to follow, you have to follow, and for me the most important: men lost all possibilities. The optimistic view on the human being was gone away, it was replaced by the idea of the original sin, the human being is bad and that diseases became something evil you have to fight against. That was not in the antique. You won’t find this kind of terminologic in the antique literature. And that was imprinted very very deeply into the Western world, it was like one thousand years, and then the Renaissance started and it started to evolve into this antique kind of thinking [again] a little bit, but it was very dangerous. You had the circumstances in the United States, it was much easier, it was much... it hadn’t had such an influence there. So suddenly there, thoughts could...enlightenment thoughts, thoughts of enlightenment, could unfold totally free.

And there it happened that Still had these ideas, and of course, that was totally controverse to the mainstream thinking at that time, and to the mainstream thinking that still exists today - which is a result of the imprint of this 1,500 years.

MT: So, when you were studying Still, do you notice anything in his writings, that you would think, would lead you to believe, that he was aware of what we would *nowadays* term immunity?

CH: No, not the immune system as we know it today. Still is not writing about medical facts. He's is clearly saying that in the preface of the autobiography. He says he's not writing for anxious readers. Like compilations of medical stuff, he’s talking about *principles*. Still is talking about general principles within medical thinking. He's *not* talking about very specific things in medicine, he’s mentioning the nerve system and the artery and all this, but not in a sense we talk today about medicine or the – what books that talk medicine are talking about medicine. So I think that we have to keep that in mind, that he’s talking about *principles* - very general principles. And at that time, when he developed his Osteopathy, his philosophy of Osteopathy, it was between the 1860s and 1880s. At that time, there was absolutely no clue about the immune system in the medical world as well. I mean, Koch and Pasteur started it in the 1880s, maybe Koch found all these cells about 1900 maybe 1901, 1902. So Still couldn’t actually know anything about that. It was – there was no knowledge about it. So he uses terms that he anticipates that the body is doing something to heal itself, to help itself, huh? And he's anticipating the physiology. But he is used to talk in mechanical terms. So he tried to explain physiology in anatomical mechanical terms, that makes it so difficult. So it is like your – you try to explain something about Chinese language in English. No?

MT: Yeah.

CH: And I can't give you – if you want, I can give an example.

MT: Sure.

CH: It is the page 223 in the autobiography. The quote is “Every corpuscle goes like a man in the army with full instructions where to go and with unerring precision it does its work. Whether it be in formation of a hair or the throwing of a spot of delicate tinting at certain distances on a peacock’s back. God does not find it necessary to make one of these spots of beauty at a time, he simply endows corpuscles with mind and in obedience to His law, each one of these soldiers of life goes like a man in the army with full instructions to the duty he is to perform.” There would be an example where it says that he grasps the idea of a kind of what we call today immunity, and tried to explain it in his way. Not only the immune...the...immunity reaction? You call it immunity reaction?

MT: Immune reaction, yeah.

CH: Immune reaction. But also that within this flowing, circling corpuscles, or liquids or whatever - information is transported. Information to organize the body, to sustain the body, to keep it healthy. And of course, you can between the lines say - “He knew about the immune system!” No, he didn’t know about it but he anticipated that there is a mechanism within the body that helps itself.

MT: Uh-hmm. So –

CH: And it’s depending on the flowing of the body fluids.

MT: So you think it would fair to say that he anticipated that function but he didn’t know the exact mechanism by which that function was acted out?

CH: Yup.

MT: Okay.

CH: I guess he anticipates a rough picture of the function. The function in a very general sense, yes. In a very general sense, but not... he kind of anticipated that there's just something within the body that is on a base of cells doing something. And maybe, I don't know, but it was in his library, he had the book Cellular Pathology of Virchow, that was published, I guess, in 1864, in the United States as an army version. For the army. And it was in his library after his death, this book was in his library. And so, I don't know if he read it, I don't know if he studied it, but there's the idea that the whole body is a unity of cells. Why is that important? It's gathered the traditional view in medicine that an organ is the problem and it was a new idea that the whole body is a community of cells working in a very dynamic way. It's a very democratic view of the body. Rudolph Virchow in his youth was enthusiastic about the democratic movement in there. So again, it is how you think in which the successes you are...that you...like print...that it will influence your way of thinking in medicine as well. But that’s just a side of it. So, I think this kind of quote shows a little bit of that actually.

MT: Mm-hmm.

CH: I think you have to be very careful in interpreting Still's texts, because you can be a lot in the text and sometimes it's too much. He lived in the 19th century. He was *enthusiastic* about mechanics. Yes, he had a feeling for life, for dynamic processes, for a kind of evolutionary theory and it was the First Principles of Spencer, one of the books he liked very much, obviously. So he was into this evolutionary, dynamic world view, but he *adored* inventors of mechanical tools or things like that. And He was very into the mechanical thinking as well. That's why I think Osteopathy, the philosophy of Osteopathy, for Still was in primary a very mechanical approach. Mechanical and anatomical approach, together result into the physiological sphere. The physiological part of the body. I don't think that he directly wanted to interfere to the physiology and directly to heal or to things like that.

MT: Okay. So do you feel that there's anything that the contemporary osteopathic community over-interprets, or draws too much or reads too much into his texts in that regard? Or anything that the contemporary osteopathic community is misinterpreting or misapplying from that aspect of his work?

CH: I think that there's three different ways to approach those texts. The first way to approach is with the primary therapeutical view, clinical view. Not only primarily therapeutical, but only therapeutical clinical view. The glasses are two glasses that are only see clinical aspects in the text. They tend to over-interpret things, they tend to say, "Ah, he means this, he means that" in the clinical sense. Where it is not very clear. Still very often is and very –how do you say, vague? Vague?

MT: Mmm-hmm.

CH: Not very clear. And he leaves a lot of room with interpretations. This is one way to approach it.

The second way to approach it is that they will start to read it and they read about God, machine, things like that and they put the book away. Because that has nothing to do with the holistic approach to the human being, and so, it is ridiculous, he is talking about, I don't know, "Is this part of life?", no lists, no techniques, nothing. And so, for them, it's incomprehensible thoughts, and so, they put it aside.

The third approach is that they look with clinical, therapeutical eyes *and* philosophical eyes. Philosophical not like scholar philosophical but I mean critically - where you first realize that the texts he uses, how he is writing, it is not for us as therapists, it is for *his* fellows of *his* time who lived with him. He wrote these books *just* for them, to understand it. And so, he used *a lot* of metaphors, a lot of allegories, a lot of terms where religion is very important, because for the people that he was with at the time religion was a keystone of surviving. And if you know that then you have to approach it in a different way. You have to approach it on two levels. On the one level, there is the supra-personal level, which is, okay, what is the text? What do you know from the time, the circumstances? How could it be interpreted from time where he lived, in the context of the American history and na na na na na [on and on and on]... And then in the second set, you can start to try to extract clinical principles. But it's a second step. And you *do not* do that before you do a very, very thorough study of the text from this other point of view, from this philosophical or the branches of our literature. And this is the third way to approach it and I prefer this way to approach it.

MT: Mm-hmm. Now, in your book, and this is the Google Translation, but it said, "A philosopher doesn't adapt the entire world to his profession, he adapts his profession to the entire world." And –

CH: Uh-hmm. Okay. And you know what I mean is – but that is a personal interpretation of Andrew Taylor Still's Philosophy of Osteopathy from the texts, and other books, I've tried to get everything in my mind from what Still wrote, like the handwritten things and all that. It should take that and take the whole context. It is *very* clear that he's primary *not* a therapist. He didn't want to become a doctor, he wanted to become a farmer. Property is freedom, on the frontierland that was it, nah? But the first harvest was destroyed, so he was in debt, he had to earn money, and that was one way how he could earn money, he did several different jobs. He volunteered and he translated the sermons of his father into Shawnee, he got a little money there. But the most money he got he got from his medical education he had with his father, and so he stayed there because he could pay back the debts. He was never, never a physician who knew when he started that he want to find a better medicine. No, not all. It was happening by chance. But what was the core characteristic of Still's personality, was he was *extremely* curious. Being as a boy, his sister was writing about that, he was curious like hell. He wanted to know. He wanted to know, and this is the core of philosophical attitude towards life. So primary, there was this philosophical attitude, this curious attitude towards the world, to understand, what is life? What is man? What is death? These are the questions that's Still dealt with all of his life. And in the end of the fourth book, in the last pages you see a chapter, "What is life?". And he's writing about that. And there you see, these are the questions that really drove him. And so, from *that* point of view, medicine was a possibility to know more about man. And it is the best way to know more about man. If you want to more – know what is man, you have to deal with men, with the body, with the – with the persons. And so, he's primary, in my opinion, a philosopher who acted as a physician. So he was a medical philosopher and not a philosophical physician.

MT: Mm-hmm, mm-hmm (agreeing).

CH: OK?

MT: Yup.

CH: But, that is a big problem. Because from a therapeutical-world there is no approach to philosophy at all, because this academical philosophy is like - "forget about it, it's too theoretical". And so, there is like a natural defense against the word "philosophy". But it's not about philosophy, it's about *being* philosophical.

MT: Mm-hmm.

CH: That is for me the difference, and very interesting for me is that the second – the title of his book is "The Philosophy of Osteopathy". And the third, which contains like a third of the philosophy, is "The Philosophy *and* Mechanical Principles". He tries to separate that there's a philosophy: and that has something to do with your independent mind, your independent thinking. *And* there's something else, this is what you're doing and the reality, this is Osteopathy. So there's a difference between philosophy of Osteopathy and Osteopathy. On that level - for me.

MT: Yup. In one of your editorials on the Jolandos website, you had a quote from another author, I don't remember which author it was, but was it: "Every new realization is preceded by the state of attentive non-understanding. It is the original philosophical state. The more comfortable we feel in this state, the more open we are to new insights, be it philosophical, psychological, or scientific." So that sort of, to me that that was speaking of that – the unknowability of reality. That there's – there is things that we can know but then that knowing takes place within... that ultimately, we can't know everything.

CH: Yup.

MT: Am I interpreting that correctly?

CH: Yup, that's correct. For me that's very important, especially within the third particle field. Because we are so – it's a – it's a role. The role of a therapist is: you know everything, the patient expects that. You know everything, you can do everything, you never get sick and you never will die.

MT: (laughs)

CH: You know what I mean?

MT: Yup. Yeah.

CH: And so, it's very difficult to get into the state of "I don't know", ya? But in that state of "I don't know", and this is the Socratic insight, ya?

MT: Mm-hmm.

CH: That is translated like...I don't know in english, but like "I know that I do not know". But that's a wrong translation. The correct translation is: "I know as a non-knower." So it's a very self-confident position, okay?

MT: Ahh. Mm-hmm.

CH: And if I admit that I'm a non-knower, then I realize I have a border, I have a frontier. I can work responsible. This is one of that, *and* I can learn. If I do not, if I am not able to admit that I do not know everything or I don't know this... if a patient asks, "what do I have?" and I say, "I don't know, let's see, let's find out." Huh? I open the possibility to learn, to grow, to be alive. And that is one of the core, core, core principles of philosophy, of being a philosopher means, firsthand, you understand that your knowledge is absolutely limited. That you always *try* it to find out what truth is, that's your idol, but you never will reach it. The idol is to search for it, to ask questions, and not to get answers, to ask questions. Curiosity. And to be able to awe. If something new is coming, it is like, awe. If you are not able to do that, you will never experience something new, and then you're dead. And I think Still was very curious, very open, and admitted when he opened the banner of Osteopathy. And he – and he was – I don't have the quote here. He was hit not in the heart, he said, but in his mind. And this mind was in an *awful* condition, and that is: "I know nothing". And that is the position where we can start to learn, to really develop.

(silence)

MT: Okay. I think you've answered a couple of my questions there...

CH: Yeah no problem!

MT: ...and that's good.

CH: It is always interwoven. It is always interwoven.

MT: So kind of onto another subject. But you say towards the end, in your conclusions in your book, that the patient is viewed as a subject and not as an object?

CH: Uh-hmm.

MT: And would – so would it be fair to say that then you're viewing the patient as like a process rather than an object? Or as a verb rather than a noun?

CH: So yeah, you ask me personally – from my personal opinion?

MT: Yeah.

CH: Okay.

MT: And also, how do you think Still viewed things but –

CH: Okay. We do not know. I say we do not know. But being we need to use categories, to exchange and to be able to do things, to decide and to act as therapists – we need categories, we need models, we need that. Actually, I do believe that we do not know exactly what man is. A combination of subject and object, like the body is a physical reality containing something. This is the old, old problem of body and mind.

MT: Uh-huh.

CH: And this weekend, I had a – I had a talking about that. And that what is body? We – in Germany we have two words for body: "leib, korper". "Korper" is body. "Leib", this is the word that they use, like, thousand years ago when they talk about the body that contained the soul. So a living man has a "leib", a body that is living, a "leib", and dead man has a body. But we do not know what part is what, we do not know mind, soul, body, where is it, what is it. I think it's a mixture of an objective and a subjectivity reality. And for Still, I think he has a little bit, maybe he was imprinted by the Swedenborgism and the Spiritism at

that time because in Swedenborg's writings you see very clearly that human being is a combination of a spiritual being and a celestial being. Sorry, a terrestrial being, a celestial being and a terrestrial being.

Swedenborg was writing very clearly in that terms and Still uses that terms. It's not a proved that he have the same view on it, but I think in Still's work there is something like an immortal part of the human being and a mortal part of the human being, and the immortal part of the human being are like going into the mortal part of the human being, and there life emerges. And when people die or human beings die, and then mortal part is going forward the next step. That's how he explained it. I don't know exactly what the life is like that this terrestrial life is like being in a womb and when you die you are born into another world, and you are here to learn. And that is your vehicle, your body is your vehicle, with physical reality but interwoven with this immortal part.

He uses just two times the word "soul" in all of his four books by the way. He's more like, "mind, matter, and motion". Not "body, mind, and soul". Jane Stark wrote an article about that.

MT: Okay.

CH: So the idea of body, mind, and soul would be like interpreted into Still's texts: I don't think he had this view on it in a sense as we understand it, because this comes from the triune-man concept of the church. He uses once, the word "triune man", but it's not the trinity, like, the holy spirit as mind, the soul, and the body. I don't think that Still has this concept.

MT: So do you think that we can put Still inside of that box of the term "vitalism" or is it's more complicated than that?

CH: Clearly vitalism.

MT: Yeah.

CH: Do I have it here? There's a quote that *very* clearly showed that you can...let me check Research and Practice, do I have it here? Did you have a minute?

MT: Yeah, sure.

CH: Then I can...

MT: As long as you do.

CH: Yes, of course. To Research and Practice, that's the last.

MT: Mm-hmm.

CH: Research and Practice, one of the last pages. The chapter is called “Life”. And the characteristics of vitalism is that life is a substance. But [indiscernible German words] vitalism, the people who believe in vital are vitalists. They believe that life is a kind of substance. That is a characteristic of vitalism, a core characteristic. And... (silence as he searches) Okay. “One of the greatest questions...” that is in Research and Practice on page 510, chapter 905. “One of the greatest questions if not the greatest that have ever presented itself to any *philosopher*...” - not a therapist, to any *philosopher* - “...at any ages: what is life? Is life a substance? If so, what are its attributes? He reasons on the attribute of known substances such as electricity. What are its attributes, if any? Electricity shows its attributes to be force and motion. Is there any substance whose attributes are superior to electricity? At the end of all of this philosophical levels, the philosopher concludes that life is the substance and superior to the sum total of the elements of the whole universe. Superiority is proven by one of its attributes, which is mind.” It's very clear what he says there, it's very clear for him that life *is* a substance, and that it is intelligent. Life is something intelligent, we do not know which kind of intelligence is responsible for it. But intelligence is a very, very important thing, does the mind of a human being, that mind with a small “m”, that's where you can be God very near, not only with love, life, and love but also with *knowledge*.

And that is, like, the religion of the philosophers: with knowledge, you can get back to the golden age where the human being knew everything. And for Still is this: use your mind, to reason, he uses the word reason, like, 450 times in his books. Huh? Make up *your* mind, by *yourself* and not following others. And this mind, this independent mind... it's my interpretation if you read the text or especially if you interpret them like that, that mind is the key thing to show that you are alive, that life is within you. So mind, not part, that is clear for him that you love other people, like, that's natural for him, no? But then you use your mind independently, that is not natural.

MT: Hmm.

CH: Which in my opinion are two aspects that are always overlooked. As core principles of Osteopathy. One is, the existence of a universal intelligence: no religion, no special God, and a kind of intelligence. That is responsible for everything that happens, that means that it's also responsible for the healing process.

MT: Mm-hmm.

CH: No therapist is responsible for healing. Just for the framework where healing can unfold.

MT: Mm-hmm.

CH: That's what Still was saying about the Osteopath is a mechanic, he is a craftsman, not a healer. And this is a kind of general principle of the philosophy of Osteopathy, in my opinion, which you can expand in the modern world that you say: would work on frameworks. Framework, not only the physical framework but can say if you are friendly to another person that has never been seen and no one has been friendly to this person, and you are the first one to be friendly, you alter the framework. And for this person, within this new kind of framework with a social framework, suddenly they feel good, the vegetative nervous system changes and things happen. But you're not responsible for the changes and what's happening there. There are natural laws that are there, that intelligence unfolds but following the natural laws, and with absolutely no influence to that. But to the surroundings that are necessary so that this can happen.

MT: So that universal intelligence, it would be fair to say that that expresses itself *as* self-organization?

CH: Yup. It is. Not only self-organization, it is, you call it an, uh, pantheistic view. I think that Still was a pantheist, if you categorize it. I mean, you would never see that in...it would be a kind of a category... and that means that every structure, everything that appears, and anything how these structures work together, the structure and function, you might say? Are expressions of the universal intelligence, not only the functions but also that things exist. So *everything* is like a mirror of the universal intelligence. And the laws are one part of it.

MT: Okay. So you said that there are *two* things that are often overlooked and that –

CH: Ah, ya! Universal intelligence, which is sometimes too much... becomes too much religious colours, when people interpret it into Still, and Still is furious about religions. Churches, he is really furious about that.

And the second one is the independent mind of the Osteopath. The philosophical attitude of the Osteopath, the *primary* philosophical, reason, reason, reason, reason. Mind, mind, mind, mind. Not a cold mind. No, not like the reductionistic, cold mind. Rationality means much more, rationality is also... there are intuitive parts within rationality as well. That when you get an idea, it is maybe not a logic process, you start to be logical and then your mind drifts and you get an idea and then maybe you put that into a logical things.

So it's a mixture of many things, that rationality. And in my opinion the philosophy of Osteopathy contains in its core that universal intelligence: trust nature until end, leave it alone. And the other thing is: you are independent and *stay* independent, don't follow teachers and gurus. Mentors, they are important, be open to what they say, try to do it, but be critical and skeptical and *test it*. And you have a brain, and you have to use it. No?

MT: That's good life advice.

CH: Also the Socratic way, when he was teaching, when Still was teaching, it very often asks questions, he didn't teach things: technique or basic things. He always asked the students, "What would you do? Why would you do it?". And that is called in philosophy "maieutic", that comes from Socrates, it's when you ask people and start to think of themselves about the answer and there's the process where they get to the answer without any advice just by their own and that's their knowledge. When they get to this knowledge, that's *your* knowledge, never will forget that, and you will *understand* what you know. Still wanted that you *understand* what you know. Not only that you know and can techniques and a lot of people will think like that, ya? That you should understand what you do. Not because someone said it to you that it works like that. And this is another thing that collides *completely* with the way that we learn today Osteopathy. It undermines the authority of teachers. Especially of big heads. And no one of the big heads I know teach in a Socratic way. This is one of these things where discussions could be done. The next generations in my opinion is their task to force that. And if you see the writings of Still and is a story by the way of Elmer Booth, you know Booth?

MT: I haven't read the book yet, but I know him, yeah.

CH: He wrote "The History of Osteopathy" in the 20th century, two editions, and in the 1920s, the big one, the thick one, and in there he describes one chapter where he describes a meeting with Still where Still was

talking to him and he asks him to companion to a patient and Booth is like, "wow!", 25 years old and big old doctor of 75 years, awe, very exciting. And they go to this house, Still says to Booth, "wait outside", Still goes in, treats, comes after an hour or so, and they return. He is not saying about what happened and what he did.

MT: (laughs)

CH: On the next day he asked Booth again, "You want to join me?". They sit under a tree in the garden in the meadow behind the school. And he explained a little of what he found out with the patient, the diagnose, what he thought. But he didn't say anything what he did, no techniques, nothing. And Booth was like, "What did you do? What did you do?" And Still is like, "I did what my mind told me to do. I don't want that you or *anyone* is just copying me, Dr. Hildreth, Harry (his son), you have a mind, use it. If you want to be successful, use it, and never forget that you're as capable to find a something great as anyone else!" Says a 75 year-old Andrew Taylor Still to his student! Look around you and look for teachers that are doing that. What a *trust* in the potency of the students. In the brain, in the mind of the people. What a trust.

And there's the other thing, that universal intelligent. There's an approach from some sides to explain this universal intelligence or that there are high forces or whatever, especially in the Biodynamic Osteopathy. But this independent mind, this philosophical mind, this skeptical mind, that, "okay, I listen to you, I see how you do it, I will try it. And then I will make up my whole mind. Maybe it's right, maybe it is not, you never know." And this is typically what America and Midwest in the 19th century, freedom. Freedom from Europe, independence from Europe, finally! You can think whatever you want. It's a completion of the Enlightenment development that was purely theoretically in Europe, and in America, in the 19th century Emerson for example, Thoreau, Margaret Fuller. This theoretically constructs like modern [indiscernible] and all that, very nice, but its just theory. In America, the broad back for complete of the circle, from the ancient philosophy: which was all the science and philosophy, the humanities and science were always one, called philosophy. And Still fulfills the circle. A philosopher I am cooperating with, one of them says "Still it's more important for the history of philosophy and then for the history of medicine". Because of that it: fulfills the Enlightenment movement.

MT: Beautiful.

CH: This independent, this second thing, this independent thinking, this is when Still talks about philosophy and all of that, reasoning, where we think "Oh philosophy, ah-well, he didn't know exactly what philosophy was and all of that, and philosophy is not important" and all that. It is the independent thinking, the independent: that is the philosophical part in Still's work, and it is absolutely the core in my opinion, of being an Osteopath is being critical. Critical doesn't mean, like, "that's bad", critical means that you separate between important and not important. It is the old meaning of the word, critical, it comes from "krisis" and that comes from the ancient Greek, (sighs) ah how do you say it, when you have the stone with a metal in it you heat it up and then the metal separates from the rest. And this process was called "crisis".

When it's happening, and you don't know what will happen but there's happening something and then you - have something that is very valuable. But you need this process of crisis to get to the valuable, you need to be critical. And this is, Still is very very critical when it comes to orthodox medicine. But, he says I don't have anything against the physicians, I think they all try their best, but, I am critical about the way they think. And it is very important to separate these two. The man as he or she is, is perfect. It's a part of the creation, or perfect creation. The way they act or think you can discuss, but not the man as itself. And if you listen to how Osteopaths talk about physicians, orthodox physicians, and vice versa of course. It's like not we're discussing the thoughts and all that, it is "this is the bad man."

MT: Hmm, yeah.

CH: It's not about philosophy of Osteopathy. I always say, if an Osteopath says something that degrades an orthodox physician, then he is not capable of doing Osteopathy, is not capable of understanding Osteopathy, and is doing exactly the same of what he says to the physician. Is it the framework: because he is not leaving this way of looking to the world. Have an ontogenetic look onto the world. Where is the problem, where is the evil? First, and only if the evil is gone can good unfold. Hmm? [is this really the case] Still says, "everything is good. Give it the right framework and it will work."

MT: Mm-hmm.

CH: This is happening at the seminar, when I hold the seminar, after one or two hours no one writes anymore! (laughs)

MT: (laughs)

CH: It's just, like, "oops!"

MT: No, no, it's all good, I got the voice recorder going so I don't need to write everything.

CH: That's good.

MT: I can just take it in for now.

CH: Yeah, okay. In the end if, you look at it like that, if you leave the therapeutic sphere completely and you try to look from another higher, from a broader view on the texts of Still, it is really, truly a revelation. It is a *revolution*. I believe that means "to turn back". And it's truly a revolution. Jumping over all the years where the church had this influence and created this patterned-genetic way of thinking, back to the way where people looked at the world and say, "Hey, we can do things, we can think, we can understand.", no? And he continues this in the medical world with approaches that work, and this is fantastic! It's not the idea that the body is working as a unit, or a self-healing, the four principles you know from the AOA or WHO. If you know the history how they were created, when they were created that was just because of politics.

And the second level, I call it second level, for me there are three levels. The first level is, like, not about medicine or therapy at all, it is this... what a picture of world you have: universal intelligence and use your mind independently. And from that, in the second level you get an idea of health and disease, a certain [idea of health and disease]. And this is, like, for example the body has a self-organizing mechanism itself, starting in itself, and then you can go into details how that works, what your model is, your ideas. And from that, the third level is the treatment because then you have a model of... you know why the stuff is here and there and because of that. It's very logical that you do this or this, or this, or this.

So the therapeutic aspect is the *third* level, that is for me it's the lowest level, or not the lowest, it's the final level, it's that's very important because then it you act in the world and this is the most important thing of course. But you do not really know what you are doing. Maybe you have a picture of disease and health, but in that sense that Still is doing it, it's embedded in the *whole world* and the picture of the whole world.

MT: Mm-hmm [readily agreeing].

CH: And that opens up, phew! [pressure releasing noise]. And then of course you don't see a physician anymore or a Osteopath or Massage Therapist or a Physiotherapist, or a politician or not.

Suddenly things become more... [indiscernible]. But you're not a better person because of that, but it gives you *a lot* of opportunities to look at things. Probably authorities die. Authority die in a way that you feel, like, respect, okay?

MT: Yes! Hmm.

