

©2010

Devin Griffiths

ALL RIGHTS RESERVED

THE AGE OF ANALOGY:
COMPARATIVE SCIENCE AND SOCIAL HISTORY IN THE NINETEENTH-
CENTURY BRITISH NOVEL

By

DEVIN SCOTT GRIFFITHS

A Dissertation submitted to the
Graduate School-New Brunswick
Rutgers, The State University of New Jersey

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Graduate Program in Literatures in English

written under the direction of

George Levine

and approved by

New Brunswick, New Jersey

May, 2010

ABSTRACT OF THE DISSERTATION

The Age of Analogy:

Comparative Science and Social History in the Nineteenth-Century British Novel

By DEVIN SCOTT GRIFFITHS

Dissertation Director:

George Levine

This dissertation pursues the rich vein of comparative historicism found in the written works of nineteenth-century novelists and naturalists, including Scott, Dickens, Eliot, and Darwin. The Victorian novel shared with contemporary natural history an animating fascination with interconnection, both between individuals, and between individuals and history. “The Age of Analogy” argues that the historical novel formulated this comparative historicism, both as it specified older traditions of analogy as aging modes of outdated speculative philosophy, and honed comparative strategies to examine the historicity of the “age” itself. The linguistic technology of this comparative philological, historical, and scientific analysis transformed older hermeneutic traditions of analogy into sophisticated methods of ethnographic and evolutionary inquiry. Drawing from a range of historicist, linguistic, and informatic approaches, I specify analogy and the comparative method as historically-embedded textual forms that structured engagements of comparison and narrative connection.

This thesis analyzes the narrative naturalism of Victorian science, an empiricism that explained heterogeneous scientific observations by coordinating these accounts in narratives of fundamental historical process. While the extensive cultural influence of period science has received substantial critical attention, this thesis reverses the direction of influence, and examines the representational and methodological dependence of mid-century naturalism upon the innovations of socio-historical novels, particularly by Scott and Dickens. Comparative textual strategies reshaped period naturalism, and conditioned the scientific theories, models, and configurations of “objectivity” that nineteenth-century science offered. These comparative practices also challenge the secularization hypothesis as it bears upon Victorian literature and science, by foregrounding how ostensibly secular writers like Eliot and Darwin engaged the hermeneutic tradition of analogy as a set of practices with deep roots in biblical scholarship and natural theology. In gauging the relationship between contemporary observations and past processes, novelists and naturalists alike adapted interpretive strategies first crafted to discern God’s fingerprints on creation, and in doing so, created the modern vocabulary of multiplicity and differentiation. Revitalized in the historical novel, historicist analogy gave to Dickens’ “innumerable histories of the world” and Eliot’s “tempting range of relevancies” a logic of organization, and a vantage from which to survey the extensive interrelation that underwrites nineteenth-century writing.

Acknowledgements

This dissertation represents a significant chapter of my life, and the labor it took to write it is dwarfed by the generous support and warmth I've received from family, friends, and colleagues. If this has been (at least at times) a labor of love, it's in large measure to the care I've received from the folks around me.

I am deeply mindful of how fortunate I've been to share in the rich intellectual environment at Rutgers. The nineteenth-century faculty has been tireless in poring over my work and fostering my critical perspective. I'm happy to be able to thank Barry Qualls, who has been an endless source of friendship and support, and a towering example of the many-faceted devotion of the educator (an example I hope to emulate). My gratitude goes to Kate Flint, whose fathomless knowledge of the period is matched only by her profound generosity, good humor, and shared yen for all things New Mexican. Carolyn Williams has been a savvy guide as well as a friend (when I've dearly needed one), and kindled a lifelong fascination with Victorian verse that never ceases to tickle my fancy (and sometimes, my funny bone). I've been inspired by Colin Jager's serene guidance and capacious understanding of Romanticism and "the profession" generally. I've been challenged by Jonah Siegel, whose equally sharp insight and wit challenged me to nurture a fledgling insight into *Bleak House* into a four hundred-page dissertation. I'm also happy to be able to thank Billy Galperin, for sharing his passion for the Romantics, his endless bonhomie, and his bountiful advice as I applied for positions. David Kurnick has also been a tireless, meticulous reader and coach over the course of my job search. And, finally, I want to thank my mentor, my friend, and now, my

colleague, George Levine, whose searching insight into Victorian literature and natural science illuminates all of my work. Arriving at Rutgers on the run from a previous career in biology, I had no idea that I'd soon be drawn back to the tangled byways of natural history, which, through his wisdom and care, have proven an inexhaustible resource of fascination and enchantment.

I also would like to thank a range of other mentors and colleagues who've left their mark on my academic maturation. My sincere thanks to the Med-Ren group, in particular, Ann Coiro and Jackie Miller, whose patience with my early work secured a confidence in my vocation and a life-long love of Milton. Richard Miller provided some of the most searching, incisive comments upon early versions of the endlessly revised first chapter. I'm also happy to thank the various colleagues of the nineteenth-century interest group and dissertation workshops who've served as tireless readers for my work, in particular, Colleen Rosenfeld, Josh Gang, and Sean Barry for their well-honed critical insights into early versions of these chapters. I offer my deep gratitude for the support provided by the Center for Cultural Analysis, from a stimulating line of workgroups and talks, to my recent participation in a probing seminar on the sciences and the humanities, organized by Henry Turner and Jonathan Kramnick, as well as for the fellowship that has allowed me to complete my work. I am also profoundly thankful for the generosity and tireless support of the staff of the Rutgers English department and graduate program, in particular, Cheryl Robinson, Courtney Borack, and Eileen Faherty, who always had a hot cup of coffee, a warm hug, and the keys to the Xerox room. Finally, I especially wish to thank Greg Jackson, for his warm friendship, his boundless generosity, and endless

evenings spent hashing out the final stages of my work over a glass of wine and a porch-front cigar.

It would have been impossible for me to complete even a portion of this work without the inexhaustible support and affection of my parents, T and Scott, whose love and wisdom has always provided the firmest foundation for my labors. I couldn't begin to express the depth of my gratitude or my love. And it's a pleasure to have this chance to thank my sister, Megan, who's been a friend and an inspiration over the entire course of my study – even when all I needed was a familiar voice on the phone. I'm also happy to be able to thank my Houston cohort, for their friendship, support, and seasoned guidance as the work matured, in particular Scott and Cynthia Bell, for our many bridge games-*cum*-tutorials on statistical theory and java programming. My gratitude also to Buffy and Zooey, who provided just the right mix of distraction and love over the years I spent typing away at my desk. And, finally, I want to share my love and my endless thanks for the gift of my wife, Meg, who has been my closest friend, most tireless advisor, and the firm root of my happiness. Thank you, for all of your love, for your fierce faith in my work, and for the myriad ways you've made the endless days of travel, research, and labored writing a joyful contribution to our future. Honey, I love you.

Table of Contents

ABSTRACT OF THE DISSERTATION	ii
Acknowledgements	iv
List of Illustrations	viii
0. Introduction	
The Age of Analogy: Comparative Science and Social History in the Nineteenth-Century British Novel	1
1. Chapter 1	
Licensing Analogy: Differential Modernity and the Crisis of Analogical Tradition.....	34
2. Chapter 2	
Scott as Translator: Collaborative Historicism in the Waverley Novels	103
3. Chapter 3	
Formal strategies of social connection in the Dickensian serial	179
4. Chapter 4	
Realism, Falsification, and the Production of Sympathetic Knowledge in <i>The Mill on the Floss</i> and <i>Middlemarch</i>	239
5. Chapter 5	
The Tangled Bank: On The Origin of Species as Abstract Knowledge Formation.....	295
6. Appendix	
Semantic Information, Structural Information, and Probability	363
7. Notes	377
8. Bibliography	421
9. Curriculum Vitae	442

List of Illustrations

Figure 0.1 -- Gentner's "Structure Mapping" diagram of the Rutherford-Bohr model....	12
Figure 0.2 --Aronson, Harré, and Way's "Type Hierarchy" diagram of the Rutherford-Bohr model.....	13
Figure 0.3 -- Arthur I. Miller's "Interaction Metaphor" diagram for the Rutherford-Bohr model.....	13
Figure 0.4 -- Vector landscape with two attractors	27
Figure 0.5 -- Topological vector space from Figure 0.4.....	27
Figure 3.1 -- The Pugnacious Cabman	187
Figure 3.2 -- The Fat Boy Awake.....	188
Figure 3.3 -- The Election at Eatanswill.....	189
Figure 3.4 -- The Trial	190
Figure 3.5 -- Monthly wrapper for <i>A Tale of Two Cities</i>	231
Figure 5.1 -- "Diagram" from <i>The Origin</i>	337
Figure 5.2 -- Lava Excavated by the Simeto	338
Figure 5.3 -- "Artesian Wells"	338
Figure 5.4 -- From Poncelet's <i>Traité des propriétés</i>	339
Figure 5.5 -- From Bradley's <i>Practical Geometry</i>	340
Figure 5.6 -- From Bradley's <i>Practical Geometry</i>	340
Figure 6.1 -- KL Divergence on assumption of .50/.50 distribution	371
Figure 6.2 -- KL Divergence on assumption of .85/.15 distribution	371
Figure 6.3 -- KL divergence on assumption of .95/.05 distribution	372
Figure 6.4 -- KL divergence on assumption of .99/.01 distribution	372

0. Introduction

The Age of Analogy: Comparative Science and Social History in the Nineteenth-Century British Novel

“Have I not instinct? Can I not divine by analogy? Moore never talked to me either about Cowper, or Rousseau, or love. The voice we hear in solitude told me all I know on these subjects.”

Charlotte Brontë, *Shirley*ⁱ

So snaps Charlotte Helstone, the heroine of *Shirley*, after a friend challenges her pointed comparisons between Rousseau and Cowper’s emotional complexions. Her pique is sparked because her friend, Shirley Keeldar, has questioned whether Charlotte possesses the acumen to throw her intellectual weight around in the manner of a sage. Worse, Shirley, who elsewhere serves as a vehicle for testing and challenging gendered assumptions about woman’s socio-intellectual place, has asked whether Caroline isn’t just parroting the opinions of her male friend, Gérard Moore. Such assumptions would have struck a raw nerve for Brontë herself, who – in a period marked by the ascendancy of female authors who asserted precisely this kind of narrative authority – chose to write under the pen name Currer Bell, in part to deflect such criticism. Hence Caroline’s acerbic retort: the insight is hers alone.

I want to place due weight on the mode Caroline gives for her speculations: “analogy.” Brontë’s heroine demonstrates not only her awareness that analogy stood as the given name for a common practice of philosophical speculation, but also, that it was

intimately tied to two distinct traditions. As my first chapter demonstrates at length, one major strain of analogical thought involved its relation to theological revelation – one could “divine” by analogy, because a rich tradition in Christian hermeneutics and natural theology deployed analogy in inferences about the divine order that united a range of disparate interpretive objects, from the Old and New Testaments, to human and divine knowledge, to the economy of nature and the harmony of the celestial communion. In defending the epistemological ground of her insights, Caroline references a hermeneutic and speculative tradition that had long served to gauge the relation between internal representation and natural knowledge. On another view, analogy could be understood introspectively as “instinct” – an inborn faculty for pattern recognition and development, a perspective extensively theorized in Aristotle’s natural philosophy and developed powerfully in the associationist psychology of Locke and Hume.

The argumentative charge of this dissertation marks and explains a concrete shift in analogy’s function within nineteenth-century historiography, a shift implicit in Caroline’s temporizing between inspiration and instinct: rather than an insight into God’s design, analogy became an historical engine for formulating the interrelation of historical events and processes within an increasingly secular time. This is the first sense in which I call the nineteenth century an “age” of analogy: the comparative method that nineteenth-century writers fashioned from analogical expressions provided the analytical framework through which the concept of historical “ages” could be interrogated and transformed from strict sequence and periodicity (classical, medieval, modern) to temporal and geographical continuity, overlap, and divergence (Renaissance); the shift from the “World History” of the Scottish enlightenment to the particularist histories of

modernity. The historical novel, I argue, was essential to this process, and chapters two, three, and four lay out the role played by Walter Scott, Charles Dickens, and George Eliot in articulating this narrative historicism within their distinct strains of historical, social, and psychological realism, while placing their writing in the context of contemporary scientific debates over comparison. These nineteenth-century writers contributed to the novelization of analogy, and fashioned a reading practice constituted by analogical historicism, in which the micro-scale of personal experience, conflict, and plot, was seen as embedded in the larger coherence of social history. In part, this interpretive mode rested upon older typological and allegorical interpretive practices in which the particularities of plot were understood as referential links to the larger unities of eschatological time or the pedagogical narrative of the allegorical referent.ⁱⁱ But whereas these earlier reading strategies depended upon a semantic and ontological distinction between narrative time and the “higher” coherence of eschatology or allegory, analogical historicism understood the larger perspective of historical time as ontologically equivalent – a collection of particulars that was simply larger in scope.ⁱⁱⁱ The qualitative shift in moving from local to general perspective was seen as scalar, not semiotic or metaphysical. Hence the historical novel retained a “double vision” but interpreted that doubleness in terms of magnitude, not eminence. From this perspective, the historical novel depended upon “reading through” plot and individual experience to recognize the larger shape of historical time and the social imaginary.

The analogical interpretation of history in turn transformed contemporary scientific historiography. My final chapter examines how this newly narrativized and historicized analogy impacted the scientific vision of *On the Origin of Species*, the

seminal work in which Charles Darwin presented a new and intensely comparativist theory of biological history. Signally, Darwin's treatise begins with an "Historical Sketch" that deploys comparative historiography to contextualize previous scientific theories, before turning to a series of analogical comparisons (between domestic and natural species, Malthusian demography and wild populations, design and adaptation) to articulate the theory of natural selection itself. This dissertation narrates a conversion in the nineteenth-century historical imagination – both fictional and scientific – over the sixty years that separate Erasmus Darwin's key works from his grandson Charles's.

Analogy can help us to map the path of these representational developments, because it played such an explicit role in the transformation of scientific, religious, and historical discourse in the nineteenth century. As John Stuart Mill famously noted, at the opening of a long discussion of analogy's inferential validity in his *System of Logic*, "there is no word ... which is used more loosely, or in a greater variety of sense, than Analogy."^{iv} Mill overstates the case. Certainly, such terms as "reason," or "romance," or (as he elsewhere noted) "nature" were even more common, and more polysemic. At the same time, "analogy" was a much more particular term, in that it marked a specific tradition of philosophical practice, even if the contours, shape, and applications of that tradition were continually in dispute. And indeed, analogy was ubiquitous. It was the foundation of nineteenth-century natural theology, as the epistemological ground for the description of the patterns of design in nature and the natural economy most elegantly realized in William Paley's *Natural Theology* (1802).^v It was essential to nineteenth-century paleontology, standing at the crux of arguments between Jean Baptiste Lamarck and Charles Lyell, Georges Cuvier and Richard Owen, over the nature of anatomical and

historical pattern, and the conclusions which such patterns supported.^{vi} It was central to the new comparative bible history of the German “Higher Criticism,” which placed biblical accounts alongside other forms of historical evidence in an attempt to construct a factual history of Christianity.^{vii} It was basic to linguistic analysis, which used analogy not only to explore the patterns of word formation and declension, but also, in order to reconstruct a comparative history of language development.^{viii} And analogy played an essential role in discussions of literary representation by theorists like George Henry Lewes and George Eliot – articulating a mimetic model for the relationship between fiction and fact, past and present, that escaped the strictures of direct correspondence.^{ix}

Within modern literary criticism, analogy has found its most extensive discussion in formalist criticism of the mid-20th century. Earl Wasserman, for instance, argued that Romanticism was animated by the rejection of the degenerate version of theological interpretation offered by Augustan tropes of analogy in favor of symbol and metaphor.^x Wasserman’s emphasis upon the rupture between analogical and earlier theological thinking dovetails with Foucault’s description of Renaissance semiology,^{xi} but pressure is put on this historical localization by M. H. Abrams in *The Mirror and the Lamp*, perhaps the most notable discussion of analogy’s role in literary criticism. In Abrams’ telling, the entire history of aesthetics from Aristotle’s time through the Romantic period can be understood as the succession of different “archetypal analogies,” typified in his study by the transition from “mirror” to “lamp.” These “constitutive” analogues “yield the ground plan and essential structural elements of literary theory, or of any theory.”^{xii} For Abrams, as opposed to Wasserman, it is clear that analogy serves as a basic category of thought, a way of characterizing and historicizing aesthetic traditions, as well as a specific historical

tradition *per se*. More recently, Colin Jager has reevaluated the place of analogy in Romantic criticism, exploring at length how the “design” analogy structures Romantic literature and philosophy from Anna Barbauld to William Wordsworth.^{xiii} The rich tradition of analogical criticism that deals with a period stretching from early modern to Romantic literature has no complement in criticism of the later nineteenth century, and Jager’s study helps articulate why, insofar as it discloses the translation of analogy within Romantic discourse from an explicit form of theological comparison between the book of nature and the book of god, to an implicit expression of correspondence between the Romantic self and nature. As I will discuss in the next chapter, such cases of structural translation mark a broad turn in comparative practice away from explicit discussion of analogy and toward the internalization of analogical comparison within various historical, scientific, and literary traditions.

To return to passage from *Shirley* with which I began, Caroline Helstone’s characterization of “analogy,” hedging between instinct and divine knowledge, also locates analogy in the long history of “secularization” – the process through which the Western dominion of Christianity is supplanted by a multiplicity of faiths and worldviews, in particular, the process through which secularism and science come to be defined in opposition to religious belief. Indeed, secularization is a central feature of Wasserman’s account of the turn from “divine” analogy to alternative interpretive strategies in the Romantic period. The nineteenth century stands as one focal point for the thesis of secularization, in part, because it is characterized by a series of such hedges and conflicts over the relationship between religious and naturalistic authority, a conflict which reached a particular crisis around the publication of *On the Origin of Species* in

1859. The sixty years which separate the publication of Charles Darwin's seminal work and the speculative ruminations of his grandfather Erasmus are marked by a series of closely-related representational innovations which had a profound effect upon British attitudes toward secular knowledge: the formulation of comparative history and the "Higher" biblical criticism which historicized Jesus and Christian scripture; the development of the historical romance and the "realist" novel that could describe social change in terms of secular historical process; the articulation of developmental theories of biological form and an historical science that could describe natural change and organization in terms of material history.^{xiv} By describing the interconnected web of representational and interpretive concerns that motivated these innovations in historical description, my work contributes to a body of scholarship which has complicated our understanding of secularization as a cultural process. As I argue throughout the following dissertation, secularism, as marked by differentiation and the divergence of distinct and "multiple" modernities, was often articulated through the comparative discourse of analogy.^{xv} For instance, as I detail in my first chapter, the Christian discourse of "natural" religion and natural theology, which was itself rooted in an apologetic comparative analysis of the relation between natural inquiry and the "revealed" religion of scripture, ultimately provided the intellectual foundation for a naturalist deism that, by the eighteenth century, was recognized as a threat to Christian doctrine.

Moreover, in examining the role that analogy played in scientific, religious, and literary representation, this dissertation builds upon the research of a range of nineteenth-century scholars, particularly Gillian Beer, George Levine, and Bruno Latour, who

continue to refine our understanding of the interaction between scientific practice and cultural production.^{xvi} The sixty years between Erasmus and Charles Darwin's major works marked a crucial turn in analogy's use: what had stood as a philosophical tool for bridging human and divine knowledge, natural pattern and intelligent design, intuition and understanding, evolved into an intensely historicist method for figuring out how historical evidence fit into a complex but unitary narrative. What separates nineteenth-century histories from previous narratives about the past was a leveling of comparison; rather than using analogy to relate evidence to a unitary figure, analogy was used to compare like with like, placing the various accounts and evidences of history alongside each other, in order to situate history in "flat" narratives. What unified the comparisons of analogical history became, simply, particular stories, increasingly denuded of the larger formal patterns of progress, purpose, or organic development, and expressed through ordinal sequences of interrelated events. It is the particularist impulse of this historicism that Walter Scott marks in the subtitle to his inaugural work: *Waverley; Or, 'tis Sixty Years Since*. But this serialization of the historical comparison within cardinal time – what Levi Strauss referred to as "the historian's code"^{xvii} – is particularly marked in the naturalist discourse of the period. Hence, as I discuss in my third chapter, the debate between Jean Baptiste Lamarck and Georges Cuvier over what to make of the direct comparison of fossil structures translated directly into an argument over the nature of temporal change.

This articulation of analogy as a secularized form of historical comparison was closely accompanied by the reinterpretation of "Analogy" as an increasingly compromised and outmoded form of philosophical speculation. It was this explicit

transformation in attitudes toward analogy as a discourse that Wasserman and others have construed as the rejection of analogy in favor of other representational forms, including metaphor and symbol. And the recession of “Analogy” as an explicit poetic discourse is echoed in nineteenth-century scientific writing. Charles Darwin himself wrestled with the relationship between his comparative method and more speculative analogical theorization, working and reworking the distinctions between comparison, analogy, and homology over the many revisions of his most important work.^{xviii} Darwin couches his *only* speculations about human development in the first edition of the *Origin* in such terms: “Analogy would lead me one step further, namely, to the belief that all animals and plants have descended from some one prototype. *But analogy may be a deceitful guide*” (emph. added).^{xix} Darwin’s anxiety over the status of analogy reflects a general transition in the term’s use through the period; by the third edition of *The Origin*, “analogy” as a form of biological comparison has largely been replaced by the new term “homology,” propounded by Richard Owen.

From the early enlightenment to the nineteenth century, analogy transformed from a method into an object of history. In the passage from *Shirley* with which we began, “analogy” serves this double role: for Caroline Helstone it constitutes a method of historical enquiry, while for the novel it serves historiographically to locate Caroline’s own perspective upon the past. Caroline uses analogy to propound a systematic parallel between Jean Jacques Rousseau and William Cowper: “What I say of Cowper, I should say of Rousseau” (228). This parallelism, in turn, allows Caroline to apply insights derived from Rousseau’s more extensively-documented biography to Cowper’s. The use of “analogy” fixes Caroline within the ca. 1820 frame of Brontë’s historical novel,

insofar as this mode of biographical comparison was a key feature of early nineteenth-century biographical monographs like those collected in William Hazlitt's *Spirit of the Age* (1824-5), and the objects of the comparison are themselves eighteenth-century writers.

This dimension of Brontë's use of "analogy" points toward the second sense in which I argue that the nineteenth century was the "age" of analogy: it is in the historical writings of the nineteenth century that the term "analogy" itself aged, and came to denominate a theology-laced hermeneutic mode from an earlier time. Hence, it is in analogy's specification as an older discursive formation, as much as through its methodological incorporation into newly-historicized modes of comparative historical enquiry, that analogy helps to disclose the historicizing impulse in nineteenth-century fictional and scientific writing.

I. Analogies and formal language in cognitive philosophy

For an example that clarifies the importance of such distinctions, one that comes at the practice of analogy in the nineteenth century from its far end in early twentieth-century physical science, I would like to spend some time considering the "Solar System" model of atomic structure. This model, generally attributed to Ernest Rutherford and Niels Bohr, has played an enormously influential role in current theorization of the function of analogy, particularly within cognitive science and philosophy of science. Take, for instance, Deidre Gentner's widely-influential "structure mapping" theory of analogy: "An analogy is a comparison in which relational predicates, but few or no object

attributes, can be mapped from base to target.^{xx} In Gentner's view, subsequently expanded by a range of cognitive philosophers and computer scientists, an analogy "maps" structural relationships from one domain on to another, while leaving behind superficial "attributes" of the items within the source domain. The example she gives, a master trope of the philosophical scholarship on analogy, is the Rutherford-Bohr model of the atom as a "solar system." In Gentner's standard account, "structural" attributes of the solar system (particularly circular orbit and attractive force) are used to model of the relationship between the nucleus and electrons, while physical attributes (scale and the particular kind of attraction) are not transferred.

As is common in cognitive models of figurative language, Gentner produces a diagram, in which she represents how the "Rutherford analogy" functions as an example of structure-mapping, and I've reproduced the diagram in Figure 0.1 (following page). Similarly Aronson, Harré and Way use a diagram of the Rutherford-Bohr model in an attempt to describe analogy in terms of "type hierarchies" (Figure 0.2), while Arthur I. Miller uses another diagram of the Rutherford-Bohr model as an example of accommodation of new theory by "an interaction metaphor" (Figure 0.3).^{xxi} The particular merits of each figure as a model for analogical thinking are not important for present purposes. Instead, I would like to focus on how such accounts formalize a particular story about the substance of the Rutherford-Bohr model, a story developed in narratives about the history of science that bear little reference to what Rutherford and Bohr actually wrote.

These diagrams are far removed from the textual instances of analogy that developed the theory. While all three diagrams make reference to elements of the solar

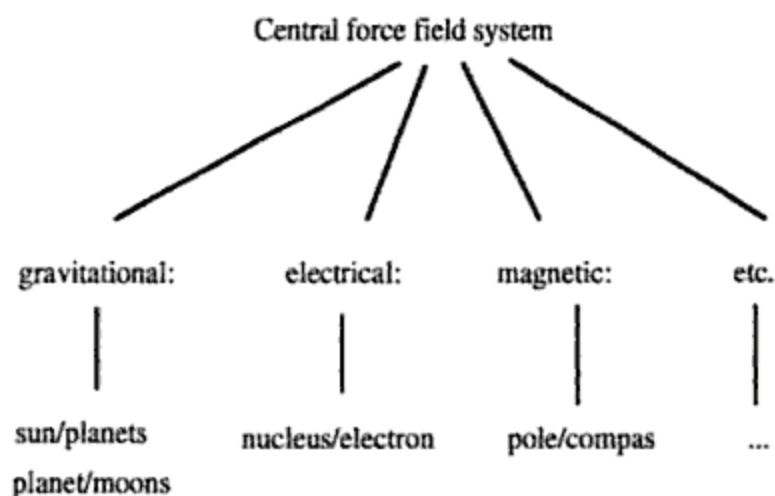


Figure 0.2 –Aronson, Harré, and Way’s “Type Hierarchy” diagram of the Rutherford-Bohr model^{xxiii}

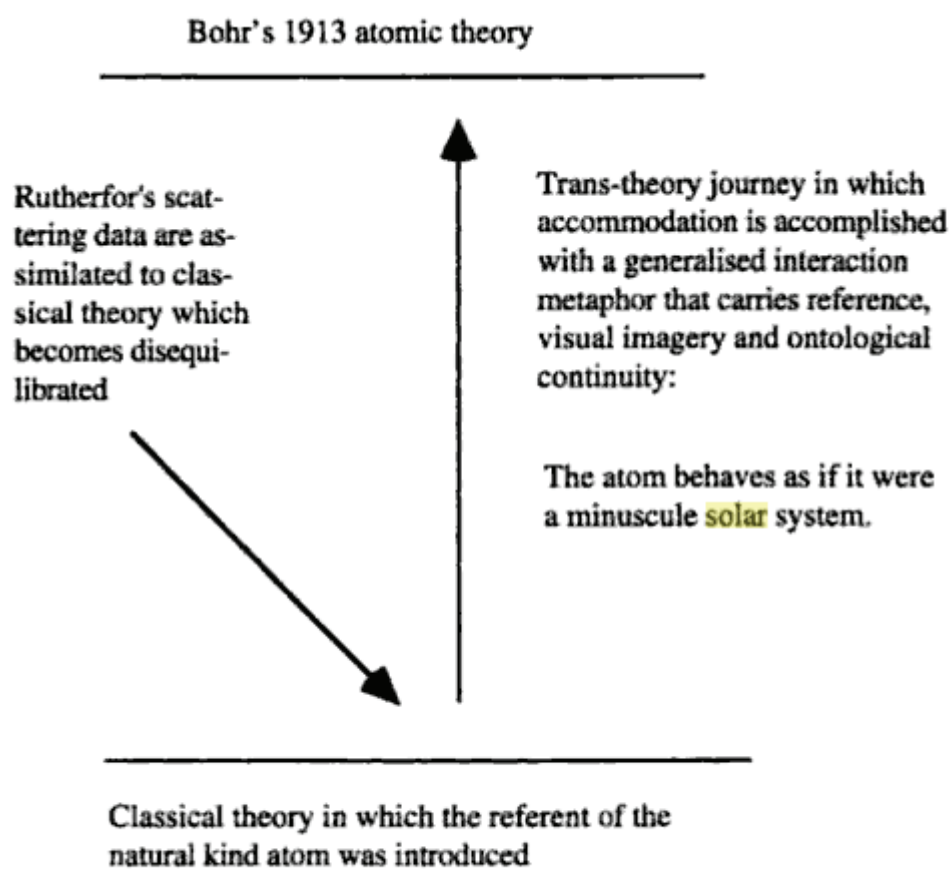


Fig. 4. — Example of how an generalised interaction metaphor can serve as an instrument of accommodation.

Figure 0.3 – Arthur I. Miller’s “Interaction Metaphor” diagram for the Rutherford-Bohr model^{xxiv}

system – from the “quote” appended to Gentner’s diagram (“The atom is like a solar system”), to specific attributes of the solar system, like planets, the sun, and gravitation – none of these essential elements appear in the original *Philosophical Magazine* articles that outlined the “Rutherford-Bohr” model, Rutherford’s “The scattering of α and β particles by matter and the structure of the atom,” (1911) and Bohr’s “On the constitution of atoms and molecules” (1913).^{xxv} Neither Rutherford nor Bohr make any explicit reference to a “solar system” model, and the model is not strictly implicated by their particular theories. Rutherford’s article is absorbed with explaining the unusual deflection of a beam of particles passing through a thin sheet of gold, behavior which, he postulates, can be understood in terms of a close grouping of positive charges in the atom. (In an off-hand remark, Rutherford does reference another theorist of atomic structure, Hantaro Nagaoka, who had originally proposed that atoms are organized like solar systems, but Rutherford is explicitly agnostic about Nagaoka’s “Saturnian” theory, referencing it only to note that “From the point of view considered in this paper, the chance of large deflexion would practically be unaltered, whether the atom is considered to be a disk or a sphere” (21)).

Bohr’s article is more suggestive, both in how it deals with Analogy (it uses the term nearly a dozen times), and in its failure to support the “mapping” model of analogical expression. Bohr first uses Analogy to mark a formal similarity he has asserted between Plank’s postulate that energy is emitted in quanta and the mechanical expression for an electron’s kinetic energy when orbiting a nucleus. The explicit expression of this analogy is mathematical; Bohr first gives the physical expression for the relation between the frequency of the electron’s revolution and its kinetic energy and

orbit,^{xxvi} then suggests a key premise: “Let us now assume that, during the binding of the electron, *a homogenous radiation is emitted of a frequency ν , equal to half the frequency of revolution of the electron in its final orbit*; then, from Planck’s theory, we might expect, that the amount of energy emitted by the process considered is equal to $\tau h\nu$, where h is Planck’s constant and τ an entire number” (4-5, emphasis added). Bohr’s suggestion, that the frequency of emitted radiation is half the frequency of the electron’s orbit, was a striking intuitive leap, because it ties electromagnetic observations to a physical expression of the electron’s orbit derived from classical mechanics. This is the first expression of analogy, offered by the natural language assertion that one kind of frequency is “equal to” half the other. Bohr then develops this analogy in the formal language of mathematics, first giving a modified version of the Planck postulate that incorporates the frequency of revolution, then substituting this expression into the mechanical equations to provide a unitary formal expression of the new relationships that the analogy produces.^{xxvii} Each of the resulting equations are expressions of analogies in their own right, and constitute collectively what Bohr describes as “the” analogy, because all of them now embed what was presented as the natural language assumption that the physical relationship of orbital frequency and kinetic energy is analogous to the electromagnetic relationship between emitted energy and frequency of radiation. I do not mean that the assignment of the equals sign within each equation is the same as the copula that asserts a relationship of similarity between the two halves of the analogy; rather, the relationship of the original analogy between mechanics and electro magnetic radiation is embedded within the new interpretation required of each individual term in order for their global relationship within the equations to make sense. This point is made

clear in Bohr's first use of "analogy" as a term: "We shall now see that we can leave the assumption used [that different stationary states correspond to different quanta of emissions] and still retain the equation [given above], and thereby the *formal analogy* with Planck's theory" (12, emphasis added). As Bohr puts it, the "formal analogy" now embedded in Bohr's equations does not require the initial analogical assumption that the orbit of the electron is tied to the emissions. The technical details of how Bohr proves this, using previous observations about atomic emission spectra under various conditions, is not important. What is important is that (1) Bohr's analogy does not rely in any sense upon a "mapping" from solar system to electron, and (2) it is asserted as a correspondence between physical and electromagnetic descriptions of atomic behavior, and (3) this analogy takes shape in a series of analogical equations and natural language expressions. It is important to note that Bohr moves back and forth across these analogies – using physical properties to describe electromagnetic implications and vice versa. Neither side serves exclusively as the "base" or "target." By specifying what he will "assume" (a similarity between the frequencies of emission and revolution), Bohr characterizes how we are supposed to read the following equations; in a sense, he constrains our interpretation of the mathematical analogies which follow, a constraint necessary for us to recognize those equations as the expressions that constitute his "formal analogy." Hence, while it is clear that for Bohr, the "formal analogy" exists in some sense outside of its particular expressions, lending purchase to the kind of formalized abstractions diagrammed by Gentner and others, for our purposes, it is also clear that this analogy is constituted by the explicit analogical relationships established within a specific natural language expression and a series of mathematical equations.

(Note that Bohr characterizes this analogy as “formal” because it is related in the formal language of mathematics – I will soon adopt Bohr’s terminology for different reasons.)

Bohr’s example demonstrates the necessity of focusing upon specific instances of analogy in order to understand analogy’s function within a particular work, providing access to the complex and active form of analogical interrelation in which various semantic relationships move back and forth across the comparison in a process of evaluation and exploration that is essentially open-ended and multivalent. This is in sharp contrast to cognitive models that attempt to abstract a formal diagram for how analogy works generally. Such abstract models of analogy are unable to deal with the initial conditions of direct analogical comparison – in Bohr’s case, the interdependent series of natural language and mathematical expressions that were only later formalized as a “solar system” model in the popular scientific press.^{xxviii} While abstract accounts of “type hierarchies” and “structure mapping” provide a useful way of integrating scientific history with say, descriptions of the reductive features of physical science, or with algorithmic accounts of mental processes, they occlude the open-ended, indeterminate and contingent encounters between similarity and difference which such analogies initially offer. A key feature of analogy’s role in discovery is that it can be complex, continuous, and unpredictable, as various features of similarity and difference are traced out, evaluated, and reconfigured. What is required is an account of analogy that is competent to explore the open-ended moment in analogical comparison, as well as the forms of closure into formalization exemplified in the “solar system” model.

In the final series of equations presented by Bohr, the relationships between basic properties like frequency, energy, and motion have been given an essentially new

configuration, one that changes how both the physical and electromagnetic properties of atoms should be understood. If we are to speak of analogy as a form of “transformation” or “mapping,” it is a transformation from a previous understanding of the implicated terms to a new one, and marks a semantic reconfiguration that leaves various elements of the analogy fundamentally altered. By the same token, specific analogies provide strong insight into how this semantic shift is structured because much of that structure is inherent in an analogy’s expressed form. We cannot, for instance, choose to understand “mass” in some radically distinct way that violates the relationships expressed in Bohr’s analogies. The key point: analogies constrain interpretation because they make some semantic relations explicit.

II. Consideration of method

At this point, I would like to begin introducing the framework I’ll use to evaluate analogy as it is practiced in the naturalistic and fictional writing of nineteenth-century Britain. Because analogy-making and comparison are ubiquitous in nineteenth-century writing, it’s essential to constrain the object of study and avoid papering over key distinctions in application or function. In order to focus on specific articulations of analogy, I have found that it is most useful to examine analogy as a (1) specific linguistic expression that (2) establishes two predicated sets of relationships, and (3) explicitly asserts a relationship of similarity between them. As an example, Bohr’s statement that “a homogenous radiation is emitted of a frequency ν , equal to half the frequency of revolution of the electron in its final orbit” constitutes an analogy because it is (1) an

expression in natural language that (2) establishes two systems of predicate relationships (a “homogenous radiation” is “emitted” with a “frequency ν ”; and an “electron” with the property of being in its “final orbit” has a “frequency of revolution”), and (3) it asserts a similarity between the frequencies (“equal to half” of the other). By the same token, a sentence from the first chapter of Charles Darwin’s *On the Origin of Species* (1859) is an analogy, because it fulfills the same criteria: “Our oldest cultivated plants, such as wheat, still often yield new varieties: our oldest domesticated animals are still capable of rapid improvement or modification.”^{xxix} Here the parallelism of predicate relations is evident, while the assertion of similarity is made explicit in the demonstrative function of the colon. I extend my definition to formal (in Bohr’s sense) as well as natural language analogies; it is clear that Bohr understood the physical equations tying mechanics to electromagnetism as expressions of analogy, and we should as well. At the same time, by emphasizing actual expressions of analogy, I can discriminate between discourse about “analogy” and actual usage. In the chapters that follow, a central critical project will be to look at the friction between a writer’s explicit discussions of analogy’s properties and the uses to which they put analogies in their own writing. While Bohr clearly believed that it was the mathematical expressions which constituted analogy, not the assertion that one kind of frequency was “equal to” another, I think it is useful to emphasize that we can take both as analogies, one presented as an assumption, the other, as a formal language extrapolation of that assumption.

Emphasizing analogy’s expression in language also helps to establish a framework for comparing analogy to related forms of expression, particularly metaphor. I have pointed out that analogies often constrain interpretation by making some semantic

relations explicit, and this serves as strong point of contrast with metaphor, in which the semantic relationship between vehicle and tenor is necessarily implicit (in I. A. Richard's formulation, the "vehicle" is substituted for the "tenor"^{xxx}). I do not mean that there are not implicit relationships in analogies – sometimes it is the implicit relationships which are most significant (take as an example, the firestorm sparked by the human implications of Darwin's inference through analogy: "all animals and plants have descended from some one prototype"). But one of analogy's key major functions in the works I consider is to specify explicitly a portion of the semantic relationships it brings into play.

Analogy shares with metaphor a second key characteristic, in that both serve in a work like Charles Darwin's *Origin of Species* as essential tools by which language is able to say new things – what Pierre Fontanier referred to as "catachresis."^{xxxi} One of the key arguments of this dissertation is that it is through analogy that nineteenth-century writers and scientists are able to call new concepts into being and communicate them, and a key goal will be to explore how this process works. Analogy forges new semantic relationships, while also helping to structure how those semantic relationships should be understood. It's important to note that the formal functions I ascribe to analogy do not have a status independent of their articulation within specific analogical expressions. One of the chief purposes of the extensive intellectual history of analogical thought which I provide in the following chapter is to distinguish between different applications of analogy and the contingency of those applications within historically situated works. At the same time, I have found a basic formal framework indispensable for evaluating the qualities of those distinctions within specific applications of analogy.

In order to draw out the implications of analogy's structure, clarify the relationship between different kinds of analogy, and explore analogy's semantic features (its ability to forge new connections and say new things in literary and scientific writing), I have taken an unusual approach to interpreting the semantic and structural features of representational language. In particular, I have drawn from a host of insights within information theory, complexity theory, and practical linguistics in order to develop a model for language use that moves away from assumptions inherent to rhetoric, structural linguistics, and cognitive philosophy. The motivations were multiple. For one, rhetorical theory, outside of careful studies of its formation within specific rhetorical traditions, remains burdened by the generalized legacy of the history of rhetoric, in particular, the much-discussed divorce of "invention" from "style," "dialectic" from "rhetoric," "res" from "verba," which fostered a well-recognized tendency for casually "rhetorical" interpretations to make language epiphenomenal to content or thought.^{xxxii} While I will address rhetoric at some length in the following chapter, the constraints of the dissertation do not provide the working space necessary to produce the careful investigation of rhetoric's historical formation that would be necessary to produce a sophisticated rhetorical model for the current problem. In addition, theorizations of language as both trope and figure have often drawn upon contrasts to "normative" expression that are often under-developed and rooted in a concept of denotative language which is itself a legacy of rhetorical theories of "plain style" or "scientific" language – what Paul Ricoeur has characterized as the "degree-zero" problem of normative language.^{xxxiii} A second motivation for my approach lay in my sense that literary theories of representational language remain heavily indebted to continental traditions of philosophy, particularly

structural linguistics and Hegelian dialectic, which institute basic formal models of the relation between reference and the construction of meaning that occlude the open-ended interrelation which I believe characterize a key component of analogical expression.^{xxxiv} And while analogy's most extensive recent theorization has emerged in the context of cognitive science and philosophy, a third component to my approach is rooted in my objection to basic commitments to computationalism, modularity, and propositional and formal logics that continue to play a foundational role for thinking about analogy within those fields, commitments ill-suited to the "fuzzy" relationships between similarity and difference that characterize key elements of analogy making.^{xxxv} Instead of a rhetoric of science, or a history of an idea, what I am attempting to show is the practical history of a specific form of representational technology. Much as hammers maintain a recognizable family resemblance over broad swathes of time, even as they differentiate into a variety of forms (the mallet, the claw hammer), applications (driving stakes, driving cobbler's nails), and cultural meanings (the sledge hammer vs. the hammer and sickle), analogies share certain basic features, even as their form, application, and interpretation vary contingently through history. Moreover, insofar as the analogies I am after are linguistic, textual objects, I might describe the approach of my work as a poetics of comparison – an attempt to get at the literary technology that underpins comparative discourse. But perhaps my motivations are best demonstrated by sketching out some of the insights I've gleaned from information theory and applied linguistics in order to demonstrate their utility.

My thinking about the formal properties of analogical expressions has been heavily influenced by the considerations of information theory, in particular, Shannon's

theory of information in communication and entropy, because it provides a tight formal model for the function of language that is not rooted in a conception of reference. Within the constraints of this introduction, I have found it useful to extract the informatic development of this model, which may not be particularly useful for the reader without a strong foundation in math. Instead, I will present the model, along with the basic insights I've gleaned from it, and refer the reader to my appendix for the technical development of their theorization.

Briefly, Shannon's theory suggests the deeply counterintuitive insight that an expression's capacity to mean something for a reader – its semantic information – is inversely proportional to its probability. While this confirms our sense, in the case of something like a cliché, that over-usage washes out significance, it argues for a much more general insight about all language use. In terms of analogy, what this suggests is that for an analogical expression to be truly profound – for an analogy to have the capacity to forge new and influential connections – it must be unlikely. Moreover, the normative quality of this semantic theory – its basis in evaluations of the probability of an expression as opposed to its alternatives – can be described as the “median of expectation.” Moreover, by framing this probabilistic median of expression as the center point of expectation for a reader, I suggest a striking correspondence between sentence-level expectation and the larger formal consideration of genre and readership developed by Jauss as the “horizon of expectation.”^{xxxvi} I can suggest the strength of this insight by pointing out that it gives a conceptually coherent response to what Ricoeur termed the “degree-zero” problem – a version of the normative, literal alternative to an expression that does not require its actual possibility in any determinate natural language expression.

As we will see, for instance, in my second chapter, the divergence from sentence as well as genre-level expectations reinforce each other in the *Waverley* novels, insofar as Scott's deployment of analogies of translation (for instance, between dialect and standard speech) serve to reconfigure the reader's received understanding of historical mediation in a fashion that reflects the use in his novels of a productive distortion of genres like Romance and Gothic to reconfigure the horizons of expectation for historical fiction. Finally, my application of information theory provides a tight model to distinguish between semantic information – the aspects of an expression that “mean” something that can be paraphrased – and structural information – the functions of syntactic, morphological, and functional constraint in expressions which help to specify how that semantic information is configured. And this, in turn, provides both a familiar and novel articulation of the range of form/content relationships that have long been central to literary historiography and considerations of genre. In particular, this perspective renews our long-standing sense of how literary language negotiates the interpenetration of form and content both at the sentence level and at the larger remove of generic convention.

In the following dissertation, I will use these insights in order to interpret both how analogies function, semantically and structurally, within the works that I consider, and more generally, how they serve to articulate new connections within historical, scientific, and literary writing. The challenge of novel expression bears elaboration. While an innovative expression provides rich potential for new meaning, that doesn't mean the interpreter will recognize it, particularly insofar as they're still working with the normative assumption that some other expressions are more likely. From the standpoint of the interpreter, this apparent innovation may be an accident, or the error of someone

who doesn't really understand the conventions of the language. There's a necessary ambiguity inherent in departures from expectation; without interpretive conventions or other semantic features within the expression (or associated with it) that buttress or *constrain* interpretation and help recognize the new set of semantic relationships within which that expression makes sense, the odds are (in the simplest case) that the reader will fall back on the easier assumption of error or nonsense.

This challenge of interpretation can be understood graphically in terms of the "phase space" of a dynamic system. Dynamic or "dynamical" systems can describe any system in which the states of individual agents or elements are in continuous change.^{xxxvii} From this perspective, our understanding of what a text means while reading it is "dynamic" (and partly path-dependent) in that it constantly shifts in an unpredictable but non-random fashion, as we continue to engage additional lines of text, as we move between intensive and extensive reading, as we pause to reconsider a passage or skim ahead, as we return to a text at different moments in our intellectual life. To draw a model from the phase-space representations of dynamic systems theory, imagine the range of possible understandings for a specific expression as a field of points in a conceptual space. A reader's act of interpretation can be represented as an arrow or "vector" that moves from one "point" of understanding to another.^{xxxviii} The more likely the movement is, the stronger (and by convention, longer) that vector would be. Figure 0.4 (following page) shows a representative vector landscape in two dimensions. Some interpretations are much more likely than others, and in terms of dynamic systems, such interpretations are described as "attractors," in that actor states (in this case, the reader's current understanding of the expression) tend to move toward them. In Figure 0.5 there

are two such attractors, representing, for our purposes, the case where two distinct interpretations are most likely. Equivalently, such state spaces can be represented three dimensionally as a topological space in which attractors are represented as “wells,” depressions in the surface that would tend to capture and constrain our interpretation, as shown in Figure 0.5.

In the case of actual reading, the picture is much more complicated; there could be dozens of such wells, of varying depths, with the entire landscape changing as new information is ingested, as additional lines are read, or considerations brought to bear by the reader. But this simple case confirms certain basic intuitions. For instance, in the case where a reader starts off at the upper right in Figure 0.4, or back on the far right in Figure 0.5, it’s going to be a great deal more likely that they reach the nearest interpretation than the furthest; the proximate interpretive “attractor” is closer, which translates into a closer correspondence to their initial understanding. This is what I mean by saying that interpretation is, in part, “path-dependent.” In the case where a proffered semantic interpretation seems unlikely, this can represent the case where the reader assumes that an error has been made, or that the expression is nonsense. Hence, when I talk about the need for “constraint” in interpretation, what I’m talking about is strategies which will push the reader to move past the simpler assumption of error or mistake – encouraging them to traverse the conceptual space and reach the more novel interpretation.

Central to the relationship between “new meaning” and interpretive “constraint” is the interrelationship of content and form, or, more generally, between semantic and structural

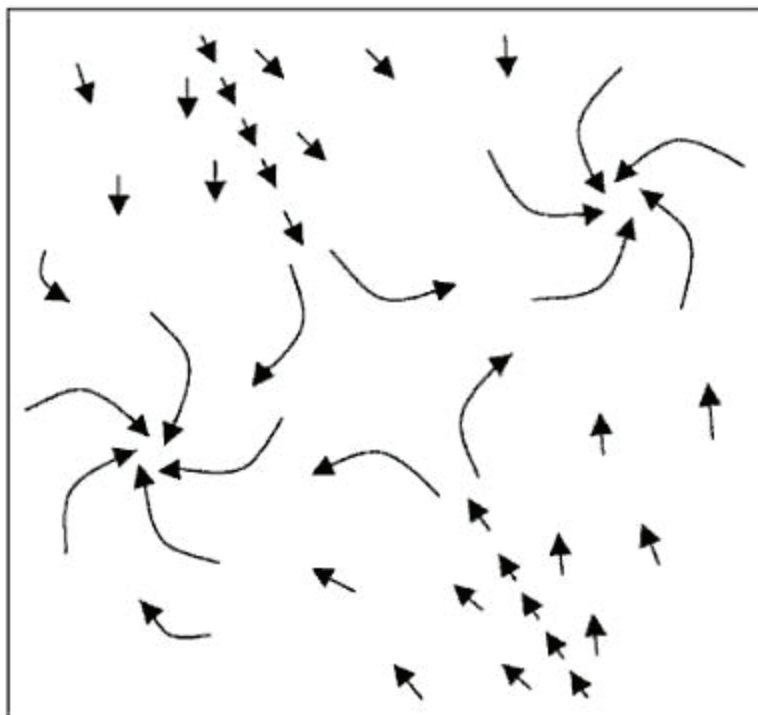


Figure 0.4 – Vector landscape with two attractors^{xxxix}

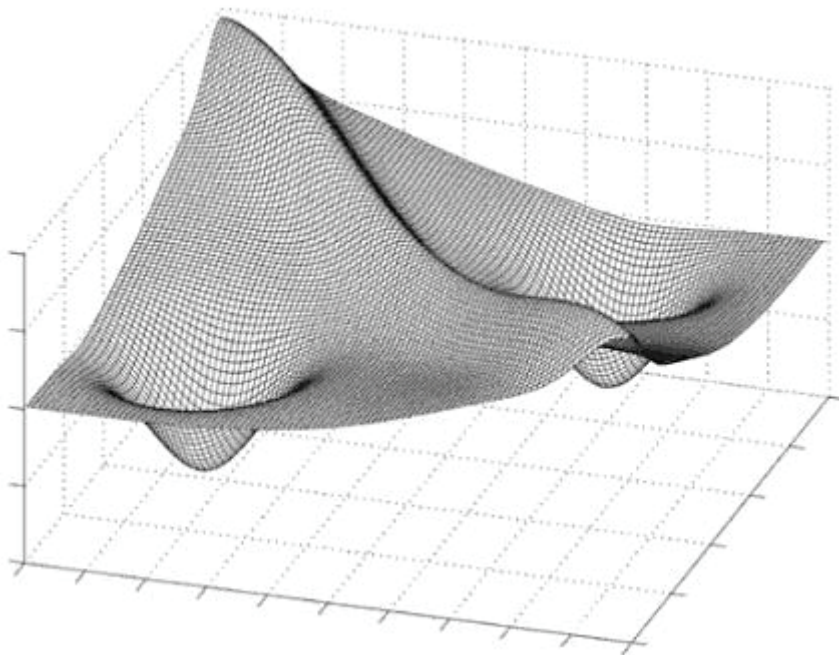


Figure 0.5 – Topological vector space from Figure 0.4

information. The contrast between these two types of information is foundational for the purposes of my project, because it provides a tight information-based foundation for a contrast that I will develop at length in the following chapters: the difference between “formal” and “serial” analogy.^{x1} In a formal analogy, one system of relationships serves to constrain or interpret the other. As in Gentner’s classic example of the “solar system” model of the atom, the structural relationships of the solar system are “mapped” on to atomic relations. Such formal comparisons map structural information between source relationships and the target domain and therefore serve to constrain the interpretation of that “target” domain. We don’t learn anything new about solar systems in such a comparison, because the semantic information in the source domain, what Gentner terms the “object attributes,” is left out. In contrast, the comparison that Niels Bohr establishes between Plank’s postulate and physical description of an orbit is not formal but “serial” – neither system of relationships, whether mechanical or electromagnetic, serves exclusively to fix the meaning of the other; no attribute or semantic information is necessarily left out (hence the later neologism, “quantum-mechanical”). Both halves of the equation are offered as focal perspectives on a new relationship – a relationship that would revolutionize how we understand the individual terms of these new equations. In describing such analogies as “serial,” I adopt a qualification suggested by Richard Owen in his categorization of homologies, to be discussed in the third chapter. For now, the point is not that serial comparisons do not convey structural information – part of my brief for the power of analogy is that the structural information embedded in its explicit syntax helps to focus interpretation of its semantic properties. Instead, what I will argue is that serial analogies leverage structural information to foster a parallel comparison

between two sets of semantic relationships, while formal analogies, as a strategy of formal constraint, work to suppress the semantic content of one half of the comparison in order to transfer its structural properties onto the relationships expressed in the other half of the comparison. The contrast between serial and formal comparison gets at a basic insufficiency in current accounts of analogy's function within philosophy of mind and cognitive science; by focusing on "mapping" relationships, such theories focus on formal analogies at the expense of their serial counterparts.

The line between formal and serial comparison is always more or less "fuzzy." To take an example from the final chapter, Darwin's comparison between domestic and natural species clearly has formal as well as serial properties; on the one hand, it helps to characterize how we should understand natural evolution as an analogue to domestic cultivation; on the other hand, it serves to break down supposed distinctions between the malleability and fixity of domestic versus wild species – arguing that they are serial instances of species development. There is always a question of emphasis: where does a given analogy throw its weight? Such distinctions can be very useful in specific cases. More generally, it is precisely analogy's capacity to throw its weight around, shifting from semantic to structural emphasis and back again, that constitutes its power.

To return one last time to the example from *Shirley*, it is clear that Caroline's use of analogy function in both senses – internally, it is a way to gauge the relationship between Cowper and Rousseau, serving as an active interpretive model for serial comparison. At the same time, as a way of situating Caroline's speculative philosophy within a historiographic perspective, analogy provides a formalizing function that works her analysis into the larger organizing perspective of historical remove.