CH: A lot of respect for what people are doing. But you never follow them. Then in no sense are they guidelines in *your* life, they're just a hint for the next steps, you take them, you try them, you integrate and transform them, and then the next step will come. This what's Still wanted, I mean, he's writing it all the time, and not between the lines. People tend to interpret things between the lines. It was very clear when he's talking about that. "I don't want that you copy me." Still said, "Don't copy me." So we do what Still said. (laughs)

And it's very important for me as well to separate the person Still and work the ideas, the suprapersonal ideas. Totally away from the person, the general principles that are left, and it's not a lot of important if he was a perfect man, if he was a crank, it doesn't matter, if he killed people, it doesn't matter. Because the ideas are ideas. And in my opinion there is very often there's this mismatch of the person of Still and the ideas that was like "I understand Still and you will understand Still when you work 30 years, and maybe you will get the spirit of him a little bit like that...". I say to understand philosophy of Osteopathy is very simple. You can do it in one hour.

Every intelligent person, intelligent means not that they have to be at the university. Intelligent means like common sense, you understand, very simple, very easy. To integrate that into your work as a therapist, may take time. Experience and time, but it's not like many teachers said - "You cannot understand that today". It's like, "Oh, I must become like him or her, then I will know the truth and the secrets and all of that." No, absolutely not.

These are my ideas.

MT: Thank you very much for your time Christian. It was wonderful talking with you.

MATVEY KIPERSCHTEIN

November 2, 2018

In-person

MT: So in your opinion, when you read through Still's writings, did you see a distinct view of health and disease including immunity?

MK: Yes I saw a viewpoint. But I can't call it a distinctive view, and it is very inconsistent. So he has some views, and he tends to contradict himself multiple times. So my opinion of not just health, or immunity, but pretty much any topic, but health and immunity in particular, if you find me one of his statements I almost guarantee you 100% I find a contradiction somewhere else in his writings.

MT: Mm-hmm.

MK: So he is very inconsistent, but he has some views, yeah.

MT: So do you think it is possible then to state what his view was, or do you find you can't even say that then because of those contradictions?

MK: OK, so because of the contradictions, things that are clearly contradicting each other, I have to discard them. I can't make a conclusion which one, which Andrew Taylor Still I should go with. We can talk later why I think he is contradicting himself many times.

But based on what I understood, you are asking for example about disease and immunity and health, the consensus of experts, I think, goes towards - he thinks of disease as a deviation or perversion of normal anatomy. Anatomy for him is very mechanical, he wants to see normal anatomy. The problem is, again, he never defines normal anatomy, and there is no such thing, in fact, as a normal anatomy. We know it right now. We have sort of an average, but not normal. And then he speaks a lot about God, in relation to health and normality and disease and immunity. And so that is pretty much it, when you look at where he is not contradicting himself. If I were to broaden it and discard little things, this would be two major themes - normal anatomy and God, whatever he means by "God".

Now, other people found different interpretations. You can look at his views of health and immunity from nature-romanticism philosophy point of view that existed at that time. It is sort of "be one with nature and then that will bring you health, that is how you are immune" - whatever he means by that. But I personally find that this approach to health is very poetic and not very applicable to real life. It is sort of your typical Andrew Taylor Still - he speaks and nobody really understands what the hell is he talking about, right? [laughs]

MT: Yeah. [smiling]

MK: But many people point that he had this sort of like nature-philosophy, similar to Thoreau or writers of that time.

In terms of immunity, I think his views - if I were to try to put it in boxes and give it concrete categories or names... and I can't be politically correct here about him - it is a total rubbish. It was even rubbish at his time, now it is completely outrageous what he writes, but even at that time he was behind probably at least a hundred years in his views. So if you want to see what he *clearly* said about immunity you have to go to his chapter in "Philosophy and Mechanical Principles". There is a chapter on smallpox.

MT: Yes, yup.

MK: And when you read that, that is just outrageous. So he thinks for example that no two diseases can co-exist at the same time, right? Therefore, he would give some kind of irritant to create a disease to drive other disease away. I mean this is just.... seriously. It is laughable, even by his [time's] standards it was laughable. And I looked at some point very thoroughly at this issue. Unfortunately, I did not document this information well and can't find it now, but this is just a simple list from Wikipedia. So this is not the most reliable information, however, that book [Philosophy and Mechanical Principles of Osteopathy] was published in 1902. Prior to 1902 you have... in 1796 you already had smallpox vaccine that was tested, and the germ theory of disease was well established in 1840, in '50 they demonstrated that child-bed fever was contagious - I believe that was the physician that sacrificed his life to prove that. He cut his finger, stuck it in there and died later.

MT: Yeah, OK.

MK: They demonstrated phagocytosis - so people were already investigating immune cells and they discover phagocytosis in '62. I mean, again, it is Wikipedia, not the most reliable, but it gives you a sort of a benchmark. Mast cells were discovered in '77. Between the years of '83 and 1905, someone was already formulating cellular theory of immunity - serious stuff, something that we actually do these days, it has been proven useful over many years.

MT: Mm-hmm.

MK: In 1890 antibody activity against diphtheria and tetanus, so that was the basis for later vaccinations that were developed. So all of this was available knowledge by that time, and yet he speaks about some "albumens"... he doesn't even have a nomenclature to explain what he is talking about, right? And then his examples of giving blistering agents...

MT: Yeah the cantharidin.

MK: Cantharidin, it is a deadly thing, even at that time they already knew that it is a poison that shouldn't be used anywhere, but he asks to give three sniffs out of it to a patient who is suffering from smallpox - no more than three because then it is going to burn the lungs out.

MT: [Chuckles]

MK: Right? So when I read this stuff I'm like "come on", OK obviously he is not an expert on immunity, even 150 years ago.

MT: OK, so - you would use today's conception of immunity as the benchmark to measure his conception of immunity against?

MK: No, I don't think that would be fair. That's completely unfair, and that's why I brought these datelines to show that even by his time's standards he was already wrong. Therefore, I don't need to take our standards. So for example, he speaks about smallpox vaccinations in a very derogatory manner and saying that you should do osteopathic treatment and that he gives himself a blister on the forearm to get protection from the disease. He doesn't even understand that if he had the disease once he wouldn't have it again. He has *no* clue about immunity, and that knowledge has been around for 100 years by that time. So for me it is utter rubbish. It is very unfortunate to see something like this in that book, very disappointing. Very disappointed in Andrew Taylor Still [mimics scolding him and laughs at the idea].

MT: [laughs] OK, do you believe then the results of his treatments? When he says that he had clinical success treating tuberculosis and things like that with osteopathic treatment - do you believe that was actually true?

MK: He was... you have to read, not in the books, you have to read his articles for the Journal that they had.

MT: Yup.

MK: But also you have to read his promotional materials - he was amazing at marketing. And one of the things... and I can't remember where it is, but it is public domain, and you can find it. I can send it to you later if it is somewhere in my papers, it is a brochure that he gives to patients at his hospital, and if I remember it correctly it says something along the lines that if you follow our guidelines, that are very strict, 75% will improve, and 25% will be completely cured or something like this. And it tells me that he was fully aware that a quarter of people he will not be able to help at all, and 25% he will be able to cure. Now you have to look at what kind of treatments they were doing and what kind of diseases they were treating. So they were taking people out of very unhealthy environment and putting them into this sort of sanatorium with fresh air, clean air and no booze, no drugs - you would improve regardless of whatever treatment you're given.

MT: Mm-hmm.

MK: With a very unclear diagnosis, and not having any ability really to diagnose what the real deal is, it is very questionable whether he was able to do anything for such things as tuberculosis from an osteopathic perspective. Because the treatment of tuberculosis by putting you into a high elevated clean air was proven to be effective, to prolong life quite significantly, and that's been around for a while. There were spas all over the Europe. People would go to spa-towns to treat their consumption, right? So I don't think he was doing anything, even by his own admission.

MT: So how about the diphtheria treatment even by his son in Red Wing then? You know that whole thing?

MK: I'm not convinced. It is self-reported, self-aggrandizing. There is this famous study published during Spanish flu epidemic, osteopathic practitioners had 10% success rate versus Mds 1%, I can't remember the exact citation, but this is abysmal... I mean it is self-reporting numbers, and we all know that Spanish flu killed most of the people in a certain age group, right? So it is very unreliable information, I wouldn't look at it as a reliable source.

MT: OK.

MK: Especially when it comes from his mouth that 75% will get helped. He knows that a quarter of the people will not benefit at all. And that is promotional material, right?

MT: OK, so you wouldn't even trust it that far.

MK: I mean, it is already self-elevating. What's the real number? I don't know if you can go to archives and find out.

MK added later at the member check: Also, at Kirksville they did not use our modern statistical methods. If you take the natural progression of self limiting diseases, regression to the mean, placebo factors, etc, then what do you think would be the real success rate? Also, what is success when treating TB or other serious infections before antibiotics were invented? Did they follow up with patients to see the mean survival rates? What about comorbidities?

MT: OK. So then how much of that do you see carried over into the modern osteopathic community?

MK: Terribly too much. I see a lot of big names in our profession advertising anti-vaccination diatribes quite aggressively. It is just terrible what happens, and I personally remember sort of falling under the spell of this and embarrassing myself terribly later on with real scientists. So that has to stop, I mean this is public health problem that we're creating by advocating whatever Still was doing. It carries too much into

modernity, and people take too much Still's ideas too seriously. And that is very dangerous I find, I find it is terrible.

MT: So in his view of health and disease and treating communicable, what we would now label communicable diseases, do you see anything *beneficial* in his conception of immunity? We've sort of critiqued it but is there anything that you see as something unique or innovative that he brought forward that was of worth?

MK: I have to look at it again, but at the moment I don't think so. I have to really read in-between the lines and perhaps in his romanticism-nature philosophy he does explore something that can be of benefit, but... just that chapter alone on smallpox, I mean that's it, for me it is an end.

MT: OK. Hmm...

MK: He had a... I mean to understand him better and give him a little more credit perhaps, it is important to look at whatever he did from a point of view of his background. And that has been well researched. There is a problem of understanding Still, because he is so vague and all over the place. You can claim him for your own, whatever ideology you subscribe to. Therefore, many modern admirers of Still have ascribed to him views that are very inconsistent contradictory, and in my opinion, ideologically motivated. In my very amateurish way, I would describe these analyses of Still as coming from deep seated insecurities about osteopathic profession.

MT: Mm-hmm, mm-hmm.

MK: But the biggest thing I could identify in Still is the doctrines of Methodist church. That was probably his biggest influence through his father, and in Methodist church one of the biggest things was perfectionism: sort of "God is the perfection of everything, and then that perfection descends down into human beings" - and then it goes all over the place because we're not perfect, and how did this happen that we're created in an image of God and we're all screwed up, how did this happen? And they come up with all kinds of ideas. So that way of thinking influences Andrew Taylor Still's ideas quite a lot. So he's looking for that perfection, and he wants to restore that perfection. So he sees perfection of God's creation or whatever, and then he tries to figure it out. His conceptions of health and immunity and disease come through this. He sees those "seeds", he calls them "germs" or "seeds", it's all from the higher somehow. To me it makes no sense because there are so many internal contradictions in that theory. But that is something that helps to understand where he is coming from, why all this insanity in his writings. So that can be important to try to understand his contribution.

MT: OK. Hmm... we've plowed through a lot very quickly.

MK: Yeah, I came prepared I think. [laughs]

MT: [laughs] Which is good, I appreciate that. OK, so what do you think that the osteopathic community today, how do they need to view Still's conception of immunity? You think it needs to be wider recognized that there are major faults in it, and it has been too romanticized now as well?

MK: Yep, I think people need to look at it critically. Not necessarily as you mentioned from our perspective of immunity, but from what was available to him at his day, and realize that he rejected modern science quite vigorously. Essentially most people think that Osteopathy is a revelation from the Divine, through Still. He is like a prophet really. It is fun to analyze it like that. I'm diverging... what was the original question again? That you just asked me?

MT: Just...

MK: How we can make sense out of it right? So a good analogy - I thought about it a lot when I was reading him because this whole thing drives me crazy about these contradictions in his own writings. Look, for example, how we view Hippocrates. We have Hippocratic oath for example, right? So we've taken something (for all the wrong reasons if you read Hippocrates) and we've decided, OK that's good for us, let's keep that.

MT: Mm-hmm.

MK: So we can do the same thing with Still, we can find something useful. So the romanticism and nature is a great thing to take, because we'll lose this in our society, it is important to keep that. So we can keep that part, right? But we've, as with Hippocrates, we've taken something that is valuable, and we've rejected all the other nonsense that he was writing about. And we have no problem with that, so why do we have the same problem with Andrew Taylor Still? Why are we clinging to the prophet's bizarreness and not allowing ourselves to be open? And the same thing goes with all the rest of the big shots in the history of medicine, the Galen, we can go east and look at Ibn Sina, we now call him Avicenna, he wrote all kinds of nonsense but we took something that was interesting and we still use it. Right? So we can do the same thing with Andrew Taylor Still without "losing face". Without losing dignity, we can acknowledge that and say "OK, there is a contribution, let's figure out what is the contribution, and move on". Because this holding to his ideas is literally terrible for the healthcare.

MT: So what do we use to filter his works then? Because you've already said that we shouldn't use the... or should we use modern medicine or the current conclusions to filter what is of value and what is not? Do you know what I mean?

MK: I'm not sure.

MT: It is like - if we're going to pull some things as valuable and we're going to discard some things, then what do we use to discern what goes in which pile?

MK: That's simple. The answer to that is very simple, if something has an internal inconsistency or contradiction - that should be discarded. That's it.

MT: And *both* of it sides then?

MK: Yep, if we see something is complete utter nonsense, where the writer contradicts themselves, like Andrew Taylor Still, we should look very critically and say "*Maybe* there is something but likely there is very little".

MK added later during member check: I need to explain what I mean by contradictions. It is perfectly fine to contradict oneself as one's ideas develop over time. I might have thought something 10 years ago that today I would consider totally wrong. In the case of A.T.Still, if you find his writing from 1880, that he contradicts later on in 1902, that is excellent because it shows evolution of his thinking. And I would take 1902's view as a final version. However, if he contradicts himself within the same book, that is what I call an internal contradiction. And in this case I would discard both views. Why on earth would a writer put two completely opposing views within the same document, unless he is really utterly confused and can't see the problem in his own writing? There is another issue here, maybe his books are a mixture of little pieces written over time. And those pieces aren't arranged chronologically even within the same chapter. That would explain a lot. But I can't be sure. To investigate that, it would be an enormous research project.

But in any case, if I use the approach of discarding internal contradictions, the biggest benefit that I see from Andrew Taylor Still contribution, is recognizing the physicality of human beings. We're in this physical, material... we touch each other, and that has been missing a lot in modern healthcare. The physicians I still remember from my childhood used to touch, used to smell, used to poke around and see what kind of human being *are you?* Well we're losing that, and he was big about that stuff, right? Like all his discussions about normal / abnormal anatomy. I think he was trying to figure that out because he already saw probably how technology takes over and he is a frontier-man who was right there in the nature and was upset about it, I think. But that is sort of my very private idea about this. So that was probably the biggest contribution. All his musing about "nerves of motion" and "nerves of this and that", I don't understand what he is talking about! [laughs]

MT: OK, good. Um... hmm...

MK: I can add to it while you're looking through [the interview guide].

MT: Yeah, please.

MK: You said something like "In modernity what we can... the influences of Still to how do we address healthcare and to health and immunity."

MT: Yes.

MK: For example in this school there is a big deal of getting rid of all the lesions, what we call "Osteopathic lesions", right? So I think this is something that has been carried over from 150 years ago, and there is enough solid research coming out these days that shows that this is not exactly what actually happens. That even the definition of the lesion is not consistent.

MK added during member check:

If you read modern research in the field of physical therapy, massage and chiropractic, the solid one, the studies that follow good methods, you will see that palpation is not valid and/or reliable. For example, one can not reliably identify limitations in vertebral motion. Moreover, even if you could reliably identify limitation and precisely mobilize that segment, most likely, there will be no change in the joint position and/or mobility. The ability to stretch fascia or muscle is considered to be closed chapter in human physiology. One simply can not stretch tissue to make it longer without creating an injury. What happens during stretches or joint mobilizations are general neurological effects that can manifest as temporary increase in ranges of motion or perceived relaxation of muscles.

An example that is close to home, there is a recent study in IJOM demonstrating that it is highly unlikely that we can induce any mobility of cranial sutures with the forces that we are using during cranial work. Even at the sutures where the force can be applied directly, such as saggital suture.

But we keep on beating this dead horse and try to show that osteopaths are somehow different. That we possess these superhuman palpatory powers and can feel and mobilize tissues that are physically impossible to palpate or mobilize. Kidney would be a prime example.

So this outdated way of thinking is a direct result of clinging to dogmatic interpretations and being afraid to loose tradition and disrespect the elders.

So, going back to health and immunity. Lets assume that there is such a thing as lesion that can be palpated and corrected. Even if you can get rid of a lesion, it doesn't necessarily mean that it has any relationship to the actual health. The burden of proof lies with the one who is making the claim. And if one makes a claim that hands-on-treatment can affect health and/or immunity, then you have to define what you mean by health and/or immunity as they pertain to your model. After that you have to start with establishing what exactly is happening to physiology during the treatment (or removal of a lesion). And then you have to

show direct causation between correcting a lesion that changes physiology in a specific way that results in improved health/immunity. So having outlined this relationship, can you show me that a hands-on-treatment has an effect on an infectious disease? I don't think that A.T.Still was thinking along these lines. I recall discussions like this one with experts who admire Still very much, and their response to this argument was: "He was not a linear thinker. And linear thinking similar to the above argument is not applicable to osteopathy". I think that this kind of defence of A.T.Still is not very well rounded. First, because again, the burden of proof is on the claimer. And, even if you are a "complexity system thinker, before complexity theory was invented" and you make a claim of "I do this to the body and that happens", you still need to show me the proof. And second, osteopathy is not different from any other hands on treatment. There is nothing special about it except for the claims made by osteopaths regarding their uniqueness. And that I learnt from real experts that I interviewed for my research. I highly recommend reading papers by Stephen Tyremann. Unfortunately, he just recently passed, so we lost a great mind in osteopathy.

And now we need to start thinking about what exactly health is. Science moves forward and tries to understand it, not to provide a definition, but to establish frameworks - like Biopsychosocial framework, or maybe a biochemical framework, it doesn't matter which one. A framework can be applicable to specific problems you are dealing with. It is not about a definition of health from World Health Organization, but about framework to understand what is going on with the patient. The more we're going to do that, the more we're going to step back and discard parts of the traditions that are actually detrimental to the profession.

MT: OK.

MK: That is how we can view the history of the Andrew Taylor Still legacy.

MT: It's radical.

MK: Well no, it's not radical, that is what every other profession does, I don't understand why we don't do that. Well, it's because we're holding onto whatever nonsense he was talking about [smiles].

MT: [Laughs]. OK. So do you see these same issues repeated elsewhere? Do you think the osteopathic tradition has a tendency to do this then? To idolize and turn into "prophets" rather than "people" the big names like Sutherland and this type of thing?

MK: Yup, and it is a big problem. Because instead of taking a critical look, like we do with anybody else, all of a sudden we put them on a pedestal and we don't pause to actually think. One of my pet peeves, with Sutherland I hear this quote every day "Be still and know". We don't even take time to see where that came from, because that is a direct quote from the bible, he took just the first part, but if you keep reading, the brimstone will come in later and if you're not a believer you're gonna die. Something like that.

MT: Yeah [laughs].

MK: "Be still and know because I am God" and so on and so on, right?

MT: Yeah.

MK: So we do this, we make ourselves comfortable by respecting something that has no place.

MT: OK. Hmm...

MK: I think I've digressed, it is a very philosophical discussion instead of direct "immunity / health", I don't know what you're looking for.

MT: Well that is the thing with anything related to Still though - my experience has been that you come into and you're like "Oh, look! There is this one little thing." And you're like "Oh look! There is a thread attached to it." And you pull on it, and on the other end is all of the universe attached to it, you know? That seems to me to be how he framed everything, was in this huge context all the time, you know?

MK: [Hesitant agreement] Yep. He did that, but very interesting thing when you read him, if you want to spend a lot of time doing that [smiles], is to see a chronology of his writings.

MT: Yes.

MK: I think that when you see that, you will understand how his views kept changing, and that is why he is so inconsistent, because his books were a collection of writings which were put together but they are not consistent - the same chapter might be from different times, mixed together. Which is why when you read it it makes no sense.

MT: I'll challenge you a little bit.

MK: Oh - please.

MT: Why is that a problem that his... because that is how I interpreted the inconsistencies as well - his thought was evolving along with his experience and etcetera. So why is that a problem to see that? Is there not partial truths in each of those stages of his development? Can we draw things from each side of the inconsistency, or because it is inconsistent they negate each other completely?

MK: Well even if I take something that looks to me the most recent, it still makes no sense. It is still not a very good idea, again even by his time. It is exciting to see the progression of his thought, it is very fascinating research, but it doesn't lead you anywhere - it didn't lead *me* anywhere. So the conclusion I have reached - a compromise was to say "He is someone who has interesting ideas about the worldview, but he doesn't have a concrete worldview." So he thinks but there is nothing solid that you can take and say "Well that is what it is".

The contradictions aside, when we take something that is solid like a theme that goes all the way through, it is still just as bizarre. I was just thinking about it the other day and I was thinking his writings would be appropriate for someone in the beginning of the Renaissance in Italy. That would read appropriate for that time. Or someone in Persia in 13th century at the height of their civilization, or in Alhambra before the reconquista by Spanish - because they produced a lot of this kind of stuff. Still's writings look very appropriate for those old times and places, but I mean come on, he died in 20th century, it is time to move on. It is time to move on, he was a frontier man, maybe it was appropriate for a frontier man. But seriously, I had this discussion with someone, if he was to be born on east coast, somewhere like Boston or New York and he would be proper well-educated physician he would not be giving blistering agents to fight smallpox.

MT: OK. Is there anything else that you feel is relevant to the discussion that we haven't gone over?

MK: No, I thought about modern interpretations of health, how they stem from Still and I mentioned the osteopathic lesions which make no sense... we use principles which also are questionable ideas. Other than that, my biggest take is that if we were to take any of the Still it is like looking at Hippocrates for example, it is the same thing, we should do the same thing. Be respectful and understand where that came from, he is a forefather of our profession that is a big deal right now in the United States, but that is about all. Holding back to a tradition too much is not a good idea. That would be my sort of "stamp" [laughs].

MT: OK! But what do we use to analyze that tradition, to measure that tradition against?

MK: Good question. To measure the tradition against, as in how useful it is or in how valuable?

MT: To determine what is of value in it. It seems to me like Still was always trying to induce a paradigm-shift. And he was very angry and rejecting the old paradigm. But how do we find the valid paradigm to view his paradigm?

MK: Well again I think it is important to look at his work through the lens of his time and his place. The more I read about his time and place, it is a very peculiar place and time - before and after the Civil War in the U.S. at the frontier, I mean that place was insane, there was no healthcare at all, to have anything would be a privilege. People didn't live very long, they died from simple things that now we consider treatable. So he was dealing with an entirely different world, so to try and understand what kind of world he was dealing with will make us... I'm being very irreverent here, but when we understand, try to read him through his time and place it gives us a little more compassion to try and see what kind of man he was. I mean the death of his children from something that right now is actually not that easily treatable, but it is preventable *with* vaccinations (speaking of immunity). That left a mark on him, right? And watching his father die from... I think some kind of lung infection. It screwed him up for life, it scarred him. So he was looking for... he had no source to find any real knowledge, and he didn't know what the real science is really, he didn't know how to do science - simple things like correlations / causation kind of stuff, that didn't even cross his mind right? So he sees something in nature, he infers it, and then he takes it for the rule because it makes sense to him, it makes sense to his sensibilities. So if we understand him from that, it starts making more sense. But I mean to take his view of immunity is just... there is nothing in it. I mean, he didn't understand that there is co-morbidity in disease, I mean, really? That someone can have two diseases actually at the same time? Even at his time you could test it, simple culture - cellular theory of immunity, it was there, it was right there already.

MT: Yeah I found it strange when he was talking about the smallpox thing, and I think he even says "I myself was vaccinated many times for smallpox, and I never caught the disease, so the vaccine didn't work".

MK: He has obviously no clue, I don't understand. It is a great example to see how he infers one to the other without understanding - it is very superficial. He is very observant, a very curious person, so he sees in smallpox there is a lot of blisters, so he is like "Alright, and I don't think that two conditions can co-exist at the same time, so I'll give some kind of blistering thing and it will overpower so that the body can't have the other one. No two guests in the same house, and that will make it all better. It kinda makes sense on that level but it is utter nonsense. He didn't really actually look at what really happens. So he rejects statistics, which were already kind of at a rudimentary level at that time, people look "I vaccinate 100 people, how many of them survive the plague?", "All of them", "Great!". And he is like "Oh, that's utter nonsense because you gave 'em blistering when the blistering plague came in, and that is how they survived." Really rejecting the science.

MT: It sounds a little Homeopathic as well.

MK: Yes, I was hesitant to say that, cause I think he studied Homeopathy too, right? - “Like heals like.” And Magnetism and all kinds of craziness that was out there at that time.

Again, back to your question, if we look at him through that lens - of what was there at that time, available to him, it kind of starts to make a little bit more sense. And besides how he was influenced by his life, which was *really* hard life. But, again, it is fun, it is great to look at this, but to use his ideas right now it leads to big-shots in our profession spewing this anti-vaccine nonsense. What are you going to do with that? I think it’s criminal, it shouldn’t be allowed, and these people should not be allowed to teach, but they do, and they influence a lot a lot of students who are impressionable. I was one of them, and it took me a very long time of learning proper scientific method, and actually looking at papers, and talking to the experts in the field, and understanding, and then I’m saying “Oh my god? How stupid was I?”. But not everybody does it.

I didn’t want to vaccinate my kids at some point in my life, not until I read proper research. And then I was like “Oh my god, what am I doing? Everybody to the doctor right now”. [laughs] Dangerous, very dangerous to cling to the tradition for no reason. It happens in religion all the time, and that becomes a religion. That’s why I’m so iconoclastic about bashing everything, because nobody else is doing it. [laughs]

MT: Yes, [laughs] there is a definitive difference in tone with the approach that you’re taking today.

MK: Yeah? Well I’m happy to give you disconfirming evidence! [laughs]

MT: Yes, definitely. It’s good. [smiles]

R. PAUL LEE

Sept 17, 2018

Via phone-call

[Two quotes were provided via email to the interviewee in advance of the interview, to be used as a starting point for the discussion. They are provided below so that the reader may also have them as context in advance of reading the interview transcript.

Andrew Taylor Still, “Natural Washing out”, *Philosophy of Osteopathy*, 1899, p.261-2

“At the conclusion of this philosophy I will endeavor to explain just how nature has provided to ward off diseases, by washing out before fermentation should set up in the lymphatics, from being received and retained the length of time, that destructive chemical changes would being its work of converting elements into gas and discharging them from the system as unsuitable for nutriment. In order to avoid this calamity we are met with two important thoughts, one of the power of the nerves of the lymphatics to dilate and contract, also that of fascia and muscle, to dilate or constrict with great force when necessary to eject substances from gland, cell, muscle and fascia. Thus we see a cell loaded to fullness by secretion which it cannot do without; open-mouthed vessels through which it receives this fluid. Then again the system of cellular sphincters must dilate and contract in order to retain the fluids in those cell-like parts of the body. Now we are at the point when ready for use in other parts of the system, those sphincters must temporarily give away, that the gland may relax and dilate. Then the universal principle of constriction throughout the whole body can discharge the contents of the lymphatics of all divisions of the body, which is surely the normal condition. Let the lymphatics always receive and discharge naturally. If so we have no substance detained long enough to produce fermentation, fever, sickness and death.”

R. Paul Lee, “Fluids”, Cranial Letter, February 2010, Vol.63, No.1, p.11-12

“At the same time, decreased cell size from the contraction of the microfilaments forces some free water containing waste products from inside the cell towards the terminal lymphatic channel outside the cell. The terminal lymphatic channel also has cyclical opening and closing of the endothelial cell fenestrations. Because the endothelial cells are suspended from collagen molecules by contractile fibrin strands, extracellular fluxes of calcium ion concentration pulls open the fenestrations in cycles with cyclical contraction of the fibrin strands. When open, cellular waste products enter the terminal lymphatic channel. As the calcium wave subsides, the fenestrations close trapping this bolus of waste water in the terminal lymphatic capillary. With the next calcium wave, another bolus of waste material enters the terminal lymphatic channel pushing the previous bolus up the channel. Thus, we have pulsatile lymph movement at the terminal lymphatic channel which is carried on up the lymphatic capillary by contractile elements in the walls of the more proximal lymphatic capillary.”]

MT: Alright - so with those two quotes that I sent you, I was wondering if you could comment on a comparison, or the juxtaposition of those two quotes? What that brought to mind for you?

RPL: Ok, the quotations were about lymphatics, right?

MT: Um-hmm.

RPL: And Dr. Still's quote was about how he felt the lymphatics were clearing the tissues - is that the essence of the quotation from Dr. Still?

MT: Um-hmm, and that opening and closing of the lymphatics, rhythmically.

RPL: So, you know, using that quotation, and the other kind of information that I gleaned as I wrote my book, I felt that I could leap out there with a theoretic proposal for how the lymphatics work on a microscopic level, and... make a proposal that we could all discuss one day, and, here we are! [chuckles]

MT: [smiles]

RPL: Because what I said in the book, and in my other writing, is strictly a theory. There is really no evidence for what I wrote - that I know of, there might be in the last few years that I haven't seen, but... the essence of the thing is that the actin filaments respond to a higher concentration of calcium ion by contracting, and the contraction of those filaments, those are suspensory filaments for the terminal lymphatic vessel. Those suspensory filaments seem to be important in how the terminal lymphatic is situated and how it operates - it's not just hanging there, those filaments are most likely physiologically active, so I jumped to the idea that if there is an increase in calcium concentration in the extracellular fluid, as I proposed earlier in the chapter...

MT: Mm-hmm, mm-hmm.

RPL: ...then we would have actin filament contractions which would increase the fenestrations between the endothelial cells and allow for fluid to enter that blind end of the terminal lymphatic. And, at the same time you've got calcium ion concentration causing the actin filaments inside the cells to decrease the volume of the cells slightly, thus expelling some of the intracellular fluids, that would then be available to go into the lymphatics. So it seemed like a, you know, a nice arrangement, and so that was my proposal.

With each calcium wave there would be a new bolus of fluid that would enter the terminal lymphatic, and as the calcium concentration decreases, the actin filaments would relax and those terminal lymphatics would for all purposes become a closed container, and so the bolus of fluid that entered with the decreasing

calcium concentration, would lie there until the next bolus of fluid would enter and push it upstream in the lymphatic. So I propose that there is a cyclical movement of fluid just because the tissues themselves are in a cyclical mode, and it all seems to kinda fit.

MT: So, elsewhere in your writing you emphasize, even in italics, "*The matrix is where the action is.*".

RPL: Yeah.

MT: So this is the venue that you're discussing here?

RPL: It is, yup. The matrix is where the action is, because that is where the extracellular fluid is, which is a large influence on what happens inside the cell. As "Biology of Belief" author, whose name escapes me at the moment... I usually have it on the tip of my tongue... [Bruce Lipton] he says that the cell membrane is really the controlling functional aspect of the cell, not the DNA, not the nucleus. The DNA and nucleus is responding to the environment that comes through cell membrane, and the cell membrane determines what comes through, and the cell membrane holds a charge, and that charge is responsible for doing the work of the cell... ATP is created in the mitochondria because of how the cell membranes operate - permitting glucose to enter and so forth, and sodium and potassium. All electrolytes are in different concentrations inside and outside the cell, that establishes this polarity. So the extracellular fluid has a lot to do with what happens inside the cell, and in conjunction with the cell membrane, but - the immune system is present in the extracellular matrix, nerve endings are present in the extracellular matrix. The nerve endings actually will contribute cerebrospinal fluid through the perineural channels that are continuous with the central nervous system. So cerebrospinal fluid is in the extracellular matrix, blood secretes its necessary contents into the extracellular matrix, the hormones are there to sit on the cellular membrane, as are other intercellular communicators, and so you've got all the action right there. So the lymphatics are purifying that extracellular matrix, as Dr. Still said in some other places, so lymphatics are essential for keeping it pristine. The extracellular matrix is the same everywhere in the body - so it is a unifying factor as well. Everything that happens in the extracellular matrix stays in the extracellular matrix... [laughs]

MT: [laughs]

RPL: ...but it is communicated *immediately* to the rest of the organism. The extracellular matrix is an immediate communicator, it happens instantaneously because information is transmitted electrically, and through vibration - and vibration will be transmitted in really short amounts of time through the whole body. So that's why that's where the action is.

MT: And do you think that Still placed that same emphasis on that particular scale of reference when he was investigating...

RPL: Still didn't...

MT: Sorry, go ahead...

RPL: He didn't have that kind of information that I just talked about...

MT: Mm-hmm.

RPL: ...but he did say that the fascia was really important in the organism, and by saying "fascia" he was talking about the microscopic parts of fascia - which is what the extracellular matrix really is. It is a

filamentous-collagenous structural... fibrin and collagenous structural component that has physiological activity as well. And I think that he understood that there was... a continuity that the fascia expressed in addition to its other function which is to divide things. So it does two opposing functions: 1 - which is to divide things into compartments, and the other, which is to make them continuous throughout, holistic functioning. So I think Dr. Still had some sense about that. I don't think I've got a quotation... let's see if I might, that would point to that. You know you lost me in "Mechanical Principles"... I have a lot of quotations that... in my book... that talk about the fascia.

MT: Mm-hmm.

RPL: I should pull my book out, I don't have... it right in front of me, I can go get it though.

MT: Sure, if you like.

RPL: Ok. Just let me look through this list of quotes that I've got... I don't think I've got it here... yeah - "The fascia is universal in man and equal in self to all other parts. It is the material man, and the dwelling place of his spiritual being. It is the house of God, the dwelling place of the Infinite, so far as man is concerned." So he even goes further than I went with why the extracellular matrix is, because he talks about spirit.

MT: Mm-hmm.

RPL: "The soul of man with all the streams of the pure living water seems to dwell in the fascia of the body." That is another good one. And - "When you deal with the fascia you deal with and do business with the branch offices of the brain." So he recognized that the fascia has a lot of nerves in it. "And under the general corporation law, the same as the brain itself. So why not treat it with the same degree of respect?" ...And he talked about how disease starts in the fascia.

MT: Yeah in your book you draw a connection between the conclusions of Pischinger and Dr. Still that "All disease processes are of the same type."

RPL: Yeah.

MT: Could you comment on that?

RPL: Say that again please?

MT: In "Interface" you draw a connection between the conclusions of Pischinger and Dr. Still that "All disease processes are of the same type." Do you feel that...

RPL: "All of these processes are of the same type"?

MT: Sorry, "All *disease* processes".

RPL: Yeah. Pischinger was saying also that disease starts in the fascia, and that was my comparison, was to show how Pischinger, without knowing anything about Dr. Still, said just about the same words -

MT: Mm-hmm..

RPL: Disease can be traced back to something going on in the fascia. I think that was my point there. So Still said that congestion in the fascia is the first evidence of disease.

MT: Mm-hmm.

RPL: So if there is a lack of fluidity in the fascia we have evidence that there is something wrong that could lead to a disease process. Dr. Still talked a lot about how poor vascular flow caused tumors.

MT: Mm-hmm.

RPL: So tumors are evidence of that kind of congestion, according to Dr. Stil. The other piece to this, that neither Pischinger nor Still talked about, but I got from other sources, is that there is an electromechanical and an electrochemical change that occurs when there is congestion in the fascia - and Dr. Fulford talked about that. He said there is an “energy-sink” that you can palpate. And by “energy-sink” he meant that there was a place in the tissue that felt different than the surrounding tissue, that was actually drawing into itself and that was isolated from the rest of the body. So, other sources, like Nordenstrom, talked about how the charge in the tissue changes. He measured fluctuations of electrical potential in various tissues, and he showed how the fluctuation was a part of the movement of fluids, and in health - he said that. So the charge is important - in the tissues. Pischinger and Nordenstrom agree that there is a more positive charge that occurs when there is an injury. The tissue should be negatively charged. Now there is a lot of negative charge in all of the sulfate-moieties, in the proetoglycans of the extracellular matrix, and so that lends a domain of negative charge throughout. But, what is called an injury potential is a more positive charge. So this “energy-sink” that Dr. Fulford referred to is undoubtedly more positively charged - that hasn’t really been tested in a research project, but that would sure be a good one to do.

MT: Mm-hmm.

RPL: That makes the tissue palpable because the tissue becomes less fluid, it becomes more dense, it even becomes ropy, and it starts to form the tumors that Dr. Still talked about. So this ropiness, that is palpable, draws our attention when we are working on our patients, and that “energy-sink” then is a fulcrum for a dysfunction. The center of that fulcrum is still. That stillness is where the charge first makes a change, and we feel the potency come in through that stillness, and we feel the negative charges beginning to emanate and fluctuate and push out of the way these restraining filaments that have all been packed in together because of this positive charge and have reduced nerve and vascular-flow. So what happens with our magnetic fields from our hands is to stimulate that kind of negative charge to return to tissues, and people can just do hands-on healing, just lay their hands on, and there will be an effect. But when we put anatomy in our minds and add that to just passive hands-on, we work with the body’s own inherent mechanism that wants to heal itself, and that mechanism has intelligence and so the charge changes, and suddenly there is longitudinal flow through that area that says “Oh! I am reintegrated now!”, and then there is a still-point where the whole body goes “Oh! We can receive this old place back into all of our parts”, and then there is a return of normal motion through that formerly-injured area and we know that the negative charge has been re-established.

MT: Hmm. There is not an easy segway for this, but the impression I got when reading “Interface” is that one of the points that you wanted to drive home was that Dr. Still’s inquiry wasn’t truly into human health and healing, but it was rather into reality as a whole, and that he found reality to have a fundamental nature to it. Would I be right in saying that?

RPL: Yeah I think you would be right in saying that. I think he was looking at nature, and putting man in nature, and saying that man is part of nature, and osteopathic principles are nothing more than natural principles. We're watching how nature works when we treat people.

MT: So do you think it is possible to understand Still and his work, his writings, without viewing them through that lense?

RPL: Through the lense that osteopathic principles are natural principles?

MT: Yeah through -

RPL: No. No I don't. He said that the human organism was created by an "unerring Architect".

MT: Mm-hmm.

RPL: He said that anybody who is interested in how things are constructed: in man or in the rest of the world, needs to pay attention to natural principles. He didn't use those words, but that was his intent. So yeah.

MT: So what do you think the consequences would be of not viewing Still's work through that lense of nature or reality as a whole?

RPL: It starts to turn into personalized egotistical kinds of presentations.

MT: Hmm. Something else that I felt that you touched on - connecting back to what we've just been discussing there in "Interface" - is the fundamental nature of reality being not so much "unknown" but "unknowable"?

RPL: I would agree with that. We have to accept that Osteopathy is a philosophy based on things that are unknowable. It is also based on science, and Still wanted to be as scientific that he could possibly be. He kept saying "Anybody that has a logical mind has to understand that - 'da-dut-da-da'..."

MT: Mm-hmm.

RPL: [continuing to paraphrase Still] "We'll I'm going to present facts, and these facts are going to make it substantial and you'll be able to understand it that way." But it always came down to the fact that there is a healing-force, there is a life-force, there is a celestial *as well* as a terrestrial part. The terrestrial part is examinable, scientifically provable, whereas the celestial part - the other half of the equation - is not provable, that's spirit, that's life-force. And that's how the work that I do is done, by something that is outside of the basic knowledge of the material world. It's outside of time and space.

MT: Hmm... And on the other half of the yin and yang symbol - with the terrestrial, in your book you discuss the innate qualities of material reality, you describe them using the words "self-organizing", "self-assembling" and that it "individuates". Could you comment on that and the relevance of that?

RPL: Well the “individuation” is how various items in physical reality appear out of a *generalized* spirit. There is the spiritual influence that has a general purpose, like the Breath of Life, and then there is an individual expression of that, like Primary Respiration.

MT: Mm-hmm. So in your opinion, do you think it would be correct to say that from what we can learn from Dr. Still’s writings, or what we can interpret from those writings, that he felt that the force that initially *created* the body is the same force that later *maintains* the body?

RPL: Exactly. Yes. I’ve expounded on that idea in the book that I’m writing now, that I hope is going to come out in the next few months.

MT: Oh, wow.

RPL: Called “The Cure for Common Medicine”.

MT: Ha!

RPL: I talk about how forces that created the organism, are ongoing because the cells that develop into an embryo will eventually turn into a fully-formed fetus and infant, child, adolescent, adult... and those those infants, and children, and adolescents excetera, *still* need to create new cells - like the intestinal lining is turning over constantly, the same for all the linings of the respiratory tract. Excetera excetera. There’s ongoing remodeling of bone, and you know, it is not like the creative process is ended, the creative process is going on all the time, and that is what we can call maintenance, or even homeostasis... but at least we can call it maintenance, of the system. And that’s really regulated by Primary Respiration, and Primary Respiration is part of the plan, because blood needs to be delivered, the nerves have to tell the tissues what is going on, and endocrine molecules need to doing their part in it all. But they don’t really get to do their job unless Primary Respiration delivers the goods, because it is the fluid drive from the capillaries to the parenchymal cells through the extracellular matrix that is what motivates the system. It makes it work. It is where metabolism comes from.

MT: So in this picture that is developing from our discussion here, where would something like germ theory fit into that?

RPL: Well, germ theory would lodge a foreign object into a mucous membrane and disturb the fascia in that locality, create an inflammatory process that the body would have to use its immune system and circulatory system and lymphatic system to fight. That’s an outside invader. But so are chemicals, so are thoughts, adverse emotions - they all limit how the fascia can display its potency in one way or another.

MT: Hmm. Yeah, that makes me think of your article on treating inflammation, and in that one you discuss, the little quote I have written here is “short-circuiting the inflammatory cascade” - do you see that same approach in Still’s writings?

RPL: I think he thought of blood as doing that, and he spoke about that, you know “if you deliver the blood, it is the best antiseptic”, that kind of an idea. Whereas, what I’m talking about is...more detailed?

MT: [chuckles]

RPL: Because, you know, there is more information that we’ve learned since Still’s time - that we have acetylcholine that inhibits TNF-alpha. Those words weren’t even in the lexicon when Still was living.

MT: Mm-hmm.

RPL: But that is what I'm talking about, acetylcholine from the vagus nerve inhibits TNF-alpha in the white blood cells that are in the spleen - you know you've got to have blood for that to work, but you've also gotta have nerves. And Still never really separated the nerves and the blood vessels very much, he talked about them in *tandem* quite a bit. He talked about how the nerves operated the blood flow, and how the blood flow nourished the nerves, and that the heart and the brain were both really important drivers for the function of the organism. So I don't think what I'm saying is in conflict with what Dr. Still said, but I think Dr. Still's emphasis was on the blood.

MT: Mm-hmm.

RPL: I mean when it came to fighting disease he would talk about treating erysipelas, and dropsy, and all these other terms that we never even use today, but he did it by invoking a circulatory improvement into a region, whether it was the mucous membrane of the pharynx - I mean he cured diphtheria, using his hands. So...

MT: Mm-hmm. Yeah could you comment on why, to Still, fluid is such a central element in life?

RPL: Well fluid is what delivers the vitality - we have the the Breath of Life in Sutherland's terminology, or the term "Life" that Dr. Still would use - as a general expression of that which gives things life, that which gives things a living quality, that which gives things a breathing capability. So that general force, like I said before, can be individuated, and so you can get...you know...the creation of... let's see what were we talking about? Refresh me. I got lost.

MT: It's easy to do. The fact that to Still fluid was a central element to life.

RPL: Yeah, the fluid is a central element because it delivers that which is a general life principle into the organism. Still talked about vitality in the blood and he talked about vitality in the lymph, and he talked about vitality in the cerebrospinal fluid. He also talked about vitality in the nerves. All of those aspects meet in the extracellular matrix - where the action is. They express the vitality that is present in Breath of Life, life-force, whatever you want to call that general principle that brings things to a living state. Dr. Still talked about having a living being there, and then it dies, and what's the difference between the person that was formerly living and the one that is now a corpse? The difference is motion. And he says, "So, let's add back motion and see what happens". Well all that happens is you get this non-purposeful movement. But if you add mind, then you have purposeful movement and you have the material and the mental and the vital - or the motion part. That is where "Mind, Matter, Motion" comes from. There is a vital principle that exists in creation that can be brought into the organism and expressed through the fluids and transmitted into the cells and gives everything motion, and gives motion with *purpose*.

MT: Hmm.

Just as an aside here, this is more of like a personal question from me I guess, but in your book you state that some clinicians have reported palpating the PRM after the cardiac and pulmonary rhythms have ceased in dying patients.

RPL: Yes.

MT: And a thought that occurred to me, and I'm just interested to hear what you think of this, is that perhaps it could explain near-death experiences - where the person is pronounced clinically dead but they come back afterwards and they are able to report things and etcetera. You know, not necessarily of going to a white-light experience or something like that, but rather actually still being aware of the room that they were in despite the fact that to all monitoring equipment they were clinically dead - that perhaps that is because the PRM is yet to cease?

RPL: Yes I would say so. You know when Dr. Sutherland found that man on the beach, he went down and the man was blue and wasn't breathing, he didn't say anything about his pulse, but he cranked on his temporal bones to make them go into flexion and he held that flexion until the man gasped, and came back to life. That's a resuscitation maneuver. That's assuming the PRM is still present, the life-force is still moving from the system, but there was a cardiac, or a pulmonary collapse. You put them on a respirator and they come back to life, you shock the heart and they come back to life. It is because the PRM is maintaining that system.

MT: Mm-hmm, ok... So, is there anything else you'd like to share today, or any other questions that I haven't asked you that you wish I would've?

RPL: [laughs] It's been a really interesting discussion, thank you for the good questions.

MT: Thank *you*.

RPL: I don't know that I have anything else that I need to impart in this moment. You know, we've talked about how the human organism is created and how it dies and how it lives and maintains itself, heals itself. That's essentially my philosophy, so, and I think we've said it all [chuckles].

MT: Well then we'll leave it there and I thank you *very* much for your time Paul.

WALTER MCKONE

Feb 1, 2019 - March 23, 2019

Conducted via Facebook Messenger

[Feb 1:]

MT: Do we need to understand Still to understand Osteopathy or is the independence of thought that Still often espoused sufficient? (and a follow-up) What standard do we use to sift what is of value from the existing tradition as we move forward?

[Feb 20:]

WM: Ok. Two questions there. No, we need to understand Still directly. But we do need to understand the where he is coming from. 2ndly, we need realise that personal experience is paramount and secondary experiment is useful. 😊

[Feb 21:]

MT: Great. So then as we do this, how do we know we are not simply transplanting our own worldview onto Still's sometimes esoteric writings (which are frequently interpreted so differently by different readers)? What is the appropriate way to go about interpreting Still?

WM: Still's writing's aren't esoteric they are just being read out of historical context. The reason why many people interpret Still differentiations because they are placing their own ideas on his work. It's very simple read around Still and Still makes sense. Read Emerson, Thoreau, Twain, James etc. Makes absolute sense. Still was a politician and politicians used mechanical metaphors. These metaphors have been taken literally and out of context.

MT: Ok, so what do you feel is the best way to understand Still's use of metaphor and analogy in his writings, through that larger historical context, another way?

WM: <https://waltermckone.wordpress.com/osteopathy/bookspapersarticles/>

MT: Yes I've seen the list, and delved into some of it, but you've got a many years lead on reading it all 😊 I've heard you criticize the application of a Systems Theory lens to Still's writings and concepts as being inappropriate, could you discuss this?

WM: You're lucky I'm in cab for the next hour!! Systems Theory is an attempt at a universal theory of everything and is based on Descartes Mathematicus Universalis. It is an increase in complexity and a created form of unity. This is unity from synthesis or a relationship of one thing to another. This makes it Cartesian which Still and others rejected.

Hence the term Theory of Everything. The key here is the word 'thing': one outside of the other. McConnell, Still's student, said, "All separateness should be obliterated. Not appreciating this is a pitfall (trap)." That says it all.

MT: Ok, I believe I heard you describe it as a unification versus a unity - makes sense. Next one: when Still talks about "the normal" - using "the normal" as the basis of assessment and as the baseline point of reference during treatment, what do you think he meant by this, experientially?

WM: Now I'm in duty free at Stansted airport. The normal isn't a baseline as in a set lowered point. Normal is referring to the relationship of the whole within the part of the patient. A constant change in the practitioner's mode of consciousness. He always talks about the practitioner.

[Feb 23:]

MT: You also mention that what Goethe would call "the archetype" or "the substance" takes place within the practitioner - is there a connection here? Is "the normal" an instance of this "archetype"? (Where are you flying to?)

WM: There are 2 Substances in Philosophy and they are different. Aristotle's Substance which is the essence or form of an organism and Descartes's Substance which 'outside of everything else e.g. mind Substance and body Substance are separate. The Archetype occurs in the imagination of the observer. You see 20 people and you know they're people because you hold the Archetype of peopleness.

[Feb 24:]

MT: So then when Still uses the phrase "the normal" do you think he is referring to an archetype?

[March 7:]

WM: Off to Poland again today; Warsaw. The normal would be an individual finding; in relation to the rest of the person and their circumstances. If you an ankle swelling would be normal. If you catch Influenza having a headache etc would be normal.

MT: Ok. Let me give you some quotes:

PMPO [Philosophy and Mechanical Principles of Osteopathy, 1902], p.33 "...make comparison between the normal and abnormal..."

PMPO, p.14 "...as an osteopath, he is to judge and adjust all defects or variations from the abnormal to the normal..."

PMPO, p.9 "Anatomy is taught in our school more thoroughly than in any other school, because we want the student to carry a living picture of all or any part of the body in his mind, as an artist carries the mental picture of the face, scenery, beast or any-thing that he wishes to represent by his brush. I constantly urge my students to keep their minds full of pictures of the normal body."

PMPO, p. 33 "When convinced that they are straight and in place as designated in the plans and described in the specifications, we have done all that is required of a master mechanic. Then the engine goes into the hands of the engineer, who waters, fires, and conducts this artificial being on its journey. As osteopathic machinists we go no further than to adjust the abnormal conditions back to the normal. Nature will do the rest."

So since Still seems to be saying that his students are to keep their minds full of living pictures of "the normal" during both assessment and treatment (the normal takes place inside of them, the practitioner), and you have discussed how a Goethian archetype also takes place within the practitioner, is there a connection here? Is "the normal" as Still discusses it an instance of the same way of relating to a patient which you discuss in your work?

[March 8:]

WM: PMPO p.9 is the secret!! This is Still's approach and what I am working on..."mental picture."
Goethe's Geistes Augen [Mental Eyes].

MT: Great. On your website you write "What's common amongst Osteopaths is the inability to stand back and see the bigger picture. Still wrote in a way that no part could be taken out of the whole philosophy." In a number of places in his writings Still states that the burning questions of his life's journey have been immense and arguably unanswerable philosophical questions, ones asked with the entirety of reality as their context, such as "What is life?" and "What is God?". Do you think we can accurately interpret the specifics of Still's osteopathic work and writings without placing them in this same largest of all possible contexts as it seems he did?

WM: You're right. It's the context and background mind set that sets the stage. I've teaching this today and tomorrow here in Krakow.

MT: Here is a follow-up question, hang with me here...

In one of your courses which you posted to Youtube, you said: "As for awareness as a sense of consciousness; awareness is always of something. The whole can't be subject to awareness as it would become a thing among things and therefore not whole but a part. The whole is not nothing but no-thing and therefore can't be subject to awareness."

Also: "It is an active absence."