III. The Plan of the Following Chapters

The following chapters explore the role analogy played in the development and formalization of a comparative historiographical revolution which changed nineteenth-century Britain's sense of the past, transforming how authors, historians, and scientists interpreted the relationship between past events and the organization of the modern world. My first chapter details the long history of analogy in Western tradition in order to illustrate the intellectual and institutional legacies which brought Analogy into crisis at the close of the eighteenth century. One way to understand this crisis is to recognize the conflict produced between the increasingly differentiated cultural practices of Christian theology, natural science, and philosophical discourse, and the stress this put upon an increasingly formalized tradition of analogy, as developed within Christian hermeneutics and natural theology through the early modern period. My second chapter shows how the antiquarian fictions of Walter Scott furnished analogy with its decisively historical turn in the nineteenth century. The first Waverley novels – *Waverley* (1814), *Guy Mannering* (1815), and *The Antiquary* (1816) – translated the historical distance of ballad aesthetics into the historically dispersed subjectivity of Scott's famously "middle of the road" protagonists, who exist in tension between past and present encounters. Scott, I argue, revised theories that cast linguistic translation in terms of formal analogy, deploying analogical formulations offered by contemporary language theory and comparative philology, and producing an interpretation of historical difference as the juxtaposition of different idiolects and conventions of expression. Hence Scott's historical novels gave to

analogy itself a decisively historicist and serial bent. Within the novels of Charles Dickens, my third chapter exposes a social turn for this analogical historicism, arguing that Dickens extended Scott's analogy between past and present conflict by juxtaposing modern society to both national and natural history. I argue that it was in Dickens's collaboration with his illustrator, Hablot Knight Browne, over a fertile period from *The Pickwick Papers* (1836-7) to *A Tale of Two Cities* (1859), that he articulated new strategies of serial juxtaposition and comparison that could respond to the fragmentary nature of the serial publication format. The structural properties of serial comparison fostered a reading practice capable of making sense out of the proliferation of both physical parts and of representational components like character and incident that characterize nineteenth-century serial fiction. The final two chapters examine the epistemological influence of the nineteenth-century novelization of analogy in the works of two of Victorian Britain's most influential writers, George Eliot and Charles Darwin. My fourth chapter revisits the obscure term "disanalogy" to specify the formation of Eliot's sympathetic understanding in moments of productive error. While analogy had long stood as an epistemologically weak argument for *unprovable* relations, Eliot's fiction, particularly *The Mill on the Floss* (1860), *Romola* (1863), and *Middlemarch* (1871-2), exploits analogy's conversely strong potential to be *disproven* to formulate a mode of representational realism that prefigures Popperian falsifiability. This representational effect is produced by an alternation between the formalized interpretations that characters develop for others, and the forced return to a direct, serial confrontation with alterity which violates those formal models. Finally, the analogical narrative mode of Charles Darwin's *On the Origin of Species* (1859), the subject of my

final chapter, provides the comparativist solution to the essential cladistic problem of Victorian science: the contrast between marked similarities and stable distinctions among contemporary and antecedent species. My research discloses how analogy, as shaped by the nineteenth-century novel into a comparative narrative tool that explained similarity and difference in terms of historical process, provided the linguistic capacity to forge these phylogenetic connections and distinctions into a single history of speciation and inheritance. Darwin used the serial function of analogical comparison to marshal a wealth of evidence and observation, before combining these observations within the increasingly abstract formalizations of type-based analogies, as well as allegory and metaphor. Moreover, Darwin's turn to strategies of serial comparison and formal consolidation to describe his theory of natural selection marks the "specialness" of evolutionary theory as a descriptive science of dynamical systems.

But in order to detail the nineteenth-century rehabilitation of analogical practice, I need to first describe its fall from grace in early modern speculative philosophy and rhetoric. My first chapter opens with a consideration of Erasmus Darwin's *Zoonomia* (1794-6) that secures a canvas of theories of analogy from Aristotle through the early modern period, paying special attention to its role within scientific theory, Biblical hermeneutics, and skeptical theories of sensation. This broad survey allows me to cover, on the one hand, Aristotle's description of analogy as an iconoclastic form of serial pattern recognition that violated the formal categories of his own natural epistemology, and on the other hand, its function in Christian apologetics as a method for shoring up historical and ontological interpretation. In its formal capacity to bridge the gap between distinct domains of knowledge, analogy served biblical hermeneutics as a highly-

developed discourse of comparison, from the serial “analogy of spirit” that governed biblical interpretation, to Aquinas’ rich treatment of a formal “analogy of being” as an ontology that links human and divine existence. I bring the diverse traditions of analogical thought into focus by examining their impact upon the works of Charles Darwin’s grandfather, Erasmus, in *Zoonomia* (1794-6) and *The Botanic Garden* (1791-6). The heady generic brew presented in these eclectic scientific and poetic writings delineate the heterogeneity of analogical practice. By addressing the contrasts between, on the one hand, the tradition of analogy and the practice of analogization, and on the other, the difference between serial and formal analogies, I explore the topography of the conflicts that brought analogical discourse into crisis. Erasmus Darwin’s synthesis of skeptical philosophy, naturalism and erotic poetry was unable to contend with the centrifugal forces of intellectual professionalization and disciplinarity, a problem heightened by his explicit engagement with analogy’s beleaguered philosophical status at the close of the eighteenth century.

1. Chapter 1

Licensing Analogy: Differential Modernity and the Crisis of Analogical Tradition

The literature of analogy has a long history in the Western tradition, a history marked by the term's origins in ancient Greek. In order to understand the deep cultural and theoretical sedimentation that constituted analogical practice at the dawn of the nineteenth century, in particular, the discursive and theoretical commitments that its practitioners engaged, we must grapple with the implications of this history. At the same time, I do not mean to trade in the "history of ideas." Notably, the canonical work of scholarship which coined that phrase, A. O. Lovejoy's *The Great Chain of Being* (1936), was an attempt to detail a significant portion of the history of analogy, insofar as it was reflected in the doctrine of the *scala naturae*. Analogy, as a discourse or a formal object, does not exist outside of the specific linguistic and representational manifestations that constitute its history. Moreover, even though there are certain formal models that help to discriminate significant features of analogical practice in the works that follow (particularly the contrast between serial and formal deployments of analogy), I do not mean to suggest that there is some essential formal or conceptual "unit" that constitutes analogy.¹ Yet a broad examination of the intellectual history of analogy provides the resolution necessary to recognize distinctions and changes in its use and conceptualization, both across time and within specific periods. Moreover, the tradition of analogy is marked by an awareness of the depth of that history (at least until the nineteenth century), even if that awareness was itself partial, contradictory, and uneven.

In order to get at the double move by which “analogy” recedes as an explicit term and goes to ground in the comparative method, it is important to attempt to distinguish analogies as specific textual instances of comparison from “analogy” as an explicit discourse about the interpretive tradition. For this reason, I will follow a convention in this chapter by which analogy (little “a”) refers to an instance of analogy, while Analogy (big “A”) refers to the tradition itself, as explicitly formulated in various critical accounts from the early modern period through the present day. As we shall see, discussion of Analogy does not always engage actual cases of analogy, while evidently analogical expressions go often unmarked, or even set in explicit contrast to Analogy as a tradition. Moreover, my inquiry into the practice of analogy in nineteenth-century writing has emphasized the need to discriminate between various applications of analogy within the wide variety of cultural formations that my study touches upon.

In what follows I will provide a broad survey of the tradition of Analogy, with particular attention to the moments of differentiation and radical reconfiguration that characterize its past. I will begin with Aristotle, whose accounts of Analogy’s uses within scientific investigation, linguistic theory, and literary representation influenced a range of later writers. I explore Analogy’s function in medieval hermeneutics and ontology, with special emphasis upon its role in the constitution of early natural theological discourse and the Thomist argument from design. I map out the diverse roles it played in Early Modern thought, as it was deployed in rhetorical theory, sectarian theology, scientific discourse, and arguments over the status of natural religion. All of this, in the service of unpacking the deeply-layered discursive and theoretical commitments that analogical practice entailed at the close of the eighteenth century – a

heterogeneous brew that produced a crisis in Analogy as a tradition. A detailed examination of the complexities of this crisis serves to establish the conditions of the nineteenth century rehabilitation of analogical practice that I explore in the following chapters – a rehabilitation that has gone largely unmarked in historical and literary scholarship. In order to provide a focal point at the close of the eighteenth century, and a critical object by which to organize the complex features of Analogical practice in that period, I ground this intellectual history in one of Analogy's most vocal turn of the century proponents – the grandfather of Charles Darwin, Erasmus. In the writings of Erasmus Darwin we find one of the last attempts to rehabilitate Analogy itself as the master category of comparative enquiry.

“Lunatic,”² scientist, poet; Jacobin, physician, free lover – Erasmus Darwin led a wildly prolific life. His intellectual and sexual promiscuity was mirrored by his great poetic work, *The Botanic Garden* (1789-91). A mixture of poetry and science, sex and Fuseli engravings, *The Botanic Garden* has recently been characterized as “one of the most extraordinary – some would say bizarre – works in English literature.”³ Although renowned in his own time as a doctor and scientist, it was as poet that Erasmus Darwin would achieve lasting fame, influencing, often by counterexample, a generation of Romantic poets, particularly Wordsworth, Coleridge, and Shelley.⁴ Coleridge alternated between admiration and disgust for Darwin and his work. If he lauded him as “the first literary character of Europe, and the most original-minded Man,”⁵ he simultaneously reviled the thematic turns of his verse, declaring “I [am] absolutely nauseate[d by] Darwin's poem.”⁶ Such intemperate opinions ultimately led to Darwin's fall from a

rumored candidacy as poet-Laureate to an object of literary derision at the close of the eighteenth century, victim of a new fin-de-siècle moralism.

Literary historians have attributed the elder Darwin's fall largely to two conditions, the first political and the second literary. Darwin's left-wing politics and Jacobin sympathies made him a prominent target for the broad conservative backlash in the wake of the French Revolution – the satirical “Loves of the Triangles” (1798), penned for the pages of the *Anti-Jacobin* by George Canning, George Ellis, and John Hookham Frere, was a send-up of one portion from *The Botanic Garden*. And, steeped in the rhyming iambic couplets and Latinate syntax of Augustan poetry, the “Darwinian” style struck a sharp contrast to Wordsworth's and Coleridge's poetic revolution – the new prosody and “language of real men” showcased in the Introduction to *Lyrical Ballads*. Darwin's relation to Wordsworth and Coleridge remains an active topic of scholarly speculation, and one of the burdens of this chapter will be to evaluate Darwin's relationship to Romanticism and its putative rejection of the Darwinian style.⁷

Recent criticism suggests another contributing factor in Darwin's devaluation: perhaps the generic mixing of Darwin's work – its peculiar blend of scientific and literary speculation – alienated it from literary and scientific audiences alike. Even his grandson Charles criticized the strange brew offered in Darwin's writings, allowing that his grandfather was inhibited by “an overpowering tendency to theorise and generalise” and upstaged by the “vividness of his imagination.”⁸ Recently, scholarship has turned to Erasmus Darwin's theory of Analogy – set out most clearly in *Zoonomia* (1794-6) – to explain the relationship between his scientific and poetic writings. Catherine Packham has proposed a re-evaluation of Darwin's poetics in *The Loves of the Plants* (1789), the

second book of the *Botanic Garden*, that focuses on its personification. Such a focus, Packham argues, would situate Darwin's aesthetics within a scientific theory of Analogy that established connections between human behavior and other forms of life.⁹ Dahlia Porter has similarly expanded on the relation between Darwinian Analogy and empiricism, exploring how his scientific insights develop through other poetic devices, while Michael Page has tied Darwin's naturalistic aesthetics to a Romantic tradition often cast in opposition.¹⁰

In addition to the broad intellectual history of analogical practice, this chapter will examine several less-appreciated aspects of Darwin's theory of Analogy. First, I locate Darwin's scientific imagination within contemporary debates over the validity of Analogy in philosophical and scientific writing. Insofar as both skeptical philosophy and natural theology focused upon an attempt to specify what kinds of knowledge could be learned from external evidence, and how to apply that knowledge to mental and spiritual life, skeptics as well as natural theologians turned regularly to comparisons couched in analogies, even as they questioned the evidence Analogy provided. Second, I locate Darwin's theories in the context of contemporary debates over the relation between naturalistic and religious interpretation, illustrating how Darwin's thorough-going reevaluation of Analogy's function within scientific enquiry and the theory of mind was conditioned by contemporary debates over the rhetorical and epistemological status of Analogy itself. Finally, I reassess Darwin's poetry in the context of that theory, examining how the naturalization of Analogy worked out in his scientific masterwork *Zoonomia* transformed his understanding of the patterns that underpinned all aspects of poetic form, particularly, rhythm, rhyme, and meter. A reevaluation of the poetics of

analogy in Darwin's work informs our sense of Darwin's place within the larger formal innovations of Romanticism.

In *Zoonomia*, the scientific thesis he drafted alongside *The Botanic Garden* and published immediately after, Darwin describes "rational analogy" as the scientific key to recognizing nature's relationships: "The great CREATOR of all things has infinitely diversified the works of his hands, but has at the same time stamped a certain similitude on the features of nature, that demonstrates to us, that *the whole is one family of one parent*. On this similitude is founded all rational analogy; which so long as it is concerned in comparing the essential properties of bodies, leads us to many and important discoveries."¹¹ Darwin further cautions that analogy's associative power can corrupt scientific inquiry: "but when with licentious activity it [analogy] links together objects, otherwise discordant, by some fanciful similitude; it may indeed collect ornaments for wit and poetry, but philosophy and truth recoil from its combinations" (pp. 1-2). This passage has been taken as a succinct presentation of the basic project of Darwin's various scientific and poetic pursuits: to explore nature's relationships and connect them to the dynamics of literary representation. Darwin here frames this relationship as a troubled opposition between analogy's rational and witty faces. But in the context of contemporary and ongoing evaluations of the fusion of scientific and literary in his work, the discretion Darwin emphasizes here presents a problem. Why insist on a distinction between scientific discourse and literary style, between philosophy and poetry, when much of his work brings them together?

I would suggest another way of reading this passage: instead of taking it as a focused credo, it is better to interpret Darwin's statement as an omnibus critical gesture;

that is, a sophisticated acknowledgement of the abundant criticism of Analogy expressed in contemporary philosophical and rhetorical treatises. As we will see, analogy featured in a range of contemporary theories: from the explicit theological overtones of the “great CREATOR,” to the relation between natural religion and the Platonic great chain of being evinced by the “similitude [of] the features of nature” and its evidence that the whole is “one family”; from the Aristotelian science of “rational analogy” which compares “essential properties,” to the rhetorical critique of the “fanciful similitude” of “wit and poetry.” The history of Analogy itself will help us unpack the complex interplay between these disparate cultural formations, and the deep sedimentation of its various functions in the Western tradition. By turning quite far back, to some of the earliest works in the Western cannon, we may tease out the complex differences of its register within theology, philosophy, rhetoric and science.

I. A not-so-brief history of Analogy

i. Aristotle

Aristotle was the first serious theorizer of Analogy’s role and function on record, and his discussions of analogical knowledge in the *Categories* and *Poetics* remained touchstones for the discourse of Analogy in Darwin’s time and even today. But I will begin with Aristotle’s discussion of Analogy in his works on natural philosophy, particularly the *Posterior Analytics*. Whereas the critical emphasis upon the *Categories* and *Poetics* has lately reinforced the sense that analogy was a linguistic phenomenon for

Aristotle, this is belied by the much more fundamental and challenging function analogy plays within his theory of natural science and his understanding of the structures that underpin the order of the natural world.

Here I will provide a sketch of Aristotle's natural philosophy in order to foreground the remarkable place Aristotle assigns Analogy within scientific knowledge formation. At the center of Aristotle's scientific method are a handful of key, interrelated assertions – beliefs that had conditioned his engagement with Analogy. First, Aristotle argues that true scientific knowledge is necessary and universal – if a scientist uses the correct method for natural investigation, her conclusions will be certain and irrefutable. This certainty widely differs from contingent and empirical emphasis of scientific practice today. The “Laws of Thought,” elucidated in Aristotle's works but set out most clearly by Bertrand Russell in *The Problems of Philosophy*, are essentially the rules of bivalent formal logic – a logic developed by Aristotle that was foundational for modern formal logic, and built around the discrimination of true and false deductions. The two key laws for Aristotle are the interrelated Law of Non-Contradiction and the Law of the Excluded Middle.¹² The Law of Non-Contradiction states that a statement and its opposite cannot both be true at the same time. So for Aristotle, if you are looking at a frog, it cannot be both alive and dead. The closely related Law of the Excluded Middle says that for a particular thing, at a particular time, a given statement must be either true or false. The frog must be *either* alive or dead. The first principle says a statement and its opposite can't *both* be true, the second, that one of the two, a statement or its opposite, *must* be true. These rules form the foundation for a necessary logic. The Laws of Thought make absolute certainty in knowledge possible because they exclude all gray

questions – scientific statements are restricted to statements which are necessarily either true or false. Therefore, statements of similarity, which assert that two things are neither identical nor truly distinct, are excluded from Aristotelian science by virtue of its logical commitments.

The Laws of Thought do not in themselves determine, however, how the scientist is to go about arranging logical statements in order to determine which statements are true. For that, Aristotle develops his syllogistic method – a kind of logical grammar that determines what combinations of statements are logically valid and then guarantees the certainty of deductions. We are all more or less familiar with the basic form of a valid syllogism: a broad, universal statement known to be true (most famously, “all men are mortal”), combines with a related statement that applies to a particular case (“Socrates is a man”), in order to determine whether the particular consequent (“Socrates is mortal”) is true. Of central importance to Aristotle’s deductive method is the hierarchy of knowledge. The security of Aristotle’s method lies in the necessary and crisp relationship between larger, more universal classes (in this case, all men) and particular members (Socrates). For Aristotle, all scientific knowledge is essentially hierarchical. The world of facts as well as things are arranged into genera that comprise groups of related members tied together by some essential characteristics. It could be a group of organisms, like quadrupeds, or objects, like basalt stones, or even abstract figures, such as quadrilaterals. These groups are themselves arranged into larger groups, which, in turn, are contained within still larger groups. Quadrilaterals, for instance, would be part of a larger group of all abstract figures, which would themselves be part of a larger group that comprises geometry. And in Aristotle’s writing, the relation of member to group is

described as “species” to “genus,” a usage that is not tied to biological species in particular, though it comprises biological groups as well, and represents the more general relationship between particular and collective throughout the hierarchy of knowledge.

For Aristotle, scientific enquiry entails defining natural phenomena in such a way as to clarify their place within the larger hierarchy. To define something is to give a parsimonious statement of discriminating characteristics that subdivide the most general level of category for that object down to its particular character. For instance, I might describe a triangle as a geometric figure with three coterminous sides. And this definition, because it definitively determines what makes a triangle and what discriminates it from all other figures, also provides its explanation for Aristotle. To locate something precisely within the larger hierarchy of knowledge is also to explain why it exists. Aristotle’s analytic method for natural order consists, then, of figuring out what the appropriate definition is for any given phenomenon, and then tying it to the series of nested differentia that relate it to its most general and fundamental class. The hierarchical nature of natural knowledge is key to Aristotle’s thought, because it cements the relation between definition and explanation, and arranges natural knowledge in a system of necessary relations governed by the rules provided by the syllogistic method.

These three components – the Laws of Thought, the syllogistic method, and the hierarchy of knowledge – compose the essence of Aristotle’s scientific system; they guarantee that scientific answers have universal validity, provide a system for analyzing the world logically and resolving questions, and assert that natural knowledge is essentially orderly, universal, and knowable. Without any of these components,

Aristotle's science would not work. Which is why Analogy presented a problem for Aristotle – it violates each of these principles.

Analogy first appears in the *Posterior Analytics* as part of a discussion of genus boundaries. Aristotle goes to great lengths to examine cases that do not seem to fit into his paradigm, and the stability of the hierarchy of knowledge is at stake when Aristotle argues that scientific statements cannot cross genus boundaries. He points out that you cannot argue that a proposition from one genus applies necessarily to another, unrelated genus: “One cannot, therefore, prove anything by crossing from another genus – e.g. something geometrical by arithmetic ... except such as so are related to one another that the one is under the other – e.g. optics to geometry and harmonics to arithmetic.”¹³ As the example shows, because arithmetic and geometry were understood as distinct genera, neither subsumed within the other, propositions from one were not necessarily true for the other. Clearly, this presents a problem to Aristotle, because there are some arguments that apply to both arithmetic and geometry (take the commutative property, for example). In order to explain this, Aristotle turns to “analogy”: “Of the things they use in the demonstrative sciences some are proper to each science and others common – but common by analogy since things are *useful* so far as they bear on the genus under the science” (124). In other words, propositions that apply to multiple discrete sciences are applicable to each individual science only because they necessarily follow from the relations intrinsic to their respective science – the propositions are common by “analogy” only because we can recognize the same necessary proposition as emerging in independent fields. The truth of these related propositions follows Aristotle's hierarchical model, that is, they are cemented independently within each science by

necessary arguments that conform to their particular domain, while our recognition of the pattern – that the proposition appears in each science – is “analogy.”

Let’s step back and examine the role of Analogy in classical Greek thought. In the original Greek, Aristotle uses analogy in the previous quote adjectivally, as *ἀναλογίαν* – its commonality is “analogous.”¹⁴ In this use, analogy predicated a type of relation that was derived from the mathematical use of analogy as a relation of proportions. Analogy, or *ἀνάλογος* – literally “according to a due relation or proportion” – was for the Greeks accordance to a rule of relation.¹⁵ In this mathematical sense, it represented a four-part relation of proportions, in which two ratios were compared, for instance, $\frac{1}{2}$ to $\frac{2}{4}$. In mathematics, then, analogy discovered a relation between relations, the articulation of a class of order that defined the connection between a potentially huge set of particulars – there is an infinite set of proportions that satisfy the same relation as $\frac{1}{2}$. As a relation between relations, Aristotle’s description of principles being “analogous” makes sense because it recognizes a relationship between principles that themselves organize a relationship between the terms of their respective disciplines. Therefore, I might recognize within arithmetic – the domain of numbers – that 45 and 45 are 90, and within geometry – the domain of figures – that two angles of 45 degrees make a 90-degree angle, but the truth of each proposition is secured independently by their separate domains, arithmetic and geometry. What is important is that Aristotle extends this model of the relationship between mathematical patterns into a relationship between patterns generally.¹⁶

Clearly, Aristotle feels the need to address Analogy directly; as a pattern of order that violates the hierarchical arrangement of knowledge by crossing genus boundaries, it

threatens Aristotle's scientific system fundamentally. And in this discussion, Aristotle manages to keep Analogy from violating the larger scientific paradigm. He argues that the truth of a given statement is still secured by the particular logical inferences which can be made within the statement's appropriate domains of knowledge. The insistence upon the epistemic independence of these propositions seems to exclude the relationship of analogy from having heuristic or epistemological value of its own, making it merely the recognition of a pattern which bears no weight in investigation.

In a later discussion of the practice of scientific method, however, Aristotle suggests that analogies can play precisely such a heuristic role in discovering larger patterns. Essentially, Aristotle's method in practice consists in attempting to organize groups of related phenomena into the clearest and most parsimonious description of each genus – the nested list of discriminating characters which simply and necessarily defines each group. (Remember, for Aristotle, the essential hierarchy of natural knowledge makes definition in this manner equivalent to explanation.) What this means is that the investigator will start out with many descriptions and then work to pare away terms that are inessential or redundant in order to get to the essential terms of description – which are logical expressions of the hierarchical order. According to Aristotle, there are two main things which one should try to excise in order to clarify relations: first, cut out divisions, those things which are not common to all the members of the genus, and then cut out the redundant terms – those which follow in all cases from terms already established. But Aristotle then goes on to suggest a third method: “Again, another is excerpting in virtue of analogy; for you cannot get one identical thing which pounce [talon or claw] and spine and bone should be called; but there will be things that follow

them, too, as though there were some single nature of this sort” (162). The talons of a bird of prey, spines of a porcupine, and bones of a fish do not fall within a single genus – and yet, Aristotle argues, you can use the common patterns that they suggest to identify key features or “things that follow them” that apply to their respective genera. By using the analogy between these different physical objects to analyze what is common to each, one may come up with discriminating characters which then apply necessarily to the independent genera (bird, mammal, bony fish) to which they do belong.

The role Aristotle gives Analogy here is profound because it cuts across the strict rules of his methodology. As seen earlier in the *Posterior Analytics*, Aristotle has gone out of his way to emphasize that arguments cannot cross genus boundaries, and that if the same argument applies to multiple genera this is “only” by analogy. But here, “analogy,” in the accusative case, κατὰ τὸ ἀνάλογον, (“according to the analogy”) becomes more than the recognition of a pattern between different domains of knowledge – it has exploratory weight, epistemological value in the search to define the necessary relation between phenomena.¹⁷ Though Analogy violates the strict genus-species hierarchy of necessary syllogistic arguments, it informs this hierarchy, and might be said to impact the structure by threading alternative relations throughout it. To put this more simply, Analogy presents evidence that order is not strictly hierarchical. While necessary arguments retain their order of logical and necessary hierarchy, analogies provides access to a parallel class of arguments that can inform elements in this hierarchy but work outside of it.

Analogy here provides a model of constraint upon the interpretation of natural features that allows the naturalist to look beyond Aristotle’s formal system without being

swamped by the phenomenal universe of observations. Essentially, Aristotle's theory of natural analogy proposes that the formal relation of proportionality that exists between certain mathematical ratios can be mapped onto the syntactic features of natural language, into expressions that satisfy a structured relationship of similarity that "accords" with Analogy. As such, Aristotle's usage reflects what I will describe later as "structural translation" – in this example, the obverse of the case I described in the introduction, in which Niels Bohr incorporated a natural language analogy into mathematical expressions. To revert to the semantic space model that I developed in my introduction, the interpretive search for meaningful natural patterns can be imagined as a contoured surface within semantic space. The dilemma of the naturalist looking for meaningful patterns of nature can be represented as movement across a surface with millions of small, shallow pockets, each representing one interpretation of the nearly infinite phenomena that *might* prove useful (rather than the two deep wells I used to illustrate a case where certain interpretations were very likely). Analogy, by providing a structure for the pattern that the naturalist is looking for, sculpts the topography of that surface, deepening some pockets while eliminating many others. Hence the explicit syntax of analogy, while it cuts across the strict hierarchy of Aristotle's system, provides structural information that helps to organize scientific insight.

Given analogy's violation of the core principles of the *Organon*,¹⁸ it is striking that Aristotle carves out a space for analogy within scientific investigation. It represents, I think, Aristotle's recognition that the hard scientific rules of his method are not sufficient for the heuristic dimension of scientific inquiry (see for instance, Aristotle's discussion of *nous* at the close of the *Posterior Analytics*, where he wrestles with the

source of the universal statements upon which his strict syllogisms rely, in the example given earlier, “all humans are mortal”). To put this differently, Analogy helps to address modes of interpretation which don’t fit into his system. And in many ways, this use of Analogy to address the gaps between the categorical formulations of his theories serves as a model for the function of analogy throughout his works, as well as its function for later writers.

For instance, while in the *Poetics*, Analogy is described as a pattern of language use, rather than a method for finding connections within nature, it serves a similar boundary-defying purpose, as it allows Aristotle to address forms of figurative language that don’t fit the general mold. In the *Poetics*, analogies are explicit four-part comparisons in which two predicates are brought into relation, a linguistic formula familiar today to latter-day S.A.T. takers (for instance, “Test is to student, as hoop is to poodle”). Aristotle’s discussion of Analogy in the *Poetics* is introduced in his discussion of metaphor, where he argues that some analogies comprise one of four kinds of metaphor.¹⁹ Aristotle famously describes metaphor as a form of lexical substitution, in which one term is exchanged for another. For example, in the sentence “Richard is the lion of England” the use of “lion” is not metaphorical because of any particular syntactic characteristics (it is a noun heading up a noun phrase predicated of the subject, and can be substituted for another noun, e.g., “king,” dismissing the metaphor without changing the syntax). What makes a metaphor, according to Aristotle, is the substitution of an unusual term for a more appropriate one, “lion” for “Richard.” This semantic mismatch causes us to see the subject Richard through the lens of a lion, transferring the attributes

of lion to Richard. In the modern language provided by I. A. Richards, Richard is the tenor of the metaphor, lion, the vehicle.²⁰

Analogy takes its formative shape in the *Poetics* through Aristotle's definition of the sources of metaphor. Noting that the relationship between tenor and vehicle needs to be clear, Aristotle proposes three kinds of metaphorical substitutions that bear direct reference to the hierarchical order of knowledge: a genus can be substituted for one of its species, a species for its genus, or two species within the same genus can be exchanged. The use of metaphor in these cases is countenanced by their hierarchical relation; the metaphor makes sense because it relates to the structured system of natural knowledge.²¹ "Metaphor by analogy," on the other hand, relies upon unsecured pattern recognition: whenever there is a similarity of relation between two pairs of terms, so that the four terms can be related in the form "A is to B as C is to D," it is possible to form a metaphor that substitutes one term of each pair – A is to D as C is to B. In Aristotle's example, he draws upon the analogy "Dionysus is to his cup, as Ares is to his shield." Through substitution of terms, Aristotle presents the resulting "metaphor by analogy" as references to either "the shield of Dionysus" and "the cup of Ares." It is the doubled substitution, which rests upon the twinned transfer of characteristics between vehicles and tenors, that seems to make this analogy metaphorical and connects it to the other three classes of metaphor above. It is also important to note that Aristotle doesn't see this as a modified form of species-species substitution. And from *The Posterior Analytics* it is clear why. While Ares and Dionysus might share a genus, it's also clear that porcupines and birds of prey don't. And yet, as the discussion in *The Poetics* makes clear, it would be just as

poetically valid to speak metaphorically of the “talons of the porcupine” or the “spines of the hawk.”

These discussions of Analogy in the *Posterior Analytics* and the *Poetics* also flesh out the distinctions between Aristotle’s use of analogy and his later interpreters – particularly with respect to the “analogy of predication” that is often ascribed to Aristotle’s *Categories*. As Jennifer Ashworth has exhaustively detailed, the interpretations of Aristotelian analogy given by medieval theologians, particularly Boethius, Aquinas, and Thomas Cajetan, were actually drawn from a host of writings, including Aristotle’s *Physics*, *Metaphysics*, and *Sophistical Refutations*. But before launching into the intricacies of medieval hermeneutics, I would like to emphasize two key aspects of Aristotelian analogy. First, it is clearly a complex object; on the one hand, it reflects a form of pattern inherent in nature, albeit one that violates the categorical boundaries of scientific truth. And at the same time, it is a specific expressive formulation – a four-part relationship drawn from mathematics which can be described with the essential formula “A is to B as C is to D”; more traditionally, A:B::C:D.

But the second key aspect of Aristotelian Analogy, to revert to a formal feature introduced in my introduction, is that it is strictly serial.²² Whether we are comparing the biological forms of distinct fauna, or examining the relationships between various Gods and their accoutrement, the relationships are strictly parallel – porcupine quills no more “determine” the relationship between a falcon and its talons than the reverse is true; Dionysus’ chalice has only as much to say about Ares and his armor as the latter’s shield has to say about his cups. As we will see, Aristotle’s focus upon serial analogy is radically reconfigured in medieval hermeneutics in order to answer questions that were

essentially asymmetric (What is the relationship between truth and error? The commonality between God and man?). And this turn to evaluating relationships of radically different epistemological and ontological standing introduced a profoundly formal dimension to analogical thought – an emphasis upon formal analogy that persists today.

ii. Medieval theories of Analogy

The central figure of medieval interpretations of Analogy was St. Thomas Aquinas, who has long been recognized as playing a key role both in recuperating Aristotelian philosophy for the Western tradition, and also, in the synthetic project of reconciling Aristotelian thought and Christian theology, which forged an alliance between naturalism and Christian dogma that had profound impact on later scientific thinking about Analogy. The majority of Aristotle's works were lost until the twelfth century, when contact with the Muslim world began to reintroduce his corpus to the scholars of the Holy Roman Empire.²³ The rediscovery of Aristotle's works led to the great philosophical clash of civilizations of the medieval period, pitting the Augustinians, who held to Augustine's neo-platonic synthesis, against the Latin Averroists, who assiduously ascribed to an Aristotelian model of the world.²⁴ Into this breach stepped Aquinas, along with his mentor, Albertus Magnus, and it was Aquinas' synthesis of Aristotelian and Augustinian thought which provided a platform for the next half-millennium of scientific and religious thought.

Aquinas' engagement with theories of Analogy is extensive and complex. In addition to a thorough-going reorganization of classical biblical hermeneutics, which I will touch upon below, Aquinas turned to Analogy in order to answer basic questions about the description of existence and the nature of our relation to God. If the divine and the terrestrial had distinct orders of being – that is, if we can not observe the divine because we exist in the limited, flawed terrestrial world – how is it that we can say God is good? If the mundane world is flawed and imperfect, the kind of goodness we speak of when saying ice cream, or a movie, or our best friend is “good” must be fundamentally different. And if so, it would be impossible to know anything concrete about God, because the statement “God is good” couples our word for prosaic goodness with the divine. At its core, the problem was in the relation between language use, experience, and knowledge – language that was used to describe actual experience could not describe experience which it was impossible to have.

In part, Aquinas' solution drew upon the work of Boethius, who, guided by Aristotle's *Categories*, included analogy as a class of equivocation. Whereas in normal equivocation, a word has two distinct meanings and can therefore be predicated in an unrelated manner of two different subjects (for instance, “hot” as applied to a beverage versus a color), the “analogy of predication” for Boethius was a category of words that applied to multiple objects because those objects each individually have a similar relation to the term. As an example, Boethius discusses the use of “principium” (that from which anything grows or develops²⁵) for the point of a spring and the beginning of a line.²⁶ Aquinas modified Boethius' “analogy of predication” to describe terms that applied to both the divine and the terrestrial as neither strictly univocal nor equivocal, but

analogical. Such attributes, when predicated of different subjects, were neither strictly the same nor different. While Boethius saw analogical predication as a type of equivocation, with two meanings, Aquinas gave it a class by itself. For Aquinas, “being” was an exemplary case, because it had to be true both that God is and that we are, and moreover, because God created us, the type of being we possessed cannot be wholly distinct.²⁷ On the other hand, God’s being must by nature be perfect, while in our fallen condition, the type of “being” humans possess must be imperfect. Thus we “are” and God “is,” and the kind of “to be” used in each is neither distinct, nor identical.²⁸ Aquinas’ emphasis upon being as the most important case for the “analogy of predication” was so influential for later theologians that it came to be known as the “analogy of being.” Note also that, within the theological and ontological parameters of the question, analogy’s function in this case is radically different from that described by Aristotle. Whereas, for Aristotle, analogy was a serial, four-part relation that juxtaposed two equivalent sets of relationships, Aquinas’ theory of analogy is predicated upon the radical imbalance between the two sets of relationships. The accessible, fallen, mundane world is compared to the inaccessible, perfect realm of the divine. Moreover, the epistemological dimension of the tradition of Analogy has become exclusively directional – an attempt to use human understanding to ascertain knowledge of the divine – instead of a balanced set of relationships where each side of the comparison offers potential insight into the other. Thomist analogy is deeply formal.

This refashioning of analogy extended to Aquinas’ interpretation of classical hermeneutics. In particular, it was Aquinas gave determinative shape to the “four-fold” method of interpretation for later thinkers, including, among its categories, “analogical”

interpretation. Because these theories played such a large role in later arguments over the status of analogy in natural and theological interpretation, and because they mark such a departure from the analogy of predication, they bear some quick discussion. The early Christian church faced many problems of authority and interpretation. One of the key problems posed by the developing religion was the wide disparity between older Mosaic texts and the newer scriptural accounts of the lives of Christ and his apostles. Long before modern understandings of transformational history developed, analogy played a central role in the formation of early Christian theories of temporal continuity. Biblical hermeneutics flourished in the Early Christian church as scholars attempted to address the central interpretive problem of the Bible: what is the unity of the Old and New Testaments, when their faith and practices strike such violent contrast? In order to grapple with this challenge, early theologians drew upon Gnostic traditions that interpreted the mosaic accounts of the Pentateuch as the forebears of contemporary Hellenic philosophy.²⁹ Christian commentators adopted these methods by attempting to show the accounts of the Old Testaments foreshadowed the later sacrificial redemption of Christ. This was the advent of typology, which read Old Testament accounts as both literal historical events and prophetic harbingers of the later events of the New Testament. As hermeneutics developed, the temporal logic of typology was supplemented by figurative modes of reading, particularly allegory. The result was an explosive proliferation in levels of meaning – the same account could function in a multitude of ways.

One early and powerful advocate of this layered interpretation of the bible was Augustine, who, as the Bishop of Hippo in the early fifth century, felt the acute need for a

rule of biblical coherence. Such a rule was the key to stabilizing doctrine in the service of his skirmishes with Manicheans and other Christian sects over the unification of the church and the constitution of the Christian corpus.³⁰ Augustine's solution, as later redescribed by Aquinas in the "four-fold" system of biblical interpretation,³¹ held that there were four possible meanings for Biblical accounts: (1) words could have an historical meaning – describing a specific historical event, (2) an aetiological meaning – which referred to the cause for which something occurred, (3) an allegorical meaning – in which the entire passage stood as a typological "figure" for some later event, and (4) an analogical meaning – a meaning which could specifically adapt apparent discrepancies within Old Testament accounts to the broader intent of scripture.³² The first three categories of interpretation have specific referents; the historical meaning references a literal event, the aetiological refers to a specific cause, the allegorical – Augustine's typological category – a specific later event. But the analogical meaning refers to something much more general: a meaning that could specifically adapt apparent discrepancies within Old Testament accounts to the broader spirit of scripture. In *On Christian Doctrine*, Augustine elaborates upon how to apply this analogical meaning:

In regards to matters of this sort [Old Testament actions which seem sinful], whatever the holy men of those times did without lust, scripture passes over without blame. ... And everything of this nature that is there narrated we are to take not only in its historical and literal, but also in its figurative and prophetic sense, and to interpret as bearing ultimately upon the end of love towards God, or our neighbor, or both.³³

In other words, Old Testament figures could perform apparently sinful actions without sin because these actions accord figuratively with the doctrine of love expressed in the New Testament. While the figurative sense of the Old Testament passage is produced by an allegorical reading, its accordance with the New Testament is produced by the analogy

between the figurative meaning and the doctrine of love. Allegory opens up the range of interpretations – analogy brings it into concert with the overall spirit of the Bible. Thus interpretation by analogy in Augustine is a method of reconciling apparent contradictions, one that sifts the competing possibilities of historical, literal, and figurative senses for global cohesion. Analogy here solves the basic interpretive problem of any interpretive project that recognizes multiple possible meanings: how are we to select the *correct* meaning? In the seventeenth century, theologians would come to characterize the principle of broader scriptural comparison as the “analogy of scripture,” and the comparison to the fundamental message of God’s love as the “analogy of faith.” More generally, Analogy gave Augustine precisely the governing principle needed for determining which texts and which interpretations, were valid – its centrality to exegesis persisting in the modern catechism. Augustine elaborates upon this principle, working the guidance of analogy into a mode of hermeneutics that governs all interpretation: “in regard to figurative expressions, a rule such as the following will be observed, to carefully turn over in our minds and meditate upon what we read till an interpretation be found that tends to establish the reign of love.”³⁴ In Augustinian hermeneutics, the “reign of love” is shorthand for the larger system of order which Analogy provides access to, a system that governs all particular expressions.

Note that, as in the Thomistic “analogy of being,” Augustinian analogy is formal in character – it’s profoundly directional and asymmetric. And this is because the problem of interpretation is reconfigured as the relationship between partial, unstable, challenging Bible passages and the universal, stable, benevolent referent of God’s love. The Augustinian analogy of faith is symptomatic of Augustine’s Platonic model of the

relation between expression and meaning. His Neo-Platonism led him to conceive of the world as a system of signs that must be reinterpreted in order to recapture their deeper meaning.³⁵ The breadth of this principle can be recognized in the transcendent epistemology that Rita Copeland has noted in Augustine's method of reconciling conflicting Biblical translations: "The emphasis upon transcendent meaning, from which no version, despite its linguistic peculiarities, is exempt, argues for a metonymic picture of translation. Its force in this framework is reconstitutive, to recover a kinship or wholeness of meaning beyond the circumstances of individual languages."³⁶

Aquinas, as I noted earlier, was a key mediator of Augustinian thought for later theologians. But Aquinas was also a key early theorist of the argument from design, a crucial component of the tradition of natural theology. As noted, Aquinas' incorporation of Aristotle was fundamental and wide-reaching. While the analogy of predication provided a solution to the problem of language use in relation to God – how a word or quality can be applied to the terrestrial as well as the divine – it did not completely solve the problem of the *experience* of God – whether we know anything about God based upon the world we see. The solution to this dilemma was Aquinas' formulation of "natural reason." Aquinas' great project was to reconcile Aristotle and Catholic thought by arguing that humans possessed a natural reason, an innate faculty that could, on its own, give knowledge of God and supplement revelation. Aquinas argued that as God was rational, faith and reason could not contradict, and that by observing the truths of the world, we could learn something of the truths of God. This thesis was the foundation of what would become natural theology – the examination of the natural world in order to learn about the divine. It reformulated knowledge in a two-tiered, harmonious system: at

the higher level stood the superstructure of faith and the interpretation of “revealed religion” provided in scripture and enlightened accounts. Beneath this more traditional Augustinian system, Aquinas installed an undergirding of natural reason and truths developed from the observation of nature – “natural religion.” It was a synthesis of profound cultural import, because it enlisted burgeoning developments in scientific thought in the service of God, defusing what was then becoming a heated contest between religious dogma and natural observation.

Aquinas set forth his natural theology with five key examples in the *Summa Theologica* – each an argument for God based upon observations of the natural world.³⁷ He begins with some key objections to the proposition that God exists, including the suggestion that there is no need for God, because all can be understood as the product of natural principles and human will. In riposte, Aquinas develops five “proofs” of God’s existence, each based upon arguments from Aristotelian physics. The first four arguments are rooted in Aristotelian formulations of causality, the fifth provides the first full articulation of the argument from design (in noting the appearance of intelligent design in nature, Aquinas argues we must accept that behind this design is an intelligent designer). The mechanics of these arguments are not important; what is important is that Aquinas uses observations upon the physical world to argue for God’s existence as the great “First Cause” of nature. The structure of this argument is calculated to forestall the nascent secular-materialist worldview of the neo-Aristotelians by enlisting their philosophy in the service of theology. To put this differently, natural theology is from the beginning an apologetic, meant not to propound religion, but to argue against an exclusive materialist worldview. The argument from design establishes the basic analogy

between the human design in manufacture and the divine act of design in creation. While Aquinas would not have considered this an analogy in the sense I use it here – i.e. as an articulated relation between two disparate domains – he would have recognized a form of analogical predication in applying the term “design” to both human actions and the divine.

In Aquinas’s writings, these various articulations of analogy – from the broad interrelation of natural and divine characters, to its more focused articulation as the regulative analogy of faith in hermeneutics – served to enthrone the tradition of Analogy as the epistemological bridge between the divine order and the particulars of mundane experience, interpretation, and expression. Aristotle’s original discussion of analogy’s power to violate the strict, logically-defined domain boundaries of his natural philosophy established Analogy as a form of circum-logic, an epistemological tool that could slip past traditional category boundaries and recognize alternate regimes of order and knowledge. With the reintroduction of Aristotle’s logic in the thirteenth century and his enthronement as *the* natural philosopher, the value of this circum-logic appreciated, because it gave natural philosophers access to a mode of exploration that escaped the strict grammar of Aristotelian arguments. At the same time, the reinterpretation of Aristotelian, Augustan, and Thomist Analogy developed by Christian hermeneutics and natural philosophy profoundly influenced how later theorists of Analogy understood its epistemological character. Analogy became deeply associated with divine pattern and natural reason, while at the same time, it took on a much more formal character. The patterns of analogy were no longer simply informative features of nature – they were evidence, clues that led to higher truths. And Analogy’s pervasiveness as a method for

uncovering divine order and intent displaced alternative methods of theological enquiry.

One clear example of this is the reversal that Victor Harris charts by which Analogy comes, in the seventeenth and eighteenth centuries, to supplant allegory and other figurative strategies of biblical interpretation as the hermeneutic method *par excellence*.³⁸

Whereas analogy had shared billing with other typological and allegorical models of figurative language, by the Enlightenment, these specifically textual methods of interpretation came into increasing disrepute. Aquinas' rational revolution and the centrality of Aristotelian principles resulted in an increasingly powerful role for the analogical technology of comparative philological and historical analysis in biblical interpretation, while typological models of interpretation became associated with an ungrounded mystical method. This process culminates in a final reversal: Analogy completely usurps the primacy of biblical interpretation, and natural theology becomes the primary way to articulate the correspondence between natural and scriptural order. As Harris puts it, "The final stage in this process coincided with the resurgence of 'divine analogies' between spirit and nature. Allegories were converted from figure to argument, and survived only by translation into the more precise idiom of analogy."³⁹ In this final transition, we can recognize the influence of analogical thinking in Thomist metaphysics, which developed analogy alongside natural theology as a method to bridge the gap between human and divine.

The influence of Christian theology over analogical practice had an additional far-reaching impact on Analogy itself. To return to the formal categories introduced in my introduction, analogies, used to bridge the gap between orders of radical ontological, metaphysical, and semiotic distinction, became increasingly less serial and more formal

in nature. Whether in the analogy of being, or the analogical interpretation of scripture, Analogy served to articulate a connection between what was proximate, knowable, mundane, and flawed, to what was absent, unknowable, divine, and perfect. This induced a strong polarization in the use of analogy, as one half of the relationship served as model or guide for understanding the other. Whereas in Aristotelian science, analogy served as a structural description that only specified what parallelism might look like, theological analogies were more heavily constrained because they both determined the epistemological direction of the analogical relationships they offered, and the doctrinal nature of the relationship. So, for Aquinas, it is not sufficient that Boethius's analogy of predication provides a structural description of split signification; its application within theological discourse required the further restriction to those predicates (like being and goodness) which necessarily applied to the divine (the analogy of being). To return to the semantic space model of interpretation, this increasing formalization further constrains the kinds of interpretations that will serve as examples of valid analogy by specifying both directionality and theological context – restricting interpretation to a smaller number of deepening wells. In return, the strength of these interpretations was reinforced by their service to and alliance with Christian dogma.

iii. Analogy in the Early Modern Period

But the variation in analogical practice produced by early church and medieval theology also marks Analogy's early implication in the differential forces of modernization. By the early modern period, the increasing range of discourses in which

the tradition of Analogy played a role marked its engagement with a variety of increasingly discrete, professionalized, and institutional modes of cultural production. The titles and advertisements of a diverse collection of seventeenth-century tracts illustrate the increasing cultural influence that Analogy exerted within this diversifying landscape. As I will discuss in the following chapter, early linguistic analysts and grammar writers enlisted Analogy as a way to describe the patterns of such philological features as verb declension and the interrelationship between different languages, including John Huise's, *A survey of the English tongue: taken according to the vse and analogie of the Latine* (1624, 1632) and Henry Edmundson's *Lingua linguarum = The natural language of languages Contrived and built upon analogy, a designe further improvable, and applicable to the gaining of any language* (1655, 1658). And in a different vein (as Joseph Butler would later note in his *Analogy of Religion*), Analogy's role in natural theology served to reinforce Aristotle's argument that it could illuminate patterns within distinct natural phenomena, a point emphasized by William Simpson's *Two small treatises* (1678), which includes *A medico-philosophical analogy betwixt the juyce of the grape, with other fermentable liquors, and the blood of humane bodies, in order to fermentation and the tight understanding of fevers*. But perhaps Analogy's most prominent role in the seventeenth century was its enlistment in theological Tractarianism and the extensive sectarian debates that marked seventeenth-century British theology. In this, the Tractarians were anticipated by Henry Lok, who justified his poetic translation of Ecclesiastes into sonnets (1597) by advertising it to be "according to the analogie of Scripture, and consent of the most approued writer thereof." Henoah Clapham's *Antidoton* (1600) supported its use of the parable of the tares as a "remedie against

schisme and heresie” by means of the “analogie and proportion of faith.” Nicholas Gibbon argued that the “briefe, faithfull and sound expositions” of his *Questions and disputations concerning the Holy Scripture* (1601, 1602) are “fully correspondent to the analogie of faith, and the consent of the Church of God.” John Goodwin, in the separately-published “post-script” (1647) to his own tolerationist *Hagio-Mastix* (also 1647), justifies his explication of Zacharie’s prophecy as “According to the analogie of the Sriptures [sic], the scope and exigency of the context, and the sence of the best expositors upon the place.”⁴⁰ John Yates, in his *Imago mundi, et regnum Christi* (1652), argues for the warrant of English “episcopacy” in part, by asserting the “analogie” between the government of the Gentiles and “lawfull hierarchy” of the Jews. Richard Burthogge provided *An argument for infants baptisme deduced from the analogy of faith, and [of the] harmony of the [Scr]ipture* (1684). As a final example, William Levitt, in *The glorious truth of redemption by Jesus Christ* (1652), presents “the doctrine of redemption rightly stated: wherein, 1. All Arminian and Pelagian glosses and absurdities are refuted. 2. All carnal allegations and reasonings silenc’d. 3. All concern’d scriptures seemingly discording, reconcil’d. 4. The doctrine of redemption clearly held forth” – all justified by both the “harmony of scripture, and analogie of faith.” This double reference, which separates out the “analogy of faith” between meaning and the unitary scriptural message of God’s love, from what was elsewhere described as the “analogy of scripture” that existed between all biblical passages, reflects the further proliferation of analogical practice in the period, as what was once taken as a singular practice in Augustine and Aquinas was separated out into two interrelated and mutually-reinforcing methods. As such, this illustrates how Analogy both helped articulate the religious

differentiation that marked the Tractarian debates of the seventeenth century, and was conditioned by that differentiation.

At the same time, this multiple engagement and proliferation in the uses of analogy produced powerful cross-pressures. Rhetorical critique was a key element of these cross pressures, with concomitant calls for an a-rhetorical language – a “plain” style or “scientific” language. The scientific revolution of seventeenth-century England has been associated with an equally broad revolution in prose style.⁴¹ In the traditional account, early seventeenth century prose was characterized by florid Ciceronian style, but agents of the Royal Society and the Anglican church, in the interest of truth and the requirements of the new empirical science, successfully argued for a “plain” prose style that focused on unadorned clarity. As recent critics have pointed out, the actual case of this shift was much more complicated.⁴² Rather than understanding the seventeenth century plain style movement as an attack upon rhetoric, it is in many ways more useful to understand it as a particularly explicit discussion of rhetoric’s long-held anxieties about the relation between language and truth, and its traditional concern with a principle of style that would reign in rhetoric’s most abusive excesses.⁴³ These concerns, in particular, the sense that rhetorical language provided proliferating and superficial embellishments that threatened to obscure expressed truth, motivated various attempts to articulate a principle of cohesive style – the stylistic relation between similarity and difference. This question of stylistic consistency drove rhetoricians to search for a principle of organization that was flexible but consistent. In *The Garden of Eloquence*, (1593), Henry Peacham highlights the problem of variety in order to describe the ideal relationship between similarity and difference mathematically:

The places from which translations [into various expressions] may be taken, are infinite, notwithstanding there be certaine that be verie usuall, readie, apt and pleasant, which I purpose hereafter to observe and note, as the most plentifull fields, yeelding such profitable and pleasant flowers.

This excellent Art of translating, amòg other profitable rules commendeth to us this necessarie observation to begin with, that is to say, that those things ought to be equal in proportion, which we purpose to compare by translation, that is, of foure things two ought alwayes to be compared to two, as for example, we say the flower of age, her in this translation the herbe and the flower is compared to man and his youth, for the same that the flower is in the herbe, the same is youth in man.⁴⁴

Before descending into a voluminous list of the tropes and “schemates” that provide the variety of expression and style in eloquent discourse, Peacham summarizes the governing principle of stylistic continuity – the principle of harmonious selection – as a kind of proportional “translation.” It’s important to note that “translation” – in the Latin, *translatio* – was nearly interchangeable with “metaphor” in the period; what Peacham describes here is a rule of stylistic coherence modeled on Aristotle’s metaphor by analogy. This emphasis upon the four-part structure of proportionality avoids interpreting selection as the simple two-part relationship of substitution (word for word, or phrase for phrase). Instead, the formula of proportion envisions style as a relation *between* relations – transforming the simple metaphor “the flower of age” into a complex relationship between age and youth, and flower and seedling. It is the four-part structure of analogy, and Peacham turns to it because it offers a principle of relation that sets the individual selection of a trope into the larger meaning of a sentence or passage, situating the particular problem of elaboration within the larger syntagmatic relationship of discourse.