Still often references "the Infinite" (with a capital I) within his writings. What I draw from your above quotes is that Infinity cannot be contained within a conception or a human thought, otherwise it has limits or boundaries delineating it, and the definition of Infinity is that it is boundless, therefore any idea or thought about Infinity is no longer infinite, (ie: as soon as you try to grasp it in a thought you destroy what you're trying to gain hold of). So by this quality Infinity is therefore not just unknown but its basic essence is that it is unknowable - and this is actually another name that Still uses for the Infinite, the Unknowable (with a capital U). It seems he got these terms from Herbert Spencer or those writers who influenced Spencer which Spencer quotes at length in his work.

So - and here is the question this all led up to: would it be fair to say that in Still's paradigm (and personal experience?) the Unknowable or the Infinite is the underlying ground that gives rise to reality as we perceive it?

[March 13:]

MT: Did you follow all that? I can't blame you if you didn't, I had a hard time conveying the question. I can try to clarify what I'm trying to get at if you like. Thanks, Mike

WM: I got it. And yes you're right. Did I send you Henri Bortoft's paper on counterfeit holism?

MT: No, please do! My email is [...]

So to follow the above thread, you said in another video "A field of daffodils is one thing 20000 times, but that one thing is not a physical object, its is what Goethe called the substance or the archetype. It is in the observer, because you're part of the phenomenon...you hold the archetype, not a blueprint on a shelf somewhere".

I'm wondering, when we are speaking of archetypes and wholes, what can you say about the archetype that underlies the phenomenon of the whole of reality itself? I ask this because it seems to me that this is a question over which Still obsessed.

WM: http://systematics.org/journal/vol9-2/TheWhole_Bortoft.pdf

MT: That was wonderful, thank you for sharing it. I see a connection between the above question and something Bortoft said:

"[...]the whole comes into presence within parts, so that the whole presences within its parts. This tells us something fundamental about the whole in a way which shows us the significance of the parts. If the whole presences within its parts, then a part is a place for the presenting of the whole. If a part is to be an arena in which the whole can be present it cannot be any old thing. Parts are not bits and pieces, because a part is only a part if it is such that it can bear the whole. There is a useful ambivalence here: 'to bear' in the sense of 'to pass through' and 'to carry'; and 'to bear' in the sense of 'to suffer', where this is taken in the sense of 'to undergo'. By itself the part is nothing, not even a part. But the whole cannot be whole without the part. The part becomes significant itself through becoming a bearer of the whole."

Reminds me of this piece by Still (Journal of Osteopathy, July, 1901, p.198):

[screenshot of scan:]

WHAT IS GOD?

WHAT is God? If all of man, with his mind, matter and motion is one being, what is the universe but a being? It has mind, matter and motion. It does its work well and wisely, still it is only one universe. Then mind to the universe is the same that mind is to man. Thus God would be the universe. We are in the universe therefore, we are with God and help to compose that great all, and journey as it journeys. That great compound is eternal, so are we. We have lived, do live and will live out the full number of the days of the universe. Thus to us a universe means all space and all therein contained. This signifies the universal universe. A man under the same law of reasoning would be a dependant universe, while the universal universe is not dependent, because it is the all of all, specially and universally, mental, motor and material. The individuality of mind with its independence from all else, to me seems to be imposiible, because of the superior endowments of the mind over the motor, which motor is above material in quality, but not at all its superior mentally. Thus both the physical and mental submit to the higher principle, which makes a unit of the three; matter, motion and mind. Thus the universe is a being, with the mental, motor and material combined, and leaving the management of all under the mental. Thus we have God as mind in union, working in union with the motor and physical.

Still's concept of "God" / "the Infinite" / the "Unknowable" seems so central to his philosophy, the whole underpinning that Osteopathy came out of. Do you think it is accurate to interpret his text above using Bortoft?

[March 20]

MT: Any comment? (Everyone seems to shy away from publicly discussing Still's "God" concept and what it means within his philosophy. I understand if you want to skip this question on record. But any discussion would be appreciated. Thank you again for your time.)

WM: Still, like all the transcendentalists, saw God in nature. "The god I worship demonstrates all his works," was Still's motto. Search: transcendentalists god.

MT: Do you think that Still saw God AS nature? Booth calls him a pantheist.

WM: Yes. Search: Laura Dassow Walls pantheist. I've read most of her books and they're brilliant.

MT: Ok, will follow the thread.

So hang on with me here (again...): My interpretation after reading Still's writings is that the primary conclusion he came to was that an intelligent organizing force is the ground of reality, and that this intelligent organizing force cannot be comprehended because it is pure potential, which is to say that it is Infinite, it is not just unknown at the present time but rather innately *Unknowable*. Yet its expressions, such as the human body, can be studied and understood to a pragmatically useful degree. The wisdom and love of this intelligent organizing force can be explicitly trusted. This seems to be Still's foundation (please

correct me if I'm off track here). Yet the modern scientific cultural paradigm holds that there is no intent or intelligent organizing force as the basis of reality, that we exist in a series of random occurrences that have accumulated over time, pure chance. These are two totally different sets of assumptions to engage from. Can Still's Osteopathy be integrated into the modern scientific cultural paradigm while actually remaining whole?

Or is a paradigm shift called for? Was Still calling for a paradigm shift in his own writings?

WM: The key word is "potential." This follows Aristotle's potential and actuality. Natural phenomena are always in a state of potential acting out not finished products. Still's ideas are a different paradigm. Irvin Korr the famous osteopathic physiologist asked for a Paradigm Shift. This shift is from the Cartesian to the Goethean!

MT: Beautiful.

To follow that: you have written: "[...] you can not teach osteopathy you can only teach how to osteopathize as a method of coming to an idea." And Still said "[...]go off an 'larn' as I did". I've heard you remark that Still's students didn't understand him, that you feel that even highly revered Osteopaths such as Sutherland didn't understand Still. So if Still himself could practice in this incredible way, but seemingly failed at accurately transmitting it to his students - how do we actually go about accurately transmitting / teaching Osteopathy?

WM: By teaching philosophy then it all makes sense not manipulation techniques. This is what I tell my students in Poland. Without it being taught as a philosophy the hands of the Osteopath are empty. Must go and do my jazz radio show now. You can listen on:

www.deliteradio.com start in 30mins!

MT: That is awesome, I'm going to listen while I write about Still and Civil War vaccination. Looking forward to it. Thank you!

WM: 🎵 music 🎵

MT: Nice show, enjoyed it. Strange to hear you talk about something other than Osteopathy 😊
Let's switch directions with questions (getting to the home-stretch here, soon I will pester you no longer). In your opinion, in his writings did A.T. Still display a conception of immunity?

[March 21]

WM: Osteopathy was only about Immunity and nothing else. He would be shocked to see what we are doing today!!

MT: What do you feel his conception of immunity was, and on what do you base your answer?

[March 23]

WM: I have one of the original books. It's about blood supply. Base on the work of the celestial dynamics and terrestrial mechanics of Copernicus and Galileo. Google: Celestial dynamics and terrestrial mechanics. Still was an astronomer!!

MT: Ah, I recall one of your videos about this: <https://www.youtube.com/watch?v=dCY6Y5ZZLBY>
Is the book you mention, The Construction of Modern Science: Mechanisms and Mechanics, by Richard Westfall the "original book" you mean above? Or are you referring to Still's PMPO?

WM: You're on the right track. Just make patients better. 😊
Yes. The Westfall book.

MT: Ok, great. I'll get a copy.
Is it your observation that modern osteopathic practitioners (osteopaths and osteopathic physicians) have incorporated a distinctly osteopathic conception of immunity into their practice?

WM: Absolutely not. They have no idea.

MT: In your opinion why is this?

WM: They haven't read Still and haven't put it in context.

MT: What advantages do you notice in utilizing a distinctly osteopathic conception of immunity?

WM: Patients get better!

JANE STARK

January 5th, 2019

In-person

MT: One of the commonalities of everyone I've read and interviewed, up to this point, is that they emphasized that to understand Still best we have to view him inside of his historical context. You've delved really deeply into that historical context, and I'm wondering - what of his influences do you find most relevant to understanding his writings?

JS: [Long pause] That's a thesis in itself [smiles].

MT: [Laughs]

JS: Is there a pause button while I think about it or we'll just leave the blank space?

MT: Take your time.

JS: Um... [Long pause] I have no idea why you're asking that question but it is a very good question, and I think because Still wrote beginning in about 1892 when he opened the school, he wrote for the Journal of Osteopathy right up until 1910 when he wrote his last book Research and Practice, and very sporadically that you'll find in The Early Works past 1910, there's probably one in 1914, 1916, 1917, that's about it. So he had different phases of his writing, so I'm going to squirm my way out of the first one by saying "When are you talking about?", and then I'm going to reveal something that I have not written down anywhere nor tried to publish: in some cases I'm quite certain he had a ghost writer.

MT: Hmm!

JS: [Self-reflecting out loud:] Shall I say the name of the ghost writer? Yes. John Roy Musick. If you look in the Journal of Osteopathy and you look in some of Still's writing that you only find in Early Osteopathy which were publications also by [interrupted by waiter].

So what that has to do with what you're doing I don't know, but... I think not all of the words were his words. Especially when he starts talking about Columbus finding driftwood, do you remember that part?

MT: [Nods]

JS: You see that in John Musick and you see that in Still.

MT: Ok.

JS: John Roy Musick was a professional author, had it not been for Mark Twain who was from Hannibal in the same state of Missouri in the same time period, John Roy Musick would have been the famous novelist from Missouri.

MT: Ok.

JS: So you can look up his name, he's written, I don't know, *that* [gestures with hands to create a wide length of books on a shelf] many books: historical novels. I had my mother read 13 of those books to see if she could see any similarities and I can't find any similarities, but certainly Musick was one of his good friends, Musick was his lawyer, Musick had the Tattler newspaper of 18.... 75 maybe maybe '76, which was when Still made his move to Kirksville, his second move to Kirksville. And that was where Still advertised his Magnetic Healing in that newspaper...

MT: Ok!

JS: ...it only lasted 6 months but they were both Spiritualists, so that was the connection. Apart from that I think I said in my research that he was influenced by the German Transcendentalists. My colleague Carol Trowbridge strong disagreed and said "How can you say that it, it was American Transcendentalists", so somewhere in there Transcendentalists became important. So you see that when he talks about "fiery orbs" and "my memory was barred" and there is a lot of things that bring out Transcendental thought. And the Transcendentalists were the people that brought the concept if not the name Swedenborg, at least some of the concepts of Swedenborg into America, through the Transcendental poetry.

But I think he was his own man, I don't think he copied anybody. I don't think that you can say that he was influenced by any one person, and what I like to say when I teach, and I have a nice slide of this, is you can put all of his influences on the board, you can put the, oh god there is like 20 I can think of, there is Deism, Theosophy, Transcendentalism, the patent medicine industry, the pre-Civil war, the Civil War, Creationism, Vitalism, Deism, all those "-isms" - put all of that into a blender, and then push the button, and then you get Still's writing. So it is like a chocolate cake - there is all these ingredients, but when you have the cake you can't tell what the ingredients are: you can tell there's chocolate, you can tell there's sugar, but can you tell there is an egg? You can't taste the egg but it's not a cake without the egg. So when you're trying to say "Who was the influence for Still?" or "Who does he write after?" I don't think you can really pick out any one. And in advance, because I know you're going to interview Walter McKone, he's going to say Goethe. He's going to say it.

MT: Mm-hmm [agreement].

JS: And somebody like Carol Trowbridge is going to say Herbert Spencer, right?

MT: Mm-hmm [agreement].

JS: And I can't do that, because I think it is all blended like this [interlaces fingers of both hands]. He really was his own man. Is that ok for that question?

MT: Yep.

JS: Yes? Ok. What's your next one?

MT: Yes, well that is where I was taking it was - I wanted to see if you see him as more of a synthesizer of influences or as an innovator unto himself.

JS: Second, yes. He didn't copy anybody. Doesn't mean other people weren't doing the same thing at the same time.

MT: Mm-hmm [agreement].

JS: We had people who were doing visceral before Still was doing visceral. But did he know about them? Did he know what they were doing? Probably not, (although he said that he read everything he got his hands on, so we have to be careful not to be too adamant in either direction) he did his own thing because he was in nature, up to his elbows in blood and guts and experiments, so he synthesized it himself.

MT: So, it seems that the modern osteopathic community seems to hold Still up as more of an independent innovator, as some sort of... they don't seem to acknowledge a lot of those influences, or they seem to present him as just an isolated inspired figure. Sometimes he'll even be presented as an almost prophet-like figure that received transmission, and I'm wondering if you could discuss what you feel is the best way of framing Still's development of what he came to call Osteopathy?

JS: Say the last part of the question again - "What is the best way...?"

MT: What is the best way of framing Still's development of what he came to call Osteopathy?

JS: I'm pressing the imaginary pause button. Another thesis question.

MT: [Laughs]

JS: [Laughs] [Long pause] What I'm going to direct you to is an article written by his daughter - I don't know if you've seen it? By Blanche Still. And it describes in it, I can't remember the title of it right now, but it's not a hard title, it is "Some of the Circumstances and Personal Experiments which Led to Treating the Bodily Ills Without Drugs and she sort of interviewed her Dad and asked him the same thing. And I'm drawing a blank on how I synthesized that myself, but, I had it as 6 or 7 different categories, and honestly right now I can't remember the order I put them in... but I will send that order to you - how is that?

JS: Ok, you ask me for it, what are we going to call it? "The Synthesis of What Blanche Said" and then I will give you the title of what Blanche wrote, based on what her Dad said, and you will see it was far more than "his 3 children died of spinal meningitis and he had to find a better way", I mean that was a *fraction* of it, and that came much later on. But there was - really being in nature was really the number one thing, it

was always about being in nature, observing nature, recognizing the laws of nature, working within the confines of nature, depending on nature. If that's ok for that question?

MT: Yup, for sure.

JS: If I think of something else I will add to it.

MT Ok. So do you think that the early Osteopaths who had direct instruction from Still understood him?

JS: [Laughs] Not at all! Well I am exaggerating of course, otherwise we'd have no osteopathy today but there were many instances where they out and out explained that he was too advanced them to understand. I can give you evidence of that as well. There's one guy that said "So much he said, went so far over my head it only sounded like sound." I can give you 3 or 4 quotes from very esteemed close-friends, early students who then went on to be teachers, who said "We didn't understand him", but what they did understand is that "this guy has got something that is too hard for us to understand, we're not on his wave-length" they didn't say 'wave-length' but... [interrupted by waiter] let me keep going with that - they all recognized that he was ahead of his time, they all recognized that he was ahead of his time, had a marvelous vision and none of the appropriate language to express it.

MT: Mm-hmm [agreement].

JS: I am actually quoting somebody else. Because I teach this, and because I've had this slide so often, I know exactly what it says, it is from Robert Davis, who was an instructor in Humanities, (I'm trying to speak slow because I know you have to transcribe this as well)...

MT: It is all good!

JS: He was an instructor in Humanities, at Pikeville University in... not Pike... I'm actually not sure the name of the University but it was in Pikeville, Kentucky, and he met another Osteopath named Ed Stiles, not another Osteopath, *an* Osteopath named Ed Stiles, very famous American Osteopath, and Ed introduced Robert Davis to Still's writing. So Robert Davis was educated in Philosophy and Comparative Religion...

MT: Hmm!

JS: ...and he read Still, from a completely different perspective, and when I was working on my thesis I went to Pikeville to talk to Ed Stiles, and Ed was so excited I was there he introduced me to everybody and I ended up talking to Robert Davis for three and a half days about Still, I had 100 pages of transcript. And the piece I took out of it is, Still had a marvelous vision but none of the language to express it because it hadn't been invented yet - he was 100 and some odd years too soon. And that language was Complexity Theory. And if you know Complexity Theory, you know you can absolutely see it in Still's writing because he has to say that everything is interrelated, everything is important, and he has to say it all at the same time. But he can't, so he has to present it linearly. He can't do that. But it is funny if you pick up a book [one of Still's] and read it as a book, it is not a book - it doesn't have a beginning and end, it doesn't have a where are you going, it just has pieces of information all throughout, but each chapter is a complete piece of information, and you don't have to wonder what is in the next chapter. You don't have to say "Oh, I can't put this down, I need to see what happens next!" - nothing happens next, he just gets out of bed and decides to write the next day on, I don't know, ear-wax for example. Why does, for example (I'm not sure if this is accurate but it is close, why - does the ear-wax chapter follow the lung chapter? Because it does, It was not written like a book - he didn't like to write. Some of his ideas were previously recorded as such in the J.O. [Journal of Osteopathy] so he just transferred them to his book.

So he was a Complexity Thinker in a time when Complexity Theory or Complexity language was not created. I don't even remember the question anymore but that's my answer.

MT: [Laughs] Ok. It is interesting, you sort of anticipated two more of my questions with your answer which is good.

JS: Oh, ok. Are you doing this on, sorry, immune system or something else?

MT: Yeah, his conception of immunity.

JS: And we haven't even got there yet, ok.

MT: So why do you feel that Complexity Theory or Systems Theory is an appropriate lens to view Still's work? I mean I know you just said some of that but... there is people who would argue, or would have the opinion that it isn't, that it is missing the point, I've heard that as well.

JS: Boy I'm a slow starter on these questions and then I get going and then I'm on fire, right?

MT: It's good.

JS: Could you repeat the question again Michael?

MT: Why do you feel that Complexity Theory is the, *an*, appropriate lens to view Still's work through?

JS: Because if you know it, or something about it, and you read Still, it is *so* obvious. He finds it very very difficult to talk about cause and effect because there is no single effect. It is everywhere, but he can't talk about everywhere at the same time so he's always stymied by this cause and effect limiting the, you-know, his topic, so he doesn't sound like a crazy man. And he talks about, and look it up, "the law of reciprocity", have you seen it?

MT: Yeah with the nerve and the artery?

JS: Which comes first? You can't say any one has more hierarchy than the other because without one the other one is not there. And as a population, we are linear thinkers, we want it spelled out - this comes first, this comes second, this comes third, this comes first. We don't want, one, two, and 10 number threes. We want: one two three four five six seven eight nine ten.

MT: Mm-hmm [agreement].

JS: So I think for the people who were accustomed to that style of learning, it was really difficult to hear Still because he wasn't talking like that. There was no stop and start.

MT: Mm-hmm [agreement]. While reading him, it seemed to me, that one of the reasons he continually uses pictures is that, as he is using metaphors or allegories, is that he is painting a picture with that - and

maybe the reason he is using a picture to convey his understanding is that in a picture everything can move at the same time.

JS: That would be completely your interpretation, I don't see any pictures, at all.

MT: Ok.

JS: I see a lot of *attempts* to talk to different populations, to people that understand cooking, so he talks about fermentation, to people that understand horsemanship, silversmithing, sailing, whatever.

MT: Mm-hmm.

JS: So you see those kind of metaphors to speak to different kinds of populations.

MT: Mm-hmm.

JS: In an as simple as he could basis. And when you talk about it to the lay-person, they kinda get it. When you talk to somebody who is semi-trained or is trained, they don't because they don't need the metaphor – they don't relate to the metaphor and they have trouble understanding what he is saying it because they've been trained to think in linear terms.

MT: So it seems Still was trying to induce a paradigm-shift, or that at least one of the reasons that people didn't understand him, it is kinda like you were saying, they were looking at it from a different lens than he was looking at it...

JS: Yes.

MT: ...so it had a different meaning through the different lenses.

JS: Watch out. No one intends to make a paradigm shift, a paradigm shift happens long after the fact. A person who thinks in a different paradigm, doesn't intend to have a world of followers, he is trying to say "Don't you get it? Don't you understand this?" but that catches on, and then you realize - that was a paradigm shifting moment. And I'm sorry, I'm gonna make you read another book, by Thomas Kuhn...

MT: Yes.

JS: You know it?

MT: I've heard of it I...

JS: Yeah Thomas Kuhn... [pauses]

MT: The Makings of Scientific Revolutions?

JS: Something about Scientific Revolutions [The Structure of Scientific Revolutions], yeah. I don't think he even uses the word paradigm even in the whole book, but you'll get it. Like Copernicus who said the world

is helio-centric not geo-centric, he didn't say "I'm going to change the world so there is not going to be a single person on the planet who doesn't think the earth circulates around the sun", right?

MT: Yeah.

JS: All he was saying was "Your theory doesn't work in one or two instances, it doesn't work. Mars does not do a pirouette when it does retrograde motion. We have to have a new theory." And it is all Still was saying: "We tried for a thousand years with medications to treat the symptoms, we've got to try something else. There's a physical cause for this, we can find the physical cause in the body."

MT: But wasn't Still trying to create a revolution? He so often he frames it as like a war against the philosophy that frames allopathy.

JS: I think he wanted to... Ok, I'll give that to you. "I want people to lead this revolution."? Yeah. Ok. I'll give that to you.

MT: So one of the conclusions of your thesis is that the modern Osteopaths you interviewed didn't understand Still very well. Could you comment on that?

JS: Well, I was surprised at how many actually couldn't have read any of him. Or don't remember reading him. They knew his aphorisms, like "Find it, fix it, leave it alone." Which you can't find anywhere in his writing by the way. And I don't remember what else, the little short sayings, "The rule of the artery is absolute." That is only part of the sentence, he never said that without finishing the - sentence! Read the rest of the sentence! Read the paragraph! Read the chapter. [Chuckles]

MT: Amen.

JS: Yeah. How's that turned around? People ask - is it 'supreme' or 'absolute'? Because somebody misquoted him as saying "supreme" (I think it might have been Sutherland who turned it around) and the "supreme" has gone all the way. If you look at "absolute" - what did I say in my work? That word "absolute" "absolute" "absolute" is really the language of Madame Blavatsky of Theosophy. [interrupted by waiter] What was the question? I'm sorry I don't remember the question.

MT: Commenting on the findings of your study that modern Osteopaths didn't understand Still very well.

JS: Right. Because what I did uniquely to determine that, having read him and synthesized him, and read him and synthesized him, and looked at as much context as I could - except I missed Herbert Spencer and I missed the American Transcendentalists [pause] Sorry I lost the question again, oh - why they didn't read him. Ah, because I took this unique stance in that I pretended to interview Andrew Taylor Still, so the same questions that I asked the Osteopaths I asked Andrew Taylor Still hypothetically, and then I looked through his work to find the answers.

MT: Mm-hmm [affirmative].

JS: And his answers didn't match the answers of the Osteopaths, by *far*. By *far*. So either they didn't read him, or they didn't read him recently, or they didn't remember what they read, or they read him and didn't understand him, they read him they thought they understood him. But it takes a lot of work, if you've done it yourself it takes a lot of work to *think* you understand this guy.

MT: Mm-hmm [agreement]. So you teach and travel internationally very frequently, do you see improvement or a decline in the comprehension of Still in the 15 years since you conducted the research for your thesis?

JS: It depends where I go.

MT: Ok.

JS: Certainly if you talked to Christian Hartmann you know that he is working hard with the osteopathic student body (and graduates) in Germany, the young students in the schools, to get a *thirst* for the history of Osteopathy, for the philosophy that *underlies* the history of Osteopathy. Believe it or not, even though my notoriety comes from history, nobody wants a history course, they want technique courses, ok?

So, I'd say it is about the same. I get less stupid questions than I used to. For instance, and I don't know if this is worth transcribing but because you've read all Still's books you'll find this interesting - [playing both sides of a conversation between herself and a student]

"I want to do my thesis on Andrew Taylor Still and his love of turtles." Ah!

"Turtles?! Where did you get that idea from?"

"Oh one of my teachers said he liked turtles."

"And that is enough for you to do a thesis?"

"Yeah well I like turtles."

So I don't get that kind of nonsense anymore, but what's lacking I think, is a link to the historical significance of what Still said, more so than the day-to-day fussing of an old man. [smiles] Ok?

MT: Ok. So do we need to understand Still to understand Osteopathy, or is the independence of thought that Still often espoused enough?

JS: [Long pause] Long pause. While I try to remember the question. No I've got the question. [Long pause] Ok, I have multiple answers to the same question.

MT: Mm-hmm?

JS: Number one: I don't know that we can say we can ever understand him because we can never ask him to clarify what he meant. But I don't think anybody else should tell you what Still meant. I think it behooves you as an osteopathic student to take the time to read at least the first three of his books, and let it mean whatever it means to you, because it will... it will touch you at a level that is not conscious to you. You won't know when and where and how but it will reach you at a level that will change how you think about Osteopathy. So you'll get to appreciate him, I think you'll appreciate him... and if you appreciate him, you will understand, you will come to understand that you have to *think* in Osteopathy, you have to analyze and synthesize, and not rely on someone else to tell you how it works, or what to do. I think it will help you, should you open your mind at least, realize that the answers, a lot of the answers are already out there, and you don't even need Andrew Taylor Still to tell you. You just have to be in nature and spend enough time with it.

Which granted living in the city and with busy lives and kids going to hockey and soccer and music you don't have time for, but maybe Still can make a shortcut for you.

And really one thing that Walter McKone said and I think you'll hear it again from him is that Still made room for [interrupted by waiter]...for the reader – Still made "room for the reader".

So there is two ways to read Still, one is in Northrup, which Northrup, Thomas L. Northrup wrote, and I think it was in the introduction to the edition that was reprinted in 1946 of *Philosophy of Osteopathy* that was sent to all the members, it said "You should read Still's, especially his chapter on fascia, not only paragraph by paragraph, but sentence by sentence, word by word." So there is that very detailed way, or a more: just start, keep going, don't stop, don't analyze it just let it seep in at that deeper level.

MT: Yeah, yeah [agreement].

JS: Or maybe do both. It depends how much time you want to spend with it. But I wouldn't read the fourth book, the last book - don't read it. Read the introduction and skip it all. The introduction is Still, the rest of it is almost a mockery of medicine.

MT: Ok! That is interesting, that was going to be one of my bonus questions for the final round...

JS: Ok.

MT: ...but I read in another thesis that it is theorized that Blanche helped write the last part of Osteopathy Research and Practice...

JS: I don't know who but, it wasn't Musick, that isn't Musick's writing at all. But that was very formulated, you know "Etiology", what those guys would do, and it is kind of a trick for everything right? You think you're going to look up how to cure diabetes and it doesn't matter what you look up it's always: "You have to assess the whole body, start at the head, finish at the tail, don't forget the clavicles, don't forget the hips" and the same thing every time right? So... [breaks to chew]. Ok did I get my bonus marks?

MT: Yup.

JS: You got another question there? So obviously some questions are everyone and some are tailor-made, is that right?

MT: Yes, yeah. [pausing to look at notes] So I want to enter a different phase of the interview, I want to bounce some of my conclusions off of you.

JS: Ok.

MT: So, Still a number of times, or almost frequently, mentions "The Unknowable" or "Infinity"...

JS: That's Herbert Spencer. Herbert Spencer is "The Unknowable" that's his language.

MT: ...and... it is like - yes, that is where he got that concept from but what did that concept mean to Still, you know what I mean?

JS: He didn't want to guess.

MT: I don't follow.

JS: He didn't want to guess he wanted to know the answers. He wanted to be counted amongst the Knowables, not that people knew him, but that he knew how it worked. And it is funny that word comes up, because I thought if anybody would know, cause I found that too, I found "Knowable" and "Unknowable", lucky enough I had a computer I could search that and I came up with Herbert Spencer, and when I asked Robert Davis in Pikeville, professor of Humanities, philosophy and comparative religions, if he thought if Still was influenced by Herbert Spencer, he said "No". Why did he say "no"? Most likely because he is a Trappist Monk.

MT: Ok.

JS: So religion comes before evolution. So that would have put Darwin and Herbert Spencer right out of his perception, and that's another area where Carol and I came to a clash, 'cause she said he [Still] is all Herbert Spencer. I *tried* to read Herbert Spencer, she *begged* me to read Herbert Spencer, I could not see any similarities, and I couldn't read it. It was torture. So go back to your question again?

MT: Well, it seems, to me, that basically Still is saying that ultimately, what we're dealing with here, reality, is unknowable, because it comes from infinity down into material form.

JS: That sounds... I don't think he said "infinity", I would be surprised.

MT: "The Infinite"?

JS: Yeah, "the Infinite", not "infinity".

MT: Ok... [pause]

JS: Sounds like a little bit of Reuben rubbed off on you.

MT: [Shakes head].

JS: No? Well he [Still] didn't say "infinity".

MT: Ok.

JS: He couldn't have created Osteopathy without the respect of the divine, it wouldn't have happened.

MT: Mm-hmm [agreement].

JS: He mixed Vitalism, and Mechanism, and then just added Spiritual, the spiritual component - he needed all three. "Man is a machine run by an unknown force called life."

MT: Mm-hmm. So [next question], modern osteopathic culture seems to take a lot of pride in, or even in some cases *define* itself by the holistic focus on the whole person, but it seems after reading Still's writings, that Still's philosophical framework encompassed not only the human being, but reality as a whole, including the human being. Would you agree, or?

JS: Say one more time?

MT: It seems that Still's philosophical framework encompassed not just the whole person, but all of reality, including the person inside of it. That the primary *scale* in which he was engaging with the subject: reality as a whole, as opposed to the individual human being.

JS: Can you give me an example? Again, it is not resonating, I'd love to say "Oh you nailed it, those are the words I am looking for!", but I can't say that, I'm just saying, "Huh?"

MT: Can I get back to *you* with an example?

JS: Yeah! So remind me of the question [then].

MT: Ok. Ok. So let's come down out of the sky to something more concrete.

JS: Ok.

MT: So when Still talks about the various types of nerves...

JS: Oh no! The five kinds of nerves?

MT: Yes [smiling].

JS: Voluntary, involuntary, nutrition - what are the other two I can't remember?

MT: Sensation and motor.

JS: Motor, yeah.

MT: Was this a common conception at that time, or was this Still's own unique construct? Have you come across that concept anywhere else in your reading?

JS: He also thought they were liquid, nerve force was liquid - yeah that was a different concept. No, and I can't say I pursued it. I can't say "No I didn't find it", I can say "No I didn't pursue it". But I am following Sutherland right now.

MT: Ok.

JS: And he's reading, he's talking about, Gaskell, he was talking about vasomotion.

MT: Ok.

JS: And that led me to find an article on the history of the autonomic nervous system. And that goes sort of century by century, by important scientist by important scientist, and what they contributed to our understanding of the autonomic nervous system. Gaskell was one of them, that came after Still, but I might direct you towards that, to see if anybody is talking about "nerves of nutrition". I don't know when the idea of voluntary / involuntary actually came about but I bet you'll find it in this article.

MT: Ok.

JS: There was full-text available on the internet, but I'm not sure where I found it. And then I asked for the inter-library loan, no that's not true, Gaskell is also available. I think its... ask me, 1917, the year of Still's death. But you can find it on the website but unless you see the little button that says "click to download" you don't think it is available but you can actually get it there as well.

MT: Ok.

JS: Yeah I don't know about those 5 kind of nerves, that was kind of, that puzzled me too. But that's worth you tracking down.

MT: Do you see a possible correlation between Irvin Korr's work on the trophic function of nerves and Still's concept of the nerves of nutrition?

JS: Sure. I think I mentioned it [the 5 types of nerves] in my thesis but I didn't try to explain it. If I explained it I don't remember what I explained but I don't think I ever tweaked on that concept.

MT: Ok, yeah ok. [Pause] So when I first dove deep into Still's writings I was very surprised to find a very tissue-based discussion of health and disease, and it seems that he was almost using the bones as a means to address the microcirculation of the tissues, and that the microcirculation of the interstitial space was often his focus of treatment. Do you think I'm on the right track there? Could you comment?

JS: It was all about moving tissue fluids. Yes. I think you're on the right track. I want you to be careful with "microcirculation", because I don't think it was just micro, at all. It was--what is the object of moving bones? Look around page 273 of the Early Works. [Pause as researcher finds page etc]. It was in a two-column article I know that. [Sought article is unfound]. Sorry, you're going to have ask me: What is the object of moving bones? It is for moving fluids. And he looked at fluids as all fluids of the body, anything: digestive juice, urine, blood, lymph. The issue was, getting those fluids to the right place at the right time, in the right amounts, so that they could compound, it wasn't just the fluid, it was what was in the blood, it was what was in the digestive juice. Compound, do their job, and be drained, in the right time, in the right amount, so there was no stagnation, and then be reused, recycled, or eliminated. It was always fluids, never about alignment, never about pain.

MT: Do you see that as a direct continuation of the humoral tradition or is this something unique to Still?

JS: It is a blender question.

MT: Yeah ok.

JS: Or a blender answer I should say.

MT: Ok. [Pause while looking at notes] So what do *you* make of Still's ear-wax theory?

JS: [Laughs!] I don't make it my job to read it day after day, but it is an excretion from the brain. So it is giving you some kind of indication as what's going on in the brain.

MT: Ok. So let's talk a little bit about the disconnect between the scope of practice of Osteopaths in Still's era and today. It seems to me that there is a disconnect in the level of efficacy that is related in the early osteopathic literature and that of today.

JS: It's what I'm on my high horse about all the time. Still was treating sick people, the majority of us don't see sick people – for two many reasons to give to you.

MT: Yup.

JS: Part of it was a product of the structure of the first school. I mean I could talk 10 hours about this, I'm not going to talk 10 hours ok? But there was about, it was January 31st, or February 2nd of 1900, that was the end for me of Osteopathy as it originally was. Because that's the day that the school fired...

MT: Oh.

JS:... William Smith, and the next day that the 3 Littlejohns resigned in protest. So you lost four major teachers at once. At the same time, you had little upcoming Osteopaths who had graduated you know, 5,6,7 years earlier, or even 3 years earlier starting up more schools, starting up their own schools in remote locations, such that people didn't have to come to Kirksville to go to school. So they didn't have the teaching of Still, they were already hearing one generation later. If you look at the instructors from 1896-1897, and compare it to even 1901 or 1902, they're completely changed over.

Then you had simultaneously (you read Norman Gevitz I hope?)...

MT: Yes.

JS: ... you know the Osteopaths saying --Why can't we be Doctors? We're learning the same as they are, we want to be Doctors.and the Doctors saying You You have to augment your curriculum to be like us. So there was a bigger push on the curriculum. There was the Flexner Report which killed everything for a long time.

MT: Mm-hmm [agreement].

JS: Death of A.T. Still. John Martin Littlejohn exits United States. [Pause] I think Gevitz explains it better than anybody what happened in the '20s, '30s and '40s, I'm not going to repeat it all for you. In England certainly, what's-it-called were [groans and pauses] my memory is flipping me. It is a government funded health-care, so now we could go to the doctor and not be charged, but you couldn't - if you went to the Osteopath you were charged. So people didn't go to the Osteopaths, plus in England there was a big big big void when Littlejohn's character was assassinated 1935 in-front of the Select committee of the House of Lords, when Osteopathy failed to be recognized, he became a recluse. Then you have World War II, British School of Osteopathy is just trying to hold itself together. They sort of, reemerge after the War - late '40s, early '50s, and there is a need to be more (even though they didn't have the word at that time) 'evidence-based'.

MT: Yeah.

JS: So whatever the question was, I think I'm answering it. Why aren't we efficient anymore? I ask that question every day. If the PRM and the stillpoint are the be-all end-all why aren't we killing this? Why aren't we killing it?

MT: Yes.

JS: Is it helping? - having a PRM and a stillpoint? Is it doing much more, or are we wasting our time, waiting for stillpoints when we could be adjusting ribs for example. That is something I might not want to have my name attached to, unless you know other people are saying the same thing. Still never used a stillpoint.

MT: Yes.

JS: Sutherland doesn't even start talking about cranial 'till 1929, he had 30 years of experience treating really really really sick people through the Great Pandemic, right?

MT: Mm-hmm, yup.

JS: Didn't use a stillpoint!

MT: Yup.

JS: In my work, I'm trying to resurrect the techniques Sutherland was using prior to his creation of this cranial concept.

MT: Ok, interesting.

JS: Mm-hmm. So, sick people nowadays don't go to Osteopaths, they go to the doctor, and they get medicated. They don't come to the Osteopath: so we don't know how to do it, and we don't see them. Back then, DOs were doing house-calls, they'd go at 10 o'clock, they'd go at 12 o'clock, they'd come back at 4 o'clock in the morning. Treatment might be 10 minutes, but they'd sit through the night if they had to. There were infirmaries where they were treated 2, 3 times a day - we can't make 3 appointments for the same person all the time, well, we have to book long appointments (20 minutes, 30 minutes, 45 minutes, even one hour) and wait for stillpoints. [Laughs] For what? I don't know what for, I don't get it.

So it is just now a completely different environment for sick people.

MT: Yeah.

JS: And there has been a lot more medications come on the market than there were 100 years ago. Sulfites and penicillin and all kinds of pharmaceuticals. Which are the quick-fix methods, and you can't tell the patient "Don't take your medication - I'm going to come and visit you four times." So multiple changes on different layers, ok?

MT: So Still often talks about atmospheric, weather, temperature related influences in the human being, yet I never heard this mentioned in my osteopathic training...

JS: [chuckles]

MT: ...do you feel this aspect of Still's thought is now irrelevant or outdated, or have we lost something valuable by ignoring this aspect of his thinking?

JS: I don't think we get as cold as people used to get - that's number one. We have furnaces. The temperature doesn't go below zero, we don't have to chip the water in our basin in the morning.

MT: Mm-hmm.

JS: But those guys really suffered temperature changes. My Dad, who would today if he was alive would be 102, knew that he was going to check-out in November or March, because that's when people died because it was a drastic change in the weather as the seasons changed.

MT: Yeah.

JS: I just don't think we experience those kinds of extremes anymore.

MT: Ok. Are there any questions that you wish I'd asked you?

JS: If you're doing a topic on immunity, perhaps. [Laughs] But maybe that's your journey and you have to do it yourself. I'm kinda glad you didn't because I didn't know what I was going to say anyway.

MT: I figured it wasn't the focus of your research as far as I had read so you know...

JS: Oh ok.

MT: I also think, it seems to me that you can't just isolate "Well what was Still's concept of immunity?" because that's tied into this [makes circle with hands], and this is the context for that [expands circle], and this the context for that [expands further].

Until all of sudden the stack of books to be read is this tall [gestures off floor].

JS: Yeah. I only might add, for immunity, whether you thought about it or not, if you cut yourself right now, what would you want on that cut?

MT: Your own blood.

JS: [Gestures squeezing blood out into imaginary cut on index finger pad]. Nothing else. And no laboratory can manufacture blood. Can you buy it on the internet? Maybe you can get it from the blood donor bank, but you can't get it anywhere else. So that was a natural, um... bactericide, what-do-you-call-um? Bactericide?

MT: Germicide.

JS: Germicide yeah. Natural germicide. That the human being is made only from things that are in its environment, made naturally. Only things that are not under pressure, nothing under extreme pressure, nothing under extreme heat, nothing that's made that we can't make. Yet when you take a pill it's made under all these artificial circumstances, of things that we don't make naturally, we don't eat naturally. So in that respect I think the Naturopaths are on the right track, if they knew what they were really doing, rather than telling you first - "Try not eating dairy. Try not eating wheat." But really look at the plants that are out there that you share common molecules with.

Anyway I'm happy and I'm sad you didn't ask me about immunity. [Chuckles] Is that the end?

APPENDIX E: CANTHARIDIN: APPLICATIONS AND IMPLICATIONS

Still had concluded that since only one “infection” can “take possession” of a patient’s body at any one point in time, previous exposure to cantharidin would block any entry of smallpox into the patient, given that the cantharidin already occupied the territory that the smallpox hoped to invade. Based on this, Still suggested that even in cases when a patient had already been exposed to contagious smallpox, but was only in the very early stages of the infection, cantharidin could still be used as an effective remedy - given that the cantharidin “infected” (produced symptoms) much more quickly than the smallpox (which took a few days to fully develop). Thus cantharidin could be used to directly ‘attack’ the smallpox, turning the attention of the smallpox away from the patient and towards the cantharidin; thus sparing the patient’s body (Still, 1901d).

In a May 1901 article in the *Journal of Osteopathy*, (interestingly **also** titled *Poisons and Antidotes*) Still provides his readers with a methodology for cantharidin blistering - to be used community-wide during a smallpox outbreak (1901c). Still dictated dosages for each subset of individuals, based on age and gender. In a seamless replacement of the orthodox vaccination procedures, Still recommends that cantharidin blisters are to be applied on the upper arm “at the usual place to vaccinate”, and reapplied every few days until the risk of smallpox infection had ended within the community at large (1901c, p.133).

In Still’s third book, *Philosophy and Mechanical Principles of Osteopathy*, a separate cantharidin protocol is presented, this one to be used for later-stage smallpox, when acute skin eruptions have already occurred (1902f). In this case Still’s intervention involved the patient inhaling the vapours of a cantharidin liquid-extract, to be placed onto

a handkerchief and given in extremely controlled doses so as to avoid “irritating the lungs too much” (1902f, p.286).

It seems that Still strongly promoted the topical cantharidin protocol for smallpox, even going so far as to personally acquire an amount of cantharidin “from the very best manufacturers that which is chemically pure”, then in an article within the *Journal of Osteopathy*, offering to sell it directly to Osteopaths, telling them: “this is not by order of the school, therefore address me personally” (1901e, p.241). In this article Still states that his motivation for making these direct sales of cantharidin is due to his suspicions that malicious ‘allopathic’ physicians might hear of an Osteopath placing an order for cantharidin through a pharmacy, at which point the ‘Allopath’ might then tamper with the intended blistering agent and insert: “antimony, arsenic, sulphate of copper and other poisonous drugs” (1901e, p.241). Still feared an attempt by an orthodox physician to cause an Osteopath’s patient a profound burn when purposefully contaminated cantharidin was then applied – this being a means of discrediting the Osteopath and bringing malpractice charges against them (1901e). Clearly Still’s lifelong struggles with the medical orthodoxy had made a shaped his outlook.

Given that Still perceived “the law of possession” to be a universal principle, meant that cantharidin blistering could also likely be used to remedy: ““Cuban itch,” chickenpox, mumps, ... varioloid, scarlet fever” (1901e, p.242), as well as: “against measles, diphtheria, scarlet fever, leprosy, and syphilis as against smallpox, and other infectious contagions” (1902e, p.70).

As one of many instances of Still’s self-contradictory tendencies, it is striking that in his other writings Still describes manual osteopathic treatment as a virtual panacea for

some of the very same conditions for which he is now instead suggesting the use of cantharidin: “I have [through manual therapy] solved the question of and removed the dread of measles, mumps, whooping-cough, scarlet fever, diphtheria, flux and many other diseases” (1898l, p.460). Yet in other places Still states that: “I reasoned again, and found that all disease *except in infectious and in contagious diseases*, could be managed very easily by mere mechanics and directed by a qualified head” [italics added] (1909, p.409).

It remains unclear whether by this last statement Still intends to convey that he believes these diseases *can* effectively be treated manually, but that the skill level of most Osteopaths is insufficient to do so. This interpretation may be the case given that Still describes elsewhere that this was his assessment in the case of patients experiencing ‘consumption’ (tuberculosis). To help these individuals, Still states that an Osteopath would need to be “taught this as a special branch” (Still, 1899b, p.70).

Or perhaps in the above statement Still intends to convey that infectious and contagious diseases were of their very nature less receptive to manual osteopathic treatment and thus also warranted the adjunctive application of cantharidin - though this is certainly not the impression Still gives throughout the entire rest of his body of writing. Still’s theories and practice of manual infectious disease treatment discussed in detail below in SECTIONS 3.5. THE IMPLICATIONS OF A DIFFERENTIATION BETWEEN ORIGIN AND CAUSE, and 3.6 APPLICATION OF THE ESSENCE.

For now, it is important to note that whenever Still suggested the use of cantharidin, he did so while explicitly or implicitly indicating that manual treatment should be also applied.

Still reports that his mother's theory regarding cantharidin and smallpox immunity was validated during a smallpox outbreak in Kirksville around 1902, wherein Still's cantharidin-blistering protocol was applied to "2,000 to 2,500" citizens with superb results (1910, p.453; 1902e, p.67). Still also describes receiving reports from graduates who have utilized his cantharidin protocols in the face of smallpox outbreaks in "thousands upon thousands of cases" (1910, p.457). Still goes so far as to claim that not a single instance of smallpox infection had taken place when the cantharidin protocol was preventatively applied. Some letters by graduates reporting success with the cantharidin applications were in fact published in the *Journal of Osteopathy* (ex: Cobb, 1901; Still, 1901c, p.129-130).

Still continued to promote the use of cantharidin for the prevention and treatment of smallpox throughout his life, including the smallpox-cantharidin protocol in his final book, *Osteopathy Research and Practice*, which he published in 1910 at the age of 82. In this same book, Still compared Osteopathy to a political party, and laid out it's "platform" in nine concise statements, including the "Third: We are opposed to vaccination" (1910, p.14). It is interesting to note that only the following year, in 1911, the American School of Osteopathy "incorporated the study of vaccines, serum therapy, and antitoxins into the bacteriology course" (Trowbridge, 1991, p.178). Carl McConnell, a prominent professor at the ASO, wrote in his 1899 book *The Practice of Osteopathy*, that in regards to smallpox: "The best preventative means of small pox is vaccination" (p.125).

Interestingly enough, there theoretically could have been some value to Still's use of cantharidin as a prophylactic and treatment for smallpox. The idea that cantharidin

actually may have some therapeutic value is unsurprising when its long history of use within Traditional Chinese Medicine (TCM) is taken into consideration. Cantharidin has been part of the TCM materia medica for 2000 or more years (Moed, Shwayder, Chang, 2001; Wang, 1989). Modern scientific assessments of cantharidin's action found it to contain marked anti-cancer properties in regards to a variety of carcinoma types, as well as an ability to create clinically significant increases in the levels of circulating leukocytes. This was surmised by these researchers to be due to a "stimulating effect on bone marrow cells" that resulted in "the release of white blood cells" (Wang, 1989, p.151). This study employed orally administered cantharidin - but it was also found that dosages high enough to be therapeutic were also likely to provoke serious side-effects, including death. No studies regarding *topical* cantharidin were found within the modern scientific literature.

The immune stimulating property which oral cantharidin has been documented to possess could be understood as being similar to the strategy employed by today's novel "immunotherapies". Historical interventions attempted to eliminate unwanted pathological cells in the patient through direct chemical antagonism (ex: antibiotics, chemotherapy for cancer), whereas immunotherapy instead focuses on modifying the patient's own immune function - thus enabling an immune response which then itself resolves these pathological influences (Bucktrout, Bluestone, Ramsell, 2018). The immunotherapy strategy harkens back to Still's "law of possession", wherein Still states that cantharidin application serves to create an environment in the body that smallpox cannot exist within. Perhaps in those instances even when a patient was already ill with smallpox, when Still nevertheless suggested that cantharidin should be applied as it was

“capable of acting from seven to ten days quicker than variola” (1901d, p.3), a mechanism of action took place wherein the cantharidin-blistering acted to alter the patient’s immune response and thereby derail the smallpox infection’s trajectory.

Whatever the actual therapeutic value, if any, of Still’s cantharidin protocols, it is striking and important to note that Still is blatantly promoting the use of a “drug” – this being the very same practice which Still so frequently and harshly criticizes in the orthodox medical tradition. Still often warned osteopaths against incorporating ‘drugs’ into their manual practice, explicitly arguing against this approach on any grounds whatsoever. The absence of drug-prescription was one of the foundations of Still’s medical revolution (ex: Still, 1898k). In the October 1900 *Journal of Osteopathy*, one can find Still stating that: “No Osteopath has any use or place for any drug or drugs” (1900a, p.228). Yet compare just a few months later in May 1901, Still instructs his students to employ cantharidin, which he helpfully suggests “can be found at any drug store” (1901a, p. 133).

This apparent total peace with profound self-contradiction is perhaps best interpreted as a display of Still’s deeply pragmatic outlook. It would seem that in the end, it is simply that Still was personally familiar with cantharidin from his early life, perceived himself to have benefited from these experiences, and thus had no quandaries with applying cantharidin as a solution to problems which he later encountered. Still essentially states this position within one of his articles addressing smallpox-cantharidin, stating: “Self evident facts well proven by demonstration all have a friendly welcome by me” (1901d, p.3). In summary, by Still’s estimation, cantharidin had demonstrated its effectiveness, contained an acceptable ratio of risk-versus-benefit (especially when

compared with smallpox vaccination/inoculation), and therefore he deemed cantharidin-blistering as being appropriate to the task at hand.

APPENDIX F: REFERENCE TIMELINE OF STILL AND ORTHODOX IMMUNOLOGICAL DISCOVERIES

This timeline includes a chronological order of events that are relevant to historically contextualizing Still's immunological theories and practices. All relevant historical events that are mentioned within this research are included below. A few additional events are also included as a means of providing useful historical context.

As the immunologist and science historian Arthur Silverstein makes clear, it is crucial to keep in mind that just because what is *subsequently* viewed as a landmark scientific discovery is listed as having taken place on a certain date, it does **not** mean that that theory was then widely accepted anywhere near that same date (2009). Science is a cultural institution, and progresses at a cultural pace. Decades are often necessary for the paradigm shift wherein a historically dominant theory is discarded and a new model eventually come to gain widespread acceptance.

Note that not every contributor to the development of a certain landmark theory is listed, for simplicity's sake only those most conventionally credited are listed below.

A full list of the reference materials from which this timeline was synthesized is provided below.

1653: William Harvey discovers the circular flow of the blood to and from the heart. (Still references Harvey's discovery within his own writings - 1899b, p.152).

1796: In England, Edward Jenner seeks to improve on conventional inoculation practices for smallpox prevention, thereby innovating the use of cowpox as a "vaccination" for smallpox.

1796 - 1810: In Germany, Dr. Samuel Hahnemann establishes his unorthodox medical system, “Homeopathy”, publishing widely regarding its the principles.

1828: Andrew Taylor Still born in America, grows up being taught the ‘*humoral-environmental-constitutional*’ model of health and disease by his father, an orthodox physician.

1838-9: In Germany, Matthias Jakob Schleiden discovers all plants are made of cells. Theodor Schwann, also in Germany, then proves the same for animals (ie: ‘cell theory’ begins to be established).

1840: In Germany, Justus von Liebig’s influential *Organic Chemistry In Its Applications to Agriculture and Physiology* is published. An English translation is simultaneously released.

1842: Justus von Liebig’s *Animal Chemistry or Organic Chemistry In Its Application to Physiology and Pathology* is also published.

1845: In Germany, Karl Theodor Ernst von Siebold discovers that microbes are also made of single cells.

"From the **1850s until the 1880s**, the foundation of the system called heroic medicine was crumbling. Traditional drugs and techniques used by physicians since the 1770s were questioned ..." (Trowbridge, 1991, p.xi)

1855: Andrew Taylor Still has influential conversation with his mentor J.B. Abbott regarding the discarding of drug therapy and the need for the arising of a new form of medicine (Trowbridge, 1991). Still is 27 years old.

1850s: Andrew Taylor Still has influential contact with Scottish orthodox physician Dr. J.M Neal. Neal provides Still with the then-current European scientific literature (Deason, 1934; Trowbridge, 1991).

1858: In Germany, Rudolf Virchow introduces concept of cells as the best framework through which to view any pathology of the total organism (ie: theory of cellular pathology).

1859: In England, Darwin's Origin of Species first published.

1860-70s: Scientific debate regarding the validity of 'spontaneous generation' theory of life is ongoing.

1860 - 1864: In France, while investigating the process of fermentation, Louis Pasteur conducts landmark studies regarding microorganisms, thereby disproving spontaneous generation theory and leading to proof that specific microorganisms are correlated with specific diseases.

1861: American Civil War begins.

1862: Andrew Taylor Still has influential cantharidin-smallpox conversation with his mother. He is 34 years old.

1864: Andrew Taylor Still's "great trial" - his four Children die. Still is 36 years old.

1865: American Civil War ceases.

1869: In Russia, Dimitri Mendeleev creates a ‘periodic table of elements’, assembling the known elements by atomic mass, and thus predicting the existence of other yet unknown elements.

1870s: In Germany, Robert Koch conducts landmark research on the specificity of particular organisms to particular diseases, thus contributing to the foundational postulates of germ theory.