The translation of “analogy” as proportion was also common in the period. In his 1550 *Treatise of schemes [and] tropes*, Richard Sherry explicitly identifies the stylistic virtue of proportion with “Analogia,” continuing: “*Proportio*, proportion is, where by the

maner of true wrytynge is conserued. By thys the barbarous tonge is seperated from the verye true and naturall speche, as be the fyne metals from the grosser.”⁴⁵ In line with Peacham, Sherry argues that proportion/analogy is a principle of cohesive textual style, one that forestalls “barbarous” language. Peacham and Sherry illustrate that the mathematic and linguistic dimensions of analogy retained close association in the sixteenth century. Whereas in Aristotle’s works, Analogy represented a fruitful but powerful heuristic for discovering patterns within nature, for Peacham and Sherry, it serves as an intrinsic regulative principle, governing individual elaborations in much the same way that the “analogy of faith” and “analogy of scripture” moderated the various conflicting accounts of scripture. By tying this principle of organization to the epistemological load stone of mathematics – which still served as a touchstone for logical order and certain truth – Peacham and Sherry’s emphasis upon proportionality in language works to locate this principle outside the increasingly suspect world of expression. In a sense, then, the versions of analogy developed within Peacham and Sherry’s tracts profit doubly from rhetoric’s burgeoning divide between truth and language, sense and word, as they both serve to address this divide by organizing expression, and emphasize analogy’s extra-linguistic mathematical roots via the language of proportion.

The use of analogy by Peacham and Sherry as a regulative principle reflects the influence of biblical hermeneutics and theology. As we’ve seen, Augustine and Aquinas utilized analogy to solve problems of relation, articulating a system of order that could draw together disparate expressions, contrasting texts, even different orders of existence. But Analogy’s implication in rhetoric presented problems. If, in Peacham’s rhetorical

formulation, analogy is “of foure things two ... compared to two,” this definition makes it kissing cousin of tropes, like metaphor, which also rested upon a sense of similarity.

While analogy was articulated as a principle of systematic style, rather than as a trope, its clear association with comparative tropes, as well as its incorporation into rhetoric generally, presented profound problems for the use of analogy in philosophical discourse in the seventeenth and eighteenth centuries.

The immediate source of this problematization of Analogy as rhetoric was the widespread condemnation of tropes and figures in the century after Peacham. Thomas Spratt, in his *History of the Royal Society*, presents a vivid example of this vitriolic argument:

Who can behold, without indignation, how many mists and uncertainties, these specious *Tropes* and *Figures* have brought on our knowledge? ... And, in few words, I dare say; that of all the Studies of men, nothing may be sooner obtain'd, than this viscious abundance of *Phrase*, this trick of *Metaphors*, this volubility of *Tongue*, which makes so great a noise in the World.⁴⁶

As opposed to this “viscious” rhetoric, characterized by excess, trickery, and overweening fluency, Spratt lays out the stylistic principles of his society: “a constant Resolution, to reject all the amplifications, digression, and swellings of style: to return back to the primitive purity, and shortness, when men deliver’d so many *things*, almost in an equal number of *words*.”⁴⁷ Spratt continues by associating this style with “the language of Artizans, Countrymen, and Merchants.” Recognizable in the stylistic principle that Spratt elucidates is a focus upon restraining language that has much in common with Peacham and Sherry’s formulation of Analogy. Indeed, it has been argued that the plain style of the seventeenth century was not a rejection of rhetoric, but rather the recuperation of one of the three styles (high, middle, low) first laid out by Cicero.⁴⁸ But rather than insisting that the words be adjusted to each other, as in the principle of

proportion, Spratt's emphasis is upon the tight restriction of words to "things." In place of an internal principle of order, Spratt puts heavy emphasis upon grounding language in the material world, an exteriorization of style and value that fits neatly into the empirical spirit of the Royal Society. The apparent grounding of the Royal Society's style in the exigencies of their philosophy has been challenged by various critics.⁴⁹ In a revised attempt to address the weight of empiricism and anti-Ciceronianism in the formulation of the plain style, Brian Vickers has persuasively argued that, first and foremost, the plain style controversy was a front in a politically-driven attack upon dissenters by powerful aristocratic and church interests.⁵⁰

But the attack upon rhetorical language in the seventeenth century yielded a powerful critique of language itself, albeit one for which rhetoric had laid the groundwork. The political thrust of the attack upon seventeenth-century rhetoric, particularly in the Tractarian debates, stamped expression *qua* expression as a culprit of violent political and philosophical turmoil. The movement firmly established an opposition between rhetoric and elaborate language on the one hand, and plain speech and fact on the other. To put this differently, the "plain style" argument of the seventeenth century was an argument heavily conditioned by the particular political and theological turmoil of the period but had much larger and long-lasting cultural ramifications. And these effects were particularly pronounced in scientific discourse. What the "plain speech" formulation meant was that language was truthful insofar as it effaced its status as language. That is, language became understood as a problem insofar as it was anything but "transparent." And at the center of the non-transparency of language is self-referentiality. This effacement can clearly be seen in Royal Society

member John Wilkins' attempt, in his *Essay Toward a Real Character, and a Philosophical Language* (1668) to invent a new language that did not refer to words *at all*. The design of Wilkins' treatise was to create a system of signs that corresponded directly to atomistic physical principles and objects. By combining these signs and the physical characteristics they represented, larger terms and phrases would be produced that corresponded directly to the physical world. As Wilkins put it, "If to every thing and notion there were assigned a distinct *Mark*, together with some *provision* to express Grammatical *Derivations* and *Inflexions*; this might suffice as to one great end of a *Real Character*, namely, the expression of our Conceptions by *Marks* which should signifie *things*, and not *words*."⁵¹ In the dedicatory epistle, Wilkins argues that such a language, besides contributing to natural investigation and commerce, would go far toward solving recent religious controversies, which are rooted in the "wild errors, that shelter themselves under the disguise of affected phrases."⁵²

As I will detail in my final chapter on analogy and modeling in *The Origin of Species*, the essentially suspicious understanding of language which such critiques produced had a long-lasting influence on scientific practice, and remains a key challenge of scientific history today. The recognition that Royal Society members emphasized "plain style" out of political, as much as methodological concerns unhitches the attack upon language and rhetoric from the empirical demands of the new science. The polarization of truth and fact on the one hand, expression and elaboration on the other (a polarization which has become endemic in the depth model of language) is a contingent, historical phenomenon. But the critique of rhetoric leveraged by the seventeenth century meant that for Analogy to function, that is, for investigators to bring together previously

unrelated domains of knowledge and produce new connections and new meanings through explicit multi-part comparison, Analogy had to be inoculated against the critique of rhetorical language practice, in particular, tropes like metaphor.

iv. The Eighteenth Century and Natural Theology

Insofar as eighteenth-century rhetorical treatises continued to theorize analogy as a component of rhetorical argument, its epistemological claims remained suspect. Hence Peter Browne, in his *Things divine and supernatural conceived by analogy with things natural and human* (1733), establishes the grounds for his argument for revealed religion by carefully defining the difference between metaphor, “*Substitution . . . on Account of an Appearing Similitude only*” and analogy, “*Substituting . . . on account of a True Resemblance.*”⁵³ Dugald Stewart also makes analogy central to the diagnostic distinction between superficial and substantive connection in the first volume of *Elements of the Philosophy of the Human Mind* (1792); Stewart locates analogy within all wit and allusion, and makes the lesser poet’s willingness to trace analogies for their own sake the essential discriminant between the “perfect” allusions of “serious poetry,” and those examples, as in the “allusions of Cowley and Young, [in which] the Fancy of the Poet degenerates into wit.”⁵⁴ Such criticism of Analogy put the onus upon practitioners to distinguish it from other forms of literary or rhetorical expression. Colin Jager has given extensive attention to the challenges of this “rhetoric of analogy” within the tradition of natural theology, arguing that, for both Immanuel Kant and William Paley, Analogy stood as an unstable but unavoidable tradition of rhetorical argument.⁵⁵

At least one later theorist of rhetoric, George Campbell, posited that *all* rhetorical comparisons were examples of analogy, and argued in his *Philosophy of Rhetoric* (1776) that such comparisons were closely related to “all the other rhetorical tropes and figures which are addressed to the imagination,” including simile, metaphor, allegory, and prosopopeia.⁵⁶ For Campbell, analogy was a class of “moral evidence” – those examples used in argument which, unlike the syllogisms of logic, are uncertain or probable. Campbell separates evidence by Analogy, “founded on some remote similitude,”⁵⁷ from the evidence of actual experience, including scientific experiment. He presents an example: if a scientist proves by experiment the circulation of blood in the human body, he has experiential evidence to prove that blood circulates in other animals. “But should I from the same experiment infer the circulation of the sap in vegetables,” he continues, “this would be called an argument only from analogy.”⁵⁸ Problematically, we have to judge how proximate or “remote” the comparison is to decide whether to classify it as evidence or analogy, rather than recognizing diagnostically any such comparison between two sets of relationships as “analogy” (for instance, A is to B as C is to D). Analogy is defined in opposition to, but contained within, a larger order of knowledge, here instantiated by the regulatory language of proximity. To put this differently, Campbell partitions the space of all analogical interpretations by dividing the “proximate” from the “remote,” marking the former as products of scientific experience, the latter, “analogy.” Campbell contrasts the remoteness of such analogy with the evidence of experience in the example of blood circulation because, “when we consider the great similarity which other animal bodies bear to the human body . . . particularly when we consider the resemblance of the blood itself, and blood vessels, and the fabric and pulsation of the heart arteries, it

will appear sufficient experimental evidence of the circulation of the blood in brutes.”⁵⁹

Strikingly, the form of Campbell’s “experiential” argument – a multi-part comparison that justifies the application of knowledge to different cases – is evidently analogical.

We have already seen an explicit use of analogy to describe such a process in William Simpson’s 1678 treatise, *A medico-philosophical analogy betwixt the juyce of the grape, with other fermentable liquors, and the blood of humane bodies*. In the early nineteenth century this class of comparison of physical structure was termed either “analogy” or “homology” in works by Geoffrey St. Hillaire and Richard Owen, a subject of my third chapter.⁶⁰ But in Campbell’s formulation, within the conflicting cross-pressures of early modern scientific and rhetorical discourse, we find an exemplary case in which a practice termed “analogy” is defined in opposition to what is also clearly analogical practice (insofar as we retain an understanding of analogy, developed in my introduction, as those cases in which two sets of relationships are explicitly compared).

This marks Analogy’s high profile in critiques of rhetorical and speculative language – it became necessary to save it from itself. Moreover, the distinction in degree that Campbell proffers between “Analogy” and analogical practice is carried by a contrast between the “remote *similitude*” on which analogy is based, and the “great *similarity*” which justifies proper extension of experience. This opposition of the modern term “similarity” to the more archaic “similitude” (closely associated with rhetoric) suggests, for the discourse of Analogy, how epistemological distinctions between scientific and unscientific knowledge were expressed through oppositions between the newer naturalistic vocabulary of sensationist philosophy and older rhetorical terminology.⁶¹ Such disagreements about the nature of Analogy, and the more particular project of

specifying its uses and limits, map out the differentiation and formalization of increasingly distinct discourses, the proliferation of disciplines and modes of cultural authority that mark modernization.

It is within this context that we can make sense of the close coordination of analogy with probability in the skeptical philosophies of Locke and Hume. Locke argued that “Analogy is the great rule of probability” in matters regarding which direct observation and testimony are unavailable, for instance, in the case of metaphysical agents like “spirits, angels, [and] devils” or regarding the unknown causes of natural phenomena, for instance heat, magnetism, and reproduction.⁶² Hume, similarly, associates analogy with the degrees of uncertainty inherent in the “customary conjunctions” of the abstract sciences – particularly cause and effect – as well as arguing that analogy plays a key role in discriminating between what is merely improbable and what is truly miraculous.⁶³ In both cases, analogy is simultaneously tied to naturalistic enquiry *and* the metaphysical status of key components of Christian dogma, even as analogy is reconditioned by coordinating its inferences with the valuations of probability. In this way, skeptical philosophy illustrates the complexity of the tradition of Analogy’s intermediate status with regard to both epistemology and the hardening of disciplinary distinctions between natural knowledge and theological inference. Moreover, the empiricist idiom of experience and probability in Locke and Hume still affords analogy a deeply formal character in their philosophy – analogy is restricted to applications of known knowledge (derived from experience) to unknown cases.⁶⁴

This deeply cross-pressured environment of theological, philosophical, and rhetorical debate delineates the heavily-conditioned interpretation of analogy that Joseph

Butler offered in his widely-influential *Analogy of Religion* (1736). With more than a dozen editions by 1800, Butler's *Analogy* stood as the preeminent work of eighteenth-century natural theology, and testifies to the increasingly careful positioning required in order to bring *Analogy* to bear even on one of its traditional objects – the correspondence between knowledge of nature and knowledge of God. In line with contemporary theories of sensationist philosophy, Butler emphasizes the probabilistic nature of analogy; while he refuses to “inquire further into the nature, the foundation, and measure of probability ... this does not hinder but that we may be, as we unquestionably are, assured that analogy is of weight, in various degrees, toward determining our judgment, and our practice.”⁶⁵ This engagement with skeptical philosophy also maps onto Butler's discrimination between true analogies and “seeming analogies, which are really of none” (37). But *Analogy* takes on a further, particularly qualified character in Butler's work, because it serves an exclusively negative function. This negative role is rooted in the treatise's rejection of theodicy: “The design of this treatise is not to vindicate the character of God, but to show the obligations of men; it is not to justify his providence, but to show what belongs to us to do” (337-8). Referencing Origen's observation that “he who believes the Scripture to have proceeded from Him who is the Author of Nature, may well expect to find the same sort of difficulties in it as are found in the constitution of nature” (37) for authority, Butler sets out to refute *other* analogical arguments about the insufficiencies of Christianity. As Butler puts it, “he who denies the Scripture to have been from God, upon account of these difficulties, may, for the very same reason, deny the world to have been formed by him” (37). Much as Aquinas had developed his argument from design with respect to Aristotelian naturalism, Butler's argument is

calculated against those strains of natural religion and deism that, while accepting “an author of nature,” argued that the inferences gleaned from natural order told against elements of Christian doctrine. Butler sets out a reflexive *ad hominem* argument, suggesting that the analogical critiques of Christianity leveled by the naturalists applied equally well to the analogical, intentionalist foundations of their own natural religion. Hence, the first half of the book presents a careful discussion of various inferences supplied by natural religion, in which he examines the characteristics of natural order that exhibit design (from evidence of life beyond death, to the “moral government” of nature), before turning to Christian doctrine itself, in order to demonstrate, by analogy, that they are not incompatible. By disproving the negative, Butler labors to remove the grounds of disbelief, if not secure affirmation. Butler himself notes the oddly circuitous argument he is presenting, voicing the criticism of an interlocutor who might point out that “it is a strange way indeed of convincing men of the obligations of religion, to show them that they have as little reason for their worldly pursuits” (333). The degree to which Butler feels required to take this “strange way” marks the increasingly problematic stature of Analogy in the eighteenth century. As Butler puts it:

though some, perhaps, may seriously think that analogy, as here urged, has too great a stress laid upon it; and ridicule, unanswerable ridicule, may be applied to show the argument from it in a disadvantageous light; yet there can be no question but that it is a real one. For religion, both natural and revealed, implying in it numerous facts; analogy, being a confirmation of all facts to which it can be applied, as it is the only proof of most, cannot but be admitted by every one to be a material thing, and truly of weight on the side of religion, both natural and revealed; and it ought to be particularly regarded by such as profess to follow nature, and to be less satisfied with abstract reasonings. (346)

The carefully-qualified brief for analogy’s power saps the assertion that follows: “to an unprejudiced mind, ten thousand thousand instances of design cannot but prove a designer” (347). While Butler insists that analogy is “real,” a “confirmation” and “proof”

of facts, a “material thing,” the severely attenuated form of analogy which he endorses argues otherwise.

In addition to standing as a particularly sharp example of Analogy’s complex and increasingly compromised position within eighteenth-century discourse, Butler’s tome illustrates the role that Analogy played in articulating the very differentiation of cultural practices that drove those cross-pressures. Even as Butler’s *Analogy of Religion* seeks to use Analogy to articulate the compatibility of “natural” and “revealed” theology, the very necessity of making the case illustrates how far apart they had drifted. The tradition of natural theology had emerged in the context of Christian apologetics as an engagement of naturalist discourse that demonstrated its compatibility with Church doctrine. But from the vantage of the early eighteenth century, natural theology stood (at least potentially) as an independent tradition that challenged Christian dogma. Hence Butler’s attempt to draw natural theology back into coherence with doctrine. To put an even finer point of it, there is nothing in William Paley’s *Natural Theology* (1802), the foundational work of nineteenth-century naturalist theology, that was incompatible with the kind of counter-dogmatic speculations that Butler directed his treatise against. Within the intellectual framework of Butler’s argument, it is not natural theology that works to prove the compatibility between science and religion, but Christianity which must prove its compatibility with natural theology and science. And in part, this increasing tension was a product of the increasingly formal character that Analogy took within the theological applications of the early modern period. By asserting that analogies provided evidence that something unknown was like something known, or that the natural world reflected Christian theology, naturalists and theologians alike provided instances of analogical

application that could be critiqued and perhaps even disproven – as Butler’s treatise demonstrates. Does the chrysalis of the caterpillar prove the existence of an afterlife? By framing the question within the commitment to a comparative framework offered by an intentional correspondence between natural order and divine economy, natural theology formulated questions on which hinged the validity of the Christian natural synthesis.

Eighteenth century natural theology marks the high point of the long formalization of Analogy – the process by which the tradition of Analogy, through its articulations in biblical hermeneutics, Christian ontology, early modern rhetoric, natural theology, and skeptical philosophy, came to play an increasingly formalizing role for the discourses within which it was deployed. In particular, Analogy became a model for describing the shape of the unknown by drawing from the contours of what was already understood. And whether applied to the relation between biblical passage and scriptural coherence, human knowledge and divine insight, false similitude and true pattern, natural order and immanent design, or lived experience and the unknown, Analogy’s formalization was accompanied by a focused sense that it bridged essential hermeneutic, ontological, semiotic, teleological, and epistemological distinctions. At the same time, the breadth of Analogy’s speculative commitments put increasing pressure upon the answers that it offered, as these distinctions within and between disparate discourses became increasingly significant.

II. Erasmus Darwin and Romantic Prosody

By fixing Erasmus Darwin's engagement with Analogy within these coordinates, we may unpack the state of deep sedimentation that marked any engagement with Analogy at the close of the eighteenth century. The increasing cross-pressures of analogical discourse provide evidence for the formative role that Romantic scholarship has afforded to the rejection of Analogy as a constitutive element of romantic exceptionalism. In the traditional reading, analogy was a staid Augustan trope supplanted in romantic poetry by more organic figures like symbol and metaphor. In *The Mirror and the Lamp*, M. H. Abrams argued that romantic aesthetics marked a formative turn away from systematic poetic analogies toward the spontaneous "myth in process" of "Symbolism, animism, and mythopoeia."⁶⁶ And in *The Subtler Language*, Earl Wasserman argued that the extensive analogies between divine and mundane order – central to natural theology – began to collapse at the close of the eighteenth century, as analogy became "mental fiction": "analogy, being itself meaningless, [could] no longer organize reality and experience."⁶⁷ On this reading, Erasmus Darwin's insistence that analogy plays a central role in his science and poetics contributes to the formation of "pre-Romanticism." But as we will see, while it is true that the explicit discourse of Analogy came into increasing disrepute at the close of the eighteenth century, it is equally true that its practice was central to some of the core commitments of the Romantic tradition. Moreover, a careful examination of Erasmus Darwin's rich engagement with Analogy makes it possible to reevaluate the place of the intellectual instruments of analogy within romantic literature, and Darwin's place within romanticism generally.

The variety of Analogy's engagements (ranging from skeptical philosophy and probability, to natural theology and design, to Christian doctrine, to anatomical discourse) made it fertile ground for the ambitious cosmological synthesis that Erasmus Darwin attempted in his major works, *Zoonomia* and *The Botanic Garden*. To return to the quote with which we began, it should be clearer from the preceding discussion what is at stake for Darwin in drawing together such a range of discourses in the description of analogy's use in *Zoonomia*:

The great CREATOR of all things has infinitely diversified the works of his hands, but has at the same time stamped a certain similitude on the features of nature, that demonstrates to us, that *the whole is one family of one parent*. On this similitude is founded all rational analogy; which, so long as it is concerned in comparing the essential properties of bodies, leads us to many and important discoveries; but when, with licentious activity it links together objects, otherwise discordant, by some fanciful similitude; it may indeed collect ornaments for wit and poetry, but philosophy and truth recoil from its combinations.⁶⁸

Earlier, I suggested that we should read this passage as an example of a metacritical gesture – a response to various contemporary critiques that demonstrates Darwin's awareness of the conflicted state of Analogy at the close of the eighteenth century. By emphasizing that the “similitude” on which analogy is based is rooted in the work of the “great CREATOR,” Darwin demonstrates his allegiance to a tradition of natural theology that was essentially ambivalent (as the object of Butler's *Analogy of Religion* illustrates in the negative), and offers an endorsement of natural order that is at least potentially compatible with Christian teaching without committing him to the letter of Christian dogma. This commitment is reinforced in the allegiance he posits between the “similitudes” of nature and the empiricist program that generates “discoveries” by means of “rational analogy” – the Thomist alliance between “natural reason” and an Aristotelian program of “comparing the essential properties of bodies.” At the same time, by

associating the “licentious activity” of “fanciful similitude” with “wit and poetry,” Darwin registers his sensitivity to Analogy’s controversial association with rhetorical discourse. Moreover, Darwin’s careful acknowledgement of these traditions demonstrates his attention to the methodological questions posed by analogy, and endorses an interpretation of analogy rooted in the terms of contemporary moral philosophy and rhetoric. The passage demonstrates the evident tensions of this formulation. In particular, it is still *rational* analogy – as the antecedent of “it” in the last several clauses – which “links” with “fanciful similitude,” collects “ornaments” for poetry and rhetoric, and from which both “philosophy and truth” recoil. The range of framing assumptions provided by these disparate perspectives upon analogy makes the argumentative logic of Darwin’s description incoherent. These tensions suggest an agnostic stance toward the philosophy of rational method implied by Darwin’s use of “rational analogy.” And in fact, the theory of analogy that Darwin goes on to develop in *Zoonomia* does not recapitulate the considerations of this methodological critique; rather, it responds to these criticisms by reformulating analogy as a major component of the mediation of sensation and experience.

Initially, Darwin’s understanding of analogy seems in line with Hume’s, as when he remarks that those who “have connected a great class of ideas of resemblances, possess the source of poetry and oratory, and of all rational analogy” (p. 27). This is very close to Hume’s assertion that “resemblance is a source of reasoning and analogy,” though Darwin associates resemblance with “poetry and oratory” as well. This reliance upon resemblance suggests that analogy is secondary to the mechanisms of perception, inasmuch as resemblance is one of the components of the association of ideas and

secondary to experience itself. But Darwin's discussion of "intuitive" analogy makes it clear that such pattern-analysis runs deep. The passage comes at the close of a long discussion upon the "catenation" or patterning of sequential motions, e.g., the reading of epic poems or songs (p. 222). In addition to these sequences of motion, Darwin argues, there are "temporary catenations of ideas" produced by imagination (p. 233). These chains of associated ideas (for instance, daydreams) are regularly interrupted, and he observes that often, these interruptions occur when an idea "is incongruous to our former experience." In order to explain this observation, Darwin suggests that we constantly and unconsciously employ "intuitive analogy" to compare what we are currently thinking about to previous experiences, and to reject associations which violate the patterns of that experience. He elaborates: "it is an act of reasoning of which we are unconscious except from its effect in preserving the congruity of our ideas, and bears the same relation to the sensorial power of volition, that irritative ideas, of which we are unconscious except by their effects, do to the sensorial power of irritation" (pp. 233-4). Leaving aside the explanatory analogy that couches this explanation of "analogy" (intuitive analogy is to volition as irritative ideas are to sensation), Darwin establishes in this passage a form of analogy that is both "unconscious" and essential to all "congruous" trains of thought. He takes for its model the relation between sensation and simple idea which underpinned Locke's analysis of thought, and upon which Hume founded his own understanding of the relationship between simple impressions and simple ideas. Darwin emphasizes that this analogy is "intuitive" (the only use of this Lockean term or cognates within *Zoonomia*) in order to emphasize that this perception of pattern is immediate, unmediated, and unconscious. Just as simple ideas represent the unconscious

consolidation of basic sensations, intuitive analogy explains the mind's unconscious consolidation of the basic patterns of experience. Moreover, by operating directly upon the patterns of sensation, intuitive analogy is rooted in a series of serial comparisons – the direct evaluation of the similarity between different experiences. And while Darwin does not make the case explicitly, this model in turn suggests that “rational” analogy represents, within a sensationist framework, the *conscious* formalization of the patterns processed *unconsciously* by intuitive analogy.

In this way, intuitive Analogy becomes central to Darwin's response to the skeptical dilemma presented by Locke and Hume, as it addresses the problem of external knowledge by positing a faculty whose entire function is to capture consistency within experience, and to tie our thoughts to that consistency. While Darwin's category of “intuitive” analogy doesn't dissolve the skeptical problem, it does read analogy into the mechanisms which generate the problem, naturalizing analogy as part of the sensational faculties, rather than as a trope or form of argument within language. As a response to skepticism, it bears comparison to the arguments of the Scottish “common sense” school.⁶⁹ But whereas Reid and Stewart root their assertions of “common sense” in the universality of common beliefs or dispositions, Darwin's intuitive analogy is rooted in a proposed universal faculty.

Moreover, this answer to skepticism functions within the assumption that nature is, in fact, patterned – that the “similitudes” are real. Built into Darwin's system is an assumption of coherence, which posits on the one hand the objective existence of a natural order of relation, and on the other, corresponding mental faculties – intuitive and rational analogy – that can apprehend this order. Darwin could have justified this

coherence on Humean grounds, arguing (as Hume does for causation) that our continual experience of pattern justifies our confidence that we will continue to experience that pattern. Instead, as we have seen, he relies upon the assertion, from natural theology, that nature is “stamped” with patterns. This union of a natural theology-affiliated theory of analogy with philosophical skepticism refashions the essential tension that haunted the tradition of Analogy – the contrast between its epistemological claims, and its poetic and rhetorical usage. Essentially, Darwin reshaped this tension between evidence and rhetorical expression into the skeptical tension between actual and perceived. By the same measure, instead of serving Christian apologetics as proof of God, Darwin’s analogy of nature is focused upon proving basic insights into the patterns of nature: it argues for a particular model of the natural world. One key product of this naturalized analogy is Darwin’s theory of the common origins of life. For instance, in his famous discussion of the “living filament,” Darwin uses an argument from the analogy of structure that exists between living creatures as the capstone evidence for the common descent of all warm-blooded animals (p. 569). In this way, Darwin’s naturalization of “intuitive” analogy shifts such structural comparison from providing evidence of a common design, to providing naturalistic evidence for particular scientific theories.

As Packham and Porter argue, Darwin’s theory of analogy also establishes a conceptual framework for translating scientific patterns into poetic expression. If humans are like other creatures because they share a common descent, techniques like personification can instantiate that similarity in poetry. This affinity supports the basic conceit of *The Loves of the Plants*: to recreate the Linnaean classification system – rooted in the number and deployment of sex organs – as an orgiastic pastoral of amorous

nymphs and swains. Hence the long catalogue of sexual liaisons which serve to characterize the sex organs of plants like *Genista* (“*ten* fond brothers woo the haughty maid”) and *Callitriche* (whose “love ... *two* Virgins share, / Smit with thy starry eye and radiant hair”).⁷⁰

But as *Zoonomia* makes clear, Darwin’s understanding of the role of analogy in poetic form runs far beneath the ribald surface of such figures. In line with his sensationist theory of analogy, Darwin extends the relationship between nervous sensation and coherence into a sensitive theory of prosody and music. Just as, in “intuitive” analogy, Darwin had designated an unconscious faculty that recognizes the patterns of coherence between present *ideas* and past experience, he suggests a unconscious faculty of sensational analysis that compares present *sensations* to previous patterns. Discussed under the broad heading of “repetition,” Darwin argues, in line with Burkean aesthetics, that repetitions of either actions or ideas stimulate this pattern-matching faculty and bring pleasure.⁷¹ Darwin asserts that this function underpins poetry, because it is comparison and pattern recognition that underpin meter itself: “To the facility and distinctness with which we hear sounds at repeated intervals, we owe the pleasure, which we receive from musical time, and from poetic time And to this pleasure we receive from the rhimes [sic] and alliterations of modern versification” (p. 295). As discussed earlier, Campbell had already tied poetic patterning to the connections of analogy, when he argued that both alliteration and analogy are classes of Humean resemblance. But Darwin takes this for a much more basic insight about the nature of poetic structure, arguing that it is this sense of correspondence over time, assonance in dissonance, rhythm in noise, that underpins poetry. From rational analogy,

to intuitive analogy, to the patterns of sensation itself, Darwin theorized the mind as a comprehensive analogical engine that analyzes patterns to produce philosophical thought, intellectual coherence, and musical pattern. In this light, the power of analogy to expose the “similitudes” of nature extends beneath poetic figuration into the physical sensations which structure rhythm and rhyme. Moreover, this naturalization and internalization of analogy grounds a serial model of direct comparison. Much as Aristotle once argued for the systematic comparison of natural patterns as an insight into natural order, Darwin suggests that experience itself consists of an endless series of such evaluations of similarity and difference within the temporal succession of sensations – sensational analogies which undergird pattern recognition and the formation of knowledge about the world.

A passage from *The Economy of Vegetation*, the first book of *The Botanic Garden*, serves to clarify the Darwinian application of analogy. In an often-discussed passage which has not yet received close metrical analysis, the intertwined order of the nascent cosmos is echoed by inter-chained rhythmic analogues. Rewriting Genesis’s account of the creation of the universe, the passage begins with the strong departure of an initial inversion – the opening dactyl establishing God’s missive as a strong, hermetic phrase “Let there be light” – an initial inversion which periodically returns in the following lines (marked with asterisks):

* \ x x x x x
“Let there be light!” proclaim’d the Almighty Lord,

x x x x x
Astonished Chaos heard the potent word;

 x x x x
Through all his realms the kindling Ether runs, 105

x x / / x x x / x /
And the mass starts into a million suns;

* / \ x / x / x / x /
Earths round each sun with quick explosions burst,

x / x / x / x x x /
And second planets issue from the first;

* / x x / x x x / x /
Bend, as they journey with projectile force,

x / x / x / x / x /
In bright ellipses their reluctant course; 110

* / x x / x / x / x /
Orbs wheel in orbs, round centres centres roll,

x / x / x / x / x /
And form, self-balanced, one revolving whole.

* / x x / x / x / x /
- Onward they move amid their bright abode,

* / x x / x / x x x /
Space without bound, THE BOSOM OF THEIR GOD! ⁷²

This passage forms a poetic cosmos of its own, the irregular pattern of the first line echoing as the passage unfolds, ultimately returning again to its starting point, God. This irregularity also disturbs the metrical pattern. In *Zoonomia*'s discussion of the association of sense that underpins poetic verse, Darwin stresses that verse's "little circles of musical time" owe their power to the pattern they establish, and emphasizes their regularity: "whether these times or bars are distinguished by a pause, or by an emphasis or accent, certain it is, that this distinction is perpetually repeated; otherwise the ear could not determine instantly, whether the successions of sound were in common or in triple time" (p. 296). Hence initial inversions, by destabilizing this pattern, should confuse the ear and frustrate the poem's ability to produce pleasure.

But the rhythmic departure also calls attention to a larger pattern within the passage. The comparison that is mapped between the lines containing initial inversions – each of which, except the last, forming the first complete phrase that founds a new independent clause – emphasizes the ramification of the initial command throughout various corresponding cosmic valences, from the cosmos as a whole, to the particular organization of the solar systems, and finally to an archetypal description of all these motions. “Orbs wheel in orbs, round centres centres roll”: the line exhibits an almost rhapsodic balance of rhythm and word. With the preposition “in” as the only exception, all the terms in the line deal with circularity, rearranging pairs of words (orbs^wheel, round^centres) so that they express a range of functions. The effect is a resonance of meaning, in which sound and sense reverberate in inverted pairs that cohere in “one revolving Whole” of correspondences and extension. The passage practices a correspondence between sound and sense that maps poetically the Humean marriage of sensation and idea.

Initial inversions were by no means unique to Darwin’s verse – they appear regularly in Alexander Pope’s poetry, for instance, in his translation of the *Illiad*. One noticeable example, drawn from *The Rape of the Lock*, is the likely model for line 111 above, as it employs a nearly identical syntax and lexical pairing. The poet describes how female virtue is guarded by the counterbalancing attentions of competing men:

x / x / x / x / x
 Where Wigs with Wigs, with Sword-knots Sword-knots

 /
 strive,

 / \ x / x / x / x /
 Beaus banish Beaus, and Coaches Coaches drive.⁷³

Here, as in line 111 of Darwin's poem, the subjects and objects are identical noun pairs, and the second line – as in Darwin's lines above – employs an initial inversion that serves to emphasize this pairing by distorting the normal iamb. In both poems, the initial inversion, along with the caesura, works to balance the line as a whole by producing a slight demotion of the fourth beat. But there is a radical difference in the purpose this balancing of phrase serves in the two poems. In *The Rape*, the coordination emphasizes the tautological aspect of the paired subjects and objects in the line – enforcing rhythmically a sense of futile and farcical negation. In Darwin's poem, however, these pairings emphasize the network of relationships – the analogies interlinking various levels of the cosmic system.

To elaborate, in the lines we're examining from *The Economy of Vegetation*, the initial inversion, combined with a secondary stress in the first phrase that induces a slight hesitation after the first beat, combine to slow the line through the intrusion of a four-beat accentual line into the pentameter. To demonstrate this for Darwin's poem, I've rescanned these lines in four-beat accentual meter:

$\underline{\underline{\quad}} \quad [\text{'}] \quad \underline{\quad} \quad \times \quad \underline{\quad} \quad [/] \quad \times \quad \underline{\quad} \quad \times \quad \times \quad \underline{\quad} \quad \times \quad \underline{\quad} \quad [\times /]$
 "Let there be light!" proclaim'd the Almighty Lord

.

$\underline{\underline{\quad}} \quad [\text{'}] \quad \underline{\quad} \quad \times \quad \underline{\quad} \quad [/] \times \quad \underline{\quad} \quad \times \quad \underline{\quad} \quad \times \quad \underline{\quad} \quad [\times /]$
 Earths round each sun with quick explosions burst,

.

$\underline{\underline{\quad}} \quad [\text{'}] \quad \underline{\quad} \quad \times \quad \underline{\quad} \quad [/] \times \quad \underline{\quad} \quad \times \quad \underline{\quad} \quad \times \quad \underline{\quad} \quad [\times /]$
 Orbs wheel in orbs, round centres centres roll,

(lines 103, 107, 111)

The introduction of elements of the four-beat line casts an enhanced degree of order over the loose structure of iambic pentameter – an order which resolves into four nearly untroubled beats in the final line:

$\underline{\quad}$ \times \times $\underline{\quad}$ \times $\underline{\quad}$ \times \times \times $\underline{\quad}$
 Space without bound, the bosom of their God!

(line 114)

This structure effects a sensation of a four-beat line pressing through the pentameter, a line which emphasizes the pairing of the first and second, and the third and fifth beats (what Derek Attridge has termed “sprung pentameter”).⁷⁴ As Darwin argues in *Zoonomia*, the four-beat “common” meter this imitates differs from longer verse like pentameter because “repetition recurs more frequently” (p. 296).⁷⁵ This cultivates a more comparative texture in the pentameter, as the internal rhythmic pairing emphasizes the juxtaposition of terms – the slant rhyme of Let/light, the oppositions of Earths/Sun, Orbs/orbs, Space/bound, the divine cogency of proclaim’d/Lord and finally, coherence in bosom/God. In the lines by Pope, this effect served to emphasize the self-negating competition of the beaus. But in Darwin’s poem, this rhythm powers a dynamic rhythmic analogy within and between the phrases of each line. Darwin explains in *Zoonomia* that such larger patterns can serve to amplify the pleasure of metric pattern: “besides these little circles of musical time, there are the greater returning periods, and the still more distant choruses, which like the rhimes at the ends of verses, owe their beauty to repetition” (296). Within the poem, the dissemination of these rhythmic pairings corresponds metrically to the rhymed couplets themselves – an assonance which finds its pattern in the missive which metrically and scripturally starts it all off: “*Let there be light.*”⁷⁶ To revert to the informatic relation between pattern and meaning offered in the

introduction, repetition and the resulting normative expectation of pentameter serves as the precondition for the rhythmic departure of the four-beat line. From the metric background of the median of expectation emerges rhythmic innovation as the possibility of semantic depth – a rhythmic complement of the “higher” meaning of cosmic coherence.

The larger rhythmic issue is that in such passages Darwin’s poetic theory – which emphasized an analogy of sound and sense – pushes away from the foot-based classical orthodoxy of the Augustan period toward a four-beat accentual base emphasizing internal pairings of word and beat. Ironically, this aligns such moments in Darwin’s poetry with the popular four-beat ballad verse soon transformed in the *Lyrical Ballads*. As an additional point of connection, we might take Anna Letitia Barbauld’s “A Summer Evening’s Meditation,” which turns from the cosmic perspective Darwin provides, which, in Barbauld’s vision, “Impells [her] onward thro’ the glowing orbs ... To solitudes of vast unpeopled space, / The deserts of creation, wide and wild; / Where embryo systems and unkindled suns / Sleep in the womb of chaos” (ll. 90-97).⁷⁷ In Colin Jager’s extensive reading of the poem, the poet’s retreat from cosmos to the customary and domestic space of the English countryside reflects a rejection of the natural theological coordinates of analogical discourse while retaining its idiom. As Jager puts it, Barbauld’s poem demonstrates “the futility of argument by analogy without abandoning analogical language.”⁷⁸ As such, “A Summer Evening’s Meditation” presents an accommodation of analogical method that is symptomatic of the period – salvaging the practice of analogy while distancing the poem from Analogy as tradition.

Darwin's experiment with the four-beat line can similarly be taken as an attempt to incorporate the quaternary structure of analogy into the rhythms and syntax of pentameter. In effect, it serves as an example of what I term the "structural translation" of analogy, as analogy is translated from the explicit syntax of the four part statement (in the fashion of "A is to B as C is to D") into the rhythmic structure of verse.⁷⁹ In Darwin's case, the structure of analogy, as a four part relation of similarity, is displaced from its normative syntax into the syntax and meter of the poem itself. This can be thought of as a translation of the structural information of explicit analogies into alternative formal patterns that maintain the basic features of a multi-part comparison between two sets of relationships. And in this case, some of the semantic features are transferred as well, insofar as the metrical analogy propagates the natural theological coordinates of the analogical tradition as well. As such, it is a translation of the form (and some of the content) of analogy. An additional effect of this displacement is the further serialization in the tradition of Analogy – the metaphysical polarity in the terms of the cosmic analogy between God, suns, and planets are flattened into the more constrained temporal engagement of a series of metrical lines, insofar as metrical form, by nature, pushes towards a balance between sentence, phrase, and word. This turn from the formalized analogies of natural theology toward the serial analogy of experience bound to metrical time produces an expansion of interpretive possibility, insofar as it relaxes the formal constraints on what will constitute valid analogies. At the same time, the broader purview for analogous pattern is heavily counterbalanced by the new formal constraints inherent to metrical time – serial proximity of sensations. While, as earlier discussed, Campbell restricted the validity of analogous experience to connections that

were ontologically close, Darwin relies upon boundaries inherent to the temporal seriality of aural expression – linearity and duration.

Two further examples, drawn from the larger Romantic period, can illustrate the effects of the structural translation of analogy. William Wordsworth, of all the major Romantic poets, had perhaps the most extensive and explicit engagement with the tradition of analogy, and served, with Coleridge, as an early admirer of Erasmus Darwin's works.⁸⁰ Gavin Budge has recently argued, for instance, that much of the medical understanding exhibited in a poem like "Goody Blake," was gleaned from Wordsworth's reading of Darwin's *Zoonomia* in 1798.⁸¹ But it is in the extensive revisions to *The Prelude* that Wordsworth illustrates an affinity to Darwin's strategy of analogical translation. In a careful reading of Wordsworth's engagement with analogy, Colin Jager suggests that Wordsworth's intensive reworking of the "Analogy Passage" in the Spring of 1804 motivated his decision, later in the year, to both drop the passage entirely and embark on what became the thirteen-book *Prelude*. In Jager's reading, this episode marks Wordsworth's decision to reject the external analogies of analogical tradition, "imposed from the outside" by the poet, in favor of "analogical mediation presented as rising from within the speaker."⁸² Jager associates this shift with a decision to drop the "intentionality" of the design argument in favor of an internalization of an "aura of design" into Romantic poetics. More generally, we can recognize Wordsworth's decision to drop the explicit language of analogy in favor of an internalized analogical practice as a further example of the period's translation of the formal analogies of the natural theological tradition into new comparative discourses, a displacement motivated by extensive contemporary critique of Analogy, marked in Romantic poetry by

increasingly balanced deployment of serial analogies that described a shared engagement between nature and the self. Whereas Darwin experimented with comparative phraseology and rhythms that might capture analogy's character, Wordsworth worked to hone his own "subtler language" – to steal a phrase from Earl Wasserman – albeit a language still imbued with analogical pattern.

William Paley's *Natural Theology* (1802) can serve as a final, illuminating example of this translation of analogy. One might expect Paley's text to present a defense of analogy's power. Instead, Paley's language demonstrates just how conscious the strategy of structural translation could become in engaging the tradition of Analogy. The qualifications of the conspicuous absence aside, what is remarkable about analogy in Paley's work is its scarcity. Writing within a tradition dominated by Butler's model, Paley goes to extreme lengths to marginalize the role analogy plays, even as the entire argument hangs upon an extended analogy between mechanistic and natural design. "Analogy" itself is not mentioned explicitly until the third chapter:

To some it may appear a difference sufficient to destroy all similitude between the eye and the telescope, that the one is a perceiving organ, the other an unperceiving instrument. The fact is, that they are both instruments. And, as the mechanism, at least as to the mechanism being employed, and even as to the kind of it, this circumstance varies not the analogy at all. (19)

Paley's first explicit engagement with analogy comes in the context of the objections of "some" who would argue that certain objections "destroy all similitude" – and it marks a noticeably scholastic turn in Paley's tone and diction, as he modulates from the fluid conversational language he's thus far deployed in laying out his argument. This, combined with the explicit invocation of the outmoded language of "similitude," marks the degree to which "analogy" itself has become a discourse marker for an older, academic mode of argument. In this, Paley's explicit engagement with "analogy" is in

the same vein as Charlotte Brontë's in *Shirley* (discussed in my introduction), or Dickens's in *Hard Times* (discussed in the third chapter), or, for that matter, Wordsworth's, discussed above. And the differentiation between such explicit engagement with the tradition of Analogy and the practical translation of its form is striking throughout Paley's chapter. As Colin Jager notes,⁸³ Paley almost never provides a full analogy of the form "A is to B as C is to D" – at the same time that his argument from design, and the various comparisons between mechanism and biological form, are redolent with the strategies and language of natural theological analogy.

The treatise opens with a colloquial and hypothetical narrative: "In crossing a heath, suppose I pitched my foot against a *stone* ..." (3). As Paley moves from the inferences appropriate for a scattered stone to a discarded watch, he maintains this conversational tone, enumerating the characteristics of intent and precise mechanism that we can't help but "perceive," "see," "observe," "find," and "take notice" of (2-3). The language of immediacy here serve to tie the elements of analogy's inferences to instantaneous perception. We are delivered to the first assertion confidently:

This mechanism being observed (it requires indeed an examination of the instrument, and perhaps some previous knowledge of the subject, to perceive and understand it; but being once, as we have said, observed and understood), the inference, we think, is inevitable, that the watch must have had a maker; that there must have existed, at some time, and at some place or other, an artificer or artificers who formed it for the purpose which we find it actually to answer: who comprehended its construction, and designed its use. (3)

Notice that the inference is buried within the paragraph. It is basically a *fait accompli* of the teleological language of design bound up within the descriptions of mechanism and contrivance which we've already "observed." Notice, further, that the sentence itself has a long aside that displaces the condition of initial experience into a parenthesis. Initial experience (in particular, belief in the possibility of a designer) is the key qualification

that both Hume and Butler belabored – a specific analogy cannot hold if we don't already grant the possibility and have some evidence. For each, analogy proves nothing – but given a predisposition and independent reason to think something might be true, analogy can carry us toward confidence. Notice that Paley has gone very, very far to occlude these preconditions for what we might term the traditional logic of Analogy. This occlusion is highlighted in the following paragraph, as it jumps into the space of that parenthesis:

Nor would it, I apprehend, weaken the conclusion, that we had never seen a watch made; that we had never known an artist capable of making one; that we were altogether incapable of executing such a piece of workmanship ourselves, or of understanding in what manner it was performed; all this being no more than what is true of some exquisite remains of ancient art, of some lost arts, and, to the generality of mankind, of the more curious productions of modern manufacture. Does one man in a million know how oval frames are turned? (4-5)

Paley has obliterated the regulatory role of probability. For Butler, as for Hume, these degrees of mediation would mark lessening or strengthening of the weight of evidence. The entire regulating principle of probability, as Paley well knew, rested on precisely such evaluations of the strength of correspondence and previous experience. Paley works hard to eradicate the qualifications of probability, asserting that any observer: “knows enough for his argument: he knows the utility of the end: he knows the subserviency and adaptation of the means to the end. These points being known, his ignorance of other points, affect not the certainty of his reasoning” (8).

The challenges of this turn away from the qualifying judgments of probability and toward certainty become acute in the following chapter, as we are asked to imagine that the watch itself can reproduce, that the endless series of such watches begetting watches rivals the Book of Numbers. Effectively, the argument departs from the realm of strict possibility – those potential events which are “compossible” with the world we know.

The stress of this departure is acute, particularly when we are asked to hold to the same convictions, rooted in our experience of human design, that we assented to in the previous chapter, namely, that “There cannot be design without a designer; contrivance, without a contriver; order, without choice; arrangement, without anything capable of arranging; subserviency and relation to a purpose, without that which could intend a purpose” (11). The tension between what we are supposed to believe *might* be possible, and what we cannot imagine *actually* stumbling across, constrains our interpretation – pushing us to reach for some other understanding of what Paley describes.

To put this differently, the second chapter narrates the argumentative departure from hypothesis and launches into allegory. As readers, we begin to suspect that Paley is not talking about human design at all. And this instability of interpretation is driven home at the chapter’s close:

What effect would this discovery have, or ought it to have, upon our former inference ... but to increase, beyond measure, our admiration of the skill, which had been employed in the formation of such a machine? Or shall it, instead of this, all at once turn us around to an opposite conclusion, viz., that no art or skill whatsoever has been concerned in the business, although all other evidence of art and skill remain as they were, and this last and supreme piece of art be now added to the rest? Can this be maintained without absurdity? Yet this is atheism. (17)

By declaring “this is atheism,” Paley both collapses the allegory he has established and identifies it, forcing us to recognize natural theology as the allegorical referent of the preceding passages. And this, in turn, secures an understanding that we may have been entertaining all along – that the language of design equivocates. Implicit in the allegorical reinterpretation of the second chapter is what stands recognizably as the analogy of predication developed within scholastic ontology; the use of mechanistic and intentionalist language predicates a relationship not strictly identical to, nor strictly distinct from, our experience of human manufacture.

At this point, a few words about the relation between allegories and analogies seem appropriate. Earlier I touched upon the historical relationship between allegory and analogy in biblical interpretation; it's highlighted by the title to Victor Harris's study of the broad historical transformation in hermeneutics: "Allegory to analogy in the interpretation of scripture." There is a family resemblance between the comparative semantics produced by analogies and a host of related figures of description, including allegory, metaphor, metonymy, homology, modeling, even the principle of "family resemblance" itself. But from the vantage of the theory of formal structure developed in the introduction, it is possible to specify more clearly the relation between analogy and allegory. Analogy provides an explicit syntax for the interaction it establishes between the sets of relationships it compares, and that syntax can equally be deployed to organize that interaction formally (allowing one half of the comparison to characterize the interpretation of the other) or serially (in which each half of the comparison serves equally to shed light on the other). Allegory, on the other hand, shares with metaphor the occlusion of one half of the comparison – the literal meaning absorbs the space of the explicit syntax and semantics of the passage, while the implied meaning must be extrapolated or "read through" as some portion of that syntax and meaning that can be understood in a different way – as telling some other story. For this reason allegory, like metaphor, is deeply formal in nature – one portion of its content largely characterizes the other. Hence Paley's assertion "this *is* atheism" – not this is *like* or *similar to* or *sheds light upon* atheism. At the same time, the fact that the syntax of allegory has to do double-duty to describe both the literal and figurative interpretation means that the possibilities of allegory have more structural constraint than analogy; there's simply less

bandwidth for structural information specific to the allegorical referent.⁸⁴ The first chapters of *Natural Theology* serve as a formal primer for these translational strategies, precisely to train the reader in what might be termed the alternative syntaxes of design; they train Paley's audience in the allegorical and equivocal applications of analogy through which he will articulate the majority of his treatise. Once this groundwork has been laid, the explicit analogies that are briefly introduced in the third chapter can be safely shunted into unitary, equivocal statements that embed its comparative form within those conventions.

The first sentence of the following chapter takes up the charge of atheism in order to explicate the analogical claim it embeds, modulating from comparison to distinction to the language of a Burkean or technological sublime: "This is atheism: for every indication of contrivance, every manifestation of design, which existed in the watch, exists in the works of nature; with the difference, of the side of nature, of being greater and more, and that in a degree which exceeds all computation" (17-8). There is no true equivalence between human and divine – it is explicitly a formal relation. Even as he turns to the famous analogy between the telescope and the eye, an analogy which would "stagger" Charles Darwin, Paley proceeds directly from explicit analogy, to various forms of structural translation: "As far as the examination of the instrument goes, there is precisely the same proof that the eye was made for vision, as there is that the telescope was made for assisting it. They are made upon the same principles; both being adjusted to the laws by which the transmission and refraction of rays of light are regulated" (19). From explicit analogy "there is precisely the same proof that the eye was made for vision, as there is that the telescope was made for assisting it" – to the unitary metaphors of

design by which they are “both ... adjusted [and] regulated.” Note that again, the analogy is constrained as the main clause of an adverbial phrase which both controls it “as far as” and absorbs the two parts of the analogy into a singular case “the instrument,” and it is followed by a series of statements that collapse the analogy further into a series of plural but unitary statements.

It might be objected that what I identify as structural translations are really more garden-variety examples of variation. Analogies are syntactically expensive; it’s difficult to cram two independent predicates containing two subjects and two objects into a comparative statement. Hence the awkwardness of our traditional formula for analogy: “A is to B as C is to D.” But by situating Paley’s tract within the larger context of theological and philosophical agitation about the proper role of Analogy, it is possible to discern a carefully-crafted strategy of conscious structural translation, in which Paley reshaped the intellectual instruments of analogical enquiry into a variety of alternative formal strategies – particularly allegory and metaphor. Paley’s approach remains a strategy of translation, not substitution; the allegorical and metaphorical conventions brought into play are still governed by the logic of the embedded design analogy.

These translational strategies mark Paley’s participation in the larger context of analogy’s dissemination at the close of the eighteenth century into a series of interrelated comparative practices within poetic, historical, and scientific discourse. For instance, the use of analogy as a mode of scientific investigation that depends upon self reflection is characteristic of Romantic science, and has been extensively discussed by Peter Hans Reill, who describes this scientific turn towards arguments from analogy in the latter eighteenth century as an “enlightenment Vitalism” that rejected the rigid model of a

mechanistic universe and turned toward “a complex gradation of species that could be classified according to degrees of resemblance or similarity. Because there was no such thing as isolated, uniform building blocks of nature, all of nature was connected through sympathies, rapports, or affinities.”⁸⁵ This shift also opened up the possibility of new alliances between literary and scientific pursuits – an alliance of which Erasmus Darwin served as a controversial proponent. As Darwin puts this in his “apology” for the poetic form of the *Botanic Garden*, “since natural objects are allied to each other by many affinities, every kind of theoretic distribution of them adds to our knowledge by developing some of their analogies [sic].”⁸⁶ Here, the actual analogies of nature are imagined as a subset of all the possible “theoretic distributions” of natural objects – hence even poetic analogies serve to tease out the patterns of nature, and help to discriminate false and true resemblance. Analogies of poetry, of sensation, of nature – all are embraced from the broad vista of cosmic correspondence and the universal interplay of similarity and difference.

As such, Erasmus Darwin’s diverse models of analogical connection serve as a striking example of Analogy’s differentiation at the close of the eighteenth century. Even as analogy had once served as an agent of the differentiation of secularism, for instance, through its role in specifying the relationship between scientific enquiry, natural religion, and theology, the differential forces of modernization, combined with the cross-pressures of the multiplicity of Analogy’s commitments, pulled the practice of analogy in a multitude of new directions. In the following chapters, I will detail one particular avenue for this differentiation, the formal dynamic of analogization that was central to the development of the historical novels of the *Waverley* cycle, before exploring the impact

of this newly novelized narrative historicism on later Victorian writers. After the turn of the century, “analogy” no longer served to characterize most analogical language. Even those discourses that retained the term “analogy” as a description of contemporary practice (in particular, comparative anatomy) retained an uneasy sense of the relationship between analogical analysis and the tradition of Analogy that characterized certain veins of speculative philosophy and theological discourse of the previous century.⁸⁷ Analogy aged – and would later serve to characterize the representational tradition from which Romanticism and the nineteenth century broke. But as we will see, the conversion of the tradition of Analogy into an object of history also liberated analogical practice to serve as a key intellectual instrument for the literature of modern historicism.

2. Chapter 2

Scott as Translator: Collaborative Historicism in the Waverley Novels

Scott's 1814 introduction to *Waverley* famously begins with a discussion of the name "Waverley," which, the narrator tells us, is meant to avoid the connotations of names charged with the weight of English history, like "Howard, Mordaunt, Mortimer, or Stanley," as well as the softer associations of names like "Belmour, Belville, Belfield and Belgrave." Instead, he chose "WAVERLEY, an uncontaminated name bearing with its sound little of good or evil."¹ The middling nature of Scott's hero is proverbial. Beginning with Waverley, Scott's enervated protagonists have been variously characterized as "passive," (Alexander Welsh); "middle of the road" (Lukács); "negative," "feeble," and "blank" (Hazlitt); and "insipid" (Scott himself) – a critical consensus over an almost pathological lassitude that, it has often been remarked, is reflected in the equally wavering name of Scott's first example.² Less noted is how "Waverley" responds etymologically to the other names that Scott's narrator offers. The first string of names, after all, evoke the Norman invasion of England and its subjugation; they are names which bear the stamp of a medievalism characterized by violence and rapine. The second assembly, on the contrary, provide a romantic counter-text, literally Romantic, insofar as they bear the marks of new coinage, forged of a Latinate prefix and alternatively Latin or Germanic root. These are fictional names that nevertheless encode the Romantic/Germanic linguistic encounter which shaped Britain's history, names which seem to sigh to us from the pages of Malloryesque verse – or the more contemporary

prose romances they inhabited, the antique “novels of manners” Scott will cite later in his “Introductory.”

Hence, one might agree with a range of critical examinations that take the ambiguity of Waverley’s surname as an expression of the novel’s central concern for the mediation of boundaries – between history and romance, Scotland and England, the past and the present, folk and nation, revolution and continuity – the various borders that Waverley and his fictional descendents negotiate. But although the narrator turns later to an extended meditation upon the dozen possible genres Scott will *not* be writing in, his first entry into the question of genre is achieved philologically, through an attention to the way in which cultural encounter and history work through what can most simply be termed “translation.” Scott first articulates the novels’ formative concern for boundaries through linguistics, both in the etymology implicated in the narrator’s explicit discussion of nomination in genre, and in the decision it implies regarding the root of “Waverley” itself in the Old English “wafian” and the Germanic family of languages.³ This kind of etymology-parsing criticism has fallen out of fashion in literary study, but in Scott’s case it serves to highlight a key component of his intellectual formation. While it is widely recognized that his first publications were translations from German, Scott’s early forays into the poems and plays of Gottfried Bürger and Johann Wolfgang von Goethe have generally been weighed for their generic relevance to his later compositions, in particular, his exposure to German romanticism and gothic literature, and his early collaboration with Matthew “Monk” Lewis. But as we will see, this early exposure to translation, and the community of antiquarian and ethnographical researchers it gave access to, radically reconfigured Scott’s literary imagination. Not only did Scott become engaged in the

foment of new theories of history and ethnography that constituted a key feature of the late Scottish enlightenment, these engagements, and in particular, his collaboration with the brilliant and eccentric young linguist John Leyden, helped Scott to cultivate a sophisticated understanding of the historical relationship between linguistic and historical exchange. Moreover, the linguistic model that shaped Scott's involvement in the larger national project of recuperating Scottish folk history provided a foundation for his formal theorization of historical literature, and served substantively to map out Scott's literary development, from ballad collector, to poet of history, to historical novelist.

In order to address Scott's engagement with contemporary theories of language and culture, it's important to assess a broad comparative transformation in eighteenth-century theories of language and translation. Whereas classical practice had long theorized translation as a form of substitution – substituting one set of expressions and linguistic forms for those of another language – comparative philology reorganized translation in terms of serial “matching” – a careful negotiation of formal and lexical similarities between the two languages. This new understanding of linguistic interaction was rooted the larger project of characterizing and comparing languages by the degree of similarity and difference between them. In the previous chapter, I discussed at length how the structural comparisons of the discourses of Analogy were “translated,” at the close of the eighteenth century, into a variety of alternative formal strategies within poetic, natural theological, and scientific discourses. As we shall see, the case was the same within linguistics, as various applications of analogy to basic categories of linguistic pattern were rearticulated as the product of comparison and proportion. This comparative linguistics laid the foundation for Scott's understanding both of the

historical relationships between languages and their societies and for a theory of the formal mediation of these relationships through the representational technologies of new poetic and novelistic forms. Scott's fiction shaped analogy into a central formal model for imagining what other ages were like.

I. Scott as translator and collector

It was Scott's experiences first as translator and then as ballad collector that established his formative understanding of historical fiction as an act of translation between societies separated by history. Jane Millgate has argued powerfully for the importance in tracing the effect of Scott's longer poetry upon the later novels.⁴ But to gauge the full measure of Scott's intellectual formation, it's important to go even further back. The "free" translations of Scott's German craze go far to illustrate Scott's early engagement with contemporary thinking about translation. In the 1831 notes to the Magnum edition of Scott's works, he details his entry into authoring translations, prompted by his disappointment at a missed reading of William Taylor's translation of Bürger's "Lenoré." Scott provides a stanza of Bürger's poem and the first two lines of Taylor's for comparison, which one of the auditors recalled for Scott:

‘Und hurre, hurre, hop, hop, hop,
Ging's fort in sausendem Galopp,
Dass Ross und Reiter schnoben,
Und Kies und Funken stoben’

‘Tramp, tramp, across the land they speede,
Splash, splash, across the sea;
Hurrah, the dead can ride apace!
Dost fear to ride with me?’⁵

Scott admires Taylor translation; it has “as much freedom as was consistent with great spirit and scrupulous fidelity. ... Mr. Taylor had boldly copied the imitative harmony of the German.”⁶ Writing more than thirty years later, Scott’s evaluation of Taylor’s work is carefully calibrated – it is both free and consistent, spirited and scrupulous, bold and imitative. The evident tension of these contrasting terms marks Scott’s later sensitivity to a central challenge of translation itself: how to provide both accuracy and effect. These qualities moved the younger Scott to secure his own copy of the German original. After its arrival, he worked through the night, and retained, almost untouched, the imitative harmony of Taylor’s first two lines. At the same time, Scott’s version follows the original stanza more carefully:

Tramp! tramp! along the land they rode,
 Splash! splash! along the sea;
 The scourge is wight, the spur is bright,
 The flashing pebbles flee.

Taylor’s expansion of the first two lines had turned a line of onomatopoeia and a line of description into two lines which combine each, enriching the imagery of the poem by injecting the contrast between land and sea (the original translates roughly as “And hurrah, hurrah, clop, clop, clop / They go in rumbling gallop”). The next line of Taylor’s translation blends two of Bürger’s stanzas, dropping the flashing image of the pebbles in favor of the dramatic dialogue which follows. Instead of following Taylor’s lead, Scott restores the description of the flying pebbles and sparks, restoring a visual counterpart to the aural register of the first lines, and substitutes for the description of the rider and horse snorting – “daß roß und reiter schnoben” – an image of the flashing whip and spurs which echoes visually the flashing sparks of the striking hooves.

Scott's version absorbs some of the innovations of Taylor's original at the same time as recuperating more of Bürger's lines. Scott's admiration for the liberties Taylor takes didn't preclude his own attempt capture more of Bürger's poem. The larger degree of freedom allowed metrical translation was a commonplace of eighteenth century criticism; Alexander Tytler had argued that translations into lyric verse allowed the greatest degree of latitude, owing to the difficulty of following meter and rhyme.⁷ For other critics of translation, this tension between the translation of content and the fit to new form invalidated verse translations. Jean le Rond d'Alembert argued in 1785 that "To translate a poet into prose is to change a measured aria into a recitative; to translate him into verse is to change one aria into an other, which may be just as good, but is not the same."⁸ Whereas, for d'Alembert, the translatable object of a poem adheres in its content, rather than form, for Tytler, Taylor, and Scott, free verse translation is merited by the substantive importance of form in the original, and a desire to reproduce its effects. In his later discussion of the poem, Scott draws a contrast between the "bold" translation of Taylor and a "dull, flat, and prosaic" English broadside version which predated Bürger's, a version which "leave[s] the distinguished German author [and to Taylor] all that is valuable in the story, by clothing it with a fanciful wildness of expression, which serves to set forth the marvelous tale in its native terror."⁹ Notably, Scott recognizes his translation as triply mediated; it is a translation, adapted from Taylor's verse interpretation, of Bürger's own translation, of the original ballad. And rather than translational distance marking loss, its mediation provides fresh opportunities for the "native wildness." This clarifies Scott's interpretive decision in revising Taylor;

by giving new metrical shape to the flashing imagery of Bürger's original, Scott restores a key component of that "wildness," while introducing some of his own.

As Scott's version of "Lenoré," renamed "William and Helen," illustrates, the process of translation for Scott attuned him to the complicated relationship between formal and semantic qualities in poetry, and gave access to a nuanced understanding of translation and form. As Scott later noted, the translations from German which followed took even further liberties, as he increasingly explored their creative possibilities.¹⁰ As Michael Gamer has pointed out, Scott also translated five German dramas in the 1790's, work that culminated in a failed attempt to produce his own Gothic play, "The House of Aspen"; and though I'm not certain I would agree that this means the sheriff considered himself "principally a dramatist," whatever his literary identity, it expressed itself largely through translational projects.¹¹ This extensive engagement with German translation also alerted Scott to the possibilities offered by the older poetry of the territories of Great Britain: "I was yet more delighted on finding that the old English, and especially the Scottish languages, were so nearly similar to the German, not in sound merely, but in the turn of phrase, that they were capable of being rendered line for line, with very little variation."¹²

Scott's background in German translation did more than serve as a literary apprenticeship for his later labors, particularly, the *Minstrelsy of the Scottish Border*. The 1796 publication of "William and Helen," along with Scott's "The Wild Huntsman" (also from Bürger's), provided Scott's entry into literary Edinburgh, introducing him to a range of book sellers, collectors, and poets, and secured the attention of the young Matthew Lewis, the celebrity author and MP who'd published *Ambrosio, or the Monk* that same

year. As Scott combed through bookstores to collect historical ballads for the small folio of that he'd proposed to Ballantyne, and in search of grist for the several poems he was then working up for Monk's *Tales of Wonder*, Scott fostered a range of new relationships that would shape the course of his literary career, befriend Archibald Constable and Richard Heber, encouraging the Ballantynes' relocation to Edinburgh, fostering relations with the publishing houses of Longman and Murray, cultivating the patronage of the young Earl of Dalkeith.

But it was Scott's introduction to John Leyden that had the largest impact on Scott's literary career, because it was Leyden who shaped Scott's conception of the relation between literary history and language. In the wake of Sutherland's revisionist biography of Scott, Leyden has garnered increased attention, both as a poet, and as Scott's major collaborator on *The Minstrelsy* project. As Sutherland puts it, by the standards of modern authorial practice, "[Leyden's] name should have been on the title page as joint-editor."¹³ The long night of Leyden's critical evaluation is partly due to Scott himself; the "Biographical Memoir" of Leyden's life which he wrote for *The Edinburgh Annual Register for 1811* (published in 1813), cultivated Leyden's reputation as Scott's brilliant but wildly eccentric assistant – an evaluation reinforced by both Lockhart and Johnson, Scott's major biographers. At the same time, Sutherland oversteps when he argues that Scott's failure to put Leyden on the title page "testifies to a streak of authorial ruthlessness," or that "in the caricature of Leyden that he propagated for posterity, Scott was, I suspect, subconsciously justifying his shabby treatment of his co-editor."¹⁴ Whatever Scott's subconscious feelings about the matter, an examination of the complicated nature of Scott's collaboration with Leyden – of far greater extent and

impact than even Sutherland realized – suggests that Scott’s treatment of Leyden was not only mutually satisfactory, but part of a shared project of authorial construction, which developed with the context of an Edinburgh publishing industry heavily inflected by the exigencies of patronage and social status.

In Sutherland’s account, drawing heavily on the research of M. R. Dobie,¹⁵ when Scott met Leyden, he had collected most of the poetry for a thin volume of historical ballads which he’d proposed to print with James Ballantyne. According to Ballantyne, it was Leyden who then proposed expanding the work to several volumes. In order to extend the work, Leyden also talked Scott into backing out of an agreement he’d made with Robert Jamieson not to include several romances (Jamieson, interested in publishing his own collection of old verse, had already supplied Scott with several additional ballads as part of that deal). By Scott’s own account, Leyden was instrumental in securing the bulk of poems to be included in the second two volumes, helped convince Scott to include some original compositions in the third volume, and even penned the opening poem for that work.¹⁶ Finally, and most importantly, Leyden apparently contributed both the materials for the essay Scott included on Fairy Superstition, and he contributed much of the bibliographic apparatus of Scott’s edition.¹⁷

Hence, it’s accurate to say that Scott’s effusive praise for Leyden’s assistance within the introduction to *The Minstrelsy* falls well short of acknowledging the full measure of his labors. And there is a further reason to reevaluate Leyden’s impact upon Scott’s work: though Scott’s junior by several years, Leyden was a more experienced author and antiquarian, and it appears that, in terms of antiquarian research, it was Leyden who took Scott under his wing. By the time they met, Leyden was already hard

at work on a scholarly edition of *The Complaynte of Scotland* (1548-9), a project with a long preliminary “Dissertation,” copious notes, and a glossary that modeled the apparatus of Scott’s own *Minstrelsy*, and for that matter, Scott’s later fiction.

An examination of Scott’s collaboration with Leyden illustrates how it transformed the aspirations of Scott’s ballad project from a late eighteenth-century antiquarian monograph into the ambitious ethnographic collection it became. The small volume of poems that Scott had originally proposed to Ballantyne seems to have been imagined along the lines of a class of eighteenth-century ballad collections that brought together a range of old poems with a minimum of historical and bibliographic information.¹⁸ Examples include Ambrose Philip’s anonymous *Collection of Old Ballads* (1723) and Percy’s own *Reliques of Ancient Poetry* (1765).¹⁹ These works participate in a culture of connoisseurship and aesthetics of taste specific to the Augustan culture of letters. As Barbara Benedict has recently detailed, such collections were rooted in the reformulation of collection itself as a component of polite aesthetic sensibility.²⁰ As part of this process, the term “curiosity” came to designate both the possession of the polite faculty of aesthetic taste, and the valued object of collection, in an extension of the early modern discourse of wonder described by Lorraine Daston and Katherine Park.²¹ A look at the language used by both Philips and Percy to describe the value of their work situates them firmly within this tradition. Both insist that modern ballads are an extension of a classical bardic tradition. Just as Philip’s title fixes the work’s participation in the culture of collection, the preface secures its claim to traditional value: “here the very Prince of Poets, old *Homer*, if we may trust ancient Records, was nothing more than a blind *Ballad-singer*, who writ Songs of the Siege of Troy; and the Adventures of *Ulysses*; and

playing the Times upon his Harp, sung from Door to Door.” Significantly, Homer’s lineage also provides the ballad collector an ancient pedigree: “till at his Death somebody thought fit to collect all his Ballads, and by a little connecting ’em, gave us the *Iliad* and *Odysses*, which since that Time have been so much admired” (iii-iv). Similarly, the first edition of Percy’s collection, which would draw Ritson’s invective, begins with an “Essay on the ancient English poets,” and the assertion that “The Minstrels seem to have been the genuine successors of the ancient Bards, who united the arts of Poetry and Music, and sung verse to the harp, of their own composing” (xv). The insistence upon continuity with classical tradition was a key component of Augustan humanism, which continued to evaluate contemporary work within the coordinates of the earlier critical controversy over the value of the “ancients” versus the “moderns.” Within this context, Percy’s title, by emphasizing the *Ancient* origins of valuable *English* poetry, enlisted the cultural capital of classical literature in order to bolster the value of British works.

At the same time, both works demonstrate a concern for historical accuracy that pushes beyond the particularist aesthetic valuation of the culture of curiosity. Philips emphasizes the value of old ballads in stimulating a form of curiosity that is essentially historical:

several fine Historians are indebted to *Historical Ballads* for all their Learning. For had not Curiosity, and a Desire of comparing these Poetical Works with ancient Records, first incited them to it, they never would have given themselves the Trouble of diving into History: And in this I have endeavoured to make our old Songs still more useful, by the Introductions which I have prefix’d to ’em; and in which is pointed out what is Fact and what Fiction. (vii)

The classification of certain ballads as “Historical” serves to reorganize the standard of value, moving it away from taste and simple curiosity and toward a form of antiquarian interest that combines the collector’s “taste” with a specific interest in the relation

between poetic representation and historical truth. This revaluation of the ballad is accompanied by an interest in their historical utility – an interest that stimulates Philips to develop the textual apparatus of Introductions which evaluate their historical material. An illuminating example is provided by his discussion of the ballad of Chevy Chase, which evaluates the historical claims made by the ballad, before using these claims to situate the poet's own ambitions within the context of the moment of composition: "Our [Scotch] Poet thought it would be an Affront to his Countrymen, to suppose that the *Scots* would so much as think of coming to attack the *English* in their own Kingdom ... [but] The Fact of it is this: ... [Douglas's raid was an] Incursion into the *Northern* Borders of this Kingdom, to carry off what Booty they could" (109). While Philips insists that the actual events represented a border dispute between two nations, he excuses the poet for "making that which was a National Difference, a private Quarrel" on the grounds that "The Ballad it self was written when the Dissentions of the Barons (who behaved like so many absolute Princes) made our Nation the perpetual Seat of Civil War: And the Design of the Poet was, to shew the Miseries which attend such unhappy Divisions" (109). The terms of this discussion make it clear that Phillip's aim in securing the historical utility of the ballads requires a complex historiographical operation, one that not only evaluates the "fact" of the historical evidence, but the distinction between the historical object of the poem and the historical situation of its composition.

Hence, the "Historical" ballad is doubly mediated by history; first, as a condition of its claim to represent specific historical content, and second, through placement of that representation within an additional and distinct historical moment. In ballad collection, history and historiography become inextricably linked in the intersection between

representation, fidelity, and authorial intent. This concern for the operations of history sits uneasily alongside the claim, foundational for eighteenth century collection, that the collected object accrues value as evidence of taste. Hence, the historical disquisition to “Chevy Chase” sits uneasily between the sub-titular announcement, rooted in broadside convention, that the ballad is to be sung “To the Tune of *Flying Fame*,” and Philip’s closing brief for the aesthetic quality of the poem, which returns the terms of valuation away from fact and fiction back to taste. He points out that Addison found, within the rude form of “Chevy Chase,” “the true Spirit of poetry” and cites Sir Philip Sidney’s encomium to the ballad in his *Defense of Poetry*.

Percy picks up this observation at the opening of his *Reliques*; after his long essay on the Englishness of the ancient minstrels, he leads with “Chevy Chase,” and gives Sidney’s evaluation in full:

I never heard the old song of Percie and Douglas, that I found not my heart moved more than with a trumpet: and yet ‘it’ is sung but by some blinde crowder, with no rougher voice, than rude stile; which being so evill apared in the dust and cobweb of that uncivill age, what would it work, trimmed in the gorgeous eloquence of Pindare? (facing page 1)

For both ballad collectors, Sidney serves as a touchstone for authoritative connoisseurship. This reflects Sidney’s broad reevaluation in the period, as several new translations of his *Defense of Poetry* were published in the early eighteenth century, and the first collected edition of his works printed in 1724-5, the year after Philips’ *Collection*. Notably, while Sidney emphasizes his sensitivity to the “rude stile” of the modern ballad singer and sense of distance between contemporary and ancient poetry, Philips and Percy shift from contrast to continuity, emphasizing a legacy of bardic tradition. Katie Trumpner has usefully characterized this shift toward the historical authority of local tradition as “bardic nationalism,” an emphasis upon recuperating

national tradition closely coordinated with the growth of a folk vocabulary for republicanism, nationalism, and empire in the eighteenth and nineteenth centuries.²² As Trumpner has also pointed out, the peculiar mix of Scotch and British nationalism which informs Scott's own literary productions make sense within the context of this general reevaluation of cultural tradition and the particular impact of the Acts of Union.

At the same time, the historiographical technologies developed within the context of ballad collection increasingly came into conflict with the aspirations of cultural continuity that motivated the promotion of national literatures. Nowhere is this more evident than in the debate between Percy and Ritson, a debate which had a lasting impact on Scott's understanding of the relationship between cultural transmission and historical difference. The debate marks a key moment in the transition from a polite antiquarianism rooted in the discourse of curiosity to the historiographic and philological discipline of folk ethnography. While Scott long described his childhood love of Percy's *Reliques* in terms that reflect Phillip's claims for the historical stimulation of ballad reading, the historiographical instruments that Ritson brought to bear in criticizing Percy's work became essential elements of Scott's historical imagination.

Ritson's attack, launched within his own collection of old ballads and romances, against Percy's "Essay on the ancient English poets," is fairly summarized as an argument over the relationship between minstrels and ballad singers. But the central object of the critique is language, not profession. Specifically, Ritson argues that Percy's claim that ancient minstrels used *English* is not only wrong, but supported by means of a willful distortion of the evidence of historical philology. Following a quotation of the

first line of Percy's "Essay" regarding the ties of the English minstrels to the ancient bards, as given above, Ritson's response is worth quoting at length:

This is certainly a fine, and possibly unflattering description of a set of men, who unquestionably existed and flourished in France for several centuries, and whom several ingenious writers have contributed to render famous. Numbers of these, no doubt, owing to the free intercourse between this country and the continent, so long as the English monarchs retained any of their Norman territories, were constantly flocking to their court and to the castles of their barons, where it may be easily believed they would experience the most favourable reception. They were still French, however; and it is to be remembered that if this language were not the only, it was at least the usual one, spoken by the English monarchs and great men for several centuries after the conquest; a fact which, if not notorious, must be evident to every person in any degree conversant with the history of those times. If, therefore, by 'Ancient English Minstrels,' we are to understand a body of our own countrymen who united the arts of poetry and music ... all the facts, anecdotes and other circumstances which have been collected relative to the Provençal Troubadours or Norman Minstrels, however numerous or authentic, are totally foreign to the subject, and do not even prove the mere existence of the character supposed.²³

Ritson's argument proceeds on two main heads. First, the minstrel tradition in the period Percy describes is exclusively French, as well as the language used by the nobility of that time. And if that is true, Ritson argues, all the evidence of a French and Provençal troubadour tradition that Percy produces has no bearing on the reconstitution of a minstrel tradition in English. According to Ritson, Percy's error rooted in a willing distortion of the term "minstrel," which in the English context, was generally used to denominate a fiddler or musician, rather than someone who "united the arts of Poetry and Music, and sung verse to the harp, of their own composing." To make his case, Ritson turns to a wealth of historical information, particularly English and Scotch legal documents and historical accounts, which reference to the term "minstrel," in order to show that English minstrels were not the courtly troubadours of yore. Along the way, he tracks down and demolishes several of Percy's cited sources. A particularly acerbic attack comes with Ritson's evaluation of Percy's use of an account of an incident during

the reign of King John. He points out that, although Percy presents the account in quotes, a convention that, by the late eighteenth century, indicated a direct reproduction of the source, Ritson's own examination of the source shows that Percy has re-worked the language of several passage in the account, for instance, substituting "Minstrels" for what originally read "fidlers, players, coblers, [and other] debauched persons" (vi-vii).

Ritson's derision is sharp: "a remarkable passage, introduced, it should seem, by the learned essayist, to serve the purpose of a hypothesis, which, by this time, perhaps, he began to perceive would need more support than any author ancient or modern was ready to afford" (vii). In this passage, Ritson prizes apart two senses of authority; Percy, he suggests, sees authority as simply referential – in the ability secure support from other authors, whether "ancient" or "modern." But it is clear that in Ritson's own sense, authority is rooted in referential fidelity – within scrupulous adherence to the conventions of textual bibliography. Ritson's own insistence upon scrupulous attention to citational convention is emphasized by his use of square brackets to carefully mark out his own intervention in the account that Percy had mangled "[and other]." This assiduousness is particularly sharp when applied to Percy's own words, as for instance, when he quotes Percy's evaluation of whether scattered mentions of women playing harps in chivalric romances constitute evidence of a distinct tradition of female troubadours: "'These instances,' therefore, 'are [NOT] sufficient'" (xi, n. †).

Percy evidently felt the weight of Ritson's critique of the Englishness of the minstrels; in later editions, he changed the title of his prefatory essay from an "An essay on the ancient *English* minstrels" to "An essay on the ancient minstrels *in England*" (emph. added).²⁴ The other crucial challenge of Ritson's criticism was the accuracy of

the poems Percy collected. In addition to questioning the existence of the folio of poems that Percy claimed to have found, Ritson indicted Percy's willingness to smooth and polish the sometimes harsh verses of the poems he'd collected. Ritson details the numerous cases of Percy's acknowledged editorial intervention as examples of unscrupulous editing. In addition, he charges (it turns out, accurately), that "Many other instances might be noticed, were the learned collector has preferred his ingenuity to his fidelity, without the least intimation to the reader" (xxxix). While Percy avowed his willingness to sacrifice strict fidelity to the object of producing the most pleasing collection of poems, for Ritson, the strict accuracy of the reproduction to original sources is a governing principle.

Essentially, the historiographical techniques that Ritson deploys in evaluating the status of the English language in Percy's argument are rooted in a careful comparison between various contemporary and dispersed historical documents. He uses his more scrupulous comparative evidence, with its careful attention to specificities of language, time and place, along with the textual conventions of citation and explicit emendation that indicate distinctions between, for instance, citation and interpretation, to demolish Percy's own comparisons between the French and [non-existent] English minstrel tradition. The role of bibliographical comparison is most evident in Ritson's explicit engagement with comparative philology, as he tries to pin down what "minstrel" meant before the seventeenth century. To do this, he looks at a range of period glossaries that translate between English, French, Italian, and even German, in which "minstrel" is rendered as various kinds of musician (xviii-xix).

As I will discuss later, this turn toward the larger context of comparative philology marks Ritson's engagement in revolutionary new techniques of linguistic comparativism that emerged toward the close of the eighteenth century. But more generally, we can recognize within the Percy-Ritson debate how the terms of ballad collection and literary scholarship were inflected by a larger transformation in contemporary standards of evidence. Lorraine Daston and Peter Galison, in a commanding study of what would come to be called "objectivity" in nineteenth-century scientific representation, have argued for a broad transformation in nineteenth century standards of evidence, from "truth to nature" – which understood accuracy as an attempt to capture the ideal type behind flawed instances – to "mechanical objectivity" – which emphasized disinterested, routinized reproduction of even flawed exemplars.²⁵ The contrast between Percy and Ritson illustrates a coordinated dynamic. Some such transition seems evident in the movement from Sidney's imagination of what Chevy Chase might sound like if inked with Pindar's pen, and Ritson's advocacy of flawed ballads, warts and all. I have already suggested how eighteenth century aesthetics of collection represent a modification of the early-modern, "wonder"-based regimes of collection, as outlined by Daston and Park, insofar as the discourse of taste cultivated sophisticated new theories of valuation. As Michael McKeon has argued, eighteenth-century aesthetic theory developed in direct dialogue with enlightenment empiricism, as part of an attempt to specify disinterested modes of investigation.²⁶ At the same time, the contrast between Percy and Ritson does not break cleanly along the lines of Daston and Galison's transition from "truth to nature" to mechanical objectivity. In particular, Percy's understanding of the ballad collector's object might better be characterized as

“truth to art” – a program of amendment that he clearly understood as improving the poems he reproduced and bringing them into closer alignment with contemporary standards of taste. At the same time, as I have suggested in discussing Phillip’s *Collection of Old Ballads*, the particular claims made for the value of “Historical” ballads put pressure of standards of taste, insofar as “truth to art” came into conflict with truth to history. From this perspective, Ritson’s insistence upon standardized conventions of bibliographic citation can be taken as the institution of routinized protocols to protect fidelity to history from the intrusion of critical intervention. Cast in this light, Ritson’s comparative bibliographic and linguistic method achieves a kind of scholarly disinterest coordinate with “mechanical objectivity,” insofar as it worked to efface the interventions of personality and the individual critic.

While the foregoing discussion may seem to have moved far afield from Scott’s historical fiction, it is precisely through his engagement with the competing standards of evidence offered up by Percy and Ritson that Scott matured as a man of letters. Michael Gamer has emphasized the degree to which Scott’s experience with the negative celebrity of Monk Lewis, in particular, the censure drawn by the *Tales of Wonder*, seems to have shaped Scott’s self-conception as an author and discouraged his further exploration of drama and the gothic. Through his work as a ballad collector, Scott found a positive complement to Monk’s notorious model and fashioned a new understanding of literary production and persona that shaped the course of his career. As I noted earlier, the ballad project that Scott initially proposed was a more modest, popular collection – more along the lines of John Pinkerton’s *Select Scottish Ballads* (1783), or John Finlay’s *Scottish Historical and Romantic Ballads, Chiefly Ancient* (1808). But upon meeting Leyden,

Scott embarked upon a much more ambitious, more scholarly project. Whereas initially, Scott's collection had focused upon variety, rather than comprehensiveness, with Leyden's help, Scott began to seek out multiple competing copies of the ballads he would publish. In this connection, Scott's new authorial confidence is demonstrated by a string of letters in which he reaches out to fellow ballad enthusiasts, including Jamieson, Herder, and even Percy, as part of a network of collection that extended the depth and range of his survey.

At the same time, the publication of Leyden's extensively-documented scholarly edition of the *Complaynte of Scotland* in 1801 brought Scott's collaborator new stature among antiquarians, and attracted Ritson's notice. Lockhart makes hay of the amicable relationship Scott cultivated with the notoriously eccentric and acerbic Ritson, but it is clear from Scott and Leyden's correspondence that it was Leyden who drew Ritson into their circle. Moreover, it was through this connection to Ritson that Leyden and Scott were first interested in publishing a scholarly edition of the *Sir Tristrem* variant of in the Auchinleck manuscript, and it is likely that the editing of that work was first proposed to Leyden, as the editor of *The Complaynte*, by Ritson himself.²⁷

It was during his collaboration with Leyden that Scott first threw himself into careful antiquarian research. Whereas both Percy and Ritson had relied on the selection of individual versions for the foundation of their collection, Scott and Leyden often secured multiple, competing variants of the ballads they included, painstakingly correcting and piecing together their ballad stanza by stanza, line by line. The editorial process was complicated and sometimes strayed far from fidelity to any particular original. In his 1803 introduction to the *Minstrelsy* Scott notes that various discrepancies

exist between the extant versions of many poems, requiring him to select the best passages from various versions. In addition, Scott tells us, “some arrangement was also necessary, to recover the rhyme, which was often, by the ignorance of the reciters, transposed, or thrown into the middle of the line,”²⁸ in addition to updating the orthography. But Scott insists that he has been careful “never to reject a word or phrase, used by a reciter, however uncouth or antiquated” (172). The composition of *The Minstrelsy* in many ways splits the difference between Percy and Ritson. While Scott did not balk at changing a rhyme or even inventing a new stanza, he worked hard to specify frankly the extent of these changes. Later in life, Scott would retain a warm appraisal of Percy’s work, while acknowledging many of Ritson’s trenchant criticisms. Reviewing Percy’s work sixty years since, he remarks that in “The Marriage of Sir Gawain” Percy “has ... given entire rein to his own fancy, though the rude origins of most of his ideas is to be found in the old ballad.”²⁹ Of “The Child of Elle,” Scott comments, that the folio copy “goes far to show it has derived all its beauties from Dr. Percy’s poetical powers.” Scott clearly wrestles with approval and criticism of Percy’s revised ballads, summarizing, “it is certain the manuscript contains much that is really excellent, though mutilated and sophisticated” (39).

This carefully moderated appreciation of Percy reflects Scott’s negotiation between the opposed positions of Percy and Ritson as the two major models for ballad collection as a constitutive editorial practice. As Jonathan Oldbuck would later explain in *The Antiquary*, “It’s a historical ballad ... a genuine and undoubted fragment of minstrelsy! Percy would admire its simplicity—Ritson could not impugn its authenticity.”³⁰ Further evidence of Scott’s moderating position is provided by the name

of *The Minstrelsy* itself. While Scott generally referred to the project as his “Border Ballads” in the initial stages of development, he changed that title to *The Minstrelsy of the Scottish Border* soon after opening up correspondence with Percy – implicitly endorsing Percy’s argument that old Anglophone romances and ballads were the product of a minstrel tradition. Leyden saw the title as amusingly effected, writing to one correspondent of his work on the “Border Ballads, which Scott (in my opinion with some degree of affectation) persists in stiling the Minstrelsy of the Border. I have urged the claim of a term of similar composition Spinstrelsy!! without effect, tho’ I think the one not much inferior to the other either in propriety or in affectation.”³¹ Leyden’s authorial eye recognizes that Scott is posturing the work to allay it with Percy (and his brand of “affectation”). Scott’s endorsement of the minstrel tradition reflects a form of authorial constitution; while Leyden seems to have relished the scribblerian invective that Ritson had become notorious for, Scott allayed the work with the polite tone and status of Percy’s collection.

The version of Sir Patrick Spens published in *The Minstrelsy* provides an illuminating example of the collaboration between Scott and Leyden that further develops the tension between accuracy and value in editorial practice. After publication, Malcolm Laing challenged Scott to produce the sources of the poem, apparently implying that Scott had fabricated portions. In response, Scott provides an account of the sources “as taken down from the mouth of the Reciter. One was picked up by Leyden with some other little things from a woman in Kelso. The other was furnished in the state which you see it my Mr. William Laidlaw of Blackhouse.”³² Scott is evidently anxious to prove the independence of the two versions, “Laidlaw and Leyden never met except once when I

was present. Blackhouse is forty miles from Kelso & in the most wild & sequestered nook you ever saw: so there is not even a probable chance that the same fabrication should be imposed on me from two different quarters.” Scott frames his editorial relationship to Leyden and Laidlaw in order to secure his authority; he addresses hypothetically a case in which they might conspire to put one over on him, and goes on to explain that he initially “scrupled to use” the version Leyden provided, “on account of one verse containing lines ... which I still think are an interpolation.” But on comparing Leyden’s to Laidlaw’s version and finding they largely agreed, “I thought myself entitled to use both with Hamiltons fragment assisted by the printed copies.” Notably, the account that Scott gives in this letter differs dramatically from one of his favorite stories about Leyden’s assiduity in field collection – a tale related in numerous letters as well as his Biographical Memoir of Leyden. In the latter, he describes how

An interesting fragment had been obtained of an ancient historical ballad, but the remainder, to the great disturbance of the editor and his coadjutor, was not to be recovered. Two days afterwards, while Mr Scott was sitting with some company after dinner, a sound was heard at a distance like that of the whistling of a tempest through the torn rigging of the vessel which scuds before it. The sounds increased as they approached, and Leyden ... burst into the room, chaunting the desiderated ballad, with the most enthusiastic gesture, and all the energy of the saw-tones of his voice already commemorated. It turned out, that he had walked between forty and fifty miles and back again, for the sole purpose of visiting an old person who possessed this precious remnant of antiquity.³³

Given that Kelso was “forty or fifty miles” from Edinburgh, and that Scott’s account of “Sir Patrick Spens” makes it clear that he first collected the Hamilton “fragment,” and then obtained a transcription from one of Leyden’s visits to Kelso, it’s extremely likely that this story about Leyden recounts his return from the Kelso trip that tracked down this more complete version of “Spens.” Within Scott’s memoir of Leyden, this incident forms the centerpiece of the biographical narrative, tying the first set story, in which the

eleven-year-old Leyden slogs overnight through the snow to obtain a copy of *The Arabian Nights*, to the final, fatal chapter of his “ardent and enthusiastic genius,” in which Leyden, during the British siege of Java, nearly drowns as he leaps from a landing boat, charges hastily into the stuffy library of the Dutch settlement in search of “Indian manuscripts,” catches a fever, and dies (xlii-xliii, lxvii). Scott’s enthusiastic accounts of Leyden’s antiquarian passion disclose a deep affection for his collaborator, counterbalanced by shades of conservative anxiety toward enthusiasm itself. And while his characterization of Leyden to Laing implies his care in making sure Leyden did not provide distorted or “interpolated” poems, elsewhere he generally emphasizes Leyden’s herculean capacity for research and prodigious memory. In one example from the memoir, related by a correspondent in India, Leyden settles an argument over English history by reciting “verbatim the whole of an act of parliament in the reign of James relative to Ireland, which resolved the dispute” (lxvi). Apparently, Leyden had memorized it while working with Scott on *The Minstrelsy* and perhaps *Sir Tristrem*, as Leyden explained that “several years before, when he was writing on the changes that had taken place in the English language, this act was one of the documents to which he had referred as a specimen of the style of that age, and that he had retained every word in his memory” (lxvi). My point is not that Leyden was a better source than Scott’s letter to Laing implies; rather, it’s important to note how the question of authenticity, brought to bear on the ballads within his collection, prompts Scott to reconfigure his relationship with Leyden to fit the kind of evidentiary model propounded by Ritson. As Scott puts it later in the letter, “I would not willingly leave the impression on your mind that I have interpolated these ancient Ballads. . . . I utterly disclaim the idea of writing anything that I

am not ready to own to the whole world.”³⁴ It’s hard not to chuckle at such a statement from the man who would become the “Author of Waverley” and later even planned to produce a Gothic play under the name of his friend, Daniel Terry.³⁵ But the passage goes far to show Scott’s attention to the conventions of transparency and disinterest that were an increasingly important component of the scholarly conventions of editorial authority.

A close examination of “Sir Patrick Spens” as it appeared in *The Minstrelsy* demonstrates just how complicated the relationship between authenticity and accuracy, truth to art and truth to history, could become for the ballad collector. There is one sense in which this version of the famous ballad, which centers on a skipper forced to sail for unknown reasons, departs radically from all other renditions: Spens is charged – editorially – with a specific mission. Several stanzas are “interpolated” to nail down Spens’s newly-discovered job: to transport the Maid of Norway to Scotland. Apparently this mission is based upon a suggestion from the Hamilton fragment, which mentioned Norway in passing.³⁶ By introducing a fully-fledged narrative in which Spens successfully delivers the Princess, before perishing on his return, Scott reworks the ballad historiographically, and dramatically changes the narrative. Presentation of the first newly-minted stanza between its neighbors gives a taste of the magnitude of this shift:

Our King has written a braid letter,
And seal’d it with his hand,
And sent it to Sir Patrick Spens,
Was walking on the strand. (iii)

‘To Noroway, to Noroway,
To Noroway o’er the faem;
The King’s daughter of Noroway,
’Tis thou maun bring her hame.’ (iv)

The first wurd that Sur Patrick read,
Sae loud loud laughèd he!

The neist word that Sir Patrick read,
The tear blinded his ee.³⁷ (v)

In the original version of the ballad, we are never told what is in the letter. The king's command, his reasons for sending Spens at such a dangerous time of the season, are a tantalizing lacuna only marked by Spens' laugh. The insertion of the letter's text marks a vibrant example of generic invasion; ballads rely upon direct narration and dialogue, not epistolary episodes. Indeed, the introduction of the letter's text introduces a temporal complexity alien to the traditional ballad, with its iris resolutely fixed upon the present. Hence the letter's text presents a collapse of two moments – bringing the moment of the letter's composition into direct contact with the moment it is read in a hybrid temporality.

As Ian Duncan has noted, Northrop Frye's *Secular Scripture*, a canonical study of the "displacement" of naïve Christian narratives into increasingly sentimental and self-conscious literary forms, emerged from an essay on the role of romance in Walter Scott's historical fiction.³⁸ From Frye's perspective, Spens' mission would inject the larger moral framework of the romance, itself rooted in Christian traditions of sacrifice and redemption, by providing Spens a specific chivalric task to accomplish. In such formal hybridism, mixing ballad, romance, epistle, and history, we might also recognize a process that Bakhtin describes as novelization – the influence of the novel's hybridized form upon companion literatures.³⁹ But it is important to note that, within the context of Scott's ballad collecting, this hybridism emerges as an attempt to stabilize the ballad's claim to historicity. Unlike Percy's ballads, the object of the interpolated passages is not primarily to improve their aesthetic value or "truth to art," but rather, truth to history.

Looked at from another perspective, the fabricated passages mark the interpolation of the paratextual bibliographic material which had long accompanied

“Historical” ballads as part of an increasingly standardized attempt to specify their historical content. “Sir Patrick Spens” is introduced with an extended introductory note that gives the historical background of the Maid of Norway as well as an historical explication of several other details in the poem, for instance, noble residence at Dumferling in the period. It also includes seven footnotes, most clarifying particular terms of dialect, and two endnotes pertaining to seamanship and an ancient Scottish law prohibiting winter sailing. The final footnote to the last stanza is particularly interesting, because it notes a discrepancy between the three copies of the ballad Scott drew upon, and gives two alternate versions. Scott continues, “But, in a voyage from Norway, a shipwreck on the north coast seems as probable as either in the Firth of Forth or Tay; and the ballad states the disaster to have taken place out of sight of land.”⁴⁰ Scott’s scrupulous notation of this editorial decision to choose between the three variants, a decision founded in attention to historical accuracy, is remarkable, as the verses he fabricated go unnoticed. But it’s important to recognize that Scott is working within a period in which the standards of historical and textual fidelity are in flux. From this perspective, the presentation of authenticity in the final version becomes an effect bound up in the complex negotiation of historical, aesthetic, and bibliographic sufficiency. The key observation is that in *The Minstrelsy*, while historical annotation serves a formal function, encapsulating and specifying specific historicist reading practices that the reader is to apply to the ballad, the interpolation of that material into the poem itself moves this historical material into a serial relationship with the rest of the poem (and as Laing’s queries suggest, this subjects these interpolated materials to the same evidentiary problems of accuracy that they are meant to address). There is clearly a vast difference

between Scott's understanding of what it means to "collect" ballads and Ritson's, or later, Francis James Child's. For these latter, fidelity to source documents becomes an overriding priority, encoded within scrupulous attention to scholarly conventions of bibliographic documentation. But for Scott, I wish to suggest, there remains a sense of the value of truth to art, along with truth to a history that extant variants of the ballad do not fully capture.

II. Imitation and historical fiction

It is within the context of sifting through the competing claims to transparency, fidelity, historical accuracy, and aesthetic merit within ballad collection that Scott developed the formal vocabulary he would later apply to historical fiction. During his most focused period of ballad collection over 1800-02, correspondents would occasionally forward Scott "Historical" poems which Scott judged rank forgeries. As an example, Scott received a ballad called "Jock o' Milk" which he characterized as almost "entirely and radically a modern fabrication." As Scott makes clear in an extensive catalog of its anachronisms, the intrusion of modernity into both the expression and sentiments expressed within the poem serve *both* as an indictment of its historical accuracy, *and* cripple its value as poetry.⁴¹ Later, Scott would remark of the poem that it was excellent example of the

difference betwixt a beautiful *imitation* & an impudent *forgery*. The latter class ... abound with an extravagant use of old words & are in fact usually composed chiefly from the glossary of some old author without the ingenious imitator being capable of discovering the proportion which the words requiring explanation in old compositions bear to those which are still in common use.⁴²

Here, Scott argues that the bibliographic technology of the glossary is not sufficient to produce effective historical “imitation.” Their failure to take proper stock of the difference between “old words” and their modern counterparts echoes Percy’s mistake in arguing that scattered use of the English word “minstrel” in historical works corresponded to modern associations between the minstrel and romantic troubadours. Ritson, in turn, was able to effectively debunk that easy association through a comparison of glossaries – rather than relying on a single entry, he uses a survey of competing accounts to disclose the degree of association between minstrels, musicians, and troubadours – an analysis that allows him to conclude of the class of men in England who served as traveling chanteurs, that “These men were in all probability comprehended within the general term of Minstrels, but are by no means to be exclusively distinguished by that title; and indeed were generally denominated from the particular instruments on which they performed” (xxiv). Hence, comparativism ties the question of historical conventions of language use to the vocabulary of “proportion” that Scott uses in his critique of “Jock o’ Milk,” allowing Ritson to distinguish between the “general term of Minstrels” in the medieval period, and the specific, historically romanticized term of modern usage.

The philological techniques which Ritson deployed in order to interrogate historical authenticity also served Scott as formal models for the “imitation” of historical works; to produce a modern historical romance is to provide a translation between modern and historical conventions that takes account of the proportion of similarity and difference between the two. In his “Essay on Imitations of the Ancient Ballad,” Scott notes that it was through his experiences translating and imitating German ballads that he

developed a model of historical “Imitation.” Scott describes his own entrance into the study of German as prompted by “the remarkable coincidence between the German language and that of the Lowland Scottish” (27). Scott humorously narrates his German tutelage in third person: “the present author, averse to the necessary toil of grammar and its rules, was in the practice of fighting his way to the knowledge of the German by his acquaintance with the Scottish and Anglo-Saxon dialects, and, of course, frequently committed blunders which were not lost on his more accurate and more studious companions” (27). For Scott, language study, as much as imitation, is rooted in an accurate understanding of degrees of similarity. For this reason, the errors he commits are errors of accuracy. Scott’s German studies, however risible, are not as ludicrous as the attempts of one of his companions:

we had for our entertainment the unutterable sounds manufactured by a Frenchman, our fellow-student, who, with the economical purpose of learning two languages at once, was endeavouring to acquire German, of which he knew nothing, by means of English, concerning which he was nearly as ignorant. Heaven only knows the notes which he uttered, in attempting, with unpractised organs, to imitate the gutturals of these two intractable languages. (28)

Scott makes a distinction rooted in historical philology; as a romance language, French bears no innate connection to German, whereas the history of English, and particularly, the Scotts dialect, is bound to German. A lack of mutual history renders language “intractable.” Though he pokes fun at it, Scott’s attempt at German succeeds, because if he is not pursuing the “rules” of grammar, he follows the occasionally misleading but often true analogies between the languages.

Scott’s understanding of the historical kinship between German, Anglo-Saxon, and Scottish marks his intellectual engagement with ground-breaking new work in comparative philology. It is likely that Leyden exerted a considerable influence over

Scott's thinking about language kinship. The wide success of Leyden's *Historical and Philosophical Sketch of the Discoveries and Settlements of the Europeans in Northern and Western Africa* (1799) encouraged his ambition to travel to Africa himself; Scott along with his other Edinburgh associates intervened and secured a commission to India. His passion for language study – by the time Leyden left Edinburgh, he'd "acquired" Greek, Latin, French, Spanish, Italian and German, with familiarity of ancient Icelandic, Hebrew, Arabic and Persian – fanned Leyden's ambition to be the next Sir William Jones.⁴³ Fifteen years earlier, Jones had made the remarkable discovery of common structural and lexical elements between Sanskrit, Persian, the Germanic Languages, and Celtic – what would become the "Indo-European" family of languages:

The Sanskrit language, whatever be its antiquity, is of a wonderful structure; more perfect than the Greek, more copious than the Latin, and more exquisitely refined than either, yet bearing to both of them a stronger affinity, both in the roots of verbs and in the forms of grammar, than could possibly have been produced by accident; so strong indeed, that no philologist could examine them all three, without believing them to have sprung from some common source, which, perhaps, no longer exists: there is a similar reason, though not quite so forcible, for supposing that both the Gothic and the Celtic, though blended with a very different idiom, had the same origin with the Sanskrit; and the old Persian might be added to the same family, if this were the place for discussing any question concerning the antiquities of Persia.⁴⁴

Though he gave great weight to structural similarities, the primary method Jones used was comparison of vocabulary – the careful examination of correspondences between glossaries and dictionaries of the various dialects.⁴⁵ It appears that Leyden modeled his philological career on Jones' – of his many publications in India, one is *A Comparative Vocabulary of Barma, Maláyu, and T'hai languages* (1810). Moreover, Leyden was excited about Jones' insight into the family resemblance between classical Greek and Latin, old German and Celtic, and Sanskrit; it appears he discussed the similarities between "Druidic" and "Braminical" mythology with William Owen en route to his

assignment in India.⁴⁶ Leyden also recognized a kinship between comparative philology and contemporary comparative naturalism. In his long “Dissertation” to *The Complaynt of Scotland* (1801), he compares his effort to compare various testimony to the provenance and authorship of *The Complaynt* to “the situation of the modern botanist, who attempts to reduce the plants, described in such a vague and unscientific manner by Dioscorides and Pliny, to the accurate classification of Linnaeus.”⁴⁷ Even more apposite, he suggests that the challenge of identifying authorship – which involved comparing the *Complaynt*’s prose to the verse of Sir David Lindsay – is more challenging than

the situation of an anatomist, who compares two human skeletons which resemble each other in the great outlines, however they vary in minute particulars. But he, who compares a prosaic work with a poetical one, is like a comparative anatomist, who contrasts the skeleton of an animal with that of a man, and who, therefore, requires the most steady judgment, and the most accurate attention, to observe similarities as well as diversities.⁴⁸

Rather than a simple anatomist, Leyden’s work must be compared to the more demanding but cutting-edge discipline of *comparative* anatomy. Leyden, whose diverse course of study at Edinburgh included medicine and mineralogy, as well as history and philology, was attuned to the wide range of comparative disciplines that came in to prominence at the close of the eighteenth century. In the previous chapter, I discussed the translation of analogy within natural theology and literary representation into practices of comparativism that replicated its comparative structure. In the next chapter, I will explore how the practice of comparative anatomy in the early nineteenth century was used to ground new models of biological relation and historical change. For current purposes, it is enough to point out how comparative practice became closely associated with historical bibliography as a key tool for sussing out conflicting claims of historicity, authenticity, and authorship.

Such philological and historical comparativism was rooted in the traditional role of Analogy as a form of linguistic pattern analysis. As I mentioned in the last chapter, early modern grammars were often organized by what was termed the “analogy of language” – patterns of declension and conjugation – that were also believed to extend between languages. Hence Henry Edmundson’s *Lingua linguarum* advertised the “analogy of language” as the “natural language of languages ... improvable, and applicable to the gaining of any language” (1655, 1658). An excellent presentation of analogy’s role in late eighteenth-century linguistics can be seen in *Of the origin and progress of language* of James Burnet, Lord Monboddo, published in Edinburgh from 1774 to 1792. A philological authority, Monboddo roots his system in an analysis of the analogies of language, beginning with the internal patterns of conjugation, especially as they provide a model for standardizing the declension of similar word patterns. Monboddo also envisioned a much larger role for analogy, as a way of understanding the patterns underpinning all language. For Monboddo, analogy is both a technical term, the “analogy of language” which deals with the patterned relations between noun or verb forms,⁴⁹ and a more general term that comprises all forms of patterning – for instance, when he defines rhythm as when the mind “perceives any relation or analogy betwixt different motions, or parts of the same motion, in point or length of duration.”⁵⁰ The range of different uses for analogy in Monboddo’s work is marked by the careful qualifying of how analogy is deployed, an insistence that the various kinds of analogy retain formal distinctions of method and application. It is difficult to talk of analogies between analogies.