June 22nd, 1874: The date which Andrew Taylor Still later gives as to when Osteopathy “dawned” on him, he is 46 years of age (1908c, p.85).

Late 1880s: Within scientific and medical mainstream, miasmatic theory of disease is giving way to germ theory of disease.

1880s - 1890s: What is later termed ‘the bacteriological revolution’ takes place: a cultural paradigm shift occurs with germ theory and bacteriology becoming the new accepted model, replacing the previous environmental-humoral model of health and disease.

1882: In France, Elie Metchnikoff publishes paper on his discovery of macrophages, which he observes conducting phagocytosis: the beginning of the theory of cell-based immunity.

1884: Metchnikoff announces a new revolutionary theory of the *beneficial* role of inflammation and fever - asserting that this is an active reaction by the patient *to* disease, not a passive symptom imposed on the patient by a disease entity.

1890: In Germany, Emil von Behring first develops an diphtheria antitoxin vaccine.

1892: Andrew Taylor Still opens the American School of Osteopathy in Kirksville and begins to teach others Osteopathy. He is 64 years old.

1894: The first edition of the *Journal of Osteopathy* is published. These are Still's first known published or unpublished writings.

1894: In Germany, Richard Pfeiffer publishes papers demonstrating that humoral immunity can be acquired by exposure to pathogens.

1897: At age 69, Andrew Taylor Still publishes his first book, *Autobiography*.

1899: At age 71, Andrew Taylor Still publishes his second book, *Philosophy of Osteopathy*.

1890s: A fierce debate takes place between the competing orthodox theories which explain immunity to pathogenic organisms and their toxins. This takes place between the 'cellular' immunity camp (led by Metchinkoff in France) and the 'humoral' antibody immunity camp (led by Paul Erlich in Germany). Both have scientific studies to prove that their theory is correct, the two nationalistic theories clash within the scientific and medical communities.

1902: At age 74, Andrew Taylor Still publishes his third book, *Philosophy and Mechanical Principles of Osteopathy*. For reasons unknown, it is soon retracted (Stark, 2003).

1904: The term 'allergy' is first introduced into scientific literature. Links are made to hay fever in 1906, asthma in 1910 - this is the start of a recognition of the potential an immune response to itself be a pathological influence (ie: immunopathology).

1908: At age 80, Andrew Taylor Still releases an edited second edition of his *Autobiography*.

1908: Metchnikoff and Erlich jointly win the Nobel Prize in Physiology or Medicine for their respective work on cellular and humoral immunity. It turns out that *both* were correct - but the humoral camp had achieved much greater success in the cultural debate, and so mainstream medical science gains an entrenched focus on biochemical factors in disease. Theoretical acceptance is given to cellular immunity, but little practical or social energy is devoted to it in the coming decades.

1910: At age 82, Andrew Taylor Still publishes his fourth and final book, *Osteopathy Research and Practice*.

1917: Andrew Taylor Still dies at 89 years old.

1918: The “Spanish” influenza pandemic sweeps the globe.

1960s: The term and concept of an ‘immune system’ first comes into use, the key role of lymphocytes in adaptive immunity is detailed.

As Paul Wiendling, a medical historian at Oxford, emphasizes in his history of *The Immunological Tradition* (2013): “The origins of modern immunology are a matter of controversy”. This is due to the manner in which immunological concepts such as ‘vis medicatrix naturae’ (the healing power of nature) date back to ancient agrarian civilizations such as the Greeks - at the very least. In modern scientific culture, specific scientific journals devoted to immunology were first established in 1909 in Europe, and in 1915 in the United States, yet Wiendling states that before 1930 the field was

“composed of false empiricisms and confused terminology” (2013, p.192). Thus

Wiendling:

...sees immunology emerging as a discrete science only with the concept of the immune system in the 1960s. ...immunology has a very long prehistory going back to ancient medicine, but a very short history from the 1960s. These divergencies suggest the need for caution in viewing immunology as a discrete science with clear origins and a readily identifiable subject matter. (p.192)

The above reference timeline was synthesized from a diversity of sources:

(Darwin, 1859; Fauci & Morens, 2012; Hannaway, 2013; King, 1983; Liebig, 1840, 1842; Paulus, 2009b; Pelling, 2013; Schroeder-Lein, 2008; Silverstein, 2009; Stark, 2003; Trowbridge, 1991; Virchow, 1860; Weindling, 2013).

APPENDIX G: DIFFERENTIAL MOTION AS INDIVIDUATION

Below is presented a paraphrase of Herbert Spencer's concept of the origin of individuated function and form from the undifferentiated whole. It has been verified as accurate by one of the key informants, Christian Hartmann. Hartmann himself commissioned and then published a modern German translation of Spencer's *First Principles* for the German osteopathic community (Personal communication, April 5, 2020). When consulted regarding the below paraphrase, Hartmann emphasized that his own understanding is based upon an intense exchange with the Prof. Dr. Martin Pöttner, the philosopher and author who produced the modern German translation of Spencer's *First Principles*.

A summary of Spencer's sequence of 'individuation':

- The interaction of different pre-existing motions (force), causes a novel frequency of oscillation to occur - which is therefore distinct from the pre-existing motions. This novel frequency occupies a specific region in space.

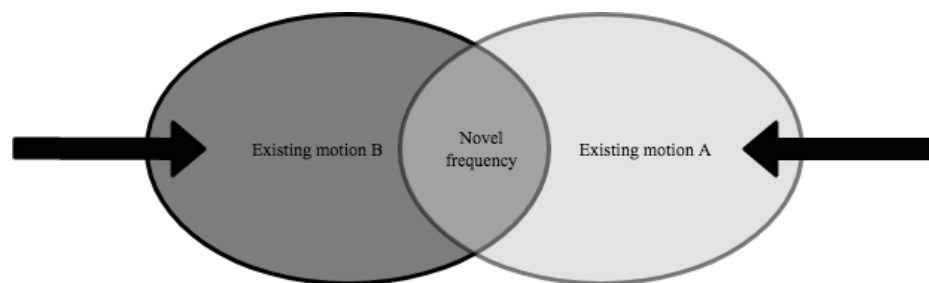


Figure: 23. Novel frequency.

- This new oscillatory motion thereby creates a functional contrast between the region *inside* of which the new motion is occurring, and that region *outside* of which the new oscillation has not occurred. At the edge of these two contrasting

conditions is an ever-shifting **boundary** where the differential motions interface. Thus three elements have become delineated: a **boundary**, an **interior**, and an **exterior**.

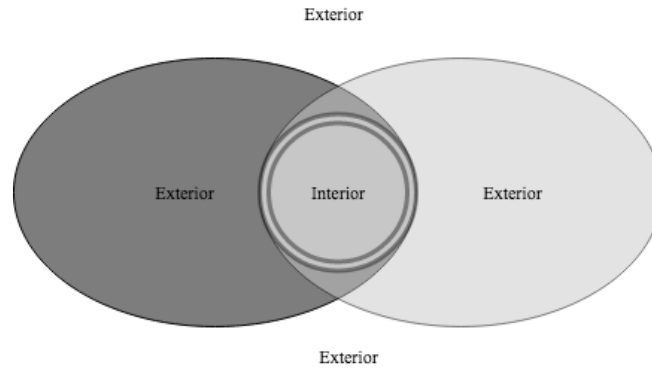


Figure: 24. Interior and exterior.

- The region which is **interior** to the **boundary** experiences generally self-similar *conditions* of motion, and thus over time becomes modified to a stable and self-similar oscillatory frequency of motion. Thus the entire **interior** becomes organized into stable coherence, due to the manner in which similar *conditions* create similar *effects*.
- Yet over time, the motion within the **interior** also differentiates into greater *complexity* as the slight differences in motion within the **interior** mutually interact. This results in the creation of various new **sub-interiors** - each with a **sub-boundary** between itself and the general **interior**.

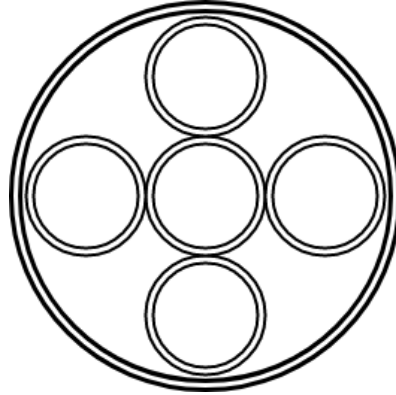


Figure: 25. Sub-interiors.

- This process cyclically repeats itself over and over again, leading to further **sub-interiors** within each new smaller sub-scale of **sub-interior** - like the multiple layers of an echo produced from a single original sound.

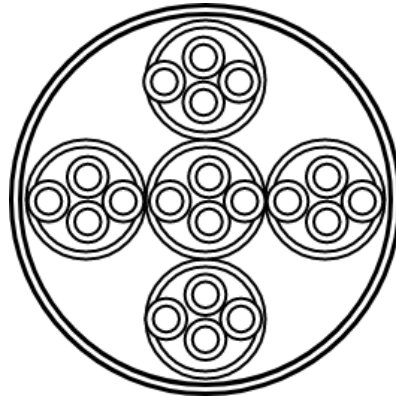


Figure: 26. Complexification.

- While this process is ongoing, the motion within the **interior** remains differentiated from the **exterior** motion. Yet the motion within each of these two regions does continue to interact, at the **boundary**, thereby producing an exchange of *reciprocal modification* between the motions of the **interior** and those of the **exterior**.

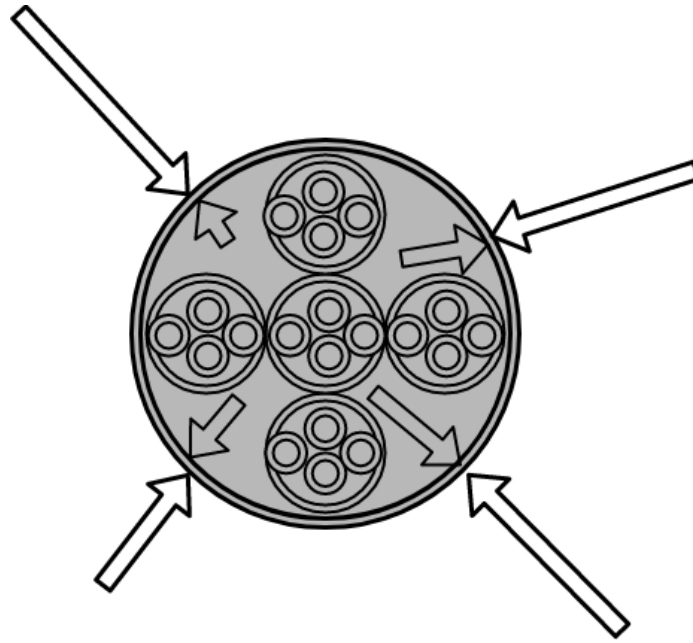


Figure: 27. Reciprocal modification.

- Yet due to the fact that the **exterior** contains more total motion (energy) than the **interior**, the dynamic oscillatory frequencies of the **interior** are constantly being reshaped as they interact with the comparatively larger dynamics of the **exterior** - just as a spinning top on a flat surface will initially wobble and then successively dissipate all of the motions that do not harmonize with the flat surface upon which it is spinning. Thereby the spinning top (**interior**) eventually comes into a *coherence of efficient interaction* with the surface (**exterior**). This is to say that the top has become organized into a *coherent relationship* with the flat surface - though the surface and top continue to contain distinct dynamics. *Only those interior motions persist that are able to come into a functional harmony with the exterior.*

- Yet the motions of the **interior** and **exterior** remain disparate, and the **exterior** continues to contain far more motion (energy) than the **interior**. If the differential of motion delineating an **interior** versus an **exterior** is to be maintained over a period of time and not instead begin to immediately decrease (such as would be the case with the spinning top), an additional process must occur. The **interior** must gain motion (energy) *from* the **exterior**. This is accomplished by a transfer of motion *across* the **boundary**. The **interior** must then incorporate the internalized **external** motion by *transforming* the **external** vector and velocity into a new harmony with the existing **interior** motion. Again, this causes a modification of *both* **exterior** and **interior**. Another layer of *reciprocal modification* occurs.

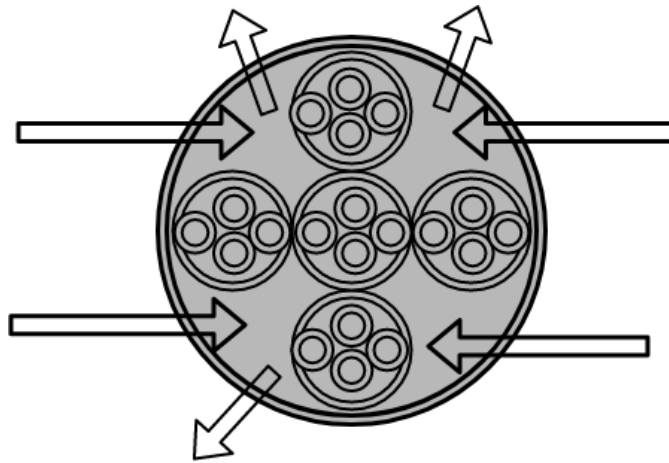


Figure: 28. Exchange as the means of perpetuation of differentiation.

- It is by this process of transfer of motion from **exterior** to **interior** that external motion (energy) is thereby utilized to ‘fuel’ both the ongoing maintenance of the

boundary and the differential of motion defining the **interior** as distinct from the **exterior**.

- The earlier detailed process wherein the **interior** complexifies via the creation of sub-scales of **sub-interiors** will at some point reach its zenith. This occurs when the **sub-interiors** have increased the overall complexity of the **interior** to such a degree that they limit the capacity of the **interior** to modify in relation to the influence of the **exterior**.
- At this the stage when the process of complexification has reached its zenith, it then reverses into the opposite process: *dissolution*. From this point forward a progressively exponential decrease in the capacity of the **interior** to appropriately modify begins. The influence of the **exterior** begins to increasingly dominate the trajectory of **interior** dynamics, thereby modifying the composition of **interior** motions, which then come into ever closer synchrony with that of the **exterior**.
- This exponential process continues until in the end both the **boundary** and **interior** can no longer be maintained - the appearance of an individuation ceases. Previously **interior** motion begins to oscillate at the very same frequency as the **exterior** - thus there is no longer the appearance of an individuation. The terms **interior** and **exterior** no longer apply - despite the fact that the total amount of motion has not changed. Force has persisted throughout.

APPENDIX H: COMPARISON AND IMPLICATIONS OF ORTHODOX AND UNORTHODOX WORLDVIEWS – THE EQUATION OF INTUITIVE KNOWLEDGE?

Today's scientific cultural paradigm chooses to limit the boundaries of its inquiry to that which can be measured. Sylvester James Gates Jr., a theoretical physicist at Brown University, stated on a recent popular science program that:

...what science is really about, which is perhaps often lost in discussion, is that science is about things we can measure, and **if we can't measure it, it can't be science**. Science in fact doesn't lead to certainties. What it leads to is the best possible understanding based on measurement. [emphasis added] (CBC, 2018a)

While given that "there is no limit upon the power of science to answer questions of the kind science can answer" (Medawar, 1988, p.60), it also seems reasonable to state here that the scientific method cannot answer *all* valid questions. Nor even for those questions that the scientific method *is* capable of answering, is the scientific method *always* the most appropriate means of inquiry. This is especially the case when the scientific method is applied in isolation, rather than in *combination* with other pragmatically productive modes of inquiry.

Yet the current scientific cultural dogma holds that the scientific method is the singular and only valid means of inquiry (for a discussion see Johnson, Ecklund, Di, & Matthews, 2016).

To return to the earlier utilized concept of *context + content = meaning* (as first described and applied in SECTION 3.4 A.T. Still's Personal Conception of Immunity), the current scientific cultural paradigm, when holding that the scientific method is the *only* valid means of inquiry, can be represented as such:

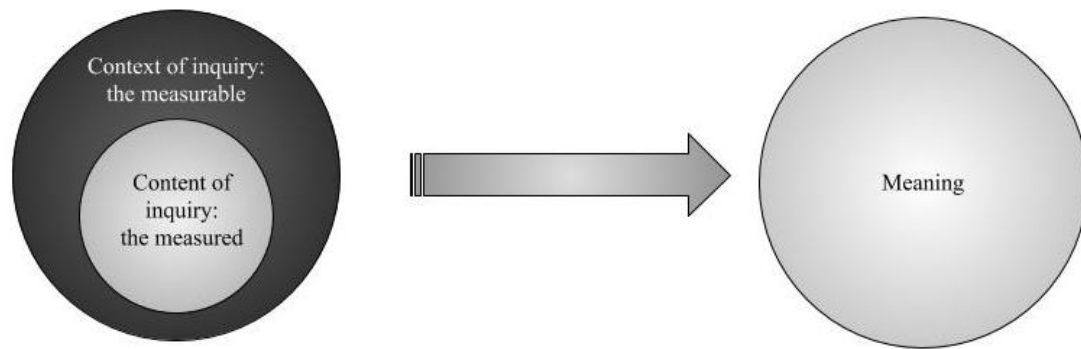


Figure: 29. The self-defined limits of the current scientific cultural paradigm.

If one then operates **exclusively** within this paradigm, it follows that when a phenomenon cannot be measured – i.e.: when it does not ‘fit’ within the boundaries, limitations, of scientific inquiry – then the unmeasurable phenomenon is experienced as being *meaningless*.¹

¹“Galileo’s programs offer us a dead world: Out of sight, sound, taste, touch, and smell, along with them have since gone the esthetic and ethical sensibility, values, quality, soul, consciousness, spirit. Experience as such is cast out of the realm of scientific discourse. Hardly anything has changed our world more during the past four hundred years than Galileo’s audacious program. We had to destroy the world in theory before we could destroy it in practice.” (Capra and Luisi, 2016, p.21)

Or as eloquently stated elsewhere: “It was only when science convinced us that nature was dead that it could begin its autopsy in earnest” (Buhner, 2014, p.208).

In contrast with this, Still's historical osteopathic paradigm, which is intimately interrelated with his personal conception of immunity, can be diagrammatically represented as such:

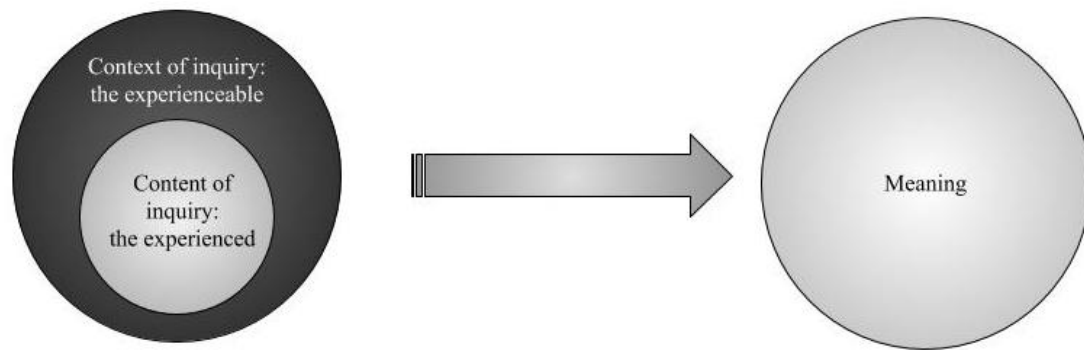


Figure: 30. A.T. Still's osteopathic paradigm.

Still clearly described the above approach as being the manner in which he inquired during the development of his unorthodox theories and concepts - as well as when applying them in practice:

I saw at once that the laws which govern this [human] being were hidden at the very centre of the great mountains of mystery. To obtain a knowledge of the contents of that inner mountain, the pick and shovel, and the explosive power of the dynamite of reason had to be freely used, and the contents analyzed and separated by a **qualitative and quantitative analysis**. [emphases added] (1897d, p.265)

Still related to his only authorized biographer Eamons Booth the conclusion that:

Science cannot deal with fundamental questions... Only philosophy can do this. Science is only a tool or a key, and it can unlock only certain material problems. It cannot appraise itself. It is not a judge but a witness. Problems of mind, of character, moral, aesthetic, literary, artistic problems are not its sphere. It counts and weighs and measures and analyzes, it

traces relations, but it cannot appraise its own results. (Still, as quoted by Booth, 1924, p.459)

What follows from this, is the conclusion that Still's osteopathic mode of inquiry is capable of incorporating not only **all** of the *content* compatible with the scientific method (i.e.: the measurable), but that Still's mode of inquiry is also capable of containing and therefore *deriving meaning from* diverse additional content, such as personal experience – i.e.: content that is incompatible with, outside of the scope of, the scientific method. In short, this is to point to the fact that the boundaries of what can be *experienced* by a human are far larger than what can be *measured*.

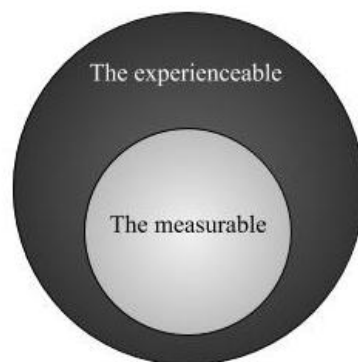


Figure: 31. The respective domain of the measureable in comparison to the experienceable.

The implication of this is that Still's chosen method of inquiry was able to readily incorporate the content of personal experience, that which was "beyond the power of language to express" (Still, 1898g, p.414). Furthermore, within Still's perspective, this larger chosen context of the 'experienceable' was but itself a subset of the truest, ultimate context of inquiry - the Unknowable.

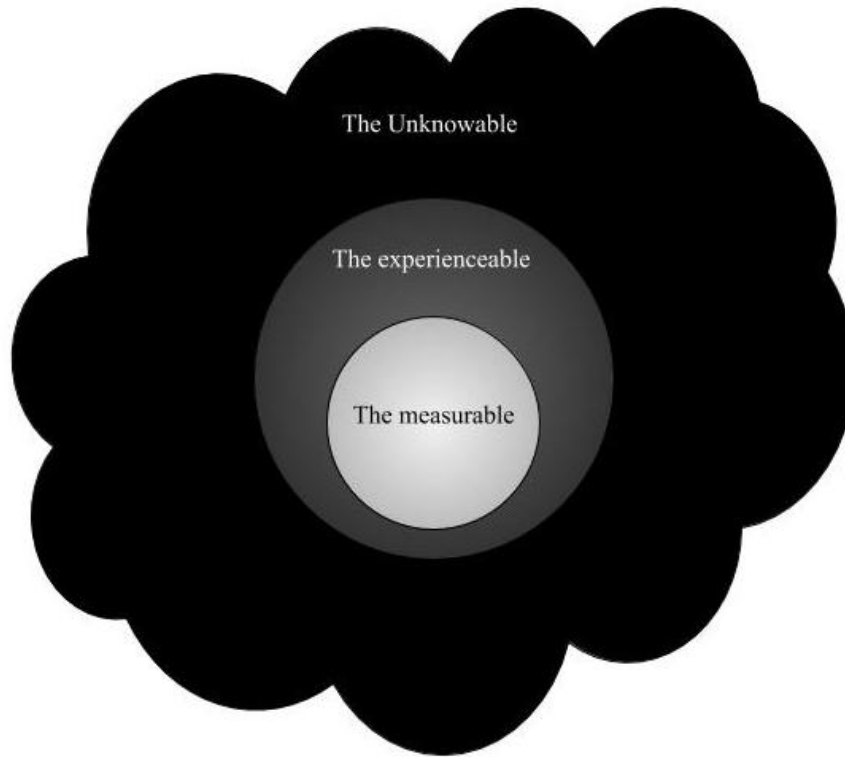


Figure: 32. The respective domains of the Unknowable (i.e.: infinity, boundarylessness), the experienceable, and the measurable.

Thus when Still engaged in an inquiry (which importantly encompassed not only conceptualization and technical information such as anatomy, but also the clinical outcomes of assessment and treatment) Still's chosen method was to incorporate the full *contents* of his personal experience, and then rest at the moment-to-moment ever-shifting boundary of the humanly knowable, *beyond which lay the even larger context of the Unknowable*. Still described the strategy informing this method in the concise statement: "If we cannot swallow all, we can taste" (1899b, p.99).

It logically follows then, that when the Unknowable is used as the ultimate *context* of one's inquiry, and one's **full** human experience is used as the *content* of that

inquiry, a spontaneous *meaning* will arise within one's experience (given that even in this extreme case the principle of *context + content = meaning* remains in place).

Perhaps this provides a theoretical explanation as to the mechanism driving Still's noted capacity for 'intuitive knowledge' - this term being but another way of describing the arrival into one's experience of *meaning* for which there is no known source.

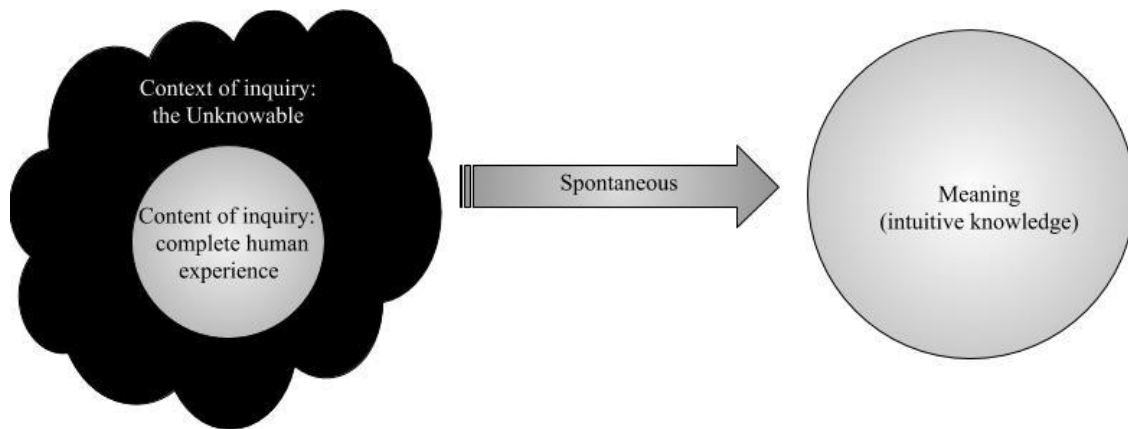


Figure: 33. Context + Content = Meaning. Every context yields a different meaning, even for the same content. Thus when the Unknowable (a.k.a Infinity) is experientially used as the context of inquiry, meaning arises - but the source of that meaning can only be identified, literally, as Unknowable.