By the late eighteenth century, such analogical models of language were gaining prominence in theories of translation as well. Alexander Tytler, an acquaintance of both Scott and Leyden who taught history at Edinburgh, and whose son Scott later patronized, published a tract on the principles of translation in 1797. In this work, he notes one powerful advocate of analogical models of language, the philosophe Abbé Batteux, noting that Batteux's remarks "seem to have for their principal object the ascertainment of the analogy that one language bears to another, or the pointing out of those circumstances of construction and arrangement in which languages either agree with, or differ from each other."⁵¹ For Batteux, translation is rooted in a comparative linguistics, one that relies upon an analysis of the analogies between languages in order to elucidate a commonality of form. Tytler ultimately rejects this method, because Batteux utilizes this analogical system to argue that Greek and Latin, as the most natural languages, should serve as the model for composition and sentence construction – a rigid distortion of most other languages that, if capturing the letter, would fail to capture the spirit. He summarizes his criticism of Batteux's thinking in the recognizable terms of truth to art, at the same time that he contrasts it with an immoderate truth to historical fidelity: "According to the former idea of translation, it is allowable to improve and embellish; according to the latter, it is necessary to preserve even blemishes and defects." Tytler strikes a middle path, and defines a good translation as "That, in which the merit of the original work is so completely *transfused* into another language, as to be as distinctly apprehended, and as strongly felt, by a native of the country to which that language belongs, as it is by those who speak the language of the original work" (emphasis added).⁵² The language of transfusion is echoed in Scott's "Essay on the Imitation of the

Ancient Ballad,” when he suggests his experiments with German ballad poetry demonstrated how “the prevailing taste in that country might be easily employed as a formidable auxiliary to renewing the spirit of our own, upon the same system as when medical persons attempt, by the transfusion of blood, to pass into the veins of an aged and exhausted patient, the vivacity of the circulation and liveliness of sensation which distinguish a young subject.”⁵³

Using “transfusion” provides a model for translation that specifies a formal relationship between the content of a translation – its “merit” or “spirit” – and form of the new language that will embody it, so that one formal “body” replaces another. As such, transfusion serves as one of a several such formal models that specify translation as the transmission of content through the substitution of forms. Another central metaphor for such formal substitution is monetary exchange, first popularized by Cicero in *De oratore*.⁵⁴ What the models share is a substitutive logic, which interprets the relationship between source and target text in terms of a content that exchanges forms. Thomas Greene has characterized such theories of translation as “paradigmatic” or “metaphoric.”⁵⁵ In part, this association is rooted in a common etymology; both “metaphor” and “translation” were rendered as *translatio* in Latin works on rhetoric. Rita Copeland has argued that the term was strictly equivocal in classical Rome: “there is no evidence that Roman theorists of translation deliberately conflated the meaning of *translatio* as rhetorical metaphor with that of *translatio* as translation.”⁵⁶ Nevertheless, there is evidence that the conflation between metaphor and translation was a feature of early modern language theory. Hence, as discussed in the previous chapter, Henry Peacham, in his *Garden of Eloquence* (1593), describes how “This excellent Art of

translating, amòg other profitable rules commendeth to us this necessarie observation to begin with, that is to say, that those things ought to be equal in proportion, which we purpose to compare by translation, that is, of foure things two ought alwayes to be compared to two” (emph. added).⁵⁷

By the eighteenth century, however, theorists of translation emphasized the impossibility of strict substitution as a method of translation. Antoine Houdar de la Motte describes in 1714, for instance, how the constraints of modern taste will not permit a direct translation of Homer, “Would a theater audience accept having his characters come out during the intervals in a tragedy to tell us all that is going to happen next?,” and chooses instead to “bring[] the essential parts of the action together in such a way that they form a better-proportioned and more sensible whole.”⁵⁸ Crucially, it is the shift in cultural context which requires adjustment, not the more targeted linguistic differences between languages. Jacques Delille, in his 1769 translation of Virgil’s *Georgics*, accesses the classical metaphor of currency exchange to describe this adjustment as a financial ratio: “Whoever wants to translate goes into debt. To repay it he must pay the same sum but not in the same currency.” The apparent simplicity of this model of exchange is complicated in the following discussion, as he notes that differences between the languages often require extraordinary measures in order to safeguard equivalence; the good translator “Studies the nature of both languages. He is faithful where they do not deviate and where they do he fills in the gap with an equivalent that safeguards the rights of his own language while following the author’s genius as closely as possible.”⁵⁹ Here “genius” fills a role comparable to “spirit” in Scott’s theory of translation: whereas transmission may be more or less straightforward in passages where languages are

similar, it becomes essential to modify the translational strategy in order respect the “genius” of the original text and the conventions of the target language where the two languages diverge.

This modification requires a fundamental shift in how translation was understood. Rather than a more formalizing model that understands the substitution of one language for another to be the transfer of the text’s content into a new form, these new theories understood the target language as playing a role at the level of both content and form – hence it can “fill in the gap” between the source text and the target text with features that can serve as equivalents for lost content. To put this differently, these new theories presented a shift from a more strictly formal model to one that combined formal features with serial engagement between content from both the source and target language.

The sense that the process of translation impacts the content of what is being translated is evident in Scott’s use of the translational metaphor of currency exchange to describe the difference between “beautiful *imitation* & an impudent *forgery*.” In his 1803 introduction to *The Minstrelsy*, he describes the effect of transmission in the oral tradition in terms that modify the model of currency exchange:

Thus, undergoing from age to age a gradual process of alteration and recomposition, our popular poetry and oral minstrelsy has lost, in a great measure, its original appearance; and the strong touches by which it had been formerly characterised, have been gradually smoothed down and destroyed by a process similar to that by which a coin, passing from hand to hand, loses in circulation all the finer marks of the impress. (I, 12)

The analogy Scott draws between the effects of oral tradition and the physical weathering of human contact is evocative – but it also re-orientes the reader toward questions of value. Here, the model of currency exchange has been reformulated as a model of historical process – you cannot “exchange” old coins for new, because they have accrued an aura of

historical value that is radically distinct from the exchangeability of modern specie. Historical transmission modifies the content of the historical object.

The currency model also helps make sense of the relation between historical transmission, imitation, and forgery that Scott describes in his 1830 essay on ballad imitation. In a return to the language of counterfeit, he criticizes Chatterton's "Sir Baudwin," as marked by forgery much like "the newly forged medals of modern days [that] stand convicted of imposture from the very touches of the file, by which there is an attempt to imitate the cracks and fissures produced by the hammer upon the original" (III, 11-2). This indictment, which echoes Scott's complaint that "Jock o' Milk" attempts to duplicate historicity without understanding its nature, seems to suggest the essential impossibility of imitating historical literature. At the same time, we have already observed how Scott works to achieve precisely this imitative effect within "Sir Patrick Spens" by establishing a formal distinction between the paratextual bibliographic apparatus of historical notes, and the embedded historical material of the "imitative verse" that he works into the poem. The interpolation of historical framework into the poem itself "fills in the gap with an equivalent" in precisely the manner that Delille describes.

Central to the distinction between strict substitution and a more mediated understanding of historical translation is the language of "proportion" – the recognition that the imitator of historical literature must distinguish the degrees of similarity and difference between ancient and modern language and convention. For the noted early nineteenth-century classics translator, Friedrich Schleiermacher, it is this mutual linguistic adjustment that distinguishes static paraphrase from productive imitation, in

language that prefigures Walter Benjamin's essay on the task of the translator: "Imitation, on the other hand, submits to the irrationality of languages: it grants that it is impossible to render a copy of a verbal artifact into another language, let alone a copy that would correspond precisely to the original in all its parts. ...The identity of the original is abandoned in favor of analogy of impression."⁶⁰ Along this model, it is not the specific version of "Sir Patrick Spens" or the interpolated verses that function as an imitation; instead it is the full complex of the poem with bibliographic apparatus.

In the famous dedicatory epistle to *Ivanhoe*, Scott's authorial character, Templeton, attempt to answer the Ritsonian critique of Dryasdust, who charges that the conventions of the novel are unsuited to historical subjects because they necessarily introduce modern distortions. In response, Templeton suggests that novelistic form serves the essentially productive function of historical mediation: "It is necessary, for exciting interest of any kind, that the subject assumed should be, as it were, translated into the manners, as well as the language, of the age we live in" (xlvi). From the vantage of Scott's later status as an established and successful historical novelist, the model of translation has been expanded to comprehend "the manners, as well as the language." Templeton elaborates by illustrating the effect of ignoring the need for this mediation of "manner" in Strutt's *Queen Hoo-Hall*, which Scott often gave as an inspiration for *Waverley*. Templeton suggests that,

in distinguishing between what was ancient and modern, [Strutt] forgot, as it appears to me, that extensive neutral ground, the large proportion, that is, of manners and sentiments which are common to us and to our ancestors, having been handed down unaltered from them to us, or which, arising out of the principles of our common nature, must have existed alike in either state of society. (xlviii)

A strong translator is capable of comparison, locating in the particulars of each language, the common “proportion” of related manners, or corresponding principles. Strutt’s example presents, in the negative case, the same error regarding the proportion of “neutral ground” between history and the modern, that the fabricator of “Jock o’ Milk” presented in the positive: whereas Strutt defines historicity exclusively in terms of the historical difference, the ballad forger failed to recognize the distinction in what seemed historically common. In both cases, the error lies in a failure to find the right coordination of similarity and difference – to work out the proper proportion between antique language and custom, and their modern equivalents. To put this differently, it is clear that what Scott is describing, structurally speaking, is not a simple proportion, but a more complex relationship that coordinates two distinct sets of relationships. While Scott generally prefers the language of “proportion” to “analogy,” the previous chapter described how, in such cases, the complex formal relationship of similarity between distinct sets of relationships offered by analogy was displaced at the close of the eighteenth century into a range of interrelated comparative discourses. In Scott’s case, the language of proportion gauges a relationship between language and convention that emerged explicitly in the context of the “analogy of language” and between languages. Hence, Scott’s theory of historical translation presents a further case of the structural translation of analogy which, I have argued, characterizes the Romantic period.

The publication of *The Minstrelsy* established Scott’s reputation as a ballad publisher, and Scott and Leyden were soon hard at work on the project Ritson had originally proposed, a scholarly edition of the medieval *Sir Tristrem*, and they sought out to prove, again at Ritson’s suggestion, that the author was the same Thomas the Rhymer who

penned *Tam Lin*.⁶¹ Leyden performed the transcription, while both he and Scott worked to amass a wealth of bibliographic data that would secure their theory of Thomas' origins and attempt to locate him within the coordinates of oral ballad culture, courtly romance, and the French Arthuriana tradition. But as the project neared completion, the prospect of an Indian medical commission opened for Leyden, who, with no medical degree, embarked on the ambitious project of completing a comprehensive course of medical study at the University of Edinburgh in only six months. Apparently, Leyden dropped his other commitments; and it was left to Scott to finish *Sir Tristrem*. While the text was set in October of 1802, it was two years before Scott would publish it. Sutherland suggests that, without Leyden's assistance and the confidence of his antiquarian learning, Scott spent that time "frantically str[iving] to reassure himself and convert his antiquarian friends to his thesis" regarding Thomas the Rhymer.⁶² Notably, the "Introduction" to *Sir Tristrem* deploys comparative philology in order to reenter the Percy Ritson debate and advance a novel theory of the Scotch court as an oasis of courtly English: "the language, now called English, was formed under very different circumstances in England and Scotland; and, in the latter country, the Teutonic, its principal component part, was never banished from court, or confined to the use of the vulgar, as was unquestionably the case in the former."⁶³ Scott argues that the Scotch resisted the French language in court, because of the latter's wide difference from the Northern dialects. As a result, "English, or a mixture of Saxon, Pictish, and Norman, became early the language of the Scottish court, to which great part of Northumberland was subjected, [and therefore] the minstrels, who crowded their camps, must have used it in their songs."⁶⁴ Though the theory presented in the Introduction supports Percy's case for English minstrelsy, it no longer

finds it in England, and it uses the comparative philological approach advanced by

Ritson. Later in the essay, Scott explains, by analogy, the difficult choice of orthography:

In the present case, the name of the heroine seems positively to be written *Ysonde*, and is accordingly so printed; yet, nevertheless, every analogy goes to prove, that it ought to have been written and printed *Ysoude*, in order to correspond with the *Yssilt* of the Welch, the *Ysolt* of Mr. Douce's Fragments, the *I-solde* of Gower, the *Ysou* of the *Fabliaux*, the *Yseult* of the French folio, and, finally, the *Isotta* of the Italians. In the *Temple of Glas*, alone, we find *Ysonde*.⁶⁵

Nevertheless, he's chosen "Ysonde" because it's his sense that this reflects the particularity of the northern Old English dialect in which the romance is written, citing Ritson for authority. Hence, in this case, the analogy of language suggests a larger pattern. Such analysis allows Scott, as he put it in his criticism of "Jock o' Milk," to "discover[] the proportion which the words requiring explanation in old compositions bear to those which are still in common use"; and by implication, the degree of disproportion as well – an index to the distinction that marks the past. By arguing for the anomalous spelling "Ysonde," the Introduction uses the conventions of comparative philology to support the argument that *Sir Tristrem* is distinguished from the continental romance tradition by its greater antiquity; rather than derivative, Ysonde is independent and perhaps a progenitor of the Yseult of the French minstrels.

Such distinctions are rooted in a comparative sense of the complex semantic and conventional dimensions of translating between languages and between historical moments. In his study of Romantic historiography, James Chandler notes that Scott's emphasis upon translation as a form of historical mediation is reflective of a larger discourse of "cultural translation" as described in Talal Asad's account of the role of "translation of cultures" in anthropological and ethnographic thinking in the latter half of the twentieth century.⁶⁶ Relating how Dugald Stewart, in a memoir upon William

Robertson, described Robertson's histories as "translating (if I may use the expression) ... antiquated [Scottish] fashions into the corresponding fashions of our own times," Chandler elaborates: "Note that here, as in Scott, we have precisely that distinction insisted on by Asad between language in culture and culture as language. And again, here as in Scott, the degree to which we may regard the working assumptions as involving what Asad refers to in contemporary social anthropology as the textualization of culture is indicated by that metaphor of translation."⁶⁷ It is tempting to suggest that the process of "textualization" through which "fashions," as well as "manners," "sentiments," and "principles," were formulated as functioning like language, and hence, capable of translation, contributed the collapse of habit and custom into what is now specified as the all-embracing formation we call "culture." As part of the following chapter, I will explore how the forms of comparativism articulated through historical fiction were made to serve a recognizably ethnographic function within the novels of Charles Dickens. But if we are to recognize something like a late Scotch enlightenment discourse of "cultural translation," it is equally important to emphasize the degree to which it was not translation that served as a metaphor to describe the linguistic object of culture, so much as it was the active practice of translation across history and between languages that helped to describe the complex of customs, formal conventions, and prejudices that served as an essential context for interpretation as well as translation. Perhaps this point can be drawn out in sharpest relief with respect to Scott's entry into historical fiction proper, the complicated genesis of *Waverley*, or, *'Tis sixty years since*.

III. Mediatory translation and the historical novel

Friedrich Schleiermacher, in a discussion of translation contemporary with *Waverley*, notes that its purview is much wider than the transposition of texts between two distinct languages:

The dialects spoken by different tribes belonging to the same nation and the different stages of the same language or dialect in different centuries are different languages in the strict sense of the word, and they often require a complete translation. ... Indeed, are we not often required to translate another's speech for ourselves, even if he is our equal in all respects, but possesses a different from of mind or feeling? ... We also feel that we would make use of totally different words and locution, more attuned to our own nature, if we wanted to express what he meant. If we define this feeling more closely, and if it becomes a thought for us, we realize we are translating.⁶⁸

Schleiermacher discusses translation as something that functions in intralinguistic contexts internal to a given language – even at the level of personal relationships in which the other is “equal in all respects.” His discussion marks how translation came to represent a generalized model of communication at the beginning of the nineteenth century, a model that responded to the basic recognition that individuals, even if they share a common language, often have different customary modes of expression and habits of thought – they have both different “minds” and different “feelings.” With regard to the formal terms that I introduced in the introduction, translation, as a way of articulating and addressing distinctions in expressive habit, serves in this case as a description of asymmetry in the median of expectation – a robust model that articulates the difference between individuals in terms of the different ways they express themselves. Over the course of this chapter, I have described how Scott's own understanding of the function of translation served to articulate the formal relationship between historical content and modern generic forms. Schleiermacher's similar description helps to describe the central mediatory dynamic of the *Waverley* novels, as

they plot a series of particular translational encounters that serve, at the broadest level, to translate between historicized conflict and the reading public.

Scott's entry into historical prose fiction was famously fitful. The General Preface and first chapter tell us that the project was started in 1805, mislaid, and finished before publication in 1814. Scott also wrote in an 1814 letter to a friend that the MS had been mislaid after a good portion of the first volume and several "sketches" were complete.⁶⁹ As Peter Garside documents, a large portion must have been written around 1810, and he goes so far as to argue that the 1805 MS never existed.⁷⁰ The unstable chronology of *Waverley*'s development may have had an additional contributing factor – Scott's engagement around 1802-3 with Leyden's journal and letters from his own tour of the Highlands in 1800. In his memoir of Leyden, penned in 1811, the year of his death, Scott mentions Leyden's trip, and notes that,

In this tour he visited all the remarkable places of that interesting part of his native country, and diverging from the common and more commodious route, visited what are called the *rough bounds* of the Highlands, and investigated the decaying traditions of Celtic manners and story which are yet preserved in the wild districts of Moidart and Knoidart. The journal which he made on this occasion was a curious monument of his zeal and industry in these researches, and contained much valuable information on the subject of highland manners and tradition, which is now probably lost to the public.⁷¹

It appears that Scott was familiar with the journal because of a scheme, in 1802, to publish portions of it in the *Scots Magazine*, which Leyden was then editing. Scott penned a letter, presumably at Leyden's request, which introduces "a young man born in Etterick Forest" as the author. Based on this reference, it is generally assumed that Scott is referencing James Hogg, who he'd recently met. But the textual evidence suggests that Leyden was the author. Leyden accompanied Scott on the trip to Etterick, earlier that year, on which they'd met Hogg, and the first portion of the journey as published in the

Scots Magazine provides a long description of the area, ostensibly by a native “Shepherd,” but written with the travel narrative style in which the rest of the Journal will be composed. Moreover, it features both implied knowledge of Walter Scott’s descent from the “Scotts of Buccleugh,” and a long disquisition upon local superstition which seems drawn from the “Dissertation of Fairy Superstition” that Leyden had penned for *The Minstrelsy*.⁷² Further, the first letter includes an extended description of the customs among Scotch shepherds which builds upon a long discussion, within Leyden’s Dissertation to *The Complaynt of Scotland* (1801), upon the songs and folk traditions of shepherds in southern Scotland, Wales, and the Highlands. In that work, Leyden expresses his belief that “The resemblance of the domestic oeconomy which prevailed on the Scottish [sic] Border, even to a late period, with the domestic manners of the Welch in the middle of the 14th century, is extremely curious, and demonstrates, that in pastoral and mountainous countries, a similarity of manners may be perpetuated, among kindred races, even when a diversity of language had been introduced.” The passage suggests the formal principle for the conceit of having a southern shepherd travel to the highlands at all.⁷³ Further, while the first letter works hard to produce a style that reflects “broad Scots,” the rest of the journal letters modulate into a much more urbane tone; the epistle from the following issue, for instance, includes casual references to *Tristram Shandy* and a discussion of the character of Edinburgh theater.⁷⁴ Scott’s signature for the introductory letter he provided, “S. W.,” seems to register Leyden’s familiar convention of corresponding with all friends (including Scott) by initials alone (a habit which also marked Scott’s first encounters with Leyden as the author “J. L.” of the poetic and translational pieces he’d earlier produced in the *Edinburgh* and *Scots* magazines).

Moreover, the series of letters ran from October 1802 to April 1803 –the apparent tenure of Leyden’s editorship at the *Scots Magazine*, until he was forced to drop the position in preparation for his journey to India.

But the most striking evidence of Scott’s familiarity with Leyden’s journal is the similarity between two passages from those memoirs and two crucial sketches from *Waverley*. The manuscript of Leyden’s Journal, which includes both the journal Leyden kept on his travels in the Highlands and a series of letters written to Scott and other correspondents, surfaced at the close of the nineteenth century at a Sotheby’s auction. Edited and published by James Sinton, the original owners of the collection are unknown. While the journal is often terse and focuses heavily upon descriptions of local mineralogy, Leyden’s description of his visit by boat to the sea cave on Staffa island, known as “Fingall’s cave,” is effusive. Leyden writes that “The cave of the nymphs in Homer’s *Odyssey* could never equal this. You enter an immense portal of black columns, which on both sides fold away with an air of rude grandeur,” and thinks of Orpheus as they sit with a bag piper and the cave fills with eerie, martial music.⁷⁵ Later in the collection, Leyden describes within a letter to Scott how such island caves serves as hideouts for robbers, relating a story about marauders who lived on the island of Egg, and hid in caves when angry land owners came calling.⁷⁶ Compare this to the description, in *Waverley*, of Edward’s visit to “The Hold of a Highland Robber,” as he is rowed across an “unknown” lake, to “murmured chant of a Gaelic song,” and to his surprise, enters “the jaws of a lofty cavern,” stopping “where the cavern (for it was already arched overhead) ascended from the water by five or six broad ledges of rock, so easy and regular that they might be termed natural steps.” The basalt steps and the arched

formation of the sea cave match closely with Leyden's description. But perhaps the most remarkable echo is from Leyden's description, in a letter to Charles Anderson, of his solitary journey up the ravine of the River Coe. After making his way around a cataract, Leyden takes stock, and the passage is worth quoting at some length:

I was alone, elevated at a vast height in a sublime mountain recess; immense piles of rock as regular as ruins surrounded me on every side except where I ascended; the winds of the mountain descended in hollow gusts, and a dull-sounding stream murmured sullenly by. Over my head the white cloud of mist formed a vast magnificent ceiling; some red deer appeared on the rocks above; and all around me lay strewed the blasted and withering birches of former times, that had fallen and were falling of extreme old age to the ground. I seemed to tread upon the heels of the old heroic times. "Lead me to the sound of my woods and the roar of my mountain streams; let the chase be heard on Cona, that I may think on the days of other years. The sons of the feeble hereafter will lift the voice on Cona, and looking up to the rocks say, 'Here Ossian dwelt.' They shall admire the chiefs of old and the race that are no more, while we ride on our clouds, on the wings of the roaring winds." (135-6)

The remarkable passage closely engages Romantic conventions of the sublime – it reads like an account of the river Arve – and tightly associates the tradition of Gaelic poetry and a geography of the Scottish mountain pass.

This is precisely the coordination between oral poetry, wild mountain locale, and the language of sublimity that Scott deploys in recounting Waverley's sublime romantic encounter with Flora MacIvor. In that passage, the narrator describes how, after passing a "broken cataract," Waverley reaches a mountain pool from which issues a second waterfall that falls back into the ravine he's just ascended. Scott describes a "beauty of a stern and commanding cast, as if in the act of expanding into grandeur. Mossy banks of turf were broken and interrupted by huge fragments of rock" (106). Flora's beauty is enhanced by the setting, as "The wild beauty of the retreat, bursting upon him as if by magic, augmented the mingled feeling of delight and awe with which he approached her, like a fair enchantress of Boiardo or Ariosto, by whose nod the scenery around seemed to

have been created an Eden in the wilderness.” Flora explains that this was her purpose in bringing Waverley, because it is only in such a setting that her translation of Gaelic song can have its full effect; as she puts it, “because a Highland song would suffer still more from my imperfect translation were I to introduce it without its own wild and appropriate accompaniments. To speak in the poetical language of my country, the seat of the Celtic Muse is in the mist of the secret and solitary hill, and her voice in the murmur of the mountain stream. He who woos her must love the barren rock more than the fertile valley, and the solitude of the desert better than the festivity of the hall” (106-7). The song in Gaelic is also her composition, and this doubly-mediated formation, in which the fabricated, absent Celtic text is given only in its translated form, is precisely the relationship that Macpherson established with the Poems of Ossian. Scott, as well as Leyden, were Ossian skeptics, and had long believed that the poems were Macpherson’s own composition, based on snatches of authentic legend and song. In a letter to Anna Seward, Scott speculates that Macpherson first imagined the poem in Gaelic and then translated it into English for his editions, arguing that Macpherson’s command of the Gaelic language was essential to his ability to produce such faithful imitations.⁷⁷ But as Leyden recounts in his journal, during his travels in the Highlands, he continually heard from local authorities who claimed to have heard the Ossian poems in oral tradition within their life time, and furnished him with various small proofs of authenticity. Leyden began to change his mind. The most striking such conversion moment is this visit to the ravine of the Co; the stunning scenery, rendered through the formal conventions of the discourse of the sublime, shakes Leyden’s skepticism, and he not only describes reciting a fragment from *Ossian* itself, but confides that “You will not be

surprised that my skepticism is vanishing like the morning mist, and now it is extremely probable that my next epistle may contain an explicit recantation of my former infidelity” (138). The regulatory function of the mechanisms of bibliographic authentication are overrun by sublime aesthetics. Similarly, we are told that Waverley, overwhelmed by the rhetorical and aesthetic power of Flora’s poem – the emotional charge of which threatens to precipitate Waverley’s involvement in the uprising – “almost longed for solitude, that he might decipher and examine at leisure the complication of emotions which now agitated his bosom” (107). Such an opportunity for careful reflection would undermine sublime effect that Flora exerts, “conscious of her own power.” The foreclosure of the opportunity for Wordsworthian “recollection in tranquility” marks an erasure of bibliographic skepticism effected through sublime geography. The power of this union between the formal conventions of the sublime and the rusticated chivalric conventions of the poetry itself is further marked by the division, within Flora’s own language, between the effect of her poem, and her prose “admonition” of “loyalty, as well as ... courage” (109). While she says that this admonition is a paraphrase of an absent portion of the poem, the shift in idiolect from the linguistically and historically translational language of the poem, to the modernized urbanity of her conversation, signals the manner in which shifts in language and formal convention, first noted in the movement between poem and scholarly disquisition in *The Minstrelsy*, figure the distance of history in Scott’s works. With Leyden’s passage, these descriptions model how the conventions of the sublime can trump moderating concerns – whether of political fidelity or historical accuracy – moving the reader from skepticism to credulity. This coherence suggests how the question of

political alliance within *Waverley* models a question of authenticity that registers historical rupture. Through such descriptions, truth to art overpowers truth to history.

Flora's song also illustrates Scott's appreciation for Leyden's edition of *The Complaynt of Scotland*. In the opening Dissertation, Leyden describes the core of the work as a rhetorical allegory – the “Complaynt” proper – in which dame Scotia, an allegorical figure for Scotland herself, expostulates against her three sons, trying to exhort them to bury their differences “in a series of severe admonitions, in which she censures their particular vices; exposes their peculiar crimes; reiterates warmly her exhortations to unanimity; and endeavours to inflame them against a common enemy, by a recapitulation of the injuries they had sustained.”⁷⁸ As such, Flora's song can be understood as modeled on the central conceit of *The Complaynt*, as she exhorts three major clans to “Combine like three streams from one mountain of snow, / And resistless in union rush down on the foe!” (108). Strikingly, Leyden introduces this account of the Complaynt with a brief extract of the botanical verse that proceeds it, which he points out is also allegorical:

Then, Flora, come, thou flourishing fair queen,
 Oh child of Maia, thou must be my muse,
 To gird my temples with thy gawdy grene,
 And with my fuming flowers my front infuse
 With roses, paunsyes, pinkes, as poets use,
 With laurer bay, and Baucis neuer old,
 For to attend my virgin Marygold.⁷⁹

It may be simple coincidence, but it's remarkable, given the exertions of *Waverley*'s Flora in favor of Rose Bradwardine, that Leyden's discussion of the central allegory of *The Complaynt* includes a poem in which the muse Flora is enjoined to anoint the poet with roses. From this perspective, Flora's verse marries political rhetoric to a pre-

romance oral tradition so that folk nationalism can perform the same kind of displacement, a form of “functional ambiguity,” in Annabel Patterson’s terms, that is provided by allegory within the *Complaynt*.⁸⁰ Though it’s speculative, the circumstantial evidence of Scott’s deep appreciation for Leyden’s work, and in particular, its incorporation into the Waverley novels, is overwhelming and can’t be fully enumerated here.⁸¹

Given the apparent influence of Leyden’s Dissertation to *The Complaynt*, as well as the journal of his Highland trip, over *Waverley*, it’s tempting to speculate how Leyden’s works might have shaped the stuttering progress of the manuscript of Scott’s novel. After bundling Leyden off for India, Scott returned to finishing his work on *Sir Tristrem* and writing his first extended romances, *The Lay of the Last Minstrel* and *Marmion*. At the same time, he began to contemplate writing a work about the Scottish highlands, emphasizing to various correspondents his anxious sense that a knowledge of Gaelic (like Leyden’s) would be necessary.⁸² His correspondence with George Surtees at the close of 1806 suggests he’d been considering writing something on the uprisings of 1715 or 1745, but he suggests it would either be a collection of old tales or a poem.⁸³ It’s possible that Scott had already drafted a few scenes from *Waverley* at that point; from Garside’s study, it would not seem that that sketch would yet have included the introductory chapters, which, as Garside argues, seem directed toward the literary environment of the teens rather than 1805. It’s also possible that he’d already sketched Waverley’s visit to the Robber’s Hall. The memoir Scott wrote for Leyden’s obituary suggests he hadn’t seen the Journal in some time; its specific references to the locations Leyden visited in the highlands only mention descriptions included in Leyden’s letters to

Scott, not the visit to Fingall's cave or the Coe river. At the same time, I would propose that Scott's work on the memoir and its publication, which included soliciting recollections of Leyden from acquaintances, may have brought him into contact with the *Journal* again in late 1811 or later, and certainly would have encouraged him to revisit *The Complaynt*. Given Scott and Leyden's close working relationship, and Leyden's willingness to have his work credited to Scott's name, as well as others, I don't think that Scott would have scrupled to make use of Leyden's wealth of materials for Scottish ethnography, particularly after he'd passed. It was during their collaboration, after all, that Leyden had palmed off his own account of Highland travels as the product of the Ettrick Shepherd. Despite the growing standardization of the bibliographic conventions of authorship and citation, it's clear that the author function remained fluid, particularly within Scott and Leyden's collaborative efforts. As Adriana Cracuín puts it, "Patronage and membership in a literary circle were central to literary publication in romantic-period Edinburgh,"⁸⁴ and Scott's role in securing Leyden's Indian commission, as well as their warm correspondence and Scott's interest in composing Leyden's memoir, indicate sincere enthusiasm for their work together. At the same time, by emphasizing the degree to which Scott's formation as an author and his understanding of translational historicism were influenced by his partnership with Leyden, we can get a sense of both Scott's engagement with the larger philological and ethnographic foment of the late Scottish enlightenment, and the formal features that predicated the wild success of his novels.

Scott's intent to translate history is marked throughout the *Waverley* novels, and is clearly established by the opening of *Waverley* itself. As noted at the beginning of this chapter, the narrator's disquisition on the name "Waverly" itself foregrounds the novel's

careful location between an exclusively Norman or Romantic understanding of history, one that recapitulates the contrast and coordination between chivalry and romance that he details in his essays for the 7th ed. of the *Encyclopedia Britannica*: while chivalry had encoded the violent ideology of feudal society, romance softened and moralized it. Much as Scott's essays on romance and chivalry suggest that the chivalric romance worked out the contradictory formal principles of chivalric tale and medieval romance by forging an alliance between them, Scott's novel will attempt to bring together the conventions of the novelistic romance with an historicized description of Scotch feudalism and its effects. This engagement underscores the larger joke of the introduction: the narrator rejects the novel of manners, the *roman à clé*, romance "from the German," the sentimental novel, the silver spoon novel, even the society page; and the irony is that *Waverley* will draw, in some part, upon the conventions which organize all of them. This is because, as we have seen, Scott interprets modern literary conventions as essential tools of the translational project, in that they allow a mapping between ancient and modern conventions that makes historical narratives intelligible for a modern audience. Hence, in order to mediate various elements of folk Scottish culture, Scott's novels display enormous sensitivity to contemporary literary conventions.

Nowhere is this sensitivity to form clearer than in *Waverley*'s extended literary education. The slow start of Scott's novel is a critical commonplace. It takes *Waverley* five chapters to make his way from the first line of chapter two, where he "took leave of his family" (5) to his actual departure "amid the blessings and the tears of all the old domestics and inhabitants of the village" (30). The chapters in between feature extended narrative passages detailing *Waverley*'s education, which develops "like a vessel without

a rudder” (13): a sample of Hanoverian Whig principles from his father, a dose of Jacobite Toryism from his Uncle, a smattering of renaissance drama, romantic poems, and Italian *novella*, and most particularly, the local folk tales of the history of Waverley-Honour, his uncle’s estate, and their “doughty” forebearers. At the beginning of chapter five, the narrator anticipates our sense that Waverley’s passion for romantic medievalism is quixotic: “My intention is not to follow the steps of that inimitable author [Cervantes], in describing such total perversion of intellect as misconstrues the objects actually presented to the senses, but that more common aberration from sound judgment, which apprehends all occurrences indeed in their reality, but communicates to them a tincture of its own romantic tone and colouring” (18). Whereas this description seems to replicate a rhetorical model of language in which the substance of an expression can be ornamented and “coloured,” the previous discussion should make clear that Scott understands this “colouring” as essential to its intelligibility to the modern reader. The introductory chapters of *Waverley* supply the protagonist with the descriptive vocabulary of romantic convention, and in the chapters that follow, he serves the central function of formal translation. Waverley, the narrator informs us, will serve as our romantic interpreter, continually organizing his experience in a process the reader is meant to recognize as translation into romantic conventions. As Jane Millgate has noted,⁸⁵ above all else, the novel is organized by Waverley’s generic education, a process of disillusionment with romantic fancies which will culminate, as often remarked, in his register that “the *romance* of his life was ended, and that its real history had now commenced” (283, *emph. added*) – the last appearance of that term in the novel. This characteristic movement from a romantic perspective to its rejection prompts David Daiches’ observation that Scott’s

“best and characteristic novels ... might with justice be called ‘antiromantic’ fiction.”⁸⁶

As George Levine puts it, in his article on Scott as “The End of Romance,” Waverley’s “story follows the pattern of disenchantment leading to maturity and compromise—or defeat—that is characteristic of the realistic novel.”⁸⁷ In this view, Waverley’s movement from romance to what would later be termed “realism” serves as a reflection of the Weberian thesis of disenchantment as a hallmark of secularism. At the same time, within the context of Scott’s experience as translator and ballad collector, the mechanism of this disenchantment can be recognized as foregrounding an opposition between truth to art and truth to history. In thematizing modern literary convention as central to the intelligibility of history, Scott gestures to the former, while the latter’s revaluation of historical accuracy motivates a move toward greater fidelity that pressures those conventions, much as the interpolation of historical material into the ballad of “Sir Patrick Spens” foregrounds a tension between the poem’s authenticity as a product of history and its historical accuracy.

Here it might be useful to note the utility of Scott’s turn from historical poetry to historical novel. Bakhtin, in line with a range of theorists of the novel, has emphasized the generic flexibility of the novel, its remarkable capacity to adapt old forms to new purposes. While this insight, as applied to Scott, is often used to evaluate the competing functions of romance, historical narrative, and the gothic, it is also possible to understand the coordination of these generic conventions in the Waverley novels in Scott’s own terms, that is, as reflections of a more basic negotiation of the relationship between intelligibility and historical accuracy, cultural continuity and distinction.⁸⁸

The narrator characterizes the relation between his long prolegomena on Waverley's education and the later plot in terms of intelligibility: "I beg pardon, once and for all, of those readers who take up novels merely for amusement, for plaguing them so long with old-fashioned politics, and Whig and Tory, and Hanoverians and Jacobites. ... The truth is, I cannot promise [the reader] that the story shall be intelligible, not to say probable" (24). The opening chapters serve, in other words, as a rough historical phrase book, a kind of politics-romance dictionary that equips the reader to interpret what will follow. From the perspective of turn-of-the-century language theory, Waverley's background and experiences serve as a kind of period-specific comparative glossary, one that, within the novel, translates both language and custom between the eighteenth-century Scotch highlands and lowlands – and more generally, between 1745 and the nineteenth-century reader. Edward Waverley's literary mediation commences immediately upon his entrance into the highlands as he marks the stunning correspondence between the ballads and legends that captured his imagination and the events which surround him by way of references to the ballads of Percy's *Reliques* (78). In this fashion, Waverley serves as a central translational figure, a mediator who focuses the generic and lexical elements of mediation, raising and clarifying the issue of translation, broadly conceived, throughout the novel.⁸⁹ As mediator, Waverley serves as the negotiator between what translation theory recognized as radically different regimes of interpretation, in Jauss's vocabulary, radically divergent horizons of expectation. As we will see, Waverley's movement between these two positions forces the reader's recognition of their distinction, and articulated historicism through continuity and breaks in understanding.

IV. The translational figure and the angel of history

In the *Antiquary*, the functions of translation are divided along seemingly ethnographic lines. On one side of history and tradition stand Edie Ochiltree and Elspeth. Together, they explicitly describe the contrast between oral ballad and minstrel tradition over which Percy and Ritson battled. Edie, as a court-sponsored Bedesman, or “blue gown,” stands as at the end of a long and diminishing minstrel tradition. But unlike the Minstrel who features in Scott’s *Lay of the Last Minstrel*, Edie shares his role as interpreter of history and tradition with characters like Oldbuck. By way of contrast, in *The Lay*, the minstrel moves facilely between conveying the Teviot romance and reflecting upon its qualities and authenticity, and it was precisely this self-conscious movement between recital and reflection that ballad theorists – especially Ritson in his “Observations on the Ancient English Minstrels” and Scott in the Introduction to *Sir Tristrem* – used to discriminate between the mature reflexivity of the minstrel tradition, and the naïve descriptions of older folk poetry. On the other side of history stands the titular antiquary, Jonathan Oldbuck, a translator who must rely on painstaking and creative reinterpretation to resuscitate a history now dead. Oldbuck voices the novel’s most cognizant reflections upon the relation between the past and present. Figuring as a sometimes bumbling historical detective, the “Laird of Monkbairns” nevertheless recognizably partakes of Scott’s own enthusiasms. Early in the novel, as he delivers Lovel to a guest room in his house, Oldbuck is struck by the memory of a past affair, and comments:

It is at such moments as these, Mr. Lovel, that we feel the changes of time. The same objects are before us – those inanimate things which we have gazed on in wayward infancy and impetuous youth, in anxious and scheming manhood – these are permanent and the same; but when we look upon them in cold unfeeling old age, can we, changed in our temper, our pursuits, our feelings-changed in our form, our limbs, our strength, – can we be ourselves called the same? or do we not look back with a sort of wonder upon our former selves, as beings separate and distinct from what we now are? (101-2)

Oldbuck's commentary raises to the most explicit level within the early Waverley novels the feeling of self-alienation that such encounters with past selves produce. And it goes far to illustrate a deep continuity between Scott's understanding of the subjective division of the historical self and Schleiermacher's observation, two years earlier, that translation extends even to those intralinguistic moments when "we [are] often required to translate another's speech for ourselves, even if he is our equal in all respects, but possesses a different frame of mind or feeling."⁹⁰ Oldbuck articulates how such cultural translation becomes interpolated as the recognized difficulty of translating between the modern individual and their history. Whereas Oldbuck's commentary suggests that this relationship produces a stable though painful separation, Scott's fiction regularly suggests that the historical dimension of identity formation is anything but settled.

It is also tempting to suggest that, just as Dryasdust borrows a portion of his bibliographic pedantry from Ritson, Jonathan Oldbuck shares some of the antiquarian enthusiasm of John Leyden. In the affectionate contestual banter between Oldbuck and Sir Arthur Wardour I'm tempted to hear echoes of Scott's own conversations with the vituperative Leyden, in particular, the contrast between an older model of polite antiquarianism, and Leyden's fiery, post-Ritsonian brand of bibliography. It is Oldbuck, after all, who enthusiastically tells Lovel about the time he'd located a copy of *The Complaynt of Scotland*. Oldbuck's reflections upon the wide gap between his mature self

and the passions of youth project wizened perspective that Leyden was never to achieve, having died a few years before. At the least, it's hard not to recognize, in Oldbuck's voluminous notes for the never-to-be-realized "Caledoniad," the "instances of such curious reading" and "extant of research, power of arrangement, and facility of recollection" that Leyden brought to bear upon *The Complaynte of Scotland*, *The Minstrelsy*, and *Sir Tristrem*.

In contrast to these second-order mediators, characters like Oldbuck and Waverley that stand on our side of history (as it were) and help translate its content, there are the first-order mediators of history: figures like Elspeth, who function as repositories of historical lore and song. Once a lady in waiting to the powerful Countess Glenallan, *The Antiquary's* Elspeth is now the grandmother of a fishmonger in a neighboring town. This radical shift in social milieu has wrought an equally radical change in Elspeth's identity, which she manifests by means of sharp breaks in dialect and affect. Edie Ochiltree, in attempt to describe the fragmentation of her persona, turns to the image of gothic ruins:

Elspeth's like some of the ancient ruined strengths and castles that ane sees among the hills. There are mony parts of her mind that appear, as I may say, laid waste and decayed, but then there's parts that look the steever, and the stronger, and the grander, because they are rising just like to fragments amang the ruins o' the rest. (320)

It's notable that in this passage, though Edie retains one foot on the other side of the culturally alien – a distance marked by dialect – he fills precisely the function of formal translation into contemporary convention by which I've characterized Waverley's function. Edie's description calls to mind the aesthetics of the picturesque, presenting, in innocuous terms and dialect, a rich understanding of the historical dimensions of Gothic convention. This description of Elspeth as a fragmented ruin represents one key way in

which the historical novel drew upon a gothic vocabulary in order to formulate a language of connection with the past.⁹¹ Consequently, Elspeth's confession to Edie of the existence of an heir to the Ellangowan estate becomes a source of frenzied investigation. Ultimately, this investigation will lead to the discovery of Ellangowan's lost heir, predictably, the mysterious young hero Lovel. Lest we miss the point, when Oldbuck returns with Edie to verify Elspeth's account, her mental state has deteriorated to the point that she can only recite old ballads about the Ellangowan clan. It is then that Oldbuck's antiquarian instincts momentarily overcome him, and he extols a "genuine and undoubted fragment of minstrelsy! Percy would admire its simplicity—Ritson could not impugn its authenticity" (431). Oldbuck's comments both designate Elspeth as the ideal repository of folk history and coordinate the intersection between folk authenticity and scholarly apparatus that featured in our discussion of *The Minstrelsy*. And in this manner, Elspeth marks in a particularly acute way how the "oral tradition" was formulated as a negative projection of the self-aware tradition of letters and print. Whether in the contrast between the oral ballad tradition and the minstrels who, Scott argued in his Introduction, took advantage of their tales, or from the perspective of a turn-of-the-century antiquarian attempting to salvage folk antiquities from the dustbin of history, oral tradition can only be posited in contrast to the self-conscious tradition of modern textual culture.

This distinction is marked by the radical representational divide between past and present personas, as Elspeth illustrates the extreme distance bridged by more stable socio-historical mediators, like Edie and Oldbuck. The pronounced linguistic dimension of this fragmentation has long been noted. Elspeth slides unstably between aristocratic and

vernacular speech, as when she comforts her son upon the death of his child: “Rise up, my son, and sorrow not for him that is beyond sin and sorrow and temptation. Sorrow is for those that remain in this vale of sorrow and darkness—I, wha dinna sorrow, and wha canna sorrow for ony ane, hae maist need that ye should a’ sorrow for me” (355). The jolting suddenness of vernacular transition imputes a form of depth psychology to Elspeth that is figured both through history and dialect. The trauma of involvement with the secret birth and attempted murder of the future heir of the Ellangowans, and her subsequent ejection from the family, has left her unable to salvage a connection between past and present.

In his essay on the “Contrast of Styles” in the Waverley novels, Alexander Welsh takes examples of mixture of dialect as evidence of Scott’s mixture of high and low literary styles, drawing heavily on Auerbach’s literary typology.⁹² Elspeth’s language makes explicit the work of mediation through language; such transitions between a broadly intelligible novelistic English into a Scots-heavy dialect mark the work of cultural translation by the explicit function of historical translation. Hence there is a strong tendency in such passages for the movement into dialect to reiterate the message already given, while providing ironic or cultural depth. Elspeth charges her son not to sorrow in overtly biblical language, only to bring the point home, linguistically and figuratively, by emphasizing that at a personal level, she herself “canna sorrow for ony ane.” Such moments of explicit translation of dialect serve an essential interpretive function. By providing a mapping between one description and a second, they play off the distinctive formal features of the two languages in order to clarify their overlapping semantic content. These moments illustrate how semantic information can be reinforced

and clarified by additional description that helps structure its content and constrain interpretation. Glossaries point toward a basic relationship between the challenge of saying something new and making sense of the new by means of the known.

V. Casuistry and the division of the historical self

The observation that central translational moments often require a regime of dual description can serve as a model for understanding the basic function of alienation in the Waverley novels. This alienation is striking in Elspeth's example, as the distinction between past and present identity is marked in sharp breaks of idiolect and manner. Within *Waverley*, we have seen how this experience of alterity is expressed through the violation of literary conventions – the movement from “romance” to “true history.” In Waverley's initial experiences within the Scotch highlands, this sense of alienation is profound: “It seemed like a dream to Waverley that these deeds of violence should be familiar to men's minds, and currently talked of, as falling within the common order of things” (72). Here the shock of recognition registers as a collapse of historical distance – the uncommon violence of the past is now present experience. As the novel progresses, this division is often mapped subjectively, in Waverley's perception of a distinction between his youthful perspective – figured through the initial chapters as naïve and romantic – and his later worldly experiences. The distinction is especially pronounced in moments of self-interrogation which map the difference of experience onto a distinction between how his actions might be perceived and his deeper motivations. It is upon Waverley's first trip south, in an attempt to clear his name, that Waverley discovers that

this division has taken root. He's dismayed to learn of his indictment for treason during an interview with the local magistrate and curate:

The astonishment which Waverley expressed at this communication was imputed by Major Melville to conscious guilt, while Mr Morton was rather disposed to construe it into the surprise of innocence unjustly suspected. There was something true in both conjectures; for although Edward's mind acquitted him of the crime with which he was charged, yet a hasty review of his own conduct convinced him he might have great difficulty in establishing his innocence to the satisfaction of others. (243)

Waverley discovers that the external division of self presented in the opposed perspectives of Melville and Morton reflects an internal cognizance of their conflict – he recognizes that there “was something true” in both interpretations. Such cases, James Chandler has argued, reflect a casuist model for the interpretation of historical action. In their opposed viewpoints on Waverley's conduct, the deliberations between Melville and Morton access both the jurisprudential case study of the modern legal system and the Christian model of moral casuistry, which attempts to make a finding of the goodness of the individual will – “an opposition between the case *and* the heart.”⁹³ The key question is whether, as in Chandler's reading, such moments figure a hierarchy of evaluations of “case” such that, at the highest level of abstraction, history itself becomes an exploration of “the relation between the case and the heart in the form of a higher-level case.”⁹⁴

In order to answer this question, it is important to gauge the destabilizing impact of history, particularly as figured in oral tradition, when explored through the comparative historicism that I have suggested is Scott's key formal commitment to the philological and antiquarian methodologies of the period. As a first approximation, it seems clear that, in both *Guy Mannering* and *The Antiquary*, the testimony of ballads and folk singers is not enough on its own to clarify the descent of heirs and establish their claims to their patrimony. Oral evidence must be verified and confirmed through

elaborate mechanisms of investigation and adjudication within the legal system. And it is in this ultimate dependency upon the disciplinary mechanisms of modern law that we might build the strongest case for the collapse of romanticism in Scott's novels, as Chandler suggests. In *Waverley*, vindication and absolution are arranged beyond the pages of the novel, through Colonel Talbot's intercession at the royal court. And this intercession, earned through Waverley's chivalrous action during Talbot's captivity, has only thematic connection to the romances which are implicated in Waverley's defection. Not so in Scott's later novels, where masterful barristers and sheriffs painstakingly piece together evidence to support the testimony of folk authorities. In *Guy Mannering*, it is the ingenious sheriff cum counselor Pleydell who tracks down Harry's abductor and teases out the plot which led to his original abduction, and Pleydell's masterful barristration even goads Captain Hatteraick's wallet into confessing the smuggler's plot. And so too in *The Antiquary*, where Elspeth's testimony regarding the lost heir, as a nursemaid cum fishmonger's wife, must be verified by three separate sources: an Earl's brother, a cloistered Spanish nun, and finally, the Lord himself, who suddenly produces a packet of papers kept by the old steward of the family, and, I suspect, duly stamped and notarized. This divide between folk authenticity and modern mechanisms of verification echoes formally the broad relation between Scott's collected ballads in the *Minstrelsy* and the editorial and bibliographic apparatus he brings to bear through notes, glossaries, and citation.

At the same time, the apparent formal stability brought by such mechanisms is undermined by the unstable relationship which Scott's historical fiction predicates between past and present. A clear example of this can be found in Scott's editorial

practice for *The Minstrelsy*. As we discussed in the case of “Sir Patrick Spens,” the formal framework of history-authenticating notes and authenticity-producing bibliographic information serve to obscure, rather than contain, their own participation within the poem, as specific historical information becomes subtly interpolated into the ballad itself. As I pointed out earlier, the participation of this scholarly apparatus in the material of the ballad itself induces a form of serial confrontation at the level of content – a confrontation which reflects the broader recognition, in contemporary theories of translation, that historical and cultural mediation necessitate the interpenetration of old and new content, ancient and modern form. A marked contrast can be drawn to Leyden’s practice in *The Complaynt*. The framing discussion, a 288 page “Dissertation,” is scrupulous in distinguishing between attribution, speculation, and reference. The absolute attention to strict fidelity to originals is emphasized; as Leyden puts it, the “edition ... claims the merit of scrupulous fidelity, with whatever defects it may be incumbered.”⁹⁵ As such, Leyden insists upon a bibliographic code that, as I argued earlier, participates in a larger drive within scholarship toward what might be termed mechanical objectivity. Leyden’s only concession to the impossibility of perfect fidelity is his admission that, while he “always” preserves “the orthography of the original,” he fixed “obvious typographic blunders. With all his respect for ancient authors, the editor has never ceased to recollect, that no ancient of them all, is so old as common sense.”⁹⁶ This is a strictness that Scott never claims to practice, and as he turned to fictional poetry and then prose, the bibliographic constraints of truth to history continued to relax. But the tension within the principle of fidelity that is introduced by comparative method is evident even in *The Complaynt*; Leyden describes the extensive glossary he appends as

adduced [through] such *synonymes* from the cognate languages, as he apprehended might elucidate the origin, or the history of the vocable; but, in cases of difficulty, he has chiefly relied on his *familiar* acquaintance, from his infancy, with the Scottish Border dialect; a dialect, in which he has often heard many words in common use, of which glossarists have not even attempted an explanation.⁹⁷

With the historical challenge of dialect translation – the rendering in modern English of obscure Scottish words – comes the necessity of comparative examination of “cognate” languages, and, more particularly, an appeal to personal authority that bibliographic convention is implicitly organized against. Insofar as historicism is produced through such unstable contact between comparison and personal experience, it denies the formal stability of final judgment that casuistry would offer; when the “case” becomes a comparison between “cases,” judgment is necessarily displaced into “the most accurate attention, to observe similarities as well as diversities.”

Within the Waverley novels, the instability introduced through the confrontation of past and present is often presented through the experience a defamiliarization of the self, as characters are surprised by experiences that prompt reflection on the distance between their present and the past. In the later novels, such instances of historical alienation multiply, marking an increased diffusion of a new kind of historical sensibility. In *Guy Mannering*, the earliest example is Mannering’s own, when he consents to play the astrologer in order to humor Godfrey Bertram’s request and twit his staunch Presbyterian friend, Dominie Sampson. Mannering’s unsettling discovery that his prediction coincides exactly with a similar chart he’d built for his fiancé shakes a disbelief in superstition that is implicitly allayed with modernity, and he asks Bertram to seal the predictions up until the first crisis should have passed, in order to forestall their influence over the child (47). Of course, the forecast incidents ultimately come to pass, and their influence over the novel, as the vestiges of what is portrayed by the narrator as

an arcane and bygone superstition, is far-reaching. In such cases, folk knowledge forces an historical division that maps a division character, destabilizing Mannering's confident place within the modern episteme, and forcing him to wrestle with an assumed distinction between past and present.

The character over whom this kind of subjective historical division exerts the most influence in *Guy Mannering* is the new Laird of Ellangowan, née Vanbeest Brown, née Harry Bertram. The mutability of young Bertram's name serves as a marker of this division of self, brought home forcefully upon Brown's accidental return to his family's estate. Though he still knows himself as Vanbeest Brown, the narrator informs us that "since he has set foot upon the property of his fathers, we shall hereafter call [him] by his father's name of Bertram" (II, 133). Thus, the novel introduces a rupture between the nomenclatures of character and narration which replicates an essential division between Vanbeest Brown, the Dutch cadet, and an individual believed lost to history, the heir Harry Bertram. Changes in name are common in Scott's divided characters: Fergus MacIvor is Vich Ian Vohr as Highland chief, and even Waverley must assume a false identity for a time to escape reprisal for his Jacobite past. In Bertram's succeeding interview with the usurper Glossin, he is overwhelmed by a collage of half-forgotten memories and snatches of song featuring the Bertrams. Like Waverley, Harry muses upon the unsettling familiarity of the ruins of his family's old castle: "Is it the visions of our sleep that float confusedly in our memory, and are recalled by the appearance of such real objects as in any respect correspond to the phantoms they presented to our imagination?" (II, 135). As Bertram's thoughts run on to the possibility that he may have once been familiar with the place, Glossin actualizes this "phantom" sense of visitation,

initially mistaking Brown for the ghost of Godfrey Bertram. He quickly guesses his mistake, and yet, is unable to shake an overwhelming sense of guilt and dread, as if confronted with his old lord. As Bertram prattles on, this shocking confrontation with the past begins to change Glossin physically:

his appearance and demeanour during all this conversation seemed to diminish even his strength of stature; so that he appeared to wither into the shadow of himself, now advancing one foot, now the other, now stooping and wriggling his shoulders, now fumbling with his waistcoat, now clasping his hands together, – in short, he was the picture of a mean-spirited, shuffling rascal in the very agonies of detection. (140)

The forced confrontation with his past misdeeds transforms Glossin, as Scott accesses the conventions of melodrama to register his villainy. Glossin attempts desperately to avoid stimulating Bertram's percolating memories by generalizing his descriptions. As such, Glossin provides an inverse articulation of a key characteristic Juliet John has ascribed to nineteenth-century melodramatic villains: if they are generally "types struggling to become individuals," Glossin's struggling (unsuccessfully) to avoid becoming a type.⁹⁸ This struggle to hold on to specificity is articulated through a generalization of his environment. He describes the estate's structures as "The New Place" and "The Old Place," avoids naming the previous owners, even forbears filling in the gaps in various snatches of song that Bertram begins to recite, in which the proper names are obscured. When Bertram pulls out his flageolet and plays a few bars of one song, a launderer in the distance picks it up and sings the first verse, prompting Glossin to think "Oh, the devil take all ballads, and ballad-makers, and ballad-singers!" before hastily interrupting Bertram (II, 141). The destabilizing power of the past is rendered through the collapse of one formal strategy as another is actualized in oral tradition; in a real sense, Glossin is attempting to keep the past from coming alive.

The epistle to *Ivanhoe* celebrates the central role that alienation plays in translating the past. Crucially, the passage turns on the proposal that “the large proportion” of the common only succeeds in historical representation when it can be used to foreground the proportion of distance. Scott explains that, while an Englishman might give credence to legends of the recently tamed highlands,

the same worthy person, when placed in his own snug parlour, and surrounded by all the comforts of an Englishman’s fireside, is not half so much disposed to believe that his own ancestors led a very different life from himself; that the shattered tower, which now forms a vista from his window, once held a baron who would have hung him up at his own door without any form of trial; that the binds, by whom his little pet-farm is managed, a few centuries ago would have been his slaves; and that the complete influence of the feudal tyranny once extended over the neighbouring village, where the attorney is now a man of more importance than the lord of the manor. (xlv)

The past, insofar as it is sealed off within legend, is denied its connection with the present – just as a naïve confidence in the continuity between past and present can suppress their difference. Though it surrounds us in artifacts from the ruined tower outside the window to the laborers beyond the door, we miss the connection. The novelist’s task is to pierce the complacency that allows us to imagine the inhabitants of the past as not “very different” from ourselves. Hence, Scott’s novels turn upon expressing a movement between the stable comfort of modern conventions, and the failure of those conventions in the face of historical difference; it shifts between the familiar (figured as “romance”) and alienation (figured as “true history”). It is a task which requires defamiliarizing the serene world around us: a worker becomes our slave, a doorpost our gibbet. In essence, it is the basic problem of translation: literal substitution is meaningless without translating the continuity and discontinuity of the framing conventions that afford the words some portion of their original meaning. Scott’s translational model of historical fiction was predicated upon an implicit understanding of the divergence of Jauss’s “horizon of

expectations.” By honing a sophisticated understanding of how modern expectation could be played against itself in order to render an approximation of its distance from horizons past, Scott formulated a model of historical fiction that succeeded in reshaping the horizon of his day, provided a particularly historicist bent, and modeled history as essentially disjunctive. Only sixty years since – but a world apart.

VI. Against “Universal History”

While Scott’s fiction relies upon the violation of formal convention to figure the experience of history as a break in continuity, my fourth chapter will explore how the failure of analogy itself, what I will discuss as “disanalogy,” can serve as a representation of knowledge formation in general. In the mean time, I would like to close by considering the implications of Scott’s comparative historicism for nineteenth century conceptions of history more generally. Previous critics have documented Scott’s indebtedness to the Scottish Enlightenment and its theories of history and historical process. Peter Garside has looked at the contending schools of “philosophical history” which Scott was exposed to, while Kathryn Sutherland has detailed Scott’s thinking in relation to the ideas of Adam Smith.⁹⁹ But in surveying the eighteenth-century historians who Scott drew from, I retain a sense that the dominance of master narratives featured in their works is essentially distinct from the positional, relative historicism of Scott’s novels. To take one example, Adam Ferguson’s *An Essay on the History of Civil Society* is a heavily formalized examination of history’s nature; while specific societies and moments are mentioned in passing, they only appear by way of illustration, and then,

briefly and rarely.¹⁰⁰ Universal History sought to provide a strong formal account of the common history of mankind. Its historians worked to abstract across the diverse range of historical periods and cultures in order to tell the common story of human society, a narrative of progress from barbarism to the cultural and political development most typified by the Roman Empire and contemporary Europe. Two interrelated models were used to organize this history, a progressivism which would later be described as Whig history, and an array of vital metaphors, in which cultures are born, grow through pubescence into adulthood, and eventually pass on to old age and death. But both served to provide strong formalisms across societies and across time.

The formal indebtedness of universal history to theological models is clear in an early eighteenth-century work by Thomas Hearne, *Ductor historicus: or, a short system of universal history* (1705).¹⁰¹ History itself turns on the coming of Christ, which is placed directly in the middle, as the seventh of thirteen total epochs (52-3).¹⁰² While Hearne's method necessarily requires a series of comparisons between various historical events and scriptural accounts, Hearne emphasizes the essential "harmony" that exists between the divine and secular history, a harmony rooted in a cosmos permeated with divine influence. The historical understanding it produces, in accordance with the tradition of natural theology discussed in my last chapter, deploys formal analogies between secular and sacred time in order to organize the former in service of the latter. While the universal histories of later eighteenth-century philosophers were not explicitly concerned with describing the cohesion between the "City of God" and the "City of the World," the formal universalism of their historical understanding was deeply rooted in the analogical cosmos bequeathed by predecessors like Hearne, albeit, a system of

correspondences increasingly naturalized in a fashion similar to the divergence of natural theology from its apologetic roots over the course of the seventeenth and eighteenth centuries.

Hence, for Ferguson, the essential thesis to establish in writing a universal history is not the relation between secular and sacred time, but to what degree human and natural history correspond.¹⁰³ This broadly systematic understanding carries over into Adam Smith's political economy. In *On the Wealth of Nations*, it is clear that Smith's economic theories were developed in the spirit of contemporary philosophers of universal history. While Smith laces his arguments with references to an array of analogous historical and contemporary states, all societies are ultimately tied to a central development from an agricultural to a mercantile society, and from slave labor to free.¹⁰⁴ From the perspective of the differential energies of Scott's fiction, the coherence of enlightenment theories of history outstrips such differences. These histories relied upon a comparative model of historical development that related societies of the past and present to a central narrative of historical progress. Moreover, these histories, in their search for a unitary system in the various events of world history, suppressed the degree to which individual talent could shape that history; even kings and leaders were defined by their relation to their historical milieu – an expression of their time with little individual distinction. And it is within this tradition, I would argue, that we should place Scott's most influential twentieth-century critic, Georg Lukács. As a Hegelian-cum-Marxist, Lukács conception of history was profoundly formalist and universal in nature, and it's reflected in his totality-based conception of literary form, as an extension or reflection of a fundamental model of history. But as our investigation of the powerfully mediatory character of

Scott's fictional translations has made abundantly clear, the historical novel, which Lukács sees as a novelistic realization of the epic, is never about a singular historical moment, nor truth to history. To give Lukács credit, his truth to history is not about accurate representation of the history depicted within the novel, but rather, accurate reflection of the historical moment of composition. Moreover, Scott's unwavering belief in a progressive history, his comprehensive sense of the historical impact of mercantilism, enclosure, and the end of feudalism, his regular recourse to comparisons between analogous cultures – all mark his responsiveness to the universal histories of the Scottish Enlightenment.¹⁰⁵ But the historical novel, as Scott formulated it, is rooted in a translational relationship between some previous historical moment and some present. This essential novelistic commitment to a transitional hybridity sets Scott's work apart from the kind of formal totality that Lukács calls for, as well as marking the differentiation of his novels from the historical worldview of the eighteenth century. Scott's commitment to understanding historical mediation as a process of contingent translation – particularized for both the object of history and the audience of its reception – illuminated an understanding of history rooted in the multiplicity of narratives, of dialect, and of formal convention.

Scott's early experiences first as translator, then as Leyden's collaborator and creative collector, worked to formalize Scott's understanding of history and the historical character as an ongoing processes of discovery, alienation, and mediation. In Scott's novels, character is not so much discovered as recovered. Hence the formation of identity in Scott's novels involves, on the one hand, increasingly sharp breaks between early and late experience. On the other hand, this sense of rupture works productively to

generate a hybrid self, one that can speak, if only imaginatively, the language of the past as well as the present. It produces a Waverley who can settle down at Tully Veolan beneath the famous painting in which he stands, in full highland dress, next to the deceased Vich Ian Vohr. This closing portrait is often taken as a collapse into formal closure and resolution, one that is allied with Scott's conservative and ameliorate politics. But I would rather understand it as a lasting figuration of the unstable interplay which historical juxtaposition induces. Waverley, at the close of the novel, remains both the rebellious character in the portrait and the moderate master of Tully Veolan recognized in it; he's both an object of history and a subject who reflects upon it. It is an essentially Romantic formulation, but it is also deeply modern in locating history at the nexus of rupture and continuity. From this perspective, the resolutions of Scott's novels can't represent a foreclosure of the possibilities invoked its contested historical object – as David Daiches puts it, “That withdrawal [from history] is never quite one hundred per cent.”¹⁰⁶

I am also tempted to see within that portrait a figure for Scott's relationship to Leyden, insofar as it foregrounds, particularly through the disjunctive mode of its production, the complex negotiation between authority, authenticity, historicism and representation that characterized their relationship. The “large and spirited painting,” we are told, “was taken from a spirited sketch, drawn while they were in Edinburgh by young man of genius, and [later] painted on a full-scale length by an eminent London artist” (338). If we might think of Scott, to the extent that he and *Waverley* drew upon Leyden's materials, as a translator of Leyden's work, Waverley, and the portrait that he commissions, serve as translations of Fergus and his history. And in the complicated

negotiation of the relationship between the partisan collaborators it portrays, and the moderate, modern Waverley (as the individual on whose authority the portrait was produced and who guarantees its authenticity), I want to recognize something like Scott's own complicated relationship to the text: part affectionate tribute to the friend, partner, and mentor whom he'd lost, part self-interested pecuniary gambit. Even so, we are told both that the portrait "draws tears to the Baron's eyes" and that "Men must, however, eat, in spite of both sentiment and vertu."

By reimagining Scott as both "the" author of *Waverley*, and the antiquarian collaborator, both singular and rooted within the collective milieu of turn of the century antiquarianism, we might also gain further purchase upon the legacy of Scott for later writers. Recent studies by William St. Clair, Ian Duncan, and (less recently) James Chandler have renewed our sense of the centrality of Scott's fiction to nineteenth-century literary production, both in the Romantic and Victorian periods.¹⁰⁷ In the next chapter, I explore at length the function of comparativism in Charles Dickens's novels, and the towering place that Scott the author was afforded in Dickens's imagination. Recognizing Scott's formation as collaborator and translator can help us come to terms with his impact on the nineteenth-century British novel. If Scott translated Leyden's history, later writers couldn't help but imitate Scott's fiction. In the process, the collective, mediatory forces which marked Scott's compositions became reified in a singular model of authorship and genius, and profoundly shaped later understanding, as well as our own, of what came to be called the "author" function.

3. Chapter 3

Formal strategies of social connection in the Dickensian serial

What connexion can there be, between the place in Lincolnshire, the house in town, the Mercury in powder, and the whereabouts of Jo the outlaw with the broom, who had that distant ray of light upon him when he swept the churchyard step?

Charles Dickens, *Bleak House*¹

With this famous demand, Dickens's narrator trains our eye on perhaps the central formal question of the Victorian social novel: what is it that connects the multitudinous incidents, locales, and characters of these works – and how does it relate to traditions of “higher” meaning (here glimpsed, as through a darkened glass, in “that distant ray of light”)?² The following sentence, which sidles from interrogation to apposition, provides a broader view: “What connexion can there have been between many people in the innumerable histories of this world, who, from opposite sides of great gulfs, have, nevertheless, been very curiously brought together!”

Here, Dickens plays with the history/story ambiguity which, by the mid-nineteenth century, had largely converged to the more modern sense of a narrative of historical events.³ Dickens's emphasis upon the profuse simultaneity of the accounts – their multiplicity is a condition for the convergence of the lives that they detail – gestures toward “histories” as ubiquitous members of modern print culture, at the same time that his turn to present perfect displaces them into the past while making provision for their continued relevance. The passive collection of these individuals – they are “brought”

together – makes the agent of assembly ambiguous, whether the author of fictional histories, or perhaps the divine author of the “true” histories of this world. To specify this plainly, Dickens, in turning our attention to the formal question of connection in his novel, projects an associative space in which a multitude of historical and fictional records converge as a synchronic association of people, “brought” together passively by some unspecified power.

It is my desire to take Dickens’s questions as illustrating the key formal innovations of his novels, which reconfigure Scott’s historical fiction as a model for social interpretation. In the previous chapter, I detailed Scott’s development of the historical novel, refined by the historiographical techniques he developed as a ballad collector and publisher. From rambling “border raids” that reassembled the dispersed artifacts of Scotch folk history, to comparing and coordinating diverse textual and oral variants of the border ballads, to the juxtaposition of folk history and external historical accounts supplied by the critical apparatus for his editions, Scott’s diverse proto-ethnographical experience furnished an historical understanding that was relentlessly comparativist. These comparisons, both drawn among the characters and incidents of history, and between past and contemporary culture, were deployed to read through past and present similarities for the common historical narrative that they expressed. In this, Scott’s historical novel reflected the assimilation of Christian typological and allegorical reading strategies that understood histories and fictions as representations of the “true” narratives of eschatological time.⁴ As I detailed in my first chapter, a key formal element of such interpretation was analogy, the explicit comparison of two distinct sets of relationships. Analogy itself has a long history in biblical hermeneutics and natural

theology, in which it had served as a buttress for the typological consolidation of biblical accounts and the mediation of secular and divine knowledge. Insofar as analogy focused upon explicit comparison rather than reading through specific instances for their hidden meaning, it gradually came to replace allegorical and typological interpretation both in biblical interpretation and theodicy.⁵ Scott's historicism was similarly rooted in the accession of analogical reading practices which focused upon explicit juxtaposition and comparison to establish the historical content of character and incident (most famously, the portrait of Waverley next to Vich Ian Vohr). The transition is clear in comparison with the "homiletic" strategies deployed by Bunyan: whereas for Bunyan, Christian's narrative is given meaning as an allegorical expression of the ontologically distinct "higher time" of Christian eschatology, in Scott's historicism, the "higher" meaning of history exists, strictly speaking, on the same ontological plane.⁶ The relation between history and historical character is figured as scopal, rather than semiotic. History, in Scott's fiction, becomes the accumulated totality of the Waverleys and the Vich Ian Vohrs, and hence can be accessed through the serial comparison of such individuals. The product of this collective history, as my next chapter shows, is later vested by George Eliot in an ethical charge – the insistence, at the close of *Middlemarch*, that "we insignificant people with our daily words and acts are preparing the lives of many Dorotheas, some of which may present a far sadder sacrifice than that of the Dorothea whose story we know."⁷

In this chapter, I will explore how Dickens reconfigures Scott's analogical reading strategies as a hermeneutic of social interpretation. In *The Pickwick Papers* (1836-7), *Bleak House* (1852-3), and *A Tale of Two Cities* (1859), the social assembly of

individuals and incidents in synchronic time is explored through the same modes of analogical juxtaposition and comparison that Scott utilized in his histories – while the social coherence these interpretive modes are calculated to illuminate is often set in explicit opposition to the now threatening historical forces which Scott detailed. And whereas the historicizing deployment of analogical reading strategies in Scott’s fiction sits somewhat comfortably within the narrative of secularization, Dickens deploys Christian interpretation explicitly and increasingly over the course of his works, though with varying degrees of the kind of ambiguity evinced in the “distant ray of light” on the “churchyard step.” This reinvestment in Christian hermeneutics, I argue, is closely linked to Dickens’s exposure to interpretive techniques of Unitarian theology and early works of the German “higher criticism” in the late 1840’s, methods of comparativist enquiry that were both religious and responsive to the historical materialism of nineteenth-century thought. In particular, David Friedrich Strauss’s *Leben Jesu*, translated into English by Eliot and others, provided Dickens with a method for the formal recuperation of doctrine via “myth” that underpinned what has come to be termed his “Social Gospel.”

Finally, I argue that the serialization of Dickens’s works contributed profoundly to his development of analogical reading practices, both because such analogies provided strategies of “connexion” that made the part issues of his novels coherent, and because it prompted an immersion in popular print culture that reinforced the connection between analogical interpretation and the projection of a larger social imaginary. In particular, Dickens’s strategies of comparison developed in dialogue with the illustration of his novels, through an evolving collaboration with visual culture that was organized by the

theatrical juxtapositions of the tableau. As he collaborated with Phiz Browne and others, Dickens fostered within his readers an analogical imagination that was both textual and visual, inculcating a logic of connectionist interpretation that accessed the experience of social communion.

I. Walter Scott in the Pickwick Club

In his study of the historical novel in Scott and Dickens, Ian Duncan notes the towering position afforded to Scott in Dickens' authorial imagination.⁸ Dickens' friendship with his father in law, George Hogarth, certainly served to keep Scott close in mind, by way of Hogarth's close connection with the author of the *Waverley* novels, first as a member of Edinburgh's literary circle, and later, as one of Scott's close financial advisors upon the crash of the Ballantine printing business. Scott simultaneously presented a powerful model for the nineteenth century author, and a tragic example of the destruction wrought by legal and financial entanglements.

Scott's preeminent place as the most influential and widely-read novelist of the nineteenth century bears due emphasis. As William St. Claire has recently reminded us, there were more than a million more copies of the *Waverley* novels in print than Dickens's fiction in 1868.⁹ But Scott's astounding commercial success had also profoundly shaped the commercial publishing industry; priced at 31s6d, the 1821 edition of *Kenilworth* set a high-water mark for the 3 volume format. It was in the context of such inflated prices that Scott's own publisher, Constable, along with Charles Knight and

others, began to hatch plans for cheaper print vehicles for fiction. As Altick notes, the collapse of Constable's press, and Thomas Cadell's purchase and re-issuing of Scott's works in 1837 at the price of 5s, marked a key turn in the publishing market toward cheaper formats.¹⁰

Hence Scott's publishing legacy helped to establish the market conditions for Dickens' rise as a serial novelist. It was in the context of the popularization of cheaper models of publication that Dickens emerged as the pre-eminent popular author of the Victorian period. Dickens' development of part-issue serialization has long been recognized as a key stage of his authorial development; as Robert Patten has noted, the 1838 publication of *The Pickwick Papers* marks the accession of the serial format as a fundamental feature of the fiction publishing industry in the nineteenth century.¹¹ The Pickwick Club was also, of course, a happy conceit for a serial, as it allowed Dickens to sling his crew of sheltered elites across the countryside and back into the city's boisterous environs. Ostensibly, their task is to communicate to their club "authenticated accounts of their journeys and investigations; of their observations of character and manners"; formally, it is to string together an episodic series of humorous incidents suiting the serialized format and Dickens's job description: suturing together the comic tableaux of popular illustrator Robert Seymour. The gradual emergence from this episodic narrative of the longer plotlines of romance and legal proceedings, plotlines which transform the novel from picaresque to Novel, have long been commented on, beginning with Dickens's own preface to the first volume edition, in which he seeks to excuse his abandonment of the club in favor of specific characters. One of the major goals of this chapter is to explore the strategies of coordination that Dickens developed in order to deal

with the serial format – what Rachel Malik has described as how “Histories of idiolect and other modes of characterization, as well as various narrational stances, would be enhanced, if not fundamentally altered, if conceived within this horizon, particularly the horizon of its media relations.”¹² In the case of *Pickwick*, the transformation of this “horizon” over the development from a series of picture books into a serial novel effected a reconfiguration of the relationship between author and illustrator; whereas Dickens’ stories originally served to provide a formal and narrative organization for Seymour’s illustrations, by the close of *Pickwick*, the enormous popularity of the stories – which were selling up to 40,000 copies a part – revamped the illustrations themselves as a commentary upon formal organization of the novel. Whereas Seymour’s large popular following presumably gave him some editorial control at the dawn of their collaborative relationship, when Seymour committed suicide after completing the second number, Dickens exercised considerable authority. When Robert Buss’s sketches for the third number proved disappointing, Dickens had him dismissed in favor of Hablot Knight Browne, the “Phiz” who would illustrate his works for the next twenty years. An examination of the illustrations these three artists produced demonstrates an evolution toward images that capture synoptic social tableaux that presage Dickens’s later novels. In illustrations like “Mr. Pickwick Addresses the Club” and particularly “The Pugnacious Cabman” (Figure 3.1, following page), Seymour had already indicated an interest in broad-canvas illustration that hearkened to the densely referential compositions of Hogarth, albeit with an emphasis upon public encounters that crystallized the coordination of various social ranks in large comic tableaux.¹³ Whereas Dickens only provides a partial enumeration of the range of individuals present at such moments,

Seymour fills out the synchronic coordination offered by such incidents, providing a range of characters that begin to fill out in the contours of Victorian society. In contrast, Buss's initial sketch for "The Fat Boy Awake" shows a collapse of both social and spatial perspective; the three figures are framed claustrophobically by their environment rather than a part of it (Figure 3.2).

But it is within the social panoply brought to life in Phiz's epic social tableau that the logic of social connection takes the mature and active visual expression that comes to characterize Dickensian illustration, from "The Election at Eatanswill" to "The Trial" (Figures 3.3 and 3.4). Phiz, in contrast with Buss and even Seymour, refines strategies of elevated visual perspective that allow a layered projection of dense figural arrangements of characters. In the "Election," the scaffold of the hustings becomes a platform not only for the candidate, but an opportunity to organize a contrast between the array of moneyed backers and electioneering agents behind him, and the teeming and brawling energy of the hoi polloi below – a graphic of power that emphasizes a precarious, dynamic relation between the would-be manipulators and



Figure 3.1 – The Pugnacious Cabman¹⁴



Figure 3.2 – The Fat Boy Awake



Figure 3.3 – The Election at Eatanswill



Figure 3.4 – The Trial

the unpredictable behavior of those they seek to manipulate. Similarly, in “The Trial,” the court pews provide a visual framework that serves to completely marginalize Pickwick’s homily, leading the eye into ever more distant rows that imply perspectives and “histories” outside the narrative proper. The densely layers of figures are further organized by doubling strategies that encourage pattern tracing between the rows; from the left-leaning figures of the mother, barrister, and sleeper, to the various tête-à-têtes that instance discursive positions which challenge the centrality of Pickwick’s disquisition. Such images serve to embed the narratives of the *Pickwick* papers within the social canvas, emphasizing the innumerable histories which run alongside Pickwick’s own.

In order to organize the serial comparisons offered up by such social canvases, the illustrations rely upon elements of formal structure which channel our comparative eye, training it upon specific features, drawing coordinated contrasts and comparisons. As discussed in the introduction, analogy’s contrast with figurative strategies like metaphor and allegory lies in its explicit formulation of relationships; its explicit syntax constrains interpretation toward specific similarities of relationship. At the same time, this explicit structure lends itself to potentially limitless elaboration, as the analogy between relationships is traced out into further and further similarities. In my first chapter, I pointed to Erasmus Darwin’s anxiety over analogy’s potentially unlimited ramification, as “rational analogy” degraded into “fanciful similitudes,” an instance of broad eighteenth-century concern over the epistemological bounds of analogical speculation. Whereas Hogarth had drawn heavily upon metaphorical and allegorical conceits in order to structure and contextualize visual information, Phiz’s turn to directly comparative tableau relies upon formal strategies of movement, spatial structure, and social

differentiation to organize relations within the visual field. And as I will argue later in this chapter, a further service of such structured visual analogy was to train the reader in techniques of analogical interpretation which formed essential reading strategies for Dickens' novels themselves.¹⁵

At the same time that Dickens' serial fiction marked a radical shift in the mode of literary production as compared to Scott, it is in *Pickwick* that Dickens presents his most extended engagement with Romantic historicism in the mold of Scott; both in extended vignettes upon the collection of folk culture and in comic digressions that focus on the status of historiographical evidence. In particular, while the novel evinces a comic debt to Smollet and Sterne, entire episodes from *Pickwick* seem to be drawn from Scott's *The Antiquary*, a novel which similarly takes as its object the picaresque adventures of a gentleman scholar with a penchant for historical artifacts.

If modern criticism has often characterized *Pickwick* as a story without a novel, William Godwin found *The Antiquary* "a novel without a story," free of the defect of "labouring after a tale," and marked by "daring" and "wonderful mastery."¹⁶ In a similar manner to *The Pickwick Papers*, *The Antiquary* opens with a public coach ride in which the scholarly title character meets up with an younger individual who will shape much of the later story. In *The Antiquary*, it is a gentleman mistaken for an actor, in *Pickwick*, an actor-charlatan mistaken for a gentleman. And there are at least two incidents in *Pickwick* that are modeled on stories from *The Antiquary*. First, in the "The Bagman's Story," the hiding place of a key document is communicated by ghostly furniture in a dream, an episode closely modeled on the famous "green room" story told by Oldbuck's

sister to young Lovell when he first arrives at Monkbairn, and later played out in Lovell's own dream.

For while Dickens's first novelistic experiment owes a large debt to comic productions of Smollet and Sterne, it is equally indebted to Scott's novel *The Antiquary*. As noted in the previous chapter, *The Antiquary* produces Scott's first focused meditation on the status of antiquarianism as a practice, in its combination of historical enquiry, collection of objects and manuscripts, and editing; a role which laid the groundwork in Scott's professional career for his turn to the historical novel. As Ian Duncan has recently put it, *The Antiquary* both "gloss[es] his earlier fiction and its cultural themes in a self-reflexive and metafictional novel" and is "devoted to a representation of common life—the thick description of an everyday social surface of manners and conversation."¹⁷ A great deal of fun is had in *The Antiquary* with Oldbuck's misidentification of a stone's inscription as noting the site of Agricola's decisive battle with the Caledonians. For Scott, Oldbuck's ambitious misidentification of the fragment presents a reflection upon his own antiquarian passion, and the project which earned him his earliest fame, the collection and editing of the *Minstrelsy of the Scottish Border*. This self-reflexiveness is evident in Dickens' appropriation of the archeological incident in which Oldbuck misinterprets a modern foundation stone as evidence from the Roman invasion of Britain. It seems certain that Dickens recognizes the autocritical function of such incidents, applying the same thrust to Pickwick's mistake over ancient provenance of a stone idly carved by a craftsman – Bill Stump's Mark. More particularly, Pickwick's primary interest in collecting songs and stories resonates with the ballad collection which Scott cut his teeth upon.

In addition, the humor in both cases points toward an ethic of historicization that strips the historical artifact of its exceptional status and integrates it within a modernizing and quotidian perspective – a strategy put to extensive use in the “gothic” novels of Radcliffe, and equally comic use in Austen’s *Northanger Abbey*. The comic dimensions of this “modernization” of historical material helps to characterize the inclusion of Sam Weller’s song, “Romance” in chapter 42.¹⁸ Weller’s song, complete with critical notes on “the monosyllable at the end of the second and fourth lines, which not only enables the singer to take a breath at those points, but greatly assists the meter,” reinforces our sense of connection between Pickwick’s researches and the scholarly exploits exemplified by Scott’s ballad collection. “Romance” depicts a violent brigand who slaughters two travelers – one a bishop – without reason, an incident without precedent in the Turpin legend. Dickens’s ballad emphasizes Turpin’s characterization as a common but violent brigand, a killer.¹⁹ Dickens returns Turpin to history through the ballad, because the ballad, after Scott, had become a touchstone for the popular mediation of true history. This restorative project is emphasized by two conflicting elements: the meticulous integration of vernacular and oral details which re-popularize Turpin, as well as the focused return to unmediated violence rather than the romantic interpolations of popular hero and legend. The gritty emphasis upon the violence of Turpin’s crimes mitigates against “romantic” takes upon such outlaws. In place of such historically displaced romances, Dickens will offer the “romance of real life” – a brand of romance proximate and all the more startling for its mundanity.

Although modern criticism of the generic distinction between “romance” and “realism,” particularly in connection with Scott and Dickens, remains surprisingly

fruitful,²⁰ I think it is important to recognize that the generic aspects of Dickens's disquisitions on the "romantic" aspects of modern fiction are secondary to his invocation, by means of "romance," of the particular historicizing reading practices developed by Scott. This historicizing move is evident even in Charlotte Smith's own *Romance of Real Life* (1787), which translated some of Charles François de Pitaval's *cause célèbre*. Such "romances" provide telling evidence of the casuist influence upon Romantic historicism which James Chandler has identified, as Smith marks the realist effect of Pitaval's tales as they assemble evidence drawn from famous trials in the form of narratives rich with circumstantial detail. As Chandler notes of *Hard Times*, "Social casuistry seems to figure as part of the satiric object in Dickens's parodic style," quoting Dickens's narrator, "Is it possible, I wonder, that there was any analogy between the case of the Coketown populations and the case of the little Gradgrinds?"²¹ Given in free indirect discourse as the tenor of Gradgrind and Bounderby's conversation, Dickens uses "analogy" in the passage as a marker of the kind of turn-of-the-century Benthamite and Malthusian political economy which the two characters satirize, in much the same way that my introduction argued Charlotte Brontë deploys "analogy" in *Shirley* as a marker for Caroline Helstone's Hazlitt-inspired speculations. That is, the passage from *Hard Times* presents a further example of the nineteenth century conversion of "analogy" into an object of history, as a marker for outmoded philosophical discourse.

Nevertheless, it is precisely this displacement from the "case" to the "analogy" between cases that I wish to emphasize in Dickens' fiction (note that Gradgrind and Bounderby deny the analogy). It is by means of such analogy that Dickens develops a contrast between "Romance" per Scott and his own fiction. In *Sketches by Boz* (chap.

20), Dickens playfully accesses nostalgic historicism in order to lament the paucity of May poling in modern London: now, Boz comments ironically, participants would be arrested for capering around the York's column: "Alas! romance can make no head against the riot act; and pastoral simplicity is not understood by the police" (202). The reflection seems calculated to isolate the unromantic present from the romance of the past, adopting the voice of the sage, to note the decay of custom as "signs of the times, portentous omens of a coming change" in a nod to Carlyle. But the nostalgic elegy is elided by the narrator's wry tone. In order to make the departure from historical fiction clear, Boz emphasizes, by analogy, that "The romance of the trade has fled, and the chimney-sweeper of the present day, is no more like unto him of thirty years ago, than is the Fleet-street pickpocket to a Spanish Brigand, or Caleb Williams" (205). Dropping this mock-nostalgic tone, the narrator sets out his representational project in a more positive analogy, arguing that the façade of the criminal courts at Old Bailey, and the stories locked within, provide more material for "romances" than the novels of Radcliff (230). The point here is two-fold. First, the analogy between the "romance" of the past and the present sets out a mixture of continuity and historical disruption drawn from Scott's own analogies between modern Britain and its antecedent "Sixty years since." At the same time, this model of historical mediation is brought to bear upon telling the "histories" of present social institutions, a transformation marked as a shift from the old "romance" to the modern.

It is in *The Pickwick Papers* that Dickens first synthesizes this model as the "romance of real life." The phrase first appears in a chance encounter between Pickwick and a pessimistic old Mr. Hutley, the old actor who relates the dismal "Stroller's Tale" to

Pickwick. At the opening of the tale, Hutley had denied that there was anything romantic about it: ““There is nothing of the marvelous in what I am going to relate ... there is nothing even uncommon in it”” (49). Instead, Hutley informs us, he has assembled the story simply because he knew the man it concerns and “traced his progress downwards, step by step.” The story details in simple detail the death of a clown, and his grief over the life he’s given his family. It seems a set-piece for a tableau, and, in a powerful coincidence, is the illustration that absorbed Seymour’s labors the night before he killed himself. In a later chapter, Hutley promises Pickwick that he’ll send him a “curious manuscript – observe, not curious because wild or improbable, but curious as a leaf from the romance of real life” (71). We are never given this manuscript “romance of real life,” but it seems as if it resurfaces in the “romance of life” related directly to Pickwick in tale of the “Queer Client” later. Significantly, this new romance emerges from the legal environs of the Court of Chancery, at the Magpie and Stump Inn. Here, again, it is clear that Dickens imagines case histories, in the manner of Smith, as true romances, or, as the Old Man puts it, “the romance of life, Sir, the romance of life. Common-place as they may seem now, I tell you they are strange old places, and I would rather hear many a legend with a terrific-sounding name, than the true history of one old set of chambers” (274).

Here, the frightening romances with “terrific-sounding” names pale in comparison to the romances of real life, the “true history” that runs through such apparently “common” places. This strategy of defamiliarization is familiar from my last chapter; it closely echoes Scott’s description in his epistle to *Ivanhoe* of the wildness of the feudal past hidden within the comforting English surroundings. But again, the investment is not

in the distant past, but in the immediate histories that are bound within the present. The old man continues: “‘Talk of your German universities,’ said the little old man – ‘Pooh, pooh! There’s romance enough at home, without going half a mile for it; only people never think of it’” (275). The generic charge that the fabulist look to his own garden for material becomes a central concern toward proximate attention in Dickens – a concern which will develop a powerful ethical component (witnessed by the condemnation of Mrs. Jellyby’s philanthropic efforts for the inhabitants of Booryoobooly-Gah in *Bleak House*). The disturbing nativism of Dickens’s later stance toward such philanthropy-from-a-distance is secondary, within his fiction, to this deeper formal charge – to find the substance of fiction in the common-place and familiar.

Leveraging the term romance from Scott’s own description of his novels as “historical romances,” Dickens drastically reconfigured the status of historicism in fictional representation. In particular, what emerges in *Pickwick* as a representational contrast between historical romance and the romance of the quotidian is developed, in Dickens’ later fiction, as a contrast between the aspirations of the individual and the distorting pressures of historical legacy upon modern social organization. As I will show in the following discussion, what Dickens terms “romance” resolves in his fiction into a general conflict between individual and history – I say a general conflict because the expanding web of Dickens’ social novels increasingly disperses the individual across series of parallel characters and plots. The organization of this web of comparisons between character and incident, particularly in the context of the physical and temporal dispersal of serial publication, is analogy.

II. The *Bleak House* of specimen collection: strategies of formalization

To get a firmer grip upon analogy's function in Dickens's novels, I'd like to recall the distinction between serial and formal analogy developed in the first chapter. In discussing the formal relation between the novels of Scott and Dickens, Ian Duncan turns to analogy as working upon "a unified semiotic field":

Scott had reinvented the novel by using a sentimental-romance mode of multiple episodes, plots and genres, to represent a mixed historical universe of experience and desire. The formal principle of this doubled and multiplied representation is analogy, which implies a unified semiotic field informing the dispersed registers and episodes of the narrative, charted by the intricate connections of the plot.²²

As Duncan notes, the diverse layers of plot and character which characterize Scott's historical novels, and particularly the broad social canvases of Dickens's, rely upon analogies between plots, between characters, to harmonize their variety. Here Duncan remarks upon what I have characterized as the "serial" deployment of analogy – its ability to articulate relation across a parallel group of particulars (in this case, "registers and episodes of the narrative"). As noted in my first chapter, analogy initially developed within biblical exegesis and natural theology in order to draw together conflicting accounts and exemplars and articulate a more fundamental pattern of order and coherence. The forebears of this application of analogy range from the "analogy of spirit" developed by Augustine, to more recent developments in comparative anatomy. At the same time, there is an equally important, "formal" dimension of analogy: its role in articulating relation across ontologically dissimilar categories. This eminent

application of analogy finds examples in the Thomist analogy of predication between mundane and Godly attributes and in Butler's analogy between the organization of the natural and the divine economies. Moreover, such an understanding of formal analogy is consistent with what James Buzard has characterized as Victorian fiction's reliance upon "metaphorization" to translate (fictional) experience into a legible system of meaning, providing a description of how, for instance, the "iconic space" of culture is mapped onto the physical space it inhabits.²³

As argued in my previous chapter, Scott's historicism can be seen as functioning at both levels. From the standpoint of the transition from allegorical or "homiletic" reading strategies to direct analogical comparisons between historical incidents, or between past and present cultures, Scott's historicism relies upon a range of serial analogies. Inasmuch as the more basic analogy between the historical narrative and history itself is perceived as a shift of scalar perspective – history as historical romance writ large, the collective of particular narratives – the analogical historicism of Scott's fiction can also be perceived as serial. Yet it is important to note the basic quantitative to qualitative shift that occurs in the transition between particular to historical collective; it is the larger claim of history which gives meaning to the particular stories of historical fiction, providing the interpretive frame of context. While history in this sense does not make the ontological claims of eschatology, it serves the same formalizing function, as the referent of the incidental plots of historical narrative.

But in Dickens's "romance of real life" the formal referent of history is necessarily absent. While individual narratives can partake of the serial collectivity of historical perspective, the indeterminate nature of the modern – both as that which is set

over against the continuity of the historical, and as that which necessarily has an opaque historical trajectory – means that the formal function of history as a coherent higher narrative is missed. Hence the “signs of the times” are necessarily veiled, a case history with an unclear pathology.

In order to point up the significant challenges posed in formalizing analogies across contemporary observations, which I take as symptomatic of mid-century comparativism, I’d like to turn briefly to the context of contemporary naturalism. Comparative anatomy was the preeminent biological science of the early nineteenth century, driving crucial discoveries in geology, taxonomy, and laying the groundwork for various theories of evolution and biological change. In large part, the power of comparative anatomy was rooted in its focus upon the technology of serial analogy, and the profound system of structural relationships between organisms which such analogizing disclosed. The explosion of insights gleaned through comparison, magnified by the exponential growth of specimen collection in the late eighteenth and nineteenth centuries, created a demand for formalizing strategies that could give coherence to the rapidly expanding webs of relationships. It is in this way, I will argue, that comparative anatomy offers a parallel case to the kinds of analogical reading strategies which Dickens inculcated in order to deal with the profusion of serial publication. In both interpretive systems, the demand for comparative evaluation of diverse particular cases within more general series instigated a push to organize and formalize the strategies of analogical reading.

After the pioneering work of earlier explorer-naturalists like Sir Hans Sloane (whose collections helped found the British museum), Alexander von Humboldt, and

Georges Louis-Leclerc (Comte Buffon), naturalists saw specimen collection as continuous with the imperial project of territorial exploration. The dawn of the nineteenth century witnesses an explosion in the collection of biological specimens – both living, dead, and fossilized.²⁴ While Jean Baptiste Lamarck is most generally remembered for his theory of adaptation through the inheritance of acquired characteristics, students of Lamarckian evolution have often failed to note that his theory of adaptation was a secondary adjustment to the larger relation of analogy he postulated between all organisms (a theory he developed for the task of organizing the *Muséum national d'Histoire naturelle*'s specimens in his role as zoology professor):

Among living bodies the name affinity has been given to features of analogy or resemblance between two objects, that are compared in their totality, but with special stress on the most essential parts. The closer and more extensive the resemblance, the greater the affinities. They indicate a sort of kinship between living bodies which exhibit them; and oblige us in our classification to place these bodies in proximity proportional to their affinities.²⁵

The primary organization of creatures for Lamarck was rooted in their structural “affinities,” an analogy of structure that testified the broader organizational plan of a creator. The central force of Lamarck’s argument was to emphasize natural investigation as a comparative process, driven by examination of the relations between specific elements, rather than driven by the blinkered investigation of individual species. Such investigation, Lamarck insisted, will reveal a broad system of analogical order: “Those who have gone in exclusively for the study of species,” he asserts, “find it very difficult to grasp the general affinities among objects; they do not in the least appreciate nature’s

true plan, and they perceive hardly any of her laws” (14). “Laws” are not recognized through the exclusive focus upon individual elements of nature but through their comparative examination. It is precisely this shift to comparison which, I argue, is marked by Dickens’s turn from the particular case to the relation between cases. For Dickens, as for Lamarck, the relationship between particulars is rooted not in a basic identity or even in narrative, but in a system of relation itself.

The inheritance of acquired characteristics was, for Lamarck, a hedge. When Lamarck turned to the natural world, his idealized gradation of animal analogies – from the nearly vegetative animals like sponges to the advanced sentient being of man – appeared muddled, full of gaps. Lamarck notes these discontinuities, pointing to holes in his schema between different clusters of closely related organisms: “I do not mean that existing animals form a very simple series, regularly graded throughout; but I do mean that they form a branching series, irregularly graded and free from discontinuity, or at least once free from it” (37). These flaws, “irregularly graded” but at the same time “free from discontinuity,” or finally, “at least once free” from these lacuna, point to the tension between the competing influence of system and particular experience. The broad, developmental tree that tied all organisms together in a general analogy of structure provided the larger systematic structure, while the particular development of specific organisms to their environment drove their differentiation away from this ideal order. To relate this to the terms of our discussion, Lamarckian evolution originally developed as a narrative justification for his formalized developmental tree; a formal model created in an attempt to bring coherence to the serial analogies of comparative anatomy. This formalism is marked by the dislocation of this broader structural principle into a moment

isolated from the contingent forces of history, existing “at least once” in a prehistory with similarity to biblical creation.²⁶

By contrast, Lamarck’s great antagonist, Georges Cuvier, decried Lamarck’s narrative model of biological change, arguing instead that the precise gradation of similar structures argued for a mathematically precise order characterized by “measure [règle] and direction” rather than contingency – a system removed from incidental history, like astronomy: “genius and science have burst the limits of space, and some observations developed by reason have unveiled the mechanism of the world. Would there not also be some glory for a man to know how to burst the limits of time, and, by some observations, to recover the history of the world, and the succession of events that preceded the birth of the human species? The astronomers have, without a doubt progressed more rapidly than the naturalists.”²⁷ Cuvier, in looking to formalize the observations of comparative anatomy, turned to the Newtonian model of classical mechanics. In the “Discours préliminaire,” Cuvier casts this work as a new kind of historicism: “As a new species of antiquarian, I have had to learn to decipher and restore these monuments, and to recognize and reassemble in their original order the scattered and mutilated fragments of which they are composed; to reconstruct the ancient beings to which these fragments belonged” (183). In this manner, scientific comparativism, while deeply empiricist, was leveraged by both Lamarck and Cuvier to support widely divergent understandings of history. As I will discuss later in this essay, the challenge was contextual: while specific comparisons were powerful tools for disclosing latent natural patterns, there was extensive debate over the proper context for interpreting these patterns. Pattern, in itself,

does not produce history – it is in the formalization of that pattern, whether to some basic narrative, or as an expression of basic formal laws, that history takes shape.

The formalizations of analogy offered by Lamarck and Cuvier remained closely disputed by mid-century, as naturalists from Lyell to Thomas Huxley challenged Lamarckian inheritance, and the “geometrical laws” of Cuvier’s taxonomy failed to materialize. This is the interpretive problem Geoffrey St. Hilaire pointed to when he complained that analogy’s many senses left it “far from having the power to furnish precise indications,” and in response, Hilaire proposed that there should be two classes of comparison: direct analogies between specific limbs or organs, and the larger pattern or “homology” that characterized these patterns globally.²⁸ Analogy’s long history of hermeneutic and natural theological use, detailed in my first chapter, left it rife with implications. Homology, by contrast, was a more precise mathematical neologism that had recently been developed to describe the common geometric properties of various “homologous” figures, in order to explore how they could be transformed into one another.²⁹ Anatomists did not immediately adopt St. Hilaire’s suggestion that they distinguish between particular comparisons of analogy and the systematic patterns of homology. It was not until Richard Owen set out, in the 1840’s, to formalize the relationship between analogical comparison and interpretation, that this analogy/homology distinction caught on. The pre-eminent anatomist of Dickens’s era (dubbed, to his chagrin,³⁰ the Cuvier of England), Owen corresponded familiarly with Dickens throughout the 1850’s, and it has been pointed out that Owen likely introduced the author to the “megalosaurus” that lumbers through the first paragraph of *Bleak House*.³¹ As early as 1843, in his *Lectures on the Comparative Anatomy and Physiology*

of the *Invertebrate Animals* (1843), Owen had defined a “homologue” as “The same organ in different animals under every variety of form and function” in contrast with an “analogue,” a “part or organ in one animal which has the same function as another part or organ in a different animal.”³² The key terms of Owen’s mature thinking are already evident here; analogous organs are similar because they have the same *function*, homologues *are* the same organs in different animals. Owen’s key innovation was to tie the systematic relation of homology to a universal “archetype,” the common, idealized form that expressed the common features of a group of homological organs. As Owen makes clear in *On the Archetypes and Homologies of the Vertebrate Skeleton* (1848), the turn to archetype is powerful, not because it fixes what the larger patterns of analogies mean, but precisely because archetypal homology is ahistorical and conventional in character.³³ In other words, Owen made homology an explicit formalism capable of dealing with the varieties of analogical similarity offered by comparative anatomy. This translated a methodological problem into a representational challenge; by defining in an “arbitrary” manner, an archetypal system of terms and forms, Owen established a conventional framework for interpretation and representation. Rather than arguing the implications of certain comparisons, anatomists could discuss whether comparisons fit a purely conventional framework; larger historical questions of transformation or uniformitarianism could be backgrounded. This agnosticism toward historical modeling was the feature that distinguished Owen’s formal analogy from Lamarckian transmutation and Cuvier’s geometric progressions. This both secured the context for interpreting analogies and protected them from some of the more fraught transformationist

controversies of the day. Owen's homologies, though they are mental fictions, are the peculiarly powerful fictions of scientific modeling.³⁴

It's hard to see immediately what bearing such formal analogies, conceived as a technology of organization, have upon *Bleak House*, a novel which famously meditates upon disorder in all its social, judicial, and garbological forms. This very messiness is early thematized in the novel through extended description of the environs of Chancery sloppy with mud, murky with fog. As the passage makes clear, the mire of Chancery is rooted in the historical problem it presents – the intrusion of baroque bureaucratic mechanisms into the modern: “As much mud in the streets as if the water had but newly retired from the face of the earth, and it would not be wonderful to meet a Megalosaurus, forty feet long or so, waddling like an elephantine lizard up Holborn Hill” (5). The symptomatic lassitude of Chancery is allied to the lumbering dinosaurs of the past because Chancery itself is a product of a kind of antediluvian bureaucracy run amok in the present. Dickens' casual use of the Megalosaurus reflects the popularization of paleontology in the wake of tracts by William Buckland and Richard Owen, and also, in large part, due to the popular dissemination of Cuvier's *Recherches sur les ossements fossiles de quadrupèdes* (1812). As Jay Clayton has noted, from an early period “Dickens was attuned to the changing scientific climate.”³⁵ As Susan Shatto points out, Cuvier's translation into English went into several editions, with the fifth edition including a Preface by Robert Jameson expounding on the similarities between biblical accounts and Cuvier's catastrophism.³⁶ The biblical interpretation of Cuvier suggests an equally divine origin for the “water ... newly retired from the face of the earth,” a scriptural connection which finds its apocalyptic counterpart in the following sentence

within the sooty drizzle “gone into mourning, one might imagine, for the death of the sun.” The tantalizing echoes of biblical language invite a mode of interpretation in line with natural theological apologetics – in which the evidence of natural history is recuperated as an approximation to biblical accounts.

The uneasy status of this alliance between natural and theological understanding contributes to the passage’s instable relation to interpretation itself. J. Hillis Miller has argued that the fog of Chancery adumbrates the wild accretion of indeterminate readings which Chancery produces – an allegory for the instability of interpretation.³⁷ By contrast, D. A. Miller argues that this reading is “willful” in that it sees “the work of interpretation occurring in what is far more obviously and actually the profitable business of deferring it indefinitely.”³⁸ The stony resistance to interpretive agency embodied in the Court of Chancery marks a sharp departure from the optimistic assertion in *Pickwick* that the “true history of one old set of chambers” near Chancery contains more of the pith of “real” romance than all of German romance. Instead, in *Bleak House* it seems that the Court of Chancery, mired in the “old” history, provides a threatening, entropic counterpoint to the narrative movement of the novel. By displacing the interpretive energies of the novel from the context of the legal system, *Bleak House* seems to argue for a rejection of the casuist model of Romantic historicism. This rejection of the litigious fiction is foregrounded in the satiric emphasis of Krook’s rag and bone shop, where Krook’s own illiteracy – able to manipulate but not understand the English script that fills the legal documents he’s collected – hides the will which will ultimately resolve Jarndyce v. Jarndyce. At the same time, the focus of the narrative of *Bleak House* upon the litigants and legal functionaries of the Jarndyce case argues for the case’s centrality to the novel’s

substantive object: it is as if the bureaucratic legal machinations of the courts are capable of collecting, but not organizing or interpreting, the materials of the social “connexions” the novel details. In this sense, the Court of Chancery echoes the challenge presented by both the serial analogies of comparative inquiry and the serial publication format itself: it is a structure of conglomeration that requires strategies of formal organization which are in some sense external to a narrow comparativism.

This lack of a coherent organizational strategy was descriptive of the history of the Court of Chancery itself. Whereas, in the fifteenth century, Chancery transformed from the Lord High Chancellor’s legally-armed administrative bureau into a central court for the provision of faster and cheaper settlements than those of common law, with decisions rooted in the concept of “conscience-based equity” or fairness.³⁹ The very freedom of the early Court of Chancery contributed to its demise, insofar as the lack of central principles and fixed adjudicatory traditions meant that the courts became overwhelmed as the volume and complexity of the cases increased. The workload of the Court shifted radically up to the nineteenth century toward a greater proportion of protracted estate cases. In cases of inheritance and the adjudication of wills, Chancery would take on extended responsibility, because only a court of equity could safeguard the legacies of married women against their husband or make extended provision for under-age legatees.⁴⁰ Hence the formative intrusion of the Court, in *Bleak House*, into disposition of the wards of Jarndyce v. Jarndyce. At the heart of Chancery’s own history, then, lay the question of interpretation: Chancery took prominence because it had greater power to broadly interpret the facts of a case and provide a range of remedy unrestricted by the strict letter of the law – a remedy which turned primarily not on the principle of

legal justice, but of fairness. By the nineteenth century, this broad interpretive latitude had led it into increasingly complex cases, cases relied upon the lack the chafing precedents and rules of law for their growth. Dickens, of course, worked as a Chancery reporter when young, and in 1844 had served as plaintiff in five separate copyright infringement cases within Chancery.⁴¹ Even if not familiar with the long history of chancery's development, Dickens would have recognized that, at its core, the Byzantine proceedings of the court failed to serve its charge of "equity." Rather than an interpretation that provides a fair settlement, Chancery in *Bleak House* ultimately produces its inverse – the destruction of the Jarndyce estate. *Jarndyce v. Jarndyce* is only brought to a halt by the miraculous production of a water-tight will by parties exterior to the court – a document which, by its clarity, denies the court its central power of broad interpretation.

While the Court of Chancery provides the central clew to which the various plots and characters of the novel are moored, the narrative logic of their interconnection and the effect of these connections upon the novel is distinct from Chancery, turning instead upon plots of retribution and penance, of disease and recuperation, which are substantively if not thematically alien to the flawed legal functions of the court. In order to provide an interpretive model that is capable of giving shape to the inchoate mass of narratives grasped by the Court's legal proceedings, the novel relies upon formal conventions of social responsibility that are themselves expressed through pathology and disease. To return again to the passage from *Bleak House* with which this chapter began, there is nothing at the level of incident which yet connects Jo to Chesney Wold or to the Deadlock's mercurial servant. And if it is true that Jo's later function as a witness of

Lady Deadlock's actions will contribute to his demise, it is equally true that the novel ultimately is less concerned with such incidental connections than the larger systematic question of interconnection between penury and the seeming isolation of the aristocracy. After all, the weight of Jo's death is not leveraged into a strong sense of Lady Deadlock's culpability, but rather, a generalized social guilt that accrues to an equally systematic social failure in legislation and class responsibility – a guilt which targets the middle class reader, not the Lady Deadlocks or Tulkinghorns of the world.

The most consistent vehicle for the transaction of guilt in the novel is disease; disease features prominently in descriptions of the world of Tom-all-Alone's and in Jo's death as well as in Lady Deadlock's ultimate demise.⁴² The power of disease to convert the virtual "connexion" between Chesney Wold and Tom All Alone's into actual contagion is foregrounded in the narrator's description at the opening of chapter 46, "Stop Him!":

But [Tom] has his revenge. Even the winds are his messengers, and they serve him in these hours of darkness. There is not a drop of Tom's corrupted blood but propagates infection and contagion somewhere. It shall pollute, this very night, the choice stream (in which chemists on analysis would find genuine nobility) of a Norman house, and his Grace shall not be able to say nay to this infamous alliance. (614)

At this point in the novel, it is clear that the passage alludes in part to Lady Deadlock's previous affair – which serves to pollute Leicester Deadlock's line. Of particular interest is the way in which the language of disease serves as a nexus for linking together various discourses, from the overtly biblical language that notes the "hours of darkness" and

makes “messengers” of the winds, to the language of genealogy and adultery, to the chemical play upon the “nobility” of certain elements. In its wide range of discourses, the passage reflects much of Dickens’s narration, and also recalls the mix of registers evoked by Erasmus Darwin in his opening discussion of analogy in *Zoonomia*, as discussed in the first chapter. But whereas Darwin’s broad mixture of religious, rhetorical, and scientific language evokes the wide disciplinary range of analogy’s use, Dickens’s passage assumes the tacit applicability of a formal analogy by which the logic of pathology maps the social transmission of responsibility. Rather than insisting upon the analogy’s broad purview, the narrator organizes such systems of relation into an ethical framework of guilt and retribution – whether in the religious language of sin and penance, or the scandalous language of affair and illegitimacy. The weight of this passage falls upon illuminating a formal dynamic that governs the novel’s systems of connection. If the novel asks us rhetorically “What connexion exists” between the various plotlines, it illustrates repeatedly this connection is achieved through a framework of error and penance given agency through disease. As the passage above illustrates, it is a felicitous vehicle, as contagion lends itself to a range of applications – functioning as an equally powerful metaphor for religion, inheritance, and failures of social responsibility. Hence, in *Bleak House*, disease becomes a figure in its own right, expanding to encompass a range of social, ethical, and religious roles, as the passage which follows illustrates, in its amplification well beyond attributes even metaphorically applicable to disease:

There is not an atom of Tom’s slime, not a cubic inch of any pestilential gas in which he lives, not one obscenity or degradation about him, not an ignorance, not

a wickedness, not a brutality of his committing, but shall work its retribution, through every order of society, up to the proudest of the proud, and to the highest of the high. Verily, what with tainting, plundering, and spoiling, Tom has his revenge.