E.E. Tucker, described Still's method of inquiry in this way:

He carried observation as far as it would go. Beyond that he followed reason as far as that could be made to go; and reason does see far beyond mere fact. Beyond reason he followed intuition, that voice of the subconscious whole, as far as that would speak... (n.d., p. 61)

In fact Still felt that this quality of knowing ran in his family, he described his father's vivid and ultimately accurate experiences of "intuitive mind" (1908c, p.333-4). Still also wrote a short article titled *Intuitive Consciousness*, wherein he addressed the importance this style of inquiry holds (1898e). In this article Still presented an example of two apprentices who take up the same subject, each applying themselves to their

studies just as thoroughly as the other. Yet the first apprentice is eventually able to achieve flow and smooth success in his work, while the second apprentice only gains results that are hard-earned, and even only ones that ultimately fall short of mastery. Still discussed how:

Perhaps number one has worked for and obtained intuitive consciousness, or made all subjects to his mind beings of life... . . .until mind and body becomes equally sensitive to the fact that man must **feel** he is right before he can be successful.

By the law of knowledge **and** intuition all persons do succeed. Thus we should not be satisfied to know that we are right, but **feel** so, and act with energy to suit, and our successes will grow with time. ...

I believe the greatest blessing we can obtain is to have sensation in union and action with mind and body if we would succeed. [emphases added] (1898e, p.267)

Vitally important experiences such as this ‘intuitive knowing’ are lost when Still’s Osteopathy is forced into compatibility with the orthodox scientific cultural paradigm that only acknowledges the reality of that which can be measured. Thus it again becomes clear that if a modern application of the useful aspects of Still’s conception of immunity is to take place, a thorough *experiential* understanding of the above difference in orthodox and unorthodox worldviews, and their corresponding scopes of applicability, must first take place.

Furthermore, as was made clear in the earlier discussion regarding the existence of a scientific *culture* that then acts as the distinct **context** from which the scientific *method* only later emerges (see SECTION 5.2.3 Orthodox Worldview), it can be explicated that it is therefore **not** possible to accurately describe or study Still’s

osteopathic conception of immunity (nor any of Still's principles or practices) via the scientific method **alone** - despite this method being the only mode of inquiry deemed valid by orthodox scientific culture. This is demonstrably the case given that Still's discoveries arose from an antithetical philosophical perspective. In reference to this, Robert Lever, an British DO with over 40 years clinical experience, states:

To accept the limitation of analytical thought is to place a value on experience - subjective experience - that is at least equal in importance to knowledge. It then remains a matter of opinion as to whether this position is acceptable for the proper practice of healing and medicine. If it is, then there is a part of it that will always be an art.

If the effective practice of osteopathy is partly an art, science will only go so far in validating or demonstrating its efficacy. (2016, p.1)

This is an important point - *it is not Still's Osteopathy that falls short of being 'scientific', rather - the scientific method is simply too small to encompass the full content of Still's Osteopathy.* Therefore any attempt to integrate Still's work into compatibility with the scientific method is logically revealed to be impossible - not without first distorting or cleaving off essential aspects of Still's Osteopathy so that it may be **remade** so as to fit inside the much smaller scope of orthodox scientific inquiry. This is the proverbial 'round peg forced into a square hole'. As Leslie Mae-Geen Ching states:

Attempting to describe osteopathy within the allopathic paradigm is impossible... Yet **trying to describe and integrate one philosophy within a diametrically opposed paradigm is what we do in our schools every day.** [emphasis added] (2009, p.17)

Still himself concluded that this was the case. In speaking to this very issue, Still concluded in his typically allegorical manner: “How could a person speak the Chinese language by using English adjectives?” (1898c, p.3). It is relevant to note that, Still began his 1899 *Philosophy of Osteopathy* by stating on the very first page of the preface that:

This book is free from quotations from medical authors, and differs from them in opinion on almost every important question. I do not expect it to meet their approval; such a thing would be unnatural and impossible.
(Still, 1899b, p.3-4)

APPENDIX I: ESSENTIAL READING AND VIEWING LIST**An accessible introduction to Still's writings:**

- Still, A.T. (1910). *Osteopathy: Research and Practice*, p. IV - 64.
- Or as the osteopathic historian Jane Stark suggested in her key informant interview:

"I don't know that we can say we can ever understand him because we can never ask him to clarify what he meant. But I don't think anybody else should tell you what Still meant. I think it behooves you as an osteopathic student to take the time to read at least the first three of his books, and let it mean whatever it means to you, because it will... it will touch you at a level that is not conscious to you. You won't know when and where and how but it will reach you at a level that will change how you think about Osteopathy. So you'll get to appreciate him, I think you'll appreciate him... and if you appreciate him, you will understand, you will come to understand that you have to think in Osteopathy, you have to analyze and synthesize, and not rely on someone else to tell you how it works, or what to do. I think it will help you, should you open your mind at least, realize that the answers, a lot of the answers are already out there, and you don't even need Andrew Taylor Still to tell you. You just have to be in nature and spend enough time with it."

On learning how to perceive, analyze and interpret like an Osteopath:

- Krafel, P. (1999). *Seeing Nature: Deliberate encounters with the visible world*. Vermont: Chelsea Green.
- Buhner, S. (2004). *The Secret Teachings of Plants: The intelligence of the heart in the direct perception of nature*. Vermont: Bear & Company.

Modern associations with Still's holographic perception of reality:

- *PBS Nova. (Producer). (2011). Fractals - Hunting the Hidden Dimension.*
Retrieved from: <https://youtu.be/FKttSB4pzug>.
- *Clarke, A. (Producer). (1995). The Colors of Infinity.* Retrieved from:
<https://youtu.be/WoHGIBpFkHY>.
- West, G., Brown, J., & Enquist, B. (1997). A General Model for the Origin of Allometric Scaling Laws in Biology. *Science*, 276(5309), 122-126.
doi:10.1126/science.276.5309.122

Modern osteopathic treatment of infectious diseases:

- Institute of Classical Osteopathy. (Producer). (2020). Mervyn Waldman - Osteopathic Treatment of Syncital Infection. Retrieved from <https://youtu.be/-a-8Q7Vdtxc>
- *SacralMusings (Producer). (2012). Mervyn Waldman - The Tragic Emasculation of British Osteopathy.* Retrieved from: <https://youtu.be/GZrjxb7ie8M>.
- Hartmann, C. (2020). Osteopathie und Infektionserkrankungen - historisch reflektiert [Osteopathy and infectious diseases - historically reflected [translated from the German]].
<https://www.jolandos.de/blog/detail/sCategory/39/blogArticle/178>. [May be clearly and easily translated using www.deepl.com] Christian Hartmann (2020).

Beautiful contextualization of the medical concepts and culture of Still's era, as situated within the entirety of Western history:

- Pelling, M. (2013). Contagion/germ theory/specificity. In W. F. B. R. Porter (Ed.), *Companion Encyclopedia of the History of Medicine* (pp. 292-308). New York: Routledge.

Mechanisms of loss of transmission within the osteopathic tradition, and the means of reconnecting with what has been often overlooked:

- Hoover, H. (1963). A hopeful road ahead for Osteopathy. *Journal of the American Osteopathic Association*, 62(Feb), 485-498. <http://ostemed-dr.contentdm.oclc.org/cdm/ref/collection/myfirst/id/8565>.
- Northrup, G. (1972). The role of manipulative therapy in the practice of medicine. *Journal of the American Osteopathic Association*, 71(Feb), 89-94. <http://ostemed-dr.contentdm.oclc.org/cdm/ref/collection/myfirst/id/6523>.

Disease tolerance as a profound mechanism of treatment:

- Ayres, J., & Schneider, D. (2012). Tolerance of Infections. *Annual Review of Immunology*, 30(1), 271-294.

Immunometabolism, as informed by evolutionary theory:

- Wang, A., Luan, H., & Medzhitov, R. (2019). An evolutionary perspective on immunometabolism. *Science*, 363(6423). <https://science.sciencemag.org/content/sci/363/6423/eaar3932.full.pdf>
- de Cabo, R., & Mattson, M. (2019). Effects of Intermittent Fasting on Health, Aging, and Disease. *New England Journal of Medicine*, 381(26), 2541-2551.

Boundary function on an emotional level, and its integrated implications to all levels:

- Mate, G. (2003). *When the Body Says No - The Cost of Hidden Stress*. Great Britain: Clays Ltd. [See especially Chapter 13: “Self or Non-Self: The Immune System Confused”]

Still's life, philosophy and methods of interpreting reality:

- Still, A. T. (n.d.-a). *Body and Soul of Man*. Unpublished. [available via email from the Kirksville Museum of Osteopathic Medicine]
- Hartmann, C. (2016). Gedanken zu A.T. Stills Philosophie der Osteopathie: Auf dem Weg zu einer Philosophischen Osteopathie. In. Germany: Jolandos. [electronic version may be easily and well translated using www.deepl.com]
- Lewis, J. (2012). *A.T. Still: From the dry bone to the living man*. Kings Lynn, Norfolk: Dry Bone Press.
- Stark, J. (2003). *Still's Fascia, A Qualitative Investigation to Enrich the Meaning Behind Andrew Taylor Still's Concepts of Fascia*. Canadian College of Osteopathy, Toronto.

Infinity, presenting itself as the appearance of individuations via the creation of dualistic boundaries:

- Spencer, H. (1863). *First Principles*. London: John Childs and Son.
<https://archive.org/details/firstprinciples19spengoog/page/n9/mode/2up> [see especially Chapter XI - The Rhythm of Motion]

APPENDIX J: PROPOSAL

CANADIAN COLLEGE OF OSTEOPATHY

Andrew Taylor Still's Conception of Immunity: Its Essence and Application

Michael H. Thys

RESEARCH PROPOSAL

Revised December 15, 2017

CANADIAN COLLEGE OF OSTEOPATHY

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RESEARCH PROPOSAL

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Much appreciation to Paul Psutka D.O.(M.P.) for his insight, guidance and patience in the preparation of this proposal.

Love goes out to my wife Monika: thanks for going through Osteo school alongside me, and being the rock tied to my helium balloon along the way.

THESIS ADVISOR

Paul Psutka D.O.(M.P.)

RESEARCH QUESTIONS

- 1) What was the essence and application of Andrew Taylor Still's conception of immunity?
- 2) How can the understanding of A.T. Still's conception of immunity as determined in Question 1 be enhanced by contemporary Osteopaths who have an educated knowledge of him?
- 3) What can external sources contribute to a modern understanding of Still's conception of immunity?
- 4) From the information accumulated in questions 1 - 3, how might Still's conception of immunity contribute to modern osteopathic practice?

ABSTRACT

A qualitative approach has been chosen to develop a theoretical framework of Andrew Taylor Still's conception of immunity. The modern understanding and application of Still's conception of immunity is limited, and by this Osteopathy itself is obscured. How to best understand Still's conception, and the type of thinking he employed to generate these insights remains unclear. A renewed understanding of Still's work is warranted. The purpose of this study is to clarify these issues in order to utilize their answers in benefit of the Osteopathic profession and the communities served by it.

A brief literature review, as well as the justifications for and purpose of a qualitative analysis on this topic are given. The proposed research questions, limitations of the study and assumptions are stated.

The proposed research is a qualitative study to take place within a constructivist paradigm. An amalgamation of documentary-historical, field and phenomenological styles will be utilized. Resultant data will be coded into themes and connecting inferences

drawn. Presentation of a synthesis of the essence of A.T. Still's conception of immunity is planned. The research questions will be addressed via the creation of multi-method data sets including literature reviews and key informant interviews. The key informants are to be sampled using a criterion framework specific to themes that emerge during the study.

RÉSUMÉ

Cette étude s'agit d'une analyse qualitative pour développer un cadre théorique des concepts d'immunité d'Andrew Taylor Still. La compréhension contemporaine et l'application de ces concepts est limitée et, d'abord, l'ostéopathie est obscuré. Pour mieux comprendre ses conclusions et les étapes qu'il a suivi menant au développement de ses concepts, une nouvelle analyse des travaux de Still est justifiée. Cette étude propose de clarifier ces problématiques de compréhension et ainsi utiliser les réponses pour bénéficier l'ostéopathie et les communautés reliés.

Une analyse documentaire a été menée et les justifications pour cette étude qualitative sont incluses. La recherche proposé, les limites de l'analyse et les suppositions relies au sujet sont déclaré.

Cette recherche propose une étude qualitative encadrée par un paradigme constructiviste. Il est proposé d'utiliser une fusion d'approches incluent des recherches de documents d'archives, des études sur le terrain ainsi que la recherche phénoménologique. Les données vont être regroupées en thèmes précis et les conclusions explorées.

Il y aura une synthèse des concepts d'immunité proposé par A.T. Still. Les hypothèses vont être exploré par la création d'une base de données de multiples méthodes, comprenant un examen des documents et des données et aux entrevues menées auprès des informateurs clé. Les sources d'information clés vont être sélectionnées basé sur un cadre de critères établis pendant l'analyse.

TABLE OF CONTENTS

I	Acknowledgements	i
II	Thesis Advisors	ii
III	Research Questions	iii
IV	Abstract	iv
V	Résumé	v
VI	Table of Contents	vi
1	Chapter One: Introduction.....	1
	1.1 Overview	1
	1.2 Background	2
	1.3 Purpose of the Study	2
	1.4 Justification	3
	1.5 Research Questions	4
	1.6 Literature Review	5
	1.6.1 Literature Review of the Topic	5
	1.6.2 Literature Review for the Topic	7
	1.7 Assumptions	12
	1.8 Limitations	12
	1.9 Summary.....	12
2	Chapter Two: Methodology	13
	2.1 Overview	13
	2.2 Research Design	13
	2.3 Addressing the Research Questions	14
	2.3.1 Research Question One	14
	2.3.2 Research Question Two	14
	2.3.3 Research Question Three	15
	2.3.4 Research Question Four	15
	2.4 Qualitative Terminology	15
	2.4.1 Validation	15
	2.4.2 Triangulation	16
	2.4.3 Saturation	16
	2.4.4 Subjectivity Management	16
	2.4.5 Auditability	17
	2.4.6 Transparency	17
	2.5 Sampling	17
	2.6 Data Collection	19
	2.7 Data Analysis	19
	2.8 Summary	20
3	Chapter Three: Timeline for the Proposed Research	21
	3.1 Timeline for the Proposed Research	21
VII	Bibliography.....	vii
VIII	Appendix A: Data Analysis, Coding and Reflexivity.....	viii

IX	Appendix B: Bias and Assumptions..	ix
X	Appendix C: Sample Interview Questions....	x
XI	Appendix D: Recruitment Letter for Key Informants.....	xi
XII	Appendix E: Informed Consent for Key Informants.....	xii

1 CHAPTER ONE: INTRODUCTION

1.1 OVERVIEW

This chapter introduces Andrew Taylor Still's conception of immunity. The purpose and justifications of a qualitative analysis on this topic are given. A brief literature review of the topic and for the topic is presented. Research questions, limitations of the study, and assumptions are stated.

1.2 BACKGROUND

Andrew Taylor Still was not given to passive observation, he liked to get his hands on things. When something caught his interest, he applied his totality to it. Still's investigations into any particular topic were both intellectual and intuitive, whether he was concerned with designing a new type of high-efficiency furnace or novel farm equipment, manually treating tuberculosis, or seeking out Nature's motivation for the genesis of ear-wax (Lewis, 2012; Still, 1899, p. 54).

His father being a Methodist preacher, religion was present in Still's worldview from the earliest age. During one stage of Still's early life, the Still family lived on the furthest spreading edge of the American colonization process. During this time Still and

his family were the only white settlers in the entire county, the rest of the population being a displaced indigenous community. So it was that Still had ample opportunity to spend time in nature, hunting and homesteading. Spending much of his early life in this context made a profound impression upon him (Lewis, 2012).

Still eventually became a frontier physician. This paradigm of healing later proved of no help during an epidemic of meningitis when three of Still's children died in quick succession, and only weeks later pneumonia took another (Paulus, n.d.). After this, Still's disillusionment with drug-based healing was complete:

I asked for, and obtained a mental divorce from them, and I want it to be understood that drugs and I are as far apart as the East is from the West; now and forever. Henceforth I will follow the dictates of nature... (Still, 1899 p.11)

In light of his grief, Still's worldview was reassembled and he fell back upon his early influences of religion and nature in search of an effective medical paradigm (Stark, 2003). His severe personal loss would serve to fuel a deep willingness to encounter reality on its own terms. Perhaps in the face of his deep grief Still had no other choice. Still abandoned the futile attempt to impose the cultural perspectives he had inherited and put his unwavering faith in the "God of nature" and set forth to find a new medical paradigm (Still, 1899 p.13).

In the course of his explorations, in June of 1874 a philosophy of healing was revealed to Still (1908). As Still himself states, his "child, Osteopathy" (1908, p.302) was not a creation of his own: "No human hand framed its laws, I ask no greater honour than

to have discovered it” (Still, 1908, p.302). Still admitted his ignorance, moved into the unknown and reached out towards nature seeking truth, what he found was a living-aware Nature reaching back (Lewis, 2012).

1.3 PURPOSE OF STUDY

The purpose of this study is to define the essence of Andrew Taylor Still’s conception of immunity.

1.4 JUSTIFICATION

Andrew Taylor Still’s conception of immunity has become opaque within the modern Osteopathic community (Gevitz, 2004, 2006; Hoover, 1963). In the time since his death, approaches to the practical application of Still's concepts (i.e.: manual osteopathic techniques) continue to innovate into new realms such as Sutherland’s cranial concept, while the clinical scope of practice within which manual Osteopathy itself is commonly applied has progressively dwindled (Gevitz, 2004, 2006). In the USA, the home of Osteopathy, Manual Osteopathy now exists as a niche complementary treatment with a narrowed scope of practice, subsidiary to the medical mainstream (Gevitz, 2004, 2006). Still’s original vision of a comprehensive and primary system of manual osteopathic medical care has failed to take root in the modern socioeconomic context (Gevitz, 2004, 2006). Yet it seems that this socioeconomic context is itself entering a period of sharp transition.

Modern allopathic healthcare operates in a framework of sophisticated

technology, using it as the basis for both diagnostics and treatment. This makes it inaccessible to the majority of the world's human population (Marmot, 2005; Whitehead, 1992; World Health Organization [WHO], n.d.a) . This is likely to remain so, or become even more prevalent as economic inequality continues to grow between and within nations (Organization for Economic Co-operation and Development [OECD], 2011). In economically wealthy nations, chronic disease is so prevalent as to be almost ubiquitous, with incidence steadily increasing over time (WHO, n.d.b). In these contexts chronic disease is primarily treated by technology-based medicine that is expensive, both economically (Law et al., 2012; Morgan, Li, Yau, Persaud, 2017) and ecologically (Buhner, 2002), while often nonetheless producing unsatisfactory outcomes for patients (WHO, n.d.b).

The above situation will likely be further compounded as many pathogenic bacteria innovate a total resistance to antibiotics. This resistance is predicted to be absolute in the near future (Tacconelli & Margin, 2017). It seems a new ecological reality is occurring, pharmaceutical antibiotic therapies are progressively being rendered obsolete (Centers for Disease Control and Prevention [CDC], 2017). If the predicted end of antibiotic efficacy takes place, a likely collateral effect would be the obsolescence of most surgery. Immunosuppressive protocols such as organ transplantation and chemotherapy would also no longer be viable options. In conjunction, dramatically increased mortality rates from commonplace infections would be expected (CDC, 2013).

Clearly, an accessible and effective paradigm, *and practice*, of health and healing is required across cultures, now and into an uncertain future. The proposed study would

be a means towards a renewed and hopeful engagement with the full potential immunity as conceived by A.T. Still. A broad-scale application of Still's conception of immunity, acted out within the context of manual Osteopathic care, has the potential to efficiently meet many of these needs: it has in the past (Lewis, 2012; Patterson, 2015; Still, 1899, 1902, 1908, 1910); but only if its essence is first understood so that it may be effectively applied.

1.5 RESEARCH QUESTIONS

- What was the essence and application of Andrew Taylor Still's conception of immunity?
- How can the understanding of A.T. Still's conception of immunity as determined in Question 1 be enhanced by contemporary Osteopaths who have an educated knowledge of him?
- What can external sources contribute to a modern understanding of Still's conception of immunity?
- From the information accumulated in questions 1 - 3, how might Still's conception of immunity contribute to modern osteopathic practice?

1.6 LITERATURE REVIEW

1.6.1 LITERATURE REVIEW OF THE TOPIC

Still's immunological theories have been verified by modern experimentation in the laboratory on both a cellular and chemical level (Hodge et al. 2007, Hodge & Downey, 2011; Hodge, 2012; Pinnau, 2011; Scander & Hodge, 2013), and in treatment of

pneumonia in human patients (Noll et al., 2010). There is even preliminary evidence in an animal model that malignant tumours can be treated with the application of Still's concepts (Pedrueza et al., 2010).

The topic of *how* Still applied his concept of immunity in relation to specific diseases has been covered in detail by Edward Yen (2008). In Yen's research each successive generation of Osteopaths is documented, from the discovery of Osteopathy in 1874 to the 1990s, using the framework of "Milestone Osteopaths" to symbolically represent sequential generations (i.e: Still, Littlejohn, Sutherland, Becker). Detailed are the perspectives they held towards disease, the methods they used to treat it, and the success rates they produced. Further illuminated are the personal, socioeconomic, and social reasons for the dramatic shifts in Osteopathic disease care from Still's time until the present, largely informed by Gevitz (2004, 2006). When available in the literature, Yen presented Still's perspective on the specific etiology of each disease.

Jane Stark's "Still's Fascia" (2003) posits that Still's intention in treatment was to interact with and disrupt *feedback loops*, to interrupt a self-replicating set of conditions which if unchecked result in progression of disease. Breaking this cycle allows the restoration of regulatory feedback loops. Yen (2008) came to much the same conclusion: that when Still treated patients whose condition was severely acute, his approach was frequently repeat treatment of secondary lesions. Secondary lesions were those directly related to the organs in distress, and the excretory system in general. Primary lesions could be said to be the root causes or original factors contributing to a vulnerability to disease. The resolution of these primary lesions were not necessarily attempted during the

acute stage. This methodology served to provide the capacity for the patient to continue to adapt despite the disease process. Primary lesions could be worked with later, when the patient had the luxury of sufficient time and strength to integrate such deeper changes.

Though language at that time did not yet have words for concepts such as feedback loops, Stark states that Still's comprehension of reality was much like that of a *Complexity Thinker* (Cilliers, 1998) who used ideas such as *Cybernetics* (Heylighen, 1998) or *Systems Theory* (Heylighen & Joslyn, 1992). Stark summarizes that "Complexity, or Systems Theory, allows one to view both the elements and the complex interactions and interdependencies of the elements, within a single organism or construct, such as a city, an economy, or a cell" (p.688). These modes of inquiry and analysis were only to formally arise 40 to 50 years after Still's death in 1917 (Stark, 2003, p.685).

Stark states that a second major influence on Still's thinking was his philosophical framework. Stark illustrates that as Still interacted with nature over the course of his lifetime he used a particular philosophical perspective to interpret it, this philosophical outlook could be said to most closely resemble the *Naturphilosophie* (philosophy of nature) of earlier German origin (p.685). According to Stark's research, as Still observed the natural world from this perspective the insights he drew translated into the underlying foundation of what he eventually came to call "Osteopathy" (p.685).

Stark identifies the core essence of Still's intention during treatment to be the restoration of "harmony and balanced fluid flow" (p.701). Still accomplished this by freeing vessels from any obstructions, primarily utilizing as access points bony articulations, and secondarily the viscera themselves (Stark, 2003, p.712).

1.6.2 LITERATURE REVIEW FOR THE TOPIC

It is unclear whether Still can be credited with originating the scientific concept of innate immunity, though some would support this position (Gillum, 1942; Lane 1918; Canarelli 2016, p.130; Powell, 1918; Webster, 1918). What is not debatable is that Still did give birth to his own personal conception of health and created a methodology surrounding this personal understanding.

Still's thoughts on the actual mechanisms of what we now term immunity are perhaps best illustrated via the allegories he consistently employed. These allegories serve to make the reasoning behind his insights comprehensible to others. Perhaps Still's conception of immunity can be most directly accessed and explored through such allegories. One of many possible examples can be found in Still's 1899 book "The Philosophy of Osteopathy". Still's prescient holistic comprehension is on full display. Still describes an infectious organism to be like a kernel of corn, a "seed of disease", one that can only take root and multiply if the seed's needs are met by the larger environmental context in which it finds itself (p.86). He strives to make clear that the simple introduction of a pathogenic organism to the human body is not the origin of disease, the reality is much more complex. Rather what must be taken into consideration is the holistic condition of the body, and further, the larger context that the whole-person exists within, all of this taken together will dictate whether the pathogenic organism withers or flourishes when introduced. The implications of this example are both theoretically profound and deeply clinically relevant. Investigating Still's allegories will

be one of the avenues this research takes to define the essence of his conception of immunity.

The existing literature most closely aligned to the topic of the proposed study are the writings of M.A Lane, originally published in 1918. The strength of Lane's work on this topic comes from Lane's intimate familiarity with the physiological discoveries made before and after Still's era. Lane organizes a timeline of the sequential discoveries that led the global scientific community to a theory of immunity. Lane juxtaposes this with the timeline of Still's own conception of immunity and thereby asserts that Still's discovery substantially predates the mainstream. It is in this context that Lane explores "Still's conception of immunity", a phrase that Lane himself uses (p.23).

What perplexes Lane at the time of his writing is that both the general scientific community, and most especially the Osteopathic community do not credit Still with origination of the theory of innate immunity. Lane states that Still's theory was revolutionary because it did not reference an individual condition or symptom, but instead gave a sweeping context under which the whole of disease could be understood. Still's conception was applicable across all conditions, from the common cold to cancer. Even more startling is that Still's theory was so finely developed as to correctly recognize that it is the body's fluids which carry specific cellular and chemical factors that resist disease. Only much later did mainstream medical science independently discover and unknowingly confirm these facts. As Lane points out, many of the widely celebrated pioneers of immunology produced only theoretical advances, while Still not only did this, but also created a practical application of his theory.