From chemistry, to poverty, to violence, to divine retribution; the disease of Tom-all-Alone's becomes the central agent for the movement of plot from formative social error, to the crisis of penance and retribution, to recuperation and resolution. More portentously, it abrogates the penitential and interpretive charge of the legal system. While much has been made of Bucket's ratiocinative efficiency, it is notable that his vigorous enquiries serve only to uncover Lady Deadlock's surrender to smallpox, and precipitates Sir Deadlock's own gout-riddled collapse.

I have dwelt at such length upon the function of disease in *Bleak House*, because it provides access to what I have always found a central interpretive dilemma of the novel – Esther's illness. While Jo's death can be understood in part as a powerful social indictment, Esther's affliction with smallpox does not bear the same explicit message. As the novel repeatedly makes clear, Esther's disease and associated suffering are both figuratively and literally the result of her mother's transgressions. The master sign of her punishment for her mother's actions is biblical – provided in her godmother's early fear that “the sins of others be ... visited on [Esther's] head” (18). Here her godmother's invokes an Old Testament model of sin and lineal retribution, an understanding which features in several passages of the Hebrew Bible, and particularly the fifth commandment. Esther's almost puritanical goodness suggests that Dickens intended in

some measure to force the issue – pointing up the disparity between Esther’s experience in much of the novel and the virtues of her behavior, much as Jo’s endearing portrait serves to heighten our sense of social injustice at his death. In this sense, Hebrew law is closely allied with the judicial proceedings of Chancery – presenting the disruptive claims of historical continuity which threaten the domestic institutions toward which Esther applies her efforts.

It is this sense of asymmetry between the claims of the past and the present which makes Esther’s resolution so striking, in particular the startling physical reversal with which the book closes. When Allan Woodcourt catches his bride Esther thinking of the effect smallpox has had upon her face, Woodcourt laughs, demanding, “do you ever look in the glass? ... don’t you know that you are prettier than you ever were?” (770). Woodcourt’s insistence that the specular proof is clear mitigates a sense that it is Esther’s goodness which overcomes a scarred visage. It seems that somehow, the scars have been erased; a point upon which the last line of the novel is leveraged. Esther, ever unable to speak without maddening modesty, presents her recognition of this physical change as a movement from ignorance, to uncertainty, and finally, to possibility: “I did not know that; I am not certain that I know it now. But I know ... that [my family] can very well do without much beauty in me – even supposing –” and the novel ends with this more infuriating than tantalizing m-dash. To the last Esther is unable to affirm positively a flattering self-reflection. But this strange reversal of Esther’s appearance marks, at the close, the final separation between her individual plot and the burden of history – the final vindication of her works.

Moreover, it marks the intrusion of a social miracle on par with Dickens's "social gospel."⁴³ Whereas the material and penitential pathology of disease in *Bleak House* has been, until the end, implacable, the final paragraph gestures toward a radical break, in which the moral efficacy of Esther's good works effaces the physical traces of her disease. Whereas the formal analogy between scientific and biblical perspectives has respected the strictly accommodationist strategies of natural theology throughout the rest of the novel, this closing passage gestures toward a collapse of that formal distance, bracketing (by "supposing") the material efficacy of faith and good works. While disease plays the lion's share in the formalizing strategies that organize the diffuse comparative strategies in the novel, this final turn toward the material impact of the moral agent seeks to displace pathology in favor of a hermeneutic rooted in Christian humanism.

III. *A Tale of Two Cities* and the hermeneutic revolution

The increasing importance of carefully-calibrated moments of hermeneutic ambivalence – exemplified in Esther's providential makeover – reflect the legacy of Dickens's engagement with Unitarian philosophy in the late 1840's, a religious tradition which emphasized the vital role of ongoing critical interpretation of the relationship between secular and religious meaning – between history and scripture. Dickens's attendance at the Essex Street and Little Portland Street chapels is a well-recognized feature of his religious development, but insufficient emphasis has been placed on the particular hermeneutic tradition constituted by Unitarian teaching in this period. As Valerie Dodd has pointed out, Unitarian ministries were key sites for the promulgation of

the German “higher criticism” in the late forties. In particular, Unitarian ministers like Philip Harwood lectured on Strauss, encouraging English translations of his *Leben Jesu*, encouragement that prompted Rufa Brabant to begin the translation of Strauss that would eventually culminate in George Eliot’s first published work, her rendering of the *Life of Jesus* brought out by John Chapman (Eliot’s enlistment came by way of her Unitarian contacts in the Coventry Circle).⁴⁴ This finely-bound edition was not, as is sometimes suggested, the first English translation of Strauss’s *Life*; Dodd notes that an earlier 1841-4 edition by Henry Hetherington, printed on cheap paper, was in wide circulation in the mid-1840s. Hetherington, too, was influenced by Unitarianism, attending services at the same Parliament Court Chapel that W. J. Fox succeeded to in 1817.⁴⁵ Hence, the translation of Strauss’s *Leben Jesu* in the 1840s should be recognized as the enlistment of the German higher criticism in the service of Unitarianism’s embattled cause vis-à-vis the English Church and courts. And as Suzy Anger and Charles Laporte have recently argued, the dissemination of higher critical techniques in mid-century Britain created a generalized climate of biblical skepticism and reactionary defense that focused on historicizing hermeneutics.⁴⁶

Dickens was well aware of both translations of Strauss in this period; in an 1851 letter to Angela Burdett Coutts, his collaborator on the Urania College scheme, Dickens conveys his knowledge of both the Chapman and Hetherington volumes, along with an American edition, and promises to track down the prices.⁴⁷ It was in the wake of Strauss’s impact on Unitarian circles that Dickens began attending services, quickly befriending Edward Taggart, the minister. As Taggart had noted on the occasion of his elevation to minister at the Norwich “Octagon” Chapel in 1825, he was one of a new

generation of ministers brought up wholly within the Unitarian tradition, rather than converting from other denominations.⁴⁸ Dickens corresponded with Taggart familiarly throughout the late 40's and 50's; in a letter from one of Dickens's Parisian visits, he excitedly related the spectacle of the Reign of Terror he'd recently seen staged the Cirque, contrasting the violence with the calm and orderly revolution he'd witnessed in Geneva.⁴⁹ More generally, it is during this time that Dickens seems to have absorbed the humanist interpretive project espoused by the Unitarians; Dickens's brief discussions of hermeneutics, scattered through later fictional passages and letters, emphasize the same tenets of free enquiry, and its emphasis upon the "spirit" rather than the "letter" of the scripture. As Dickens later wrote to Cerjat:

As to the [Anglican] Church, my friend, I am sick of it. The spectacle represented by the indecent squabbles of priests of most denominations, and the exemplary unfairness and rancour with which they conduct their differences, utterly repel me. And the idea of the Protestant Establishment, in the face of its own history, seeking to trample out discussion and private judgment, is an enormity so cool, that I wonder the Right Reverends, Very Reverends, and all other Reverends, who commit it, can look in one another's face without laughing as the old Soothsayers did. ... the Master of the New Testament put out of sight, and the rage and fury almost always turning on the letter of obscure parts of the old Testament, which itself has been the subject of accommodation, adaptation, varying interpretation without end – these things cannot last. The Church that is to have its part in the coming Time must be a more christian [sic] one, with less arbitrary pretensions

and a stronger hold upon the mantle of Our Saviour, as He walked and talked upon this earth.⁵⁰

The implicitly Unitarian emphasis of this project is demonstrated by Dickens' own attempt to present a religious account with "less arbitrary pretensions" that focuses upon "our Saviour, *as He walked and talked upon this earth*": Dickens's *Life of Our Lord*, prepared for his children in the late 1840's, during his attendance at Little Portland Street. As Robert Johnson summarizes, "The entire stress is upon a nontheological reverence for Christ as a great spiritual teacher, not upon his divinity."⁵¹ In particular, the humanizing influence of Unitarianism and Strauss's approach to the higher criticism was two-fold: first, it emphasized the compatibility of a non-miraculous account of human endeavor as vested with deep scriptural significance – a form of what Gregory Jackson has termed the strategy of homiletic reading. And second, a key component of this humanization of scriptural account was mythologization, Strauss's account of the social efficacy and spiritual significance that can be retained once miracle has been reinterpreted as a retrospective myth formation.⁵² For Strauss, as for Owen, "miracles," though mental fictions, presented a powerful formal agent for organizing and communicating core religious truths.

The key function of mythic and homiletic reading strategies in organizing the comparativist narratives of Dickens's later novels is evident in *A Tale of Two Cities*. The novel famously opens with an example of comparative historiography – a critique of popular accounts of the French Revolution that plays one off against the other:

It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it

was the season of Light, it was the season of Darkness ... –in short, the period was so far like the present period, that some of its noisiest authorities insisted on its being received, for good or for evil, in the superlative degree of comparison only.⁵³

The single-sentence paragraph takes as its object not the comparison between Paris and London, or France and England—that comes in the following passages—but historical perspective, embodied in the superlative comparisons of the “noisiest authorities” of each period. The alternating statements reach out to delimit, in their absolute contradiction, the widest compass of opposed opinions—extreme antitheses that resist any unitary “take.” The key problem for these critics, the passage argues, is that they cannot make sense of the revolutionary period. This failure to interpret accurately is expressed, in turn, as a failure to find the appropriate representational mode, which the narrator voices by offering a gumbo of figurative and rhetorical expressions that characterize their positions. As John Kucich puts it, “Despite themselves, these terms fail to produce a difference of meaning. ... [hence] the opening catalogue of extremes comments more on the needs of the historical imagination ... than on the actual tenor of any particular age.”⁵⁴ It is the characteristic incoherence of historical representation that connects past authorities with those of Dickens’s time.

By way of contrast, the narrator demonstrates his own ability to suss out what is common in the most uncommon events, both through the cool authority that distills these heated opinions into a series of binary oppositions, and with the practiced eye that marks the common grammar of these statements—“the superlative degree.” This studied insight into revolutionary historicism is, in turn, leveraged into a perspective upon history itself.

Beneath assumed differences between France and England, there are common features. To this end, the wild oppositions of the passage maximize the sense of identity in the passage that follows, as the narrator turns from contrasting historical perspectives to his own comparisons between contemporaneous France and England, in which differences are marked deviations from prominent parallels (though both kings have a “strong jaw,” the face of one queen is “plain,” the other, “fair”).

The key point is that intra-historical comparison (versus trans-historical) will discover the latent patterns that help make sense of history. I mean to take the historicist impulses of *A Tale of Two Cities* seriously. In the preface to the first bound edition of the novel, Dickens famously contrasted his “picturesque” approach with the “philosophy” of Carlyle’s *History of the French Revolution*: “It has been one of my hopes to add something to the popular and picturesque means of understanding that terrible time, though no one can hope to add anything to the philosophy of MR CARLYLE’S wonderful book” (398). Critics, in tracing the debt Dickens and his novel owe to that work, have emphasized the degree to which Dickens’s history piggy-backs on Carlyle’s.⁵⁵ Although the contrast between the “popular and the picturesque” and “philosophy” indicates a deferential relationship, it’s worth asking whether there is a place for “popular and picturesque” historicism—or indeed, whether these terms accurately gauge Dickens’s work. Dickens’s description indicates that he means to supplement this popular history, as much as to practice it—and the key question is what does he mean to supplement these histories *with*?

The French Revolution remained a key historical question in the 1850’s. As Nicholas Rance has detailed, the revolutions of 1848 fueled a boom in revolutionary

histories, from George Henry Lewes's life of Robespierre, to Michelet's *Histoire de la révolution française*.⁵⁶ Contemporary historian John Wilson Croker, in an 1851 review of "Revolutionary Literature" for the *Quarterly Review*, wrote that the French Revolution was "the one great subject that now occupies and agitates throughout Europe—but especially in France and England—the pens of all who write—the passions of all who feel, and the earnest and anxious thoughts of all who concern themselves about either the political or the social systems under which we live or *are to live*."⁵⁷ This fevered writing was driven by shifting emotional responses to continental unrest; as Michael Goldberg has noted, for both Carlyle and Dickens, initial enthusiasm for the French launch of the 1848 revolution soon descended into dismay.⁵⁸ Though in February of 1848, Dickens could still joke with Forester, a French tongue-in-cheek, "I love the Republic so much, that I must renounce my language and write only in the language of the French Republic," signing the note "Citoyen Charles Dickens," that enthusiasm is clearly tempered by 1851; when reporter G. A. Sala forwarded an article about the new Republic for *Household Words* with the suggested title "Liberty, Equality, Fraternity," Dickens added: "and Musketry."⁵⁹ One key concern was whether, the events of 1640-60 notwithstanding, the political foment of continental Europe would produce England's own revolution. From the Chartist petition of 1848, to agitation for a second reform bill, the 1850's and 60's were marked by concern regarding domestic unrest, and the "question of England" novels that explored this anxiety. As Priti Joshi has recently noted, various references in *A Tale* indicate how the Sepoy "Mutiny" of 1857 exacerbated Dickens's social fears through the close of that decade.⁶⁰ Finally, sensational accounts of Orsini's attempted assassination of Louis Napoleon and his Emperess filled the English periodical

press throughout the Spring and Summer of 1858, complete with Orisini's repentant confession – an episode that probably helped to revive historical interest in the Reign of Terror and the execution of Louis XVI and Marie Antoinette. From this perspective, it is worth suggesting *A Tale* should be taken as much a meditation on the “question of England” as *Barnaby Rudge* or *Dombey and Sons*. As Dickens wrote to liberal parliamentarian Austen Henry Layard in 1855:

There is nothing in the present time at once so galling and so alarming to me as the alienation of the people from their public affairs I believe the discontent to be so much the worse for smouldering instead of blazing openly, that it is extremely like the general mind of France before the breaking out of the first Revolution, and is in danger of being turned by any one of a thousand accidents ... into such a Devil of a conflagration as has never been beheld since.⁶¹

Note that, in worrying about Britain in 1855, Dickens turns, not to contemporary, but to ante-revolutionary France—the period upon which *A Tale* opens. His thinking expresses a comparative understanding of history, in which the value of examining past events accrues as insight into the present. While it is a familiar frame of mind (and a core function of humanist education), what I wish to suggest is that this relational historicism marks a sharp comparativist turn in nineteenth-century historiography, and constitutes a defining feature of *A Tale of Two Cities*. The profuse mirroring of character and incident in the novel (what Richard Maxwell terms “the novel’s relentless emphasis on doubles and doubling” (218, n. 1)) reflects a fundamental commitment to analogy—a commitment to the insight that, beneath the apparent distinction of the “best” and the “worst,” between Dickens’s England and revolutionary France, runs a more nuanced network of similarities

and differences which can be traced for acute insights about each. The opening passages of the novel, in their coordination of diachronic and synchronic perspective, contrast and comparison, indicate the indebtedness of Dickens's historical consciousness to what Benedict Anderson describes as "comparative history."⁶² Whereas late seventeenth and eighteenth-century debates over the relative virtues of the "ancients" versus the "moderns" juxtaposed antiquity and modernity, by the nineteenth century, this comparativism had differentiated into a fine-tuned attempt to map the national, local, and folk histories of Europe, from Wilhelm Heinrich Riehl's *Natural History of the German People* (1851-69), to Charles Langlois's 1890 article on "The Comparative History of England and France during the Middle Ages" for the *English Historical Review*.⁶³ These comparative histories were committed to a renewed empiricism in historical study, taking up a comparative method which, as Langlois notes, "ha[d] done so much service in the natural sciences." As he suggests, this comparative approach was rooted in the analogical method central to contemporary scientific practice, particularly comparative anatomy, and featured a deeply historicist character.

The key point here is that comparative naturalism had a profound impact upon positivist historicism. In a mature example, John Stuart Mill had argued, in a discussion of the "reverse inductive, or historical method" within his *System of Logic* (1843), that historical inquiry must coordinate both contemporary and trans-historical comparison, citing Auguste Comte's distinction between "social statics" and "social dynamics." For Mill, as for Comte, the "Empirical Laws of Societies" which govern the development of states can only be recognized when the historian examines both the relationship between different social elements of the same period, and compares these patterns to the changes

in those societies over time, much as for Lamarck, the laws of biological development only emerge through extensive comparison.⁶⁴ From this perspective, the essentially comparative project set out for *A Tale of Two Cities* is calculated to illuminate a question of historical trajectory and distinction: by comparing France and England, past and present, it will work to determine the difference that will send one city down a revolutionary—and one down an evolutionary—path; a question which, if answered, aspires to tell the reader why contemporary England escaped its own Reign of Terror.

But this positivist component within *A Tale of Two Cities* should be set against the widely-recognized romantic tendencies of the novelist's historical understanding, in particular, the influence of Thomas Carlyle, and his *History of the French Revolution*, as both model and material. In contrast to comparativism, which traces pattern without securing meaning, Carlyle's romantic history discloses a past rich with humanizing meaning. It is in light of Carlyle's influence that David Marcus sees the Dickens of *A Tale of Two Cities* as "heir to the Romantic era's tendency to internalize historical phenomena."⁶⁵ In this reading, Carlyle looms large in Dickens's imagination, because his historical philosophy (as A. Dwight Culler puts it) "was based on the familiar analogy between the life of the world and the life of the individual."⁶⁶ This analogy is "familiar" because it stood as a central trope of many eighteenth and nineteenth century models of "Universal" or "Philosophical" history, evident in works from Adam Ferguson's 1793 *Essay on the History of Civil Society* to Frederick Temple's "The education of the world" from the controversial *Essays and Reviews* of 1860, published short months after *A Tale of Two Cities* finished its serial run.⁶⁷ (Dickens's salute to Carlyle's "philosophy" indicates he, too, placed the sage in this tradition.) The comparison of the individual

lifespan to the growth, maturity, and decay of societies provided, within historical fiction, the grounds for the formal coordination of the national tale with individual narrative.⁶⁸

Within the framework of the analogical reading strategies promoted by Dickens's comparativist project, such formal tropes function to organize ramified networks of similarity into comprehensible narrative units. To take an example in the triangulation established between Lucy Manette, Madame Defarge, and La Vengeance, Earle Davis has noted that "La Vengeance" is a particularly Carlylean formulation, providing an allegorical alter-ego to Madame Defarge on par with Carlyle's own translation of Demoiselle Théroigne into "Sibyl" Théroigne.⁶⁹ For both Carlyle's *History* and Dickens's *Tale*, such abstraction performs a formal transformation of individual character into Romantic figure. By contrast, although Madame Defarge is herself contrasted with the angelic Lucy Manette, their differences are carefully attributed to radically different experiences—differences that emerge through narrative exposition and implied comparison – in other words, through serial analogy. This is particularly true of Madame Defarge, who insists that it is the death of her family at the hands of the Evremondes which has converted her, by a kind of Empirical Law of Injustices, into an implacable agent of vengeance. Hence Madame Defarge serves as the key example of the novel's empiricist assertion: "Crush humanity out of shape once more, under similar hammers, ... it will twist itself into the same tortured forms" (385). The radically different characterizations of Madame Defarge and La Vengeance express a basic formal struggle to provide strategies of organization that will make the comparativist understanding of the French Revolution intelligible.⁷⁰

The use of figurative association, particularly for characterization, is a defining element of Dickensian style. The first Parisian chapter from *A Tale of Two Cities* can serve as example. The narrator describes the physical space of Parisian St. Antoine, and the “rough, irregular stones of the street, pointing every way, and designed, one might have thought, expressly to lame all living creatures” (31), over which inhabitants stumble while mopping up spilt wine; and this description explores, metaphorically, the occlusion between an oppressive physical environment and a volcanic popular culture soon to erupt in revolution.⁷¹ In the broader sense of the organic coherence of French culture, and in the more specific metaphor of the popular spirit twisted by artificial social structures, the passage suggests the influence of revolutionary historian Jules Michelet’s 1846 vision of the French people as “that sap which, badly directed, and tormented, comes to hurt itself.”⁷² Much as Buzard explores Dickens’s “metaphorization” of culture, Hayden White, in his rhetorical analysis of Michelet’s historical method, discusses how such passages represent “a working out of the implications of the mode of Metaphor, conceived as a way of permitting the historian actually to identify with, resurrect, and relive the life of the past.”⁷³ In such figurative reading, whether “the people” are translated metaphorically into wine or into sap, the formal substitution of a single metaphor for the collection of historical particulars it describes allows “The Metaphorical apprehension of the essential *sameness* of things.”⁷⁴ As I will discuss in the fifth chapter, Charles Darwin employs a similar strategy of metaphorical consolidation in assembling the broad comparative network of observation he marshals in *The Origin of Species*. Such consolidation into metaphor is broadly evident in *A Tale of Two Cities*, for instance, in the extensive meditations upon liberation, disclosure, and retelling as resurrection.

These are what Catherine Gallagher terms the “internal analogues for the novel ... [that] are additionally alternatives to it, for they accomplish many of the novel’s functions.”⁷⁵ The specific historicist conceit of novelistic “resurrection,” too, probably owes much to Michelet, who famously denominated his method, in contrast to Theirry and Guizot, “résurrection.”⁷⁶ Insofar as Dickens originally intended to name the entire novel (rather than merely the first book) “Recalled to Life,”⁷⁷ it is tempting to suggest that Dickens intended *A Tale*, in part, as a response to Michelet’s revenant theory of historical method.⁷⁸

But as the novel makes clear, the events of the revolution remain stubbornly resistant to such figurative strategies, and my central contention is that this resistance is opened up by what we might term the serial analogues *within* the novel—the pairs of juxtaposed elements (whether characters, events, or locales) which do not “represent” one another. This resistance is most evident in the representational comparison established when the novel attempts to map, *mutatis mutandi*, the figurative strategies of the English historical novel onto the French revolutionary context, particularly, the incorporation of history into folklore. The narrator notes the collapse of such folk translation when he relates how, during the Terror, tumbrels of the condemned “rolled to a death which had become so common and material, that no sorrowful story of a haunting Spirit ever arose among the people out of all the working of the Guillotine” (326). Such ghost stories are impossible, argues the narrator, because there is something in the brute “material” of events that frustrates aestheticization as folklore. The guillotine is essentially resistant to the “picturesque” revolutionary history with which Dickens proposed to supplement Carlyle’s “philosophy.”

In Scott's novels, the movement into and out of history is marked by the translation of folklore into history and back again. Hence naïve and self-conscious historical representation present the dialectical components of historical development. In the French portions of *A Tale of Two Cities*, however, this dynamic is completely upended, as figuration serves to disclose, not a past referent, but the impossibility of progress. As the novel reminds us at its opening: "It is likely enough that in the rough outhouses of some tillers of the heavy lands ... there were sheltered from the weather that very day, rude carts, ... which the Farmer, Death, had already set apart to be his tumbrels of the Revolution" (6). In such passages, movement through signifier to referent, marks movement into the future, not the past, and the retrospective logic of the English historical novel is overturned.

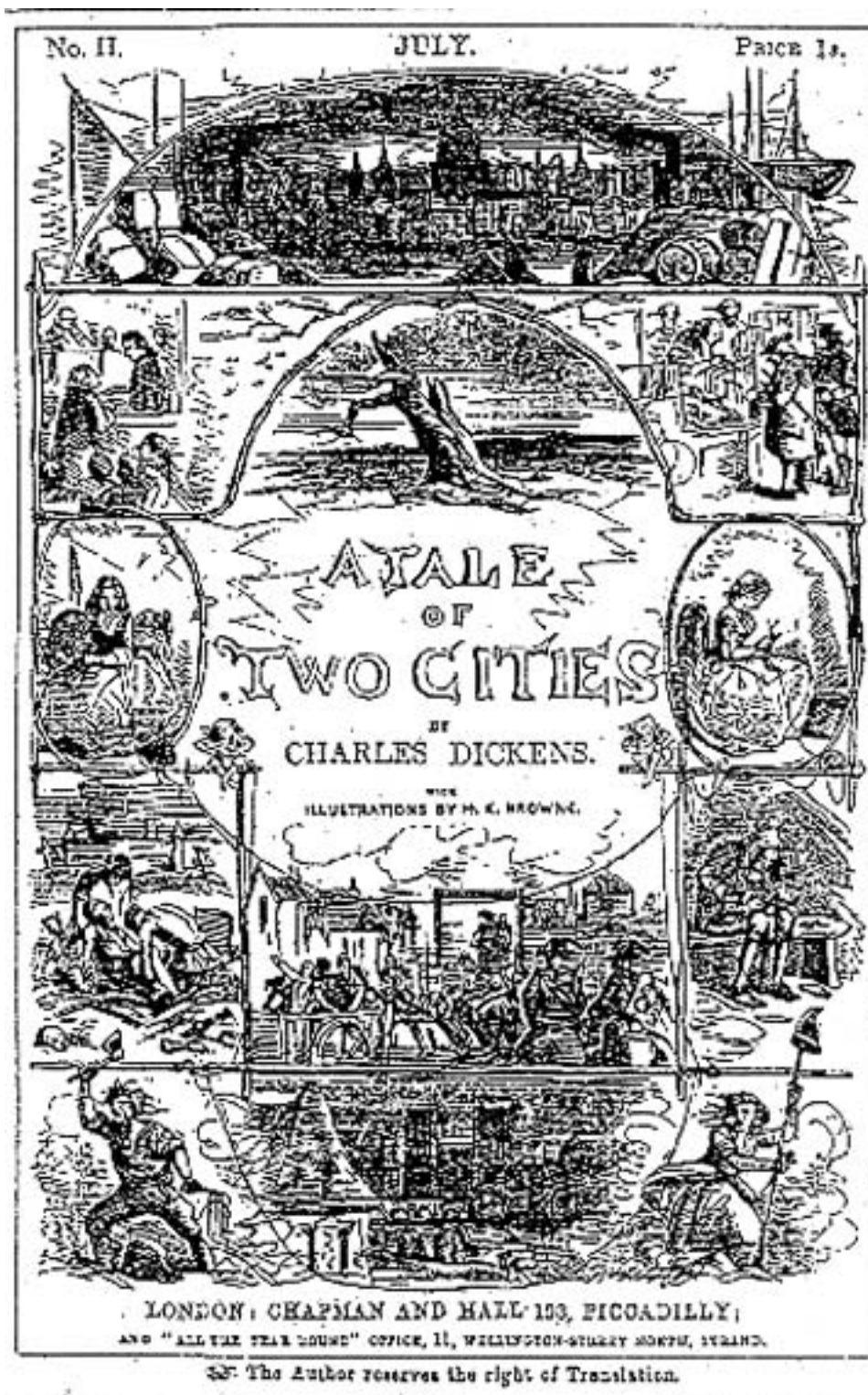
Such passages illustrate the failure of the formal analogy between the representations of historical fiction and revolutionary narrative. The example which proves the rule is Dr. Manette's retelling, to little Lucie, of Charles Darnay's first rescue, an event which he takes as the completion of his convalescence. Manette presents his story retrospectively as allegory, telling little Lucie of "a great and powerful Fairy who had opened a prison-wall and let out a captive who had once done the Fairy a service" (301). Within the logic of the historical novel, Dr. Manette's story is a signature move toward historical synthesis, a gesture out of the violent past and into the present. Manette reads the revolution as an example of Scott's synthetic and melioristic history, in which the violent past is recuperated domestically through romance—an aestheticization of history which couples nicely with the marriage plot it secures for his daughter. Too nicely, as it turns out, when his story is interrupted by the return of a deputation to arrest

Darnay, unraveling the doctor's sanity along with his tale. In contrast with English progressive history, France's continuing legacy of revolutionary violence and Republican fervor would be better characterized, as J. M. Rignall puts it, as a "catastrophic continuum."⁷⁹ Note that, in Carton's imagined final prophecy, the return of Carton Darnay with his own son to the Place de la Révolution (retitled with some irony "La Place de la Concorde" by Napoleon⁸⁰) occurs sometime in the late 1820's or 1830's: a period which witnessed the fall of Charles X and the rise of the tumultuous July monarchy, and laid the groundwork for the revolution of 1848.⁸¹ The failure of revolutionary material to conform to the figurative conventions of English historical fiction illustrates how such representational comparison can be used to articulate an historical distinction between French and English history.

Beyond such cultural differentiation, the other key aspect to the novel's serial comparisons is that they extrapolate from specific cases to general; analogies drawn between characters of the novel help to transform narrative into social analysis.⁸² This extrapolation to the general case is apparent in such nearly xeroxed doubles as Jacques one, two, and three (in addition to the functional ambiguity provided by such code-naming), as well as the undifferentiated pair of Evremonde brothers; all examples of the widely-cited doubling of character and incident featured in *A Tale*.⁸³ In this manner, the internal analogies between plots, characters, and social spaces in *A Tale of Two Cities* work to secure basic features of an historical methodology, answering to the demand that the novel help its readers to "understand[] that terrible time." The narrative strategies of serial comparison insist upon a broad national commonality that is reminiscent of Benedict Anderson's formal contention that novels project a synchronic space for social

communion in the “homogenous, empty time” of simultaneous events; to put this differently, anaphora serves as the varied evidence of the (at least potentially) organically interconnected “culture” James Buzard associates with autoethnographic fiction.⁸⁴

By far one of the most effective strategies of collection and formal organization deployed in *A Tale of Two Cities* appears in H. K. Browne’s illustrations, particularly the woodblock illustration for the monthly wrapper. And it is within this woodblock that the function of analogy is perhaps most clearly realized, illustrations which indicate the Victorian reader’s fluency in visual contrasts, and the function of a specular vocabulary of juxtaposition to educe reading strategies responsive to the conditions of serial publication. To note only the most explicit comparisons featured in the monthly wrapper (Figure 3.5, following page), the image reflects, in bilateral symmetry: Lucy Mannette and Madame Defarge; a London grave and Dr. Manette’s cell; a sans-culotte and a tricoteuse; the English court of Old Bailey and Tellson’s bank; while vertically, it expresses the conceit of *A Tale*’s “Two Cities” by mapping an image of St. Paul onto Notre Dame. At the same time, these reflections express different formal strategies of organization, illustrating respectively: here the discourse of interment and exhumation, there marking the feminine avatars of “Light over against Darkness”; here noting the complicity of Tellson’s in providing Old Bailey with human grist, there expressing the novel’s broad anxiety over equal male and female complicity in Revolutionary violence. Crucially, the master strategy of these formal comparisons is evidently a formalism to the Christian cosmos, associating the revolutionary violence and the Bastille with Hell below, working up through the transitional states of interment and resurrection, ascending

Figure 3.5 – Monthly wrapper for *A Tale of Two Cities*⁸⁵

through the earthly domestic sphere to reach the salvational offices of the Anglican church.

As a wrapper, such comparisons conditioned the public's encounter with each month's collection, coordinating a contrastive approach that lies at the center of the novel's representational strategy. These wrappers presented through visual analogies the relationship between serial comparison and the formal strategies that provide an interpretive framework. Indeed, as in the hustings illustrated in *Pickwick*, this framework is literalized in the structural members of the wrapper illustration, which serve to organize the serial and formal relationships depicted within. In imagining the reader's encounter with these wrappers once a month, it is hard not to recognize how they function as a primer in analogical reading strategies, much as the prologue to modern serial television dramas serve to refresh the narrative context of the episode. It's as if Phiz were writing, "Previously, in *A Tale of Two Cities*, ..." except crucially, the emphasis is upon structural interpretation, not narrative. Though these visual parallels extend in particular illustrations through serial time – organizing part-specific plates like "The Stoppage at the Fountain" of number 3, "The Spy's Funeral" of number 4, and "The Sea Rises" of number 5 – they often revert to basic structures of comparison (the doubling of Darnay and Evremond, the juxtaposition of English and French mobs) encouraging the reader to think analogically about the novel's content, and its comparative network. In thinking of the novel's movement from the weekly periodical *All the Year Round*, to monthly part serial, to the multivolume edition, it is clear that these illustrations served a mediatory role as the chapters were reorganized into ever greater units, reminding the reader of strategies of larger perspective and remove, an echo

of the scalar transition from particular to general that Dickens borrowed from the historical novel and reworked into social perspective.⁸⁶

It is for this reason that I want to emphasize the importance of analogical interpretation in “making sense” of the serial format. In speculating on the strategies that tied serial fiction together, various critics have emphasize the importance of narrative.⁸⁷ But the argument that narrative is a key formal feature for organizing the relationships between serial editions is pressured by the historical fact that the advent of serial publication marks the wild proliferation in the complexity and simultaneity of plot in the Victorian novel. Rather, I am arguing that the turn to serial publication, in both part issues and periodical format, cultivated strategies of comparative reading which, in turn, made such narrative proliferation possible.

Dickens, rather than working to refine the role that analogy played in analysis, deployed analogy practically to solve challenges specific to social and historical representation in serial form. As described earlier, such comparisons served a dual purpose. They help to “capture” the past through persuasive presentation of historical synchronicity and commonality. At the same time they served to help distinguish past from present, articulating, for instance, cultural distinctions that divide French and English history. Take, as a final example, the various juxtapositions of Sydney Carton and Charles Darnay. In their first encounter at Darnay’s trial—Carton revealing, through their physical resemblance, that he is an equally plausible candidate for Darnay’s crimes—the novel emphasizes their serial, interchangeable status. This parallelism is mapped into their uncanny interview, as Carton drags Darnay to dinner, and goads him into offering a toast, “Miss Mannette, then!,” which Carton repeats exactly (87). The difference in

Carton's own "Miss Mannette, then!" is not marked typographically; the comparison demands inference, at the same time that the distinction remains indeterminate. From Carton's perspective, the relationship is interpretive and determinate – after Darnay leaves, Carton reflects upon his own ill humor, and assigns it to the negative reflection Darnay's resemblance casts back upon him: "he shows you what you have fallen away from and what you might have been! ... Come on, and have it out in plain words! You hate the fellow!" (89). For Carton, Darnay presents a formal model for self-perspective. But for Darnay, there are no reciprocal reflections. The analogy to Darnay's own regrets, particularly, in shirking his own hereditary responsibilities, is virtual; it is left for the reader to square the relationship as not merely a mirroring, but a more complex pattern of similarity within difference. This larger remove corresponds to a shift from individual to collective interpretation – from particular to general case – that address the basic demand that the novel respond to the larger currents of social history. (Lest we miss such larger historical implications, Dickens pivots from Carton drinking himself under the table to the larger historical tableaux: "Those were drinking days, and most men drank hard" (89).)

While the initial encounter between Carton and Darnay illustrates the complex relationship comparison sets into play, it is also this relationship Dickens employs to bring coherence to the network of contending comparative relationships at the close of the novel. This is famously achieved through the direct substitution of Sidney Carton for Charles Darnay. If, in Carton's mind, it was Darnay who originally stood for his own failed potential, it is now Carton who will literally stand for Darnay. At the most basic level, this reflects the conversion of the serial relationship between Darnay and Carton

into a formal relationship – a point made clear in the framing effect which the novel insists Carton will play in the later lives of the Evremondes.

More particularly, the resolution of the novel provides Dickens's most direct and enigmatic engagement with Christian hermeneutics, with its literalization of typological language. In saving Darnay, and comforting a seamstress at the scaffold, Carton's death maps closely the essential narrative events of the Lazarus episode described in John 11, from which is drawn the passage he recites in bolstering his resolve ("I am the resurrection and the light"), while conflating them typologically with his own Christian sacrifice.⁸⁸ On this model, Carton's life serves as a common typological referent for the maddening violence of the revolution (as Carton puts it, "I take them into mine" (107)) so that widespread violence can be placed in the context of a common story of sacrifice for the future—a collectively fortunate fall. Of course, this is one of the oldest of Christian hermeneutic strategies. Owen's theory of homology affords a parallel example of how, through the adoption of formal models, distinct comparative understandings could be reworked into solutions to ongoing interpretive challenges. And just as Owen would insist upon the "arbitrary," non-historical nature of his solution, the novel activates this conventional religious interpretive model without seeming to endorse all that this religious understanding would imply. As Janet Larson puts it, typological figures in Dickens's novels "represent only religious and moral ideals severed from the fuller implications of the typologist's sacred text."⁸⁹ Carton's essential skepticism – his credentialing as jaded cosmopolitan – serves as *bona fides* for the social, rather than religious efficacy of his sacrifice: no dreaming mystic he. In this manner, Carton's sacrifice reflects a particular mid-century synthesis of Unitarian interpretation and

Straussian mythology – one that endorses the social efficacy of religious myth while remaining agnostic about the supernatural.

By taking Darnay's place, Carton closes the gap between serial comparison and formal analogy which their relationship illustrates; from symmetric comparison, the novel finds its way, through typology, back to the substitutive logic of metaphor and allegory. It is from this perspective that the strangely subjunctive condition of Carton's final vision makes the most sense, much as "supposing" Esther's miraculous recuperation casts it into a qualified subjunctive mood. By focusing on the crucial interpretive function played by Christian hermeneutic strategies, it is possible to recapture an understanding of Dickensian hermeneutics that belies the sacred/secular divide. The inherent tension that is illustrated by Dickens' careful conditioning of this resolution speaks to what Charles Taylor has characterized as the "cross pressures" of secularization, at the same time that its coherence as a formal response to serial comparativism helps to recapture the satisfactions of *A Tale of Two Cities*' resolution for contemporary readership – a satisfaction that challenges the modern reader.

As John Kucich has suggested, *A Tale* "is not a revolutionary novel ... but it does dramatize a pressing, fundamental need for liberating change of the most extreme kind."⁹⁰ It is my contention that this cultural diagnosis of the novel should be complemented by the novel's own methodological diagnosis: the pressing need for a historicism that is at once comparative and meaningful. From another perspective, the tension between coherence and comparativism suggests the candid nature of the novel's title, in that it cannot specify what would make its objects coherent. *A Tale of Two Cities* remains an open, eternally revisable question: can there really *be*, in a more than

circumstantial sense, a tale of these two towns? It is notable that this challenge remains evident in the title's many imitators. Perhaps no title has been so imitated as *A Tale of Two Cities*. From the recent South Korean horror flick, "A Tale of Two Sisters," to a host of papers ("A Tale of Two Codices/Medieval Studies/Charlies" -- and perhaps most appropriately, "A Tale of Two Jaques"), the spinoffs of Dickens's title are legion.⁹¹ The formula shared by these examples carries enough syntactic resonance to make it instantly chime with the original and is simple enough to embrace even the most tenuous comparisons. The title's diverse progeny indicate both the lasting currency of Dickens's original formulation, and its stark articulation of a denuded dialectic. The comparative historicism it alludes to remains a vital feature of modern historical enquiry, as demonstrated in a recent collection of sociological essays that deal with comparative historical analysis.⁹²

As the following chapter will demonstrate for George Eliot's fiction, the prevalence of comparative enquiry in historical and social understanding precipitated a deep novelistic investment in the use of analogical interpretive strategies to illuminate the interpersonal relationships and the psychology of knowledge formation. Eliot used the rich engagement in social and historical particularity developed by Dickens and Scott to explore how the relationship between interiority and the larger world is constituted. In particular, the friction between the empirical extension of serial comparison and the interpretive strategies that would formalize those systems, explored for Dickens as the incoherence of historical pressure and social cohesion, becomes, for Eliot, a model for how comparison, and in particular, the "disanalogies" offered by the behavior of ulterior subjects, could constitute productive encounters with a true epistemology of sympathy.

From the question of “connexion” writ large upon the social canvas, we turn to challenge of the figure worked into the margin of the page – the perspective of the “hidden life.”

4. Chapter 4

Realism, Falsification, and the Production of Sympathetic Knowledge

in *The Mill on the Floss* and *Middlemarch*

“I am like you.” So might begin any modern historical novel, that is, any novel which seeks to describe the modern condition as both the multiplicity of individual perspectives and their common implication within historical process. From Mr. Tulliver’s first line of dialogue from *The Mill on the Floss*, “What I want, you know,” to Lady Castlewood’s opening assertion about the titular Henry Esmond, “This is our kinsman,” the Victorian novel is driven by the moral imperative that we recognize our kinship with its historicized, fictional figures.

“What I want, you know,” Mr. Tulliver begins, and it’s clear he pays his throwaway “you know” little mind. But *we*, as careful readers, mind his words. This rural milliner, already thirty years removed at the time of Eliot’s writing – a hundred fifty now – with his ill-boding speculations upon education and the law, and his deep investment in local custom, and local prejudice – we mind that despite the distances, geographical, cultural, historical, we recognize what ferments in Tulliver’s mind. More particularly, as Eliot’s novels repeatedly demonstrate, a key feature of that common knowledge is the universality of desire – the sense of *want*. And while it is true that erotic desire serves as a central strategy for configuring this want in Eliot’s fiction, it is also clear that “want” serves as a much broader epistemic category. From Tulliver’s ambitions for Tom’s upwardly-mobile future in *The Mill of the Floss*, to Dorothea Brooks’ desire for a larger social impact in *Middlemarch*, to Mordecai’s passionate

Zionism in *Daniel Deronda*, Eliot's characters are consistently articulated through their desires, and it is through those desires that we come to know and understand them as readers. David Kurnick has recently argued that erotic desire functions within *Middlemarch* as a key formal component of sympathy and broad social perspective that has long been recognized as central object of Eliot's works.¹ As this chapter will argue, it is through want itself, more broadly construed, that Eliot's characters come to understand each other, and through which her readers come to know her world.

On first glance, an emphasis upon want would seem to fly in the face of the ethic of objectivity which George Levine and Amanda Anderson have forcefully argued lies at the center of the representational strategies of Victorian realism, particularly in Eliot's novels, insofar as objectivity is generally configured as a discipline of remove from the particularizing, distortional effects of subjectivity and individual perspective.² Yet, as these studies also illustrate, Eliot's valuation of affective investment as a site of epistemological negotiation between particular and universal interests was deeply invested in an analysis of how the methodological challenges of objectivity could be brought to bear upon social analysis and interpersonal understanding. As Levine has described the general imbrication of social analysis, objectivity, and ethics in the period, "All its social preoccupations, all its tensions between the personal and private, all its concern about the possibility of recuperation and resurrection, are connected to questions of method, knowledge, objectivity, truth, and, at the same time, questions of ethics and religion."³ In particular, Eliot's engagement with the German "Higher Criticism," and her interest in contemporary experiments in social ethnography, attuned her to the historical and social mediation Scott's translational fiction offered, as well as the

comparative ethnographic imagination that features in Dickens's works. These conceptual and representational encounters contributed to a novelistic imagination that was broadly and explicitly comparative, and took the coordination of similarity and difference not only as foundational for linguistic and historical interpretation, but as central to the possibilities of interpersonal understanding. Eliot famously avowed that "the greatest benefit we owe to the artist, whether painter, poet, or novelist, is the extension of our sympathies,"⁴ and these sympathies are modeled in those novels through the analogy of want. This perspective situates Eliot's model of sympathy within the larger transformation in comparative practice which, I have argued, is a broad feature of nineteenth century representation.

It is widely recognized that Eliot's engagement with German philology, ethnography, and biblical criticism is a key feature of her intellectual development. In her recent study of the hermeneutic tradition in the Victorian period, Suzy Anger has argued that Eliot's translations of David Strauss's *Das Leben Jesu* (as *The Life of Jesus, Critically Examined* in 1846) and Ludwig Feuerbach's *Das Wesen de Christentums* (as *The Essence of Christianity* in 1854) shaped the central role of interpretation in her novels. And, as Fionnuala Dillane has recently reviewed, Eliot's essay on Wilhelm Heinrich Riehl's *Die Naturgeschichte des Volkes als Grundlage einer Deutschen Social-Politik* has long played a central role in studies of Eliot's formation as an author.⁵ This chapter engages these studies by gauging the impact of new theories of translational and social mediation upon German historiography, and in particular, their incorporation of comparative strategies that were displaced from the long philosophical and hermeneutic tradition of analogy.

The previous three chapters have served to provide a deep historical context for British engagements with the German biblical criticism, both as a tradition from which to draw displaced strategies of analogical comparison, constituted in new theories of translation and comparative historiography, and as a formal model for new representational modes to articulate modern social relations through differentiation and correspondence. In the process, the structural translation of analogy from earlier theological and philosophical traditions motivated an historical break, so that “analogy” came to stand for an outmoded, speculative practice. A variety of British naturalists and writers developed new interpretive practices that drew upon these comparative strategies, and, in some cases, set them in contrast to “analogy” itself. To take an example, Matthew Arnold, in *Literature and Dogma* (1873), describes the innovation of the German “higher criticism” as a transformation from the closed system of reasoning by “analogy” to an open engagement through “comparative observation”:

It is idle to talk of the theological instinct, the analogy of faith, as if by the mere occupation with a limited subject-matter one could reach the truth about it. It is as if one imagined by the mere study of Greek we could reach the truth about the origin of Greek words, and dogmatise about them; and could appeal to our supposed possession, through our labours, of the philological instinct, the analogy of language, to make our dogmatism go down. In general such an instinct, whether theological or philological, will mean merely, that, having accustomed ourselves to look at things through a glass of a certain colour, we see them always of that colour. What the science of Bible-criticism, like all other science, needs, is a very wide experience from comparative observation in many directions, and a very slowly acquired habit of mind.⁶

The simile of visual distortion calls to mind *Middlemarch*’s famous comparison between the distortions of individual perspective and the scratches of a pier-glass, which, next to a candle, “seem to arrange themselves in a fine series of concentric circles around that little sun.”⁷ Arnold makes explicit what Eliot’s “parable” only implies: it is “wide experience” combined with “comparative observation” that both makes those distortions evident *and*

provides a method to address them. The larger interest of Arnold's passage is in the opposition of comparative method to *both* the "analogy of faith" *and* the "analogy of language." Both the analogies of faith and of language had once served as discourses of comparison that provided strategies for exploring the patterns common between distinct domains of knowledge. In the analogy of faith, comparison negotiated the distinctions between conflicting interpretations among specific passages as well as larger inconsistencies between scriptural accounts, especially contradictions in the teachings of the Old and New Testaments. And in the analogy of language, the patterns of declension were worked up, in the early modern period, into larger strategies of pattern analysis that helped mediate between the grammatical structures of distinct languages. In the latter case, the analogical comparison of language advocated, for instance, by Lord Monboddo, laid the groundwork for comparative philology, and new historical perspectives upon language that traced patterns of similarity and difference in order to evaluate the historical kinship between language families. Insofar as German biblical criticism also drew explicitly from earlier models of biblical hermeneutics within which theories of analogy played a central role, the comparative "science of Bible-criticism" that Arnold advocates in the passage is deeply indebted to those same analogical traditions. But for Arnold, much as in the example from *Shirley* discussed in my introduction, "analogy" has come to stand for an outmoded theological practice; an approach that no longer draws connections outside of tightly constrained domains of experience and authority, closely associated with the solipsism of Christian "dogma." In this way, Arnold's conversion of the rich and heterogenous mix of practices of "analogy" into a hegemonic entity reflects John Guillory's diagnosis of the role of "Postmodernism" in the Sokal hoax; they are

both “reduc[ed into] a series of quotations and paraphrases representing a spuriously coherent set of positions.”⁸ This radical reduction is only possible from some practical remove – whether the distance between science studies and particle physics, or between enlightenment hermeneutics and late nineteenth-century social criticism.

I. Eliot and Language Theory

But if we turn to the writings of George Eliot, whose translations of Strauss and Feuerbach introduced Arnold, along with the majority of British intellectuals, to the recent developments in German biblical scholarship and philology, it is clear that Eliot retains a sense of analogy as an active strategy of comparative inquiry and representation. Hence, in her 1854 review on Ruskin’s Edinburgh lectures, Eliot argues that

The growth of conventionalism in Art is not difficult to comprehend. To a certain degree, *all* artistic interpretation of Nature is conventional. The aim of Art, in depicting any natural object, is to produce in the mind analogous emotions to those produced by the object itself; but as with all our skill and care we cannot imitate it exactly, this aim is not attained by *transcribing*, but by *translating* it into the language of Art.⁹

Eliot wrote the review as she was working on her 1854 translation of Feuerbach, and it illustrates her close engagement with the functional role Feuerbach assigns convention in the historical development of religious doctrine. The passage also suggests Eliot’s awareness of the theories of translation developed by Feuerbach’s teacher, Friedrich Schleiermacher. As discussed in my second chapter, Schleiermacher’s treatise on translation contrasts strict linguistic transcription to “imitation” which “submits to the irrationality of languages: it grants that it is impossible to render a copy of a verbal artifact into another language, let alone a copy that would correspond precisely to the

original in all its parts. ...The identity of the original is abandoned in favor of analogy of impression.”¹⁰ Such passages demonstrate how Eliot, through her engagement with the translational theories of German philology, recast translation as a model for analogical representation in fiction, in much the same way that Scott had theorized, in the “Dedicatory Epistle” to *Ivanhoe*, “that the subject [of historical fiction] should be, as it were, translated into the manners, as well as the language, of the age we live in.”¹¹ Eliot appreciated Scott’s use of dialect translation as a practice of historical mediation; in her essay on Riehl, Eliot references the scene from *The Antiquary*, discussed in my second chapter, in which Elspeth shifts radically between historicized ballad dialect and modern speech, and she proffers the episode as a chief example of that novelist’s “mode of amplifying experience and extending our contact with our fellow-men beyond the bounds of our personal lot.”¹²

In her extensive survey of Eliot’s engagement with German philology, Suzy Anger has indicated the significance of translation in Eliot’s work, and describes a series of Eliot’s meditations on translation and language as evidence of Eliot’s awareness of the general complexity of language as a medium.¹³ The importance of recognizing the significance of translation in Eliot’s historical thinking can be demonstrated with respect to Raymond Williams’ characterization of *The Mill on the Floss*: “The knowable community is this common life which [Eliot] is pleased to record with a certain emphasis; but the known community is something else again – an uneasy contact, in language, with another interest and another sensibility.”¹⁴ Though he recognizes that Eliot’s representation of that community is practiced “in language,” he overlooks the philological understanding implied by that engagement. For Williams, the distinction

between Eliot's ambition to capture the "knowable community" of English working life, in contrast to her use of dialect and the intrusion of "parts of her own consciousness" into character as mediatory strategies, diagnoses the failure of Eliot's representational aspirations. The criticism implies the community could be "known" in Williams's sense, through language; and he suggests a distinction between what *could be* and what *is* achieved in Eliot's novels that reflects the conceit of the "knowable" versus "known" community. Williams continues:

Just as she finds it difficult to individuate working people – falling back on a choral mode, a generalizing description, or an endowment with her own awkwardly *translated* consciousness – so she finds it difficult to conceive whole actions which spring from the substance of these lives and which *can be* worked through in relation to their interests.¹⁵ (Emphasis added)

Williams's critique indicates confidence in a putatively non-distancing language through which all "can be" rendered faithfully – a discursive totality. At the same time, his dismissal of what he here generalizes as the "choral mode" but elsewhere recognizes as an attempt at faithful dialect, marks the degree the opacity of translation on this reading – serving an exclusively figurative function in the description of free indirect discourse as translation of "consciousness."