Lane distills Still's goal in treatment of disease down to a simple principle. Still understood that patients had the innate ability to self-regulate or "harmonize" (p.167) themselves. Still's interventions were thus not directed at attempting to destroy disease, but instead to restore the patient's own capacity to regulate. It is striking that though the language of the time did not have such terms, just as Stark (2003) found, Lane had also recognized the Systems Theory style of thinking behind Still's conception of immunity. Lane states that it was this understanding, that immunity was a form of self-regulation, which primarily informed what later became known as Osteopathy.

This is a key point that Lane makes; that Still's initial discovery was of innate immunity, and only later did this foundation lead to Still's discovery of Osteopathy. It could be said that Still's insight regarding innate immunity was the precursor to his practical application of this insight *as* Osteopathy. When Lane compares Still's successive discoveries of both innate immunity and Osteopathy, Lane contends that it is Still's conception of immunity that was the more profound of the two.

Should Lane be correct, those who want to follow in the footsteps of A.T. Still would do well to focus not only on studying Osteopathy, but also to devote themselves to the foundation upon which it was built, Still's conception of immunity. Moreover, they should seek to experience for themselves the *type* of thinking that led Still to these insights. To quote Lane: "We have now...to study the master at work with the theoretical tools he invented to realize his theories in fact" (p.38).

A potentially important emergent theme concerns modern findings of "cytokine cascades", or "cytokine storms" (Tisoncik et al., 2012). Essentially, these terms refer to

the relationship between the immunomodulatory signaling proteins known as cytokines, and the white blood cells (WBCs) that secrete them. Certain pathogenic organisms or disease conditions interrupt the capacity of the host to regulate this relationship, creating a cycle where WBCs secrete cytokines, the presence of these same cytokines stimulate the WBCs to release further cytokines, and so on exponentially. This feedback loop leads to further degeneration or even eventual death (Tisoncik et al., 2012). Perhaps the phenomena of cytokine cascades can serve as a modern description of the conditions which Still's acute treatment methodology was directed towards (see Section 16.1 regarding Stark and Yen).

Another exploratory theme emerging from the literature is the role that pattern recognition played in Still's worldview and reasoning process. It seems clear that Still identified throughout nature a series of omnipresent patterns which repeat themselves on different scales of space and time. Take for instance Still's statements:

- “In the sky we have constellations of worlds, in the body constellations of molecules. In the sky we have rain clouds, in the body lying alongside the veins are the lymphatics which prepare water and pass it into the veins thinning the crop of blood. This analogy may be carried out indefinitely” (Still, 1895, p.6).
- “I find in man a miniature universe” (Still, 1908, p.333).

A pattern that repeats itself infinitely, and is self-similar across space and time is known as a fractal (Bassingthwaight, Liebovitch, & West, 1994). In the 1980s scientists formalized a theory that nature, or reality itself, is fractal. This quality was identified mathematically and algorithms able to reproduce it were created (Mandelbrot & Pignoni,

1983).

As Still states below, the foundations of Osteopathy (and thus his conception of immunity) were based on a particular type of reasoning, and it seems that his apparent observation of the fractal nature of reality may have informed this reasoning process:

A truth is only a hopeful supposition if it is not supported by results. Thus all nature is kind enough to willingly exhibit specimens of its work as vindicating witnesses of its ability to prove its assertions by its work. Without that tangible proof, nature would belong to the gods of chance. The laws of mother, conception, growth and birth, from atoms to worlds would be a failure, a universe without a head to direct. But as the beautiful works of nature stand to-day, and in all time past, fully able by the evidence it holds before the eye and mind of reason, that all beings great and small came by the law of cause and effect, are we not bound to work by the laws of cause, if we wish to effect? If the heavens do move by cause when was its beings divorced from that great common law? (1899 p.22)

Still's consistent use of natural allegory may be understood to be expression of his worldview. If so, does this demonstrate that Still believed any isolated phenomenon can be more fully comprehended when viewed as a specific instance of an archetypical fractal pattern? Could this be the genesis of Still's conception of immunity?

1.7 ASSUMPTIONS

This researcher makes the following assumptions: that A.T. Still was earnest and honest in his written works when reporting his thoughts and the outcomes of his treatments, reality is assumed to be context-specific, meaning is only derived within a contextual relationship of the elements perceived. As a result of these assumptions, a reductionist paradigm is rejected.

1.8 LIMITATIONS

This study will be limited by the fact that the researcher is only fluent in English. Multi-lingual key informants will be sought, using translations where available. Geography may limit in-person interviews.

1.9 SUMMARY

Background regarding A.T. Still's life was stated. The purpose of the study is to define the essence of A.T. Still's conception of immunity. This is justified considering that the modern understanding and application of Still's conception of immunity is limited, and significant challenges are present to which it may be applicable. The research questions were stated. Limited literature on this topic is available. Literature review for the topic reveals Lane, Stark and Yen to be significant sources, and emergent themes were stated. Assumptions and limitations were identified.

2 CHAPTER TWO: METHODOLOGY

2.1 OVERVIEW

A qualitative approach has been chosen to develop a theoretical framework of A.T. Still's conception of immunity. The research paradigm is to be constructivist, while the methodology is to be phenomenological. The specific methods that will be utilized are outlined in the sections that follow.

2.2 RESEARCH DESIGN

The proposed qualitative study intends to utilize a combination of *documentary-historical* and *field* style (Crabtree & Miller, 1999). A documentary / historical style is one which focuses on artifacts such as literature and archives (Crabtree & Miller, 1999). It is necessary given that we do not have access to A.T. Still himself, so we must use the documents surrounding his life to interpret meaning from his work. A field style is one wherein the researcher engages with others, becomes the interpretive tool themselves, and creates "holistic and rich descriptions and/or explanations" (Crabtree & Miller, 1999, p.5). It is necessary to use this additional style because we must also interact with key informants who have studied Still's life and works (see Section 2.5).

2.3 ADDRESSING THE RESEARCH QUESTIONS

2.3.1 RESEARCH QUESTION ONE

- What was the essence and application of Andrew Taylor Still's conception of immunity?

To address this question, a review will be conducted of Still's written works, and potentially those of his direct students, relevant historical documents, and commentaries on them. A synthesis will be presented.

2.3.2 RESEARCH QUESTION TWO

- How can the understanding of A.T. Still's conception of immunity as determined in Question 1 be enhanced by contemporary Osteopaths who have an educated knowledge of him?

This second question will be addressed by conducting interviews with key informants utilizing the sampling method described in Section 2.5.

2.3.3 RESEARCH QUESTION THREE

- What can external sources contribute to a modern understanding of Still's conception of immunity?

This third question will be answered as significant themes emerge in the results of the first two questions. These themes will be explored and developed by utilizing relevant sources. It is becoming clear even at the proposal stage that the models of Systems Theory and Fractal Systems are likely highly relevant to understanding the actual mode of thought and inquiry that Still may have utilized when formulating his conception of immunity.

2.3.4 RESEARCH QUESTION FOUR

- From the information accumulated in questions 1 - 3, how might Still's conception of immunity contribute to modern osteopathic practice?

Utilizing all the information arising from Research Questions 1 – 3, the answer to this fourth question will be found during the final stage of data analysis (see Section 2.7).

2.4 QUALITATIVE TERMINOLOGY

2.4.1 VALIDATION

In the context of qualitative research, *validation* means that the findings genuinely represent the subjects' experience and perception (Bailey, 1997). This study will strive for validation via *triangulation* (see section 2.4.2), bias management, and engaging with both rival explanations and mutually exclusive evidence (Bailey, 1997). *Member checks* will be utilized, in that key informants will review for accuracy transcripts of their interviews (Crabtree & Miller, 1999, p.81).

2.4.2 TRIANGULATION

Triangulation is a strategy to give increased validity to inferences made by verifying them through multiple unrelated sources (Schwandt, 2007). As Crabtree and Miller (1999, p.81) describe to be appropriate, this study will be triangulated by conducting interviews with multiple key informants, as well as sourcing texts both internal and external to the Osteopathic tradition, so that multiple theoretical perspectives are explored to interpret the findings.

2.4.3 SATURATION

Saturation is the point when no new insights arise even as new data is incorporated, at this point the process of data collection is discontinued, and final analysis begins (Crabtree and Miller, 1999). Both the literature reviews and key informant interviews will be interpreted throughout the process of the study, saturation may be reached multiple times regarding the individual themes that emerge.

2.4.4 SUBJECTIVITY MANAGEMENT

Subjectivity management is the conscious attempt to identify the researcher's own assumptions and then step outside of them for the purposes of increased validity of subsequent findings (Crabtree and Miller, 1999). By investigating a variety of perspectives through research questions 2 and 3 the researcher's own biases will be challenged and diluted. A continual cycle of self-reflection and self-critique will bolster subjectivity management throughout the research process (See Appendix A). For a detailed discussion of Biases and Assumptions, along with a statement of the researcher's own pre-existing biases see Appendix B.

2.4.5 AUDITABILITY

Auditability refers to the ability of a third party to verify the dependability of a study's findings (Schwandt, 2007). Audio recordings will be made of all key informant interviews, and a detailed log of search terms employed in any database searches will be maintained for the purposes of reproducibility.

2.4.6 TRANSPARENCY

Transparency “ensures that the methodology is easy to follow and reproducible based on how it was recorded” (Stark, 2004, p.9). The researcher is keeping a journal of insights, theoretical ideas and emerging themes. Along with detailed descriptions of the methods of data collection and analysis, this should serve to make the research process as transparent as possible by having a clearly defined and followed methodology.

2.5 SAMPLING

Individuals “who possess special knowledge, status, or communication skills, who are willing to share their knowledge and skills with the researcher, and who have access to perspectives or observations denied the researcher through other means” will be sought out (Gilchrist & Williams, 1999, p.73). These individuals will be termed *key informants*.

The population of key informants itself will be composed of a criterion sample, in that subjects will possess an educated knowledge of the works of A.T. Still. A criterion sample is considered by some to be the most appropriate sampling style when conducting a phenomenological inquiry (Crabtree and Miller, 1999). Due to this design, a very small sample size may be sufficient (Crabtree & Miller, 1999; Creswell, 2013).

The criterion that the subjects have an educated knowledge of Still and his works is set with the acknowledgement that the meanings Still attempted to convey in his writings are often difficult to comprehend (Stark, 2003). For the purposes of this study, an educated knowledge of Still will be defined as the individual key informant having written, published, lectured, taught or researched the subject of Still’s life and/or written

works.

Key informants will be invited to participate in the thesis via email, or physical mail with stamped return envelope when an email address is not known or available (see Appendix D). When a positive response is received, the key informant will be contacted via their preferred method to arrange an interview appointment. Interviews will preferably be conducted in person, but video conferencing and phone calls or email correspondence will be utilized at the discretion of the key informant.

Key informants will be interviewed individually in an unstructured format (see Appendix C). All interviews will be audio recorded and transcribed for later analysis. The themes resulting from the initial literature review will identify the “key conceptual domains” (Crabtree and Miller, 1999, p.94) around which the interviews will focus. Data generated via the interviews will be submitted back to the informants for accuracy of content. Subsequent interviews with willing key informants may occur if either the researcher or the informant desires clarification or further comment. The name of key informants and their statements will not be included in the thesis without express written consent (see Appendix E).

2.6 DATA COLLECTION

The literature review for this research will begin with the foundation of Still’s four published books (1897, 1899, 1902, 1908, 1910). A web of relevant biographies and commentaries on these books will also be accessed (for example Gevitz, 2004; Lewis, 2012; Paulus, n.d.; Stark, 2003; Trowbridge, 1991). In much the same manner that documents related to Still will be sampled, pertinent external sources will be revealed by

the ongoing process of the study itself. As themes develop, appropriate sources will be utilized to triangulate and enhance understanding.

This study will utilize a hermeneutic circle with Still's work, meaning that "a text is understood by reference to the context in which it was generated. The text, in turn, produces an understanding of the originator and context" (Bloomberg & Volpe, 2016, p.48). This ongoing process will determine which documents are ultimately included in the study.

2.7 DATA ANALYSIS

The proposed study intends to utilize two styles of analysis, *editing* and *immersion/crystallization* (I/C) as per Crabtree and Miller (1999). These two styles will be combined into a so-called *fluid style*, "where two or more organizing styles weave back and forth in dynamic interplay and are being used simultaneously" (Crabtree and Miller, 1999, p.139). The specific combination of these two styles is deemed desirable for its rigorous analytic process when "the goal is exploration, discovery or understanding the lived experience of others" (Crabtree and Miller, 1999, p.140).

The *immersion / crystallization* (I/C) method of analysis consists of the cyclic immersion of the researcher into the data, until interpretive insight spontaneously arises: "crystallization" occurs (Crabtree and Miller, 1999, p.23).

The free-form approach of I/C will be balanced by the addition of the more formulaic editing style of data analysis, which replicates the process an editor conducts when organizing a text: specific emergent themes are identified within the data, then

individual bits of data are cut and pasted into these categories (Crabtree and Miller, 1999). The sifting of data and the identification of specific emergent themes is the foundation of the editing style; this process may be termed *coding* (Crabtree and Miller, 1999). The coding for the proposed study will take the form of a cyclic series of readings of the data (See Appendix A for a practical example of this process in action).

2.8 SUMMARY

The proposed research is a qualitative study using an amalgamation of documentary-historical, field and phenomenological styles, utilizing literature reviews and overviews, and key informant interviews. The research questions will be answered by literature reviews, interviews with key informants, development of emergent themes and exploration of them via relevant external sources, and analysis of the resulting data. The following Qualitative Terminology was defined: validation, triangulation, saturation, subjectivity management, auditability, transparency. Sampling of key informants will take place within a criterion framework. Data collection will begin with the literature review surrounding A.T. Still's life and works, and spread into relevant external sources and key informants as themes emerge. Data analysis will consist of coding, theme-building and immersion/crystallization.

3 CHAPTER THREE: TIMELINE FOR THE PROPOSED RESEARCH

3.1 TIMELINE FOR THE PROPOSED RESEARCH

Action	Start date	End date
Submission of written proposal	August 17, 2017	
Oral presentation of proposal	September 16, 2017	
Data collection (Literature review)	September 2017	
Begin key informant recruitment	September 2017	November 2017
Data collection (Key informant interviews)	November 2017	November 2018
Data analysis	October 2017	November 2018
Writing	November 2018	April 2019
Submit first draft to advisor	April 2019	
Edit thesis	May 2019	
Thesis submitted to pre-readers	June 2019	
Edit thesis	July 2019	
Thesis submitted to the college	August 2019	
Thesis defense to international jury	November 2019	

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APPENDICES

APPENDIX A: DATA ANALYSIS, CODING AND REFLEXIVITY

The proposed study intends to utilize two styles of analysis, *editing* and *immersion/crystallization* (I/C) as per Crabtree and Miller (1999). Reflexivity will also be actively incorporated within this ongoing process, meaning that a “process of critical self-reflection on one’s biases, theoretical predispositions, preferences” will be engaged with throughout the research process (Schwandt, 2007, p.260). A practical example of how the reflexive process will be practically incorporated during data collection and analyzation follows.

An initial reading of the data will be used to identify words, phrases or patterns that are potentially significant. The units of analysis are likely to be “experiential and/or metaphorical” (Crabtree and Miller, 1999, p.135). Any instances in the data that elicited emotion or surprise in the researcher will also be flagged to aid in both analysis and bias identification (Crabtree and Miller, 1999). The data will then be reread with the potential emergent themes in mind, identifying further instances of their occurrence and connections between them. Contemplation as to *why* surprise or emotion was experienced

in relation to specific data will also be conducted as part of the reflexive process. A third reading will look for other significant data that do not fall within the already established themes. A fourth reading will be used to actively take alternative perspectives outside of the researcher's own, thus seeking the formulation of alternate or even opposing understandings of the data. This should challenge the validity of the original emergent themes and further engage the reflexive process. During a fifth reading any incongruence identified by the fourth reading will be investigated.

The reflexivity contained in the above detailed example of analysis is summarized nicely by Howard Stein, who was interviewed for the I/C chapter in Crabtree and Miller (1999) "I am wary of my own understandings, lest I only see what I want to see, or to see only as far as my favourite theory allows. I still allow the possibility that there is meaning in addition to what we initially generate. Understanding is like marination; it is rarely instant... We must be able to tolerate our own anxiety, to understand it, in order to let the data speak" (Crab and Miller, 1999, p.194).

This cycle of immersion, coding, and reflexivity also allows data analysis to occur throughout the research process, not simply as a linear step "soon after data collection and sometime before writing up the results" (Crabtree and Miller, 1999, p.146). This ongoing analyzation allows new relevant sources of data "further afield [in] the broader literature of the sciences, the humanities, and the arts" to be sought out and incorporated throughout the early phases of the study (Crabtree and Miller, 1999, p.190). The structure of the proposed study formally acknowledges this process by including it as the third

research question “What can external sources contribute to a modern understanding of Still’s conception of immunity? ”.

APPENDIX B: BIAS AND ASSUMPTIONS

A discussion of bias is warranted during the developmental stages of the proposed study. As noted, the study is to be conducted largely within the hermeneutic phenomenological tradition. There are biases within this tradition which must be explicitly stated at the outset of the study. Phenomenology seeks to describe the universal essence of an experience, from the point of view of the subject themselves (Creswell, 2013; Schwandt, 2007). This form of inquiry is a method that originated in a philosophy, much the same as the Osteopathic tradition did (Bloomberg & Volpe, 2016; Still, 1902). Furthermore, the philosophical framework of phenomenology appears to be in harmony with Still's own personal philosophy. Contrast the statement "an important assumption that underlies qualitative research is that the world is neither stable nor uniform, and therefore, there are many truths" (Bloomberg & Volpe, 2016, p.55) with Still's own: "...no one truth is greater than any other truth. Each has a sphere of usefulness peculiar to itself. Thus we should treat with respect and reverence all truths, great and small." (Still, 1902, p.15).

So it is that this study will take place within the framework of a *constructivist* paradigm, one wherein 'truth' is recognized to be ultimately relevant only within a specific context (Crabtree & Miller, 1999; Creswell, 2013). Yet at the same time, while the subjective aspect of experience is unquestioned, some level of transpersonal objectivity is also recognized to be true (Crabtree & Miller, 1999; Creswell, 2013).

From this constructivist perspective "there is no absolute standpoint from which the researcher can determine the truth value of a theory or account" (Crabtree and Miller,

1999, p.148). This is because “it is never possible to achieve an objective, value-free position from which to evaluate ‘the truth of the matter’. Facts are always value-laden, and researchers have values that are reflected in their research projects” (Crabtree and Miller, p.150). Crabtree and Miller go on to state: “Some say that an approach that claims to be ‘purely empirical’ is both uninformed and naïve, because this would require a separation of the research and researcher from the society and schools of thought in which they are posited” (p.191).

So it is acknowledged that bias does exist in all perspectives, and therefore it is found in all research, including the proposed study. Since complete nullification of bias is not possible, some claim that if appropriately engaged with, preexisting bias can be a beneficial means of enhancing the research process. As Arthur Kleinman, the author of a chapter in Crabtree and Miller (1999), states “Primary knowledge is not just interviews, it is also the researcher’s inter-subjective experience with the field from having conceptualized the study and collected the data” (Crabtree and Miller, 1999, p.181). Another author within Crabtree and Miller (1999), Jeffery Borkan, also acknowledges this, stating

“for some, the process starts at the very beginning of the iterative cycle, *before* the first data have been gathered. When each of us approaches a problem or topic for research, we often begin with various biases and hunches as to what the investigation will yield. As we begin to develop a theme or issue into a researchable question, we draw on our past experience, our reading of the

literature (both specific and general), and our past research” (Crabtree and Miller, p.183, italics in original).

With this in mind, at the outset the researcher must seek out and identify preexisting biases.

In the case of the researcher conducting the proposed study, before entering the field of Osteopathy, the researcher had formal training in the ecological design science known as “Permaculture” (Mollison, 2009). This design system relies heavily upon Systems Theory throughout an ongoing cycle of observation, analysis and application. So it was that after having spent some years learning to perceive and interact through these lenses, the researcher began to study Osteopathy. The Systems Theory styles of observation and analysis, or ‘perceptual filters’ if you will, were then naturally also used as a means to digest Osteopathy and its concepts. Patterns which were emphasized in Permaculture were quickly identified to also be found within Osteopathy. In short, the researcher’s understanding of Osteopathy was, and continues to be, heavily influenced by the modes of thought present in Permaculture such as Systems Theory. Rather than attempt to disguise or suppress this, it is the intention of the researcher to utilize these modes of thought in the proposed study as an additional resource.

It must also be noted that the researcher has a pre-existing bias towards the viewpoint that Still independently originated the concept of innate immunity. The genesis of this viewpoint began when reading an interview with Renzo Mollinari, wherein he propounds this opinion (Canarelli 2016, p.130). This idea so struck the researcher as to

fuel a growing curiosity which eventually became the seed of this proposed study. Conducting the literature review has only further solidified this opinion, especially the writings of Lane (1918). It is acknowledged that this bias holds the potential to decrease the validity of the results of the proposed study. To guard against this, careful and ongoing management of this bias will be conducted in the form of reflexive exercises as outlined in Appendix A.

Richard Addison suggests that appropriately conducted research should itself serve to tame the influence of preexisting biases (Crabtree and Miller, 1999). Addison advocates the benefits to be had by this approach, stating: “as my research proceeds, I learn more about my...unconscious, unacknowledged, or background assumptions. So in effect, my assumptions become clearer or more fleshed out as the circular movement spirals on” (p.147). So the research process itself should serve to identify pre-existing biases so that they may be transformed. So it must be acknowledged that further biases are likely to be identified by the researcher as the research process progresses, these will also be documented and reflexively engaged with.

The attempt to reduce the influence of bias on perception has been termed *bracketing*, a term originally meaning to attempt the complete suppression of preexisting bias into a blank, pseudo-‘objective’ perspective (Cresswell, 2013). The proposed study accepts the position that this intent is ultimately not possible, but that bracketing still holds value within a qualitative study (Cresswell, 2013, p.83). Bracketing will be utilized not only as a reflexive exercise, but even further as a means of cultivating deeper

curiosity and insight (Cresswell, 2013). Appendix A includes a practical example of how this will be intentionally incorporated into the process of the proposed study.

APPENDIX C: SAMPLE INTERVIEW QUESTIONS

Interviewees will be given a sample set of interview questions beforehand to consider in advance. The themes resulting from the initial literature review will identify the “key conceptual domains” (Crabtree and Miller, 1999, p.94) around which the interviews will focus. A sample set of questions is below:

- 1 - What is your background in studying Still?
- 2 – Do you have a relevant or interesting anecdote from your own life or osteopathic practice regarding immunity / the immune system?
- 3 – What has your own practice of Osteopathy led you to understand regarding immunity / the immune system?
- 4 – When studying Still, did you notice anything that would lead you to believe he was aware of what we nowadays term ‘the immune system’ or ‘immunity’?
- 5 – What type of thinking / perspective do you think led Still to this understanding?

6 – Do you feel Still’s understanding differed in any important way from our modern understanding of immunity / the immune system?

7 – Do you feel there is anything within Still’s understanding of this concept of the immune system / immunity which the contemporary osteopathic community misunderstands or misapplies?

8 – Are there any sources which hold important information on this topic which you would direct me to?

APPENDIX D: RECRUITMENT LETTER FOR KEY INFORMANTS

Dear (name of osteopath),

My name is Michael Thys, and I recently completed five years of clinical training at the Canadian College of Osteopathy in Winnipeg, Manitoba, Canada. I am currently conducting research required for a Diploma of Osteopathic Manual Practice (D.O.M.P.) under the supervision of Paul Psutka, D.O.M.P.

Due to your knowledge of the osteopathic profession, you have been identified as a potential source of valuable insight into this thesis research entitled:

Andrew Taylor Still’s Conception of Immunity: Its Essence and Application.

The modern understanding and application of Still’s conception of immunity is incomplete. How to best understand Still’s work on this topic, and how it relates to contemporary scientific advances remains unclear: a renewed understanding is warranted. The purpose of this study is to clarify these issues in order to utilize their answers in

benefit of the Osteopathic profession and the communities served by it. I would like to invite you to participate as a key informant.

Your participation would involve an informal interview conducted by your preference method: in-person (geography permitting), via an internet-based video conferencing program, by telephone, or email. Limited subsequent communication may follow if clarification is needed as data analysis proceeds. Your name and your statements will not be published in the thesis without your express written consent.

Your contribution would be genuinely appreciated. Should you have questions or interest in participating, I can be reached via one of the means listed below. Please identify your preferred method of communication in your correspondence.

Email: michael.thys.osteo@gmail.com

Telephone: 204-421-3551

Mail: 343 Cheriton Ave.

Winnipeg, Manitoba, Canada

R2G 0E8

Sincerely,

Michael H. Thys, Adv. RMT

Candidate for: Diploma of Osteopathic Manual Practice

APPENDIX E: INFORMED CONSENT FOR KEY INFORMANTS

I, _____, consent to participate as a key informant in the thesis study entitled:

“Andrew Taylor Still’s Conception of Immunity: Its Essence and Application”

This research is conducted by Michael Thys, Adv. RMT, for completion of the Diploma of Osteopathic Manual Practice from the Canadian College of Osteopathy in Winnipeg, Manitoba, Canada.

I understand that my involvement will require a confidential interview which will be audio recorded and transcribed for use in the thesis only. I also understand that intermittent communication may follow to clarify my perspective and to ensure accuracy of the researcher’s representation and interpretation.

I understand that the content of my interview will not be included in the thesis without prior verbal or written permission, and that I can withdraw my consent at any

time. I also give consent for my comments to be included in subsequent publications (written or digital) by this author.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Researcher's Name: _____

Researcher's Signature: _____

Date: _____