But it was precisely through engagement with the negotiations inherent in translational practice that Eliot, like Scott, developed a rich understanding of the multiplicity of perspective, and the necessarily partial nature of interpretation and the mediation of distinct social and historical positions. Within Eliot's critical digressions upon the particularity of individual perspective runs an undercurrent of language theory that recognizes the necessary mediation of human communication. In her essay on Riehl's *Natural History*, Eliot compares history to language and notes that

the language of cultivated nations is in anything but a rational state; the great sections of the civilized world are only approximately intelligible to each other, and even that only at the cost of long study; one word stands for many things, and many words for one thing; the subtle shades of meaning, and still subtler echoes of association, make language an instrument which scarcely anything short of genius can wield with definiteness and certainty.¹⁶

Eliot criticizes language's ambiguity and the challenge of basic communication in terms that reflect Schleiermacher's observation, in his essay on translation, that "The dialects spoken by different tribes belonging to the same nation and the different stages of the same language or dialect in different centuries are different languages in the strict sense of the word, and they often require a complete translation."¹⁷ But instead of emphasizing the negative impact of language's imprecision, Eliot argues for the fundamental productivity of language's "subtle shades of meaning, and still subtler echoes of association" as the nexus of the complexity of cultural history, social engagement, and imagination:

Suppose, then, that the effect which has been again and again made to construct a universal language on a rational basis has at length succeeded, and that you have a language which has no uncertainty, no whims of idiom, no cumbrous forms, no fitful simmer of many-hued significance, no hoary archaisms 'familiar with forgotten years' – a patent deodorized and non-resonant language, which effects language as perfectly and rapidly as algebraic signs. Your language may be a perfect medium of expression to science, but will never express *life*, which is a great deal more than science. With the anomalies and inconveniences of historical language you will have parted with its music and its passions, and its vital qualities as an expression of individual character And there is an analogous relation between the moral tendencies of men and the social conditions they have inherited.¹⁸

The passage is strongly performative; its occasionally bombastic flourishes emphasize the contrast between the formal language of mathematics and the musical, passionate qualities of "historical languages." Anderson takes Eliot's review as a foundational example of the discourse of detachment in nineteenth-century writing. Eliot's emphasis here upon the virtues of our common implication in historical language serves as a key

qualifying move *vis a vis* distance – what Anderson terms “both subtlety and ambiguity when considering the purpose and consequences of cultivated distance.”¹⁹ More particularly, Eliot’s essay injects a substantive historical understanding of language’s evolution. This sense of language’s past includes the historiographic gesture to universal language projects like John Wilkins’s *Essay Toward a Real Character, and a Philosophical Language* (1668), discussed in my first chapter, as well as a recognition of language’s deeply sedimentary nature as a repository of socio-historical tradition. All this, in an attempt to characterize what Eliot describes as the “conception of incarnate history” that serves as “the fundamental idea of Riehl’s books.”²⁰

But one notable feature of “Riehl’s books” is that they are *not* vested in an examination of “historical language.” Instead, Riehl represents himself as a natural scientist, examining the particularities of culture and locale in a manner explicitly “analogous” to the naturalist in the field – not the philologist.²¹ For Riehl, language is a largely unmarked medium through which he recuperates a catalogue of local myth and tradition in order to produce a composite analysis of the correspondence between social groups and their environment. Hence Germany emerges as a complex mix of climates, geographies, economies, and ethnic populations, uncovering extensive regional particularities which are themselves locked in an uneasy struggle with the homogenizing power of state regulation, trade and the centripetal force of a burgeoning national culture. Riehl’s account turns again and again from careful correlation of local circumstances and tradition to those exceptions which mark the conflictual nature of national culture. Hence his description of a Baden-based legend that the devil swipes one railroad passenger between each stop, or the agricultural Bavarian custom, related by Eliot in her review, of

hoisting a new-born son on a pole turned toward Lusatia, the home of the prosperous Wends.²² The assumption that geographical proximity is coordinated with cultural similarity is continuously upended in favor of a more complex relation of environmental and cultural engagement. But this complexity is *not* rendered linguistically for Riehl, whose terse German prose aspires to the strict fidelity to observation that Eliot mocks in her sketch of the “melancholy ‘language of the future.’”²³

The distinction is most clear in Riehl’s discussion of Scott’s historical fiction. Whereas the terms of Eliot’s praise make it clear that she appreciates the linguistic sophistication of the *Waverley* novels, for Riehl it is Scott’s ability to capture a “social core” that marks his power, adding that “Only now do we feel how ridiculous it was to so quickly name that German novel poet ‘the German Walter Scott,’ [Willibald Alexis] when we still had to discover, after the English, the consciousness of a firmly historically-arranged social life, in order to be able to know a German social novel with real kinship to the English.”²⁴ The irony of the passage is that, for all the ethnographic sophistication of his enquiry into the ethnic makeup of the German state, Riehl misses even the broadest distinctions that delineate the components of the British Union. Scott’s novels are predicated on the *lack* of a “social core,” in Riehl’s sense, insofar as his status as a lowland Scotsman – in distinction to “the English” – is central to the performance of his authorial identity as well as the deployment of dialect in his works, and, more generally, contributed to his complex understanding of the role of linguistic mediation in constructing social and historical difference. Riehl’s admiration for Scott’s quasi-objective power to accurately capture a description of the social essence hence runs counter to Eliot’s own celebration of Scott, in her review, for his ability to extend

sympathy to what is particular and distinct. To generalize, Eliot's review reads Riehl's history against the grain in key respects, and we are right to heed Dillane's warning that it "is an oblique piece of writing."²⁵ At the same time, it would be a step too far to accept her further assertion that, in Eliot's caution that she "must be understood not as quoting Riehl, but as interpreting and illustrating him,"²⁶ Eliot really intends to signal "her own distance from the theories under discussion and her disquietude in the face of Riehl's approach."²⁷

Instead, Eliot's emphasis upon the review's function as "interpreting and illustrating" Riehl seems of a piece with her emphasis upon "translation" rather than "transcription" in representation. From this view, the framing of Riehl's ethnographic project within questions of language history serves to translate those insights into linguistic coordinates that serve the representational strategies of historical fiction after Scott. To return to Mr. Tulliver's first line of dialogue, the shift to dialect in his speech signals an equally sharp turn to idiolect: "What I want, you know ... what I want is to give Tom a good eddication; an eddication as'll be a bread to him." Eliot's debt to Scott is distinct, as she uses precisely the coordination of normative and particular idiom that Scott deployed throughout his works – what I discussed in the second chapter as the necessary doubling of the translational mode. Tulliver's diction also marks a depth of signification which was alien to Scott's work, as this figurative description of education as "a bread" both serves to type the mind of a miller, and (unwittingly) introduces the language of Christian sacrament that features powerfully throughout the novel. Hence the translation of dialect also offers the opportunity to invest dialogue with larger social and historical significance – here through the accession of religious imagery. Barry

Qualls has written extensively about the function of Christian narratives in *The Mill on the Floss*, from explicit biblical associations to the extensive use of Bunyan's *Pilgrim's Progress* to articulate Maggie Tulliver's trials.²⁸ Eliot's engagement with Christianity as an intellectual tradition was deeply intertwined with her understanding of translation. Feuerbach described the task of his theology explicitly as a translation of Christianity into "plain speech," as Susan Hill has shown.²⁹ And it is worth reviewing Eliot's engagement with Strauss and Feuerbach in order to gauge their impact on her theory of language. Through her translation of those German historians of Christianity, Eliot shaped her own understanding of linguistic history, and of the role of language and dialect as a record of historical transformation.

II. Strauss on Myth and Metaphor

As discussed in the previous chapter, Eliot's translation of Strauss fomented within the liberal theology of the Rosehill Circle, in particular, the reform-promoting efforts of Joseph Parks and Charles Hennell to challenge the conservative authority of the Anglican church.³⁰ Strauss's emphasis upon the historical Jesus, with his extensive critique of Christian dogma and careful reconstruction of what he took as the originary significance of scriptural accounts, makes the case for a religion of the humanized, historical Christ. To this end, Strauss provides a substantive sketch of the history of Christian hermeneutics as a distortion of the historical Jesus, noting in particular the contributions of Philo and Origen, and their misguided advocacy of "the inferiority of the literal to the deeper signification" of accounts. Hence the task of the modern interpreter

is to take scriptural accounts as “the language of a former age to translate into that of our own day.”³¹ In the previous chapter, I described how Dickens, by way of his involvement with Unitarianism, deployed the hermeneutic principles of the Higher Criticism in order to develop formal strategies of Christian typology as a response to the interpretive demands of his social novels. But whereas, for Dickens, the revision of specific aspects of Christian dogma serves to recuperate Christianity itself as a unitary moral perspective, Eliot’s understanding of Christian religion suggests a more pluralistic worldview that explores the particular theological history of Christianity within a range of alternative religious and philosophical traditions. The sophisticated historical understanding that Eliot develops in such novels as *Romola* is indebted to the rich conceptualization of theological history that Strauss and the other German critics offered. Strauss argues, in line with Winckelmann, that historical interpretation is a creative imaginative act that responds to historical evidence and the particularities of the individual account in an effort to “transplant [the historian] in imagination upon the theatre of action, and strive the utmost to contemplate events by the light of the age in which they occurred” (1:19). This imaginative attempt to inhabit the world of the ancients is balanced by the historian’s critical perspective, which can “supply the deficiencies of the narration”; and it echoes the close coherence between sympathy and mediating judgment that characterizes much of Eliot’s moral project and narrative style.

Strauss’ insistence upon a comparison between Christian tradition and alternative religious texts – comparing it to both Islamic and Hindu traditions – provides the relief of perspective through which the essentially mythic and legendary aspects of Christianity can be recognized. “This view,” Strauss asserts, “is supported by the analogy of all

antiquity, political and religious, since the closest resemblance exists between many of the narrative of the Old and New Testament, and the mythi of profane antiquity” (1:32). The perception of myth allows the interpreter of Christian tradition to place scriptural accounts into an analogical critical framework that also engages the larger context of alternative religious beliefs. Noting that the concept of myth was originally developed by Christian scholars in order to discriminate between Christian and ulterior religious traditions, Strauss summarizes their theory of myth as “the representation of an event or of an idea in a form which is historical, but, at the same time characterized by the rich pictorial and imaginative mode of thought and expression of the primitive ages” (1:26). Hence, myth functions semiotically to encode some element of Christian theology – a higher meaning – within an account that is presented as an historical event. As Strauss explicitly notes, this makes interpretation “formal” in contrast to “genetic,” because it does not attempt to understand how “the wonderful event here related [could] have possibly taken place with all its details by natural means” but instead, “whence arose the narrative of the marvellous event? The former explains the natural possibility of the thing related (the substance of the narrative); the latter traces the origin of the existing record (the form of the narrative)” (1:31). By setting Christianity into serial comparison with other religious traditions, Strauss elucidates the formal properties of Christian myth. The “translation” of Christian accounts is a labor of formal history, and finds within the formal transformation of the “original” meaning into expression as a “marvelous” event, a theory of the effect of tradition on Christian thought, as well as a tool for reconstituting historical accounts. Hence myth serves a recuperative function for Strauss (and for Eliot) that belies the modern sense of myth as antiquated fiction, and stands in contrast to the

demystifying function that Talal Asad affords myth in the secularization of the Western tradition.³²

Strauss further contrasts myth with legend, which takes a truly historical account and transforms it into an account invested with an (often) unrelated “higher meaning.” As Strauss puts it, “*mythus* is a creation of a fact out of an idea: *legend* the seeing of an idea in a fact, or arising out of it” (1:42). The power of this opposition is made clear in Strauss’s discussion of their historical relation. As Strauss notes, myth can be converted into legend, legend into myth. In legend, for instance, the attempt to find larger meaning of an historical account necessarily leads to distortions which look increasingly “unhistorical”: “An idea so unhistorical will infallibly here and there distort facts transmitted by tradition, fill up blanks in the history, and subjoin new and significant features – and then the *mythus* reappears in the legend.” Moreover, Strauss adds, the process is reflexive:

It is the same with the *mythus*: propagated by tradition, it, in the process of transmission, loses its distinctive character and completeness, or becomes exaggerated in its details – as for example in the matter of numbers – and then the *mythus* comes under the influence of the legend [through the intrusion of historical events]. In such wise do these two formations, so essentially distinct in their origin, cross each other and mingle together. (1:42-3)

Hence “myth” and “legend” mark two interrelated moments in the historical process that coordinates recorded history and theological meaning. This understanding of meaning in process is remarkable in its anticipation of Claude Lévi-Strauss’s suggestion, within *The Savage Mind*, that totemic systems are produced over time through a “formal analogy” between cultural and natural structures that takes, for instance, the serial distinction between species as a formal representation of the serial distinction between social groups.³³ For Lévi-Strauss, the “formal analogy” is then absorbed into a system of social

distinction that prioritizes species/social group coordination, while the later incorporation of additional “formal analogies” to natural systems produces further transformations in the structural system that specifies group distinctions. Whereas for Strauss the bible critic, the key features are the coordination of narrative and meaning in the historical transformations of myth and legend, Lévi-Strauss, as a structural anthropologist, reads myth into the basic commitments of Saussurean structural linguistics, with an emphasis upon language as a system of “differences” and a basic, trans-historical contrast between paradigmatic and syntagmatic systems. Hence, as Michael McKeon notes, the opposed poles of this transformation – on the one hand, using natural species relationships to describe social relationships, on the other, taking distinct species characteristics as features of distinct social groups – can be read into Jakobson’s (somewhat shopworn) opposition between “metaphoric” and “metonymic” poles of language (later taken up by Lévi-Strauss himself in *The Naked Man*).³⁴ Northrop Frye also develops this structuralist account in his extended studies of the function of myth and displacement in Western literature, but describes the basic opposition in terms of a contrast between “analogy” and “identity,” in order to argue that the metaphorical logic of originary myths is displaced into allegories, similes, and (confusingly) analogies in later literature.³⁵ I understand Frye’s contrast between the original analogical logic of myth and the modern displacement of myths into analogies, as a distinction between formal analogy as a basic structure of thought and the application of analogy within realist narratives as a strategy of representation.

III. The Discourse of Realism

At issue is the contrast between a structuralist account of the relationship between representation and history, and an earlier hermeneutic account that emerged in the context of German philology, in particular, how these two related perspectives produce radically different interpretations of realism. Perhaps the sharpest example of the structural critique of formal realism is the association of realism with “metonymic” representation; an argument first advanced by Roman Jakobson and developed at length by David Lodge in *The Modes of Modern Writing* (1977). At its heart, this emphasis upon metonymy, in contrast with metaphor, is rooted in the tradition of structuralism, which insists upon a linguistic distinction between a paradigmatic axis of selection and a syntagmatic axis of combination. This foundational distinction was understood to play a determinative role in all aspects of language and communication. As Lodge himself notes, Jakobson’s insistence that selection and combination mapped onto an opposition between metaphorical and metonymical writing developed long before his famous article on “Two Aspects of Language and Two Types of Aphasic Disorders” (1971) – but it was in that paper that Jakobson made the claim that clinical evidence of these two poles of language function was provided by two different kinds of language disorder. Lodge concurs with Jakobson, arguing that, not only do these aphasias “provide persuasive support for Jakobson’s general theory of language,” but further, are of “direct relevance to the study of modern literature and its notorious ‘obscurity.’”³⁶ The claim that the opposition between metonymy and metaphor has empirical support seems to have contributed to the long afterlife of this contrast in literary criticism; as Jonathan Culler put it, somewhat plaintively,

one frequently wishes, when reading and writing about figures, to put an end to the tropological inflation of tropes. Could we not avoid all these problems if we restricted *metaphor* and *metonymy* to their literal meanings? A certain austerity in their use might indeed avoid some problems, but in fact the issues that have emerged in the swings and reversals of *metaphor* and *metonymy* have an uncanny way of reappearing everywhere in this domain, particularly when one wishes to distinguish the literal from the metaphorical.³⁷

The emphasis upon “metonymy” as a contrast to metaphor has long seemed problematic.

Culler’s own turn to “the literal” seems more suggestive than the emphasis upon

metonymy as a trope which, outside of exceptional examples, has rarely played a major role in literary criticism after the early modern period. Certainly, the claims to empirical support have long since evaporated: the two types of aphasia Jakobson proposed

(selection-deficient and contexture-deficient disphasia) never came into wide use as a diagnostic description; and the American Psychological Association’s *Diagnostic and*

Statistical Manual of Mental Disorders IV and the World Health Organization’s

International Classification of Diseases-10 break a dozen assorted kinds of aphasia disorder down into “expressive” and “receptive” (or “expressive-receptive”) categories.³⁸

Moreover, while the absence of further clinical support for Jakobson’s theory should serve as a cautionary tale regarding the questionable value of empirical “evidence” drawn

from exterior domains to support models of literary form, it is really the insufficiencies of the literary application of this opposition that stand out. Lodge confidently organizes

Jakobson’s group of putatively metaphoric and metonymic formats (the former includes drama, montage, poetry, lyric, romanticism and symbolism; the latter, film, close-ups,

cubism, prose, epic, and realism), but his discussion of metonymy in specific literary examples is considerably less certain. He begins with an encyclopedia article about

Birmingham which demonstrates the literal as a “whole catalogue of facts [that]

collectively ‘represents’ the real city” and contrasts this with a *Guardian* article which

contains an example of synecdoche (which he closely associates with metonymy) and exhibits some “literary” qualities.³⁹ The problem emerges as he moves on to descriptions from Forster’s *A Passage to India*, Dickens’s *Bleak House*, and *Oliver Twist*. In none does Lodge find actual examples of metonymy, much less synecdoche, though he does note several examples of metaphor and “metaphorical metonymy” in *Bleak House*. Nevertheless, he insists on the metonymic principles that characterize Forster’s work, which, like the others, exploits “metonymic writing, not metaphoric, even though it contains a few metaphors and no metonymies[;] it is metonymic in structure, connecting topics on the basis of contiguity not similarity.”⁴⁰ If the claim to metonymy reduces to a claim for a logic of “contiguity” it’s fair to ask why contiguity isn’t contrasted to metaphor instead. The answer, presumably, is that this coordination would reduce what is taken as a foundational insight into a more conventional contrast between figurative language and descriptive narrative.

More generally, I would suggest that most of the claims made for the metonymic nature of the realist novel have been rooted in a more basic claim of contiguity in time and space at the expense of figurative language – Culler’s opposition between the literal and the metaphorical extended to long-format prose fiction. On this reading, a “metonymic” novel is merely a long prose work with extended narrative descriptions. To recognize this would be to put the term “metonymic” to a well-deserved rest (at least, outside of domains of literature with active contemporary discourses of figurative rhetoric in which metonymy plays a part). At the same time, the emphasis upon realism as a “metonymic” genre has long been rooted, I would suggest, in an analysis of naïve realism that takes its object as the production of a “reality effect” through the capture of

assorted peripheral details. On this view realism is characterized by realistic content – its standard is “real life.” Along these lines, Ian Watt argues that realism is characterized by “details which are presented through a more largely referential use of language than is common in other literary forms.”⁴¹ In Watt’s case, “referential,” like Culler’s use of “literal,” seems to stand in opposition to “figurative” language like metaphor. On this understanding, realism is characterized by its naïve aspiration to capture what it represents through the accumulation of rich circumstance.

George Henry Lewes is often cited as a crucial theorist of realism in nineteenth-century artistic representation, and his famous critical dustup with Dickens over the realism of Krook’s spontaneous combustion in *Bleak House* suggests how he, too, took one of the measures of realism to be fidelity to “reality.” At the same time, Lewes’s essay on “Realism in Art” (1858), written as Eliot worked on *The Mill on the Floss*, projects a more complicated understanding of realism than offered in the view of realism as naïve truth to reality. Lewes does employ “realism” in opposition to false idealizations of working class life, but he chooses to emphasize that realism should not be contrasted with “idealism” *per se* (along traditional philosophical lines), but instead with “Falsism”:

When our painters represent peasants with regular features and irreproachable linen; when their milkmaids have the air of Keepsake beauties, whose costume is picturesque, and never old or dirty; when Hodge is made to speak refined sentiments in unexceptionable English, and children utter long speeches of religious and poetic enthusiasm; when the conversation of the parlour and drawing-room is a succession of philosophical remarks, expressed with great clearness of logic, an attempt is made to idealize, but the result is simple falsification and bad art.⁴²

The widely-noted similarity between Lewes’s critique of “falsism” and Eliot’s dressing-down of “Silly Novels by Lady Novelists,” along with her critique of idealization in her review of Riehl, suggest their close collaboration in developing an account of realism in

fiction. In Eliot's accounts, as in the passage above, conventions of popular pictorial representation serve as a baseline for evaluating distortions in textual description. In the review of Riehl, Eliot emphasizes the need for representations that move beyond convention – described in the pejorative language of mass production as “sympathy ready-made” – to a particularized sympathy that extends “beyond the bounds of our personal lot.”⁴³ As an example, she singles out the “total absence of acquaintance and sympathy with our peasantry,” that is illustrated by the “popularity [of] such pictures as ‘Cross Purposes,’ where we have a peasant girl who looks as if she knew L. E. L.’s poems by heart, and English rustics, whose costume seems to indicate that they are meant for ploughman, with exotic features that remind us of a handsome *primo tenore*.”⁴⁴ Eliot was hardly alone in desecrating the conventionalism of such paintings; “Cross Purposes” – which was painted by sometime Dickens illustrator Frank Stone – had been reviewed two years earlier by “E P” in the catalogue of the 1839 Irish Industrial Exhibition in even more sardonic tones: “If we had seen but one of his compositions of this class” the reviewer begins,

we should give him the praise due to a successful sentimentalist who can express a scene ... very proper for a fashionable drawing-room wall, though we confess we should become very tired of sitting long on an opposite sofa; but Mr. Stone, amiable painter that he is, has produced, one may say, nothing else but these pictures of sentimental schoolboys and sighing village maidens, in such numbers and with so little variation, that we confess to being somewhat sick of his fashionable fancies.⁴⁵

Notably the reviewer, in emphasizing the great “numbers” and small “variation” of Stone's works, deploys the same critique of popular convention as a kind of mass production, a sly reference to the steel plate engravings for a host of annuals Stone had regularly contributed to from the early 30's, including *The Keepsake*.⁴⁶ These critiques of convention establish a standard of realism that is not gauged by content but instead by

departure from convention. Representational conventionalism not only influences our literature, but, like the ocular metaphors which refract throughout Eliot's fiction, warps the manner in which painters and viewers actually *see* the real world. This common discriminatory feature makes clear the differential understanding of representation that underpins realism as a diagnostic; as Levine has closely argued, a central feature of nineteenth-century realist discourse is the criticism of antecedent genres, so that "the writer must self-contradictorily dismiss previous conventions of representation while, in effect, establishing new ones."⁴⁷ Hence, from this view, realism is a genre of self-awareness that is characterized by its explicit engagement with literary historiography.

To return to the passage from Lewes's essay on "Realism in Art," the initial focus of Lewes's critique of novelistic distortion is dialect, as he criticizes the speech, conversation and expressions of falsified characters. And the shift of realism's antithesis from idealism to falsism marks a distinction between the "attempt" and the "result" that is comparable to Raymond Williams's distinction between the "knowable" and "known" community. The reason is relatively simple: the critique Williams provides is itself invested in a standard of realism drawn from Marxist theory – also a product of the mid-nineteenth century thought. Nevertheless, it is clear that what Lewes has in mind is not *merely* strict fidelity to the real, *or* anti-conventionalism, but rather, a realism that has something of idealism as well. The point is made clear in the example of Raphael's "Madonna di San Sisto," admiring the "never-to-be-forgotten divine babe [in which] we have at once the intensest realism of presentation, with the highest idealism of conception."⁴⁸ Lewes argues forcefully that "there is an indefinable something ... a perfect *truth*; we feel that humanity in its highest conceivable form is before us."

Moreover, it is this ideal “indefinable something” that secures the highest realism – as it is “assuredly in the highest sense real.” Lewes is working here to revive an older, scholastic definition of “realism” – a realism of “the highest sense” that is associated with Aristotelian philosophy, and described (in Levine’s terms), by “the reification of the ideal, [and] belief in the prior reality of universals.”⁴⁹ The point is driven home in Lewes’s hypothetical example of two painters who “delight in the forms of external nature.” Whereas one restricts himself to strict fidelity, the other is prompted, by “his sympathy ... to express something of the emotional life of the group Without once departing from strict reality, he will have thrown a sentiment into his group which every spectator will recognise as poetry.”⁵⁰ Hence this “higher” realism uses the judgment offered by sympathy to elucidate elements of the universal in the particular subject. In this way, Lewes’ theory of realism anticipates the complicated place of realism within Western literature as articulated in Auerbach’s *Mimesis*; in Rene Wellek’s account, realism emerges in *Mimesis* both as “the agonizing revelations of reality in moments of supreme decisions” and “depict[ions of] contemporary reality, immersed in the dynamical concreteness of the stream of history.”⁵¹

Lewes affords sympathy a key role in negotiating this tricky balance between fidelity to reality and idealization, and we will explore the significance of this epistemology of sympathy later in the chapter. Here, I will note that the productive relationship that Lewes articulates between realism and idealism reflects upon the relationship Strauss describes between legend and myth. In both cases, representation negotiates between the claims of accuracy and significance. Remember that Strauss sees myth and legend as complexly intertwined historical movements between greater

attention to the expression of religious truth and greater fidelity to historical event. Similarly, for Lewes, idealism and realism mark the contrasting demands of “perfect *truth*” and “strict reality.” To express this in the terms outlined by Lorraine Daston and Peter Galison, Lewes’s advocacy of a “realism” that also idealizes give a literary model for what they term “structural objectivity” with respect to scientific illustration.⁵² The overlap is particularly evident in Lewes’ contrast between the two painters; in that example, true realism is explicitly distinguished from a strict fidelity to nature that excludes affect – the mechanical realist lacks the sympathetic judgment that would recognize the larger significance of what is observed, and instead provides a flat representation. Hence, this mechanical realism corresponds, in its accuracy to flawed particularity, to the ethic of “mechanical objectivity” against which “structural objectivity” is articulated.⁵³

IV. The Legend of St. Ogg’s

Lewes’s take on realism as engaging a form of “structural objectivity” that explicitly combines attention to the real as well as the abstraction of the ideal, indicates the locus of Eliot’s own realist project as an engagement with the philological and intellectual tradition of German higher criticism. The question of realism retains obvious interest in thinking about George Eliot’s fiction, not least because she has often been cast as the pre-eminent realist writer of the Victorian period and because she was involved, along with Lewes, in characterizing a specifically British tradition of realism (as over against French naturalism).

Notably, the challenge of these standards cuts to the heart of critical uncertainty over how to interpret the legendary status of the flood in *The Mill on the Floss* – in particular, the legend of St. Ogg and the prognostication that the river will flood if the Tullivers lose the mill. In terms of the traditional understanding of realism as either a self-conscious critique of convention or as a naïve aspiration to real content, the flood is doubly “unrealistic,” insofar as it develops positively through conventions of legend and augury, and it literalizes the flood as something that actually occurs within the novel. Contemporary as well as modern readers find the novel’s conclusion problematic. To take two examples, U. C. Knoepfelmacher works hard to track down literary precedents for the flood while using it as evidence of “the limits of realism” in Eliot’s early work, while Gordon Haight, in his introduction to *The Mill on the Floss*, defends it from F. R. Leavis’s charge that it lacks “symbolic or metaphorical value” by arguing both for Eliot’s extensive research about floods and for extensive foreshadowing within the novel itself, while noting “our dissatisfaction with the catastrophe.”⁵⁴ In this view, the realistic status of the flood has come to stand as a boundary case for the development of Eliot’s realism – a device that marks an indebtedness to older modes of fiction that will be abandoned in the mature realism of *Middlemarch*. Such interpretations figure the flood of the Floss as an outlier to descriptions of the novel as a pre-eminently modern and secularizing form, coordinate with the Webberian thesis of modern disenchantment and the recession of religious belief.

But in light of the deep coherence between the productive theorization of realism offered by Lewes and Strauss’s description of the relation between myth and legend, it’s possible to reimagine the legend of St. Ogg as well as the final flood as examples *central*

to the constitution of realism in Eliot's novel. To do so would be to recapture an understanding of how this legendary account provides access to an idealization that is, in Lewes's sense, "real." To re-evaluate the flood's realism requires sussing out the interplay of the legendary qualities (bound to elements of the historical record) and its mythic qualities (marked by the incorporation of insight into the core tenets of Christian thought and the human condition).

The introduction to the town of St. Ogg's is focused upon the deep history disclosed by its development: it "impress[es] one as a continuation and outgrowth of nature, as much as the nests of the bower-birds or the winding galleries of the white ants: a town which carries the traces of its growth and history like a millennial tree" (1.2.104). Such passages are taken as evidence of Eliot's engagement with Riehl, and his insistence upon the close coordination of environment and habitation. Eliot read Riehl and composed her review while splashing with George Henry Lewes along the coast of Ilfracomb, looking for new species of tidal flora and fauna for his scientific work. It was a happy coincidence: Riehl's emphasis upon long, rambling tours combined with close empirical attention to interrelation of folk culture and environment, a project explicitly modeled on natural history, encouraged Eliot to perform both. One of Eliot's journal entries is often adduced to show Riehl's immediate influence upon her naturalistic brand of description:

[W]hen one sees a house stuck on the side of a great hill, and still more a number of houses looking like a few barnacles clustered on the side of a great rock, we begin to think of the strong family likeness between ourselves and all other building, burrowing-house-appropriating and shell-secreting animals. The difference between a man with his house and a mollusc with its shell lies in the number of steps or phenomena interposed between the fact of individual existence and the completion of the building.⁵⁵

Eliot's description takes up Riehl's startling insight into the interrelationship between local culture and local building materials, as he proposes that "A comprehensive analysis of the influences that building materials exert on a national character would be a major task for the cultural historian."⁵⁶ The passage can be read to suggest Eliot's essential commitment to particular observation over abstraction, and the organic unity between the individual and local culture, with its concomitant conservative gradualism.⁵⁷ But these interpretations misread the emphasis of Eliot's investigation of culture. Eliot's fiction (and for that matter, Riehl's study) is driven by the recognition that the individual is caught in an essential tension between particular local culture and the larger forces of nationalism, modernization, and social transformation. In the passage above, Eliot draws an analogy which would have tickled Erasmus Darwin – man is to house as mollusc to shell – but the analogy is further calibrated by a difference in degree. For the bivalve, the "fact of individual existence" and the completion of its house are closely linked in a naturalized organic coordination of environment, individual, and home. For man, however, there are many more "steps and phenomena." And for Riehl, as for Eliot, it is in those steps that environment and society exert their influence on the finished product by delimiting the available materials and shaping their purposes. Those "steps and phenomena" register an intervention that describes the distance between the socially-shaped "individual existence" and the environment. Rather than naturalizing, the analogy calls our attention to what is inorganic in the relationship between individual and culture, by emphasizing just how much labor is required to achieve the "naturalism" of "houses looking like a few barnacles clustered on the side of a great rock." Through comparison: difference; Eliot adds that if we "Look at man in the light of a shell-fish [] it must be

admitted that his shell is generally ugly, and it is only after a great many more ‘steps or phenomena’ that he secretes here and there a wonderful shell in the shape of a temple or palace.” This tension between the individual, nature, and culture is reflected throughout Eliot’s writing, which overflows with characters physically and mentally out of step with their world. From Maggie Tulliver and Philip Wakem, to Felix Holt, to Daniel Deronda, Eliot constantly remarks how the failure of coherence between the individual and their environs. And it is this emphasis upon disjunction which best characterizes Riehl’s aggressive close analysis of German culture. “Land and People” and “Bourgeois Society” – the principle books of *The Natural History of the Folk* – ultimately yield a portrait of extensive historical sedimentation and social contest.

This same disjunction is notable in Eliot’s description of St. Ogg’s; the sense that the town is “a continuous ... outgrowth of nature” is pried apart on further examination, as the narrator digresses into a long history of conquest, with successive invasions by “Romans,” “Saxons,” “Danes” and “Normans.” It was perhaps the Normans, for instance, who

began to build that fine old hall, which is like the town telling of the thoughts and hands of widely-sundered generations; but it is all so old that we look with loving pardon at its inconsistencies, and are well content that they who built the stone oriel, and they who built the Gothic façade and towers of finest small brickwork with the trefoil ornament, and the windows and battlements defined with stone, did not sacrilegiously pull down the ancient half-timbered body with its oak-rooted banqueting-hall.

The town of St. Ogg’s, and particularly its architecture, only represent organic unity when viewed without attention to historical distance; the realist narrator, in contrast, can note both the apparent modern coherence of these elements and the deep incoherence of their history, an incoherence that extends beneath the various architectures (Norman, gothic, revival) to the wide assortment of local and distant building materials (oak, stone,

brick). Much as Scott, in my previous chapter, used the alienation of the familiar as an index to the past, Eliot's narrator uses a catalogue of the past's heterogeneity within the apparently homogenous present as an index to history and as a gesture to realism. In her study of Riehl, Eliot expends considerable energy locating the appropriate domestic analogue for the rural German culture he describes, and finding few contemporary examples, she ultimately turns to history: "In order to appreciate what Riehl says of the German peasantry," she tells us, "we must remember what the tenant-farmers and small proprietors were in England half a century ago."⁵⁸ This launches an extended passage of recuperative alienation, in which Eliot uses contrasts between contemporary custom and its historical analogue to paint a picture of that past: "In those days the quarried parlour was innocent of a carpet, and its only specimens of art were a framed sampler and the best tea-board." Rather than writing "sentimental correspondence," daughters spun "their future table-linen," and considered the modern hardship of the springless coach "an advance in luxury on the pavilion." In recreating the world of the poor laborer fifty years before, Eliot takes up a project of socio-historical recreation which bears Scott's indelible mark.

And it is within the coordinates of historical transformation, interpretation, and recuperation in the present that we should locate the legend of the town of St. Ogg's itself within *The Mill on the Floss*, which follows immediately on the description of the town's architecture. The discourse of antiquarian scholarship is pronounced as the narrator, after claiming possession of "several manuscript versions," provides the "briefest, since, if it should not be wholly true, it is at least likely to contain the least falsehood" (1.12.104). "Ogg the son of Beorl" was a ferryman who agreed to transport a woman and child at the

height of a storm. Notably, he agrees because “it is enough that thy heart needs it” (1.12.104-5). On reaching the far shore, his passenger turns into the “Blessed Virgin,” and blesses Ogg for his “pity” and refusal to “wrangle with the heart’s need.” Ogg’s ferry is blessed, spends many years ferrying “man and beast” across, and slips its mooring the night Ogg dies. According the chronicler, Ogg can still be seen during floods, “so that the rowers in the gathering darkness [take] heart” (1.12.105). Several features of the “legend” stand out. First, Ogg’s given name and patronymic apparently derive from the town’s Viking period, suggesting its roots in legend prior to the Christian faith. And second, the labor of the “private hagiographer” is evidently performed at some later point close to the break with Rome, and is rooted in local accounts. The narrator only observes that “This legend, one sees, reflects from a far-off time the visitation of the floods” before going on to note the greater “troubles of the civil wars, when it was a continual fighting-place.” The narrator’s interpretation of the Ogg story is focused upon its status as legend, rather than myth – it incorporates the actual historical content of the river’s previous floods. Hence, the narrator’s interpretation of the story *as* legend presents a strictly secularizing view; the authentic claims of mythic content are of no account. But given the influence of the flood within *The Mill on the Floss*, it’s evident that the legend of St. Ogg is also meant to function mythically. Not only does it reflect the crisis of the novel, its emphasis upon sympathy and the “heart’s need” speaks to a central focus of Eliot’s work. The continuity between the mythic content of the Ogg legend and Strauss’s conception of myth as a vital and active component of a reformed Christian theology, serves to complicate the relation between realism and the secularization thesis in Eliot’s fiction, insofar as a novel like *The Mill on the Floss*,

written at the end of her decade-long involvement with pointedly theological works of Higher Criticism that remain active in Christian theology, is motivated by a project of reformation rather than secularization.⁵⁹ To frame this differently, the mythic recuperation of the flood complicates our understanding of the development of secularism itself, insofar as “secularism” was coined in 1851 as part of George Jacob Holyoake’s larger project of religious accommodation that, in the analysis of Eric S. Waterhouse, “endeavoured to make it possible that the social, political, and ethical claims of secularism should not necessitate subscription to atheistic belief.”⁶⁰ From this view, to revise the status of realism in the flood of *The Mill on the Floss* is also reexamine realism’s place within the secularization thesis. The flood is “real” for the novel in two key senses: as it is both naturalized through participation in the narrative of events, and as it endorses the mythic content of the legend as an accurate insight into the function of sympathy. The critical problem of the cataclysm surfaces within an understanding of secular realism that posits the basic incompatibility between the two.

IV. Feuerbach and the God of love

The status of realism with respect to the legend of St. Ogg can be explored as the relation between legendary account and mythic import. In the case of the Floss’s flood, Eliot’s realist novel turns upon an event explicitly figured through the “enchantment” of religious belief and legend. But the resolution also depends crucially on the function of sympathy; much as Lewes emphasized that sympathy served to elucidate the features of the universal ideal, *The Mill on the Floss* resolves through an act of climactic sympathetic

identification between Maggie and Tom Tulliver. I have already explored the influence of Strauss in offering a theory of myth and legend that models an historical realism that is compatible with the “ideal,” but it is within Feuerbach’s thinking that we find the central commitment to sympathy as a hermeneutic that can mediate between realism, identification, and mythic content in *The Mill on the Floss*.

As his introduction makes clear, above all, Feuerbach’s treatise is focused upon *language*, and the function that various formal features of language play in abstraction:

Therefore – this is the moral of the fable – we should not, as is the case in theology and speculative philosophy, make real beings and things into arbitrary signs, vehicles, symbols, or predicates of a distinct, transcendent, absolute, i.e., abstract being; but we should accept and understand them in the significance which they have in themselves, which is identical with their qualities.⁶¹

As Eliot puts it playfully in the pier-glass observation of *Middlemarch*, “these things are a parable.” Like Eliot, Feuerbach self-consciously deploys conventions of “abstract” representation in his critique of their function. These passages echo, at the level of the sentence, realism’s coordination between conventional critique and demystifying content. Feuerbach’s primary interpretive tool is a critique of sentence structure itself – in particular, the false opposition he identifies between “predicate” and “subject” within Christian theology. The “significance” of “real beings and things ... is identical with their qualities,” he argues; or, as he puts it more forcefully:

the true sense of Theology is Anthropology, ... there is no distinction between the *predicates* of the divine and human nature, and, consequently, no distinction between the divine and human *subject*: I say *consequently*, for wherever, as is especially the case in theology, the predicates are not accidents, but express the essence of the subject, there is no distinction between subject and predicate, the one can be put in the place of the other. (xvii)

Feuerbach cites, for support, discussions of predication in the works of Aristotle and Porphyry. And he also evidently has in mind the analogy of predication, discussed in my

first chapter. Aquinas (and later scholastics) used the analogy of predication precisely to distinguish between “predicates of the divine and human nature,” and ultimately, between “the divine and human subject.” Feuerbach, by destroying that distinction, is attempting to collapse the “divine” qualities of theology into an exalted theory of human nature and sociability. As Feuerbach puts it, quoting Hobbes, “Homo homini Deus est” (“Man is God to man,” 159). Hence religion is transformed into an investigation of “human nature,” developed through an interpretation of the “species” as a whole, by means of sympathetic identification with others:

The inner life of man is the life which has relation to his species, to his general, as distinguished from his individual, nature. ... Man is himself at once I and thou; he can put himself in the place of another Religion being identical with the distinctive characteristic of man, is then identical with self-consciousness – with the consciousness which man has of his nature. But religion, expressed generally, is consciousness of the infinite; this it is and can be nothing else than the consciousness which man has of his own – not finite and limited, but infinite nature. (2)

Per Kantian psychology, the interpretation of religion is continuous with the interpretation of what is “infinite” in ourselves, as opposed to what is finite and particular. Feuerbach proposes three human faculties that give access to that infinite nature: intellect, will, and feeling. To take the latter as an example, the task of interpretation is to separate out the universal aspect of feeling from its individual commitments: “The true but latent sense of the phrase, ‘Feeling is the organ of the divine,’ is, feeling is the noblest, the most excellent, i.e., the divine, in man. ... The divine nature which is discerned by feeling, is in truth nothing else than feeling enraptured, in ecstasy with itself – feeling intoxicated with joy, blissful in its own plenitude” (10). In an argument very close to Kant’s sublime, it is precisely this

“rapture” which is the problem, according to Feuerbach, insofar as it posits an external source of feeling (in religion) rather than recognizing its internal nature. He continues:

But if, notwithstanding, thou wilt posit an object of feeling, but at the same time seekest to express thy feeling truly, without introducing by thy reflection any foreign element, what remains to thee but to distinguish between thy individual feeling and the general nature of feeling; – to separate the universal in feeling from the disturbing, adulterating influences with which feeling is bound up in thee, under thy individual conditions? Hence what thou canst alone contemplate, declaring to be the infinite, and define as its essence, is merely the nature of feeling. Thou hast thus no other definition of God than this: God is pure, unlimited, free Feeling. (10-1)

The language of German metaphysical philosophy aside, Feuerbach’s doctrine of the “divine” but problematic nature of feeling is very close indeed to the role that feeling plays for Maggie Tulliver in *The Mill on the Floss*. Always swept by the current of one emotion or another, it is primarily through her reactions to feeling that Maggie is both characterized and catapulted from incident to incident. The alliance is even more pronounced in Feuerbach’s theorization, in line with the romantic aesthetics, that “Music is the language of feeling; melody is audible feeling – feeling communicating itself” (3-4). Music continually serves to articulate desire in *The Mill on the Floss*, and features particularly in Maggie’s encounters with Stephen Guest. Music exteriorizes desire for Maggie and renders her reactive – even to the degree that her discrimination between the attentions of Stephen and Philip Wakem is expressed in the observation that she is “touched, not thrilled” by the latter’s song (6.7.365).

If music serves as a model for the “disturbing, adulterating” individuation of feeling in *The Mill on the Floss*, the question is how its universal counterpart is expressed. In this connection, it is useful to attend to grammar of the infinite in Eliot’s translation of Feuerbach. Strikingly, the contrasts between individual and universal are rendered through precisely the subject/predicate discriminations that Feuerbach criticizes

in Christian theology. To “distinguish between thy individual feeling and the general nature of feeling” is to parse out the universal and individual components of feeling itself; it implies the same relationship (the particular self has particular feeling as the universal self has universal feeling) that underpinned the analogy of predication. I’m not sure what other distinction accrues in the asserted difference between the “universal in feeling” and “the disturbing, adulterating influences with which feeling is bound up in thee, under thy individual conditions,” except that terms for the “universal” have taken the place of the “divine.” Feuerbach’s interpretive practice works through the recognition of a common predicate (feeling, will, and intellect), that is possessed by both by individuals qua individuals and by the “universal” that marks their idealized, common nature. It then develops a series of statements that map out the similarities and distinctions that discriminate the individual and universal aspects of those faculties. The apparently demystifying move that would reduce “arbitrary signs, vehicles, symbols, or predicates” to “the language of men” relies, in practice, upon interrogating the particular interpretation of individual experience in order to provide access to “higher” universalized features of humanity – by means of a process directly modeled upon the strategies of scholastic hermeneutics.

Feuerbach’s chief example of this universalizing reconstruction is famously provided by his analysis of the sacraments, in particular, the Eucharist. Propounding the universal significance of the last supper, Feuerbach soars into the oratory of sermon, and he exhorts the reader to cherish the true message of the host and sacramental wine:

Eating and drinking is the mystery of the Lord’s Supper; – eating and drinking is, in fact, in itself a religious act; at least, ought to be so. Think, therefore, with every morsel of bread which relieves thee from the pain of hunger, with every draught of wine which cheers thy heart, of the God who confers these beneficent

gifts upon thee, – think of man! But in thy gratitude towards man forget not gratitude towards holy Nature! Forget not that wine is the blood of plants, and flour the flesh of plants, which are sacrificed for thy well being! Forget not that the plant typifies to thee the essence of Nature, which lovingly surrenders itself for thy enjoyment! (277)

Such passages are arresting in their impassioned advocacy for a renewed sacramental practice, and Eliot's soaring translation indicates her commitment to the homiletic strategies it draws upon. Moreover, the passage foregrounds the close coherence between the mythic (in Strauss's sense) content of religious rites and the intersection between social practice and naturalism that is a marked feature of Eliot's fiction, particularly *The Mill on the Floss*. The passage further indicates the mythic content of Dorlcote Mill itself; rather than a Blakean symbol of mechanization and modernity, the mill serves as a locus for the closest possible union between human nature and nature itself, insofar as it reduces the "flesh of the plants" into the materials of sacramental bread, and the naturalized sacrament implicit in Mr. Tulliver's ambition that Tom's "edification" will "be a bread to him."

But Feuerbach suggests uncertainty as to whether the mere assertion that the Eucharist speaks to the "essence of Nature" will suffice. The exposure of the universal features of the particular requires a careful probing of their common and differential features. How is the reader to be certain that Feuerbach's oratory here isn't parodic, that it doesn't serve the same self-consciously critical function as baldly stating "the moral of the fable"? As Feuerbach puts it, the reader might be "inclined to smile that I call eating and drinking religious acts, because they are common everyday acts, and are therefore performed by multitudes without thought, without emotion" (Ibid). The best way to recognize the universal significance of these sacraments, Feuerbach says, is *want*:

place thyself in a position where the daily act is unnaturally, violently interrupted. ... Oh! if thou shouldst ever experience such want, how wouldst thou bless and praise the natural qualities of bread and wine, which restore to thee thy humanity, thy intellect! It needs only that the ordinary course of things be interrupted in order to vindicate to common things uncommon significance, *to life, as such, a religious import*. Therefore let bread be sacred for us, let wine be sacred, and also let water be sacred! Amen. (277-8)

“Want,” in Feuerbach’s view, is what separates the merely conventional and common from insight into the universal – it’s what “vindicate[s] to common things uncommon significance.” Hence the passion of self-absorbed rapture can be discriminated from truly universal feeling by the recognition of a more deep-seated common “need.” This, it seems clear, is the mythic content of the Ogg legend, with its focus on “heart’s desire” – as well as what motivates the closing cataclysm. By instantiating the legend within the events of the modern novel, Eliot consummates the intersection between “real” historical content and “ideal” human import that the legend/mythic analytic is organized to recover for Strauss. To return to the will/intellect/feeling distinction that Feuerbach establishes, it is evident that Eliot has incorporated these categories into *The Mill on the Floss* as a theory of faculty psychology. Maggie’s errors are consistently rooted in an inability to resist her feelings and in her sometimes maddeningly struggle for self-assertion. By the same measure, Tom Tulliver’s tyrannical behavior is marked by a domineering willfulness that generally lacks the check of sympathetic feeling – what Feuerbach describes as a character that exults when one “suppressest a passion, renoucest a habit, in short, achievest a victory over [one]self, ... the energy of will, the force of morality, which seizes mastery of [one], and fills thee with indignation against [one]self and [one’s] individual weakness” (4). Hence, it is only when “the ordinary course of things [is] interrupted” by the flood that Maggie is able to demonstrate her resolution, in saving Tom, and Tom, an affection (“Magsie”), that marks his sympathetic understanding. In

Feuerbach's terms, it is through this final reversal in character that Maggie and Tom are able to recognize, in each other, the universalization of those features that had driven their individual lives. Maggie's insistence that "God has taken care of me," and Tom's intimation of "divinely-protected effort" emphasize their actualizing participation in the universal core of the myth, and serve as a parable of sympathetic understanding – "Homo homini deus est."

Greg Jackson has written about the "homiletic novel" of contemporary American literature, arguing persuasively that writers like Louisa May Alcott incorporated the participatory hermeneutic strategies of homiletic narratives like *Pilgrim's Progress* as an integral feature of realism. Eliot's equally close engagement with Higher Criticism and Bunyan indicate the novel's status as something like a reformed sacramental novel that celebrates naturalized homiletics that can coordinate nature with human nature. The apotheosis of the sympathetic union that Tom and Maggie achieve – rooted in the fulfillment of desire – escapes articulation; Maggie can only "sob" with "that wondrous happiness that is one with pain" (7.5.456). The moment serves as a fully-vested example of what would come to be called "epiphany" – a term that, as Asad notes, stands for "the sudden showing forth of the spiritual in the actual."⁶² As Qualls points out, many readers of George Eliot took her novels as "second bibles."⁶³

But this sacramental function, instituting in the novel a realist account of Feuerbach's closing homily, is not realized in Eliot's later fiction. In a novel like *Romola*, sympathy provides a way of mediating religious sentiment itself without recuperating it – a way to recognize and authenticate the sacramental imagination without

strict participation. Eliot's remarks in her brief essay on "The Historic Imagination" indicate this adjustment:

I mean the working out in detail the various steps by which a political or social change was reached, using all extant evidence and supplying deficiencies by careful analogical creation. ... A false kind of idealization dulls our perception of the meaning in words when they relate to past events which have had a glorious issue: for lack of comparison no warning image rises to check scorn of the very phrases which in other associations are consecrated. ... There has been abundant writing on such turning points [as the conversion of Constantine I], but not such as serves to instruct the imagination in true comparison.⁶⁴

In this passage, "consecrated" associations are important insofar as they "instruct the imagination in true comparison." Comparison serves as a form of inculcated self-discipline; it "checks scorn" and allows the historical interpreter to pierce "false" idealization and appreciate what is "consecrated" without ascribing to it. Hence, for Eliot, "true comparison" is marked by its ability to find corrective representations, the "warning image" that separates false convention from "true" historical understanding. As has been noted by historian Michael Carignan, Eliot's "analogical creation" probably draws upon Edward Bulwer Lytton's theory of "analogical hypothesis." In the "Dedicatory Epistle" to *The Last of the Barons*, Lytton argues that historical fiction, along with history, should be rooted in careful factual investigation. Unlike history, however, Lytton suggests that fiction can further make use of the "analogical hypothesis" "to clear up much that were otherwise obscure, and to solve the disputes and difficulties of contradictory evidence by the philosophy of the human heart."⁶⁵ Analogical hypothesis, like Eliot's analogical creation, is rooted in the interaction between past and present, between the history of fiction and the modern experiences of the "human heart"; and as Lytton notes, rather than identifying past and present, this analogy produces a sympathetic understanding of the "true idiosyncrasy of an age." In Eliot's fiction,

Lytton's observations are more extensively fleshed out and rooted in a personal ethic of observation and discovery. Analogical hypothesis serves as more than a historicist methodology in her novels; it becomes intrinsic to the imperative that we learn about other people, as social knowledge is developed through the epistemology of sympathy.

Sympathy and Disanalogy in Middlemarch

Perhaps no novel is so heavily invested in analogy's power to coordinate similarity and difference as George Eliot's *Middlemarch*. The plot is driven by false "idealization"; in Dorothea's marriage to Casaubon, in Lydgate's to Rosamond Vincy, the novel is fueled by false identifications of the other, and the often devastating revelation of that error. But in a crucial inversion, it is this very recognition of error which provides positive movement toward a truer sympathetic understanding.

To take an example: in chapter 19, Will Ladislav and his painting companion, Adolf Naumann, spot Dorothea on her Roman holiday. Naumann is enthralled by Dorothea; he comes upon her arranged in a careful tableau: she leans against a column, "one beautiful ungloved hand pillowed her cheek, pushing somewhat backward the white beaver bonnet which made a sort of halo to her face around the simply braided dark-brown hair ... her eyes were fixed dreamily on a streak of sunlight which fell across the floor" (189). Naumann gushes about what he terms her "antique beauty ... arrested in the complete contentment of its sensuous perfection," about the "consciousness of Christian centuries" which he somehow perceives within her. Naumann's speech is redolent of the formal language or romantic aesthetics: Dorothea, for Naumann, represents an idealized

aesthetic form, at home among the classical sculptures she gazes upon, absently.

Dorothea moves off without acknowledging them, and Ladislaw and Naumann pursue a rambling conversation full of the abstract language of Anglicized German Romanticism. Beneath the aesthetic gaze of the painters, Dorothea is a perfectly realized artistic object, achieving the ideal aesthetic union of form and content. In Naumann's words, she is "the complete contentment of sensuous perfection" – terms that call to mind Feuerbach's description of "feeling intoxicated with joy, blissful in its own plenitude."

The next chapter finds Dorothea in her apartment, and the narrator remarks, with no little irony, "I am sorry to add that she was sobbing bitterly" (192). And the chapter devolves by unpacking the emotional crisis invisibly wracking the supposedly content bosom which had stood before Naumann's gaze. The passage illustrates how far Eliot's later novels have moved from the metaphysics of universalization which Feuerbach had espoused. The language of German metaphysics is now associated with the same "false idealization" that *The Essence of Christianity* had worked to dispel. The circumstances of Dorothea's distress, as the narrator comments, are anything but "exceptional," nor "unusual," nor generally accepted as "tragic" – they are typical, in a prosaic sense, and the author famously observes that we are insensible to "the keen vision and feeling of all ordinary human life." The "universal" and "ideal" have contracted to the "all" that is "ordinary." But that prosaic register, the narrator insists, contains a fathomless profundity of its own; if we, like Naumann, were not so "well wadded with stupidity, it would be like hearing the grass grow and the squirrel's heart beat, and we should die of that roar which lies on the other side of silence" (194).⁶⁶

The narrator is not implying the prophylactic virtues of Naumann's aesthetic gaze. Rather, the narrator seeks to pierce our stupid wadding by allaying it with the collapse of Dorothea's own misrecognition of her new husband. In marrying Casaubon, Dorothea had hoped to develop a union of minds – and her essential failure is in imagining that Casaubon is like her, that he, too, desires a communion of scholarly labor. But when Dorothea casually prompts Casaubon to share his work and begin writing the massy tome toward which he is ostensibly wending, Dorothea accidentally allays herself with his deepest fears. As the novel repeatedly suggests, it is Casaubon's fear of the criticisms of others, and of an ultimate scholastic impotence, that keeps him searching for his "key to all mythologies" and endlessly deferring the work itself. Hence, there is a reciprocal misunderstanding at play – Dorothea assumes that Casaubon shares her desire for scholarly communion, while Casaubon misrecognizes in Dorothea the dawning of an invidious scholarly quibbler after his own dry heart. For Casaubon, there is no hope for this failure in identification – he will never discover how to broach the differences in perspective which separate them, and will ultimately die in a deep misunderstanding of Dorothea born of his own fear. But for Dorothea, the narrator makes it clear, another path has opened. At the close of the following chapter, after Dorothea asks forgiveness of Casaubon, and he, after prompting, expresses his mouldering version of satisfaction, the narrator notes that they never again spoke of the day, and continues:

But Dorothea remembered it to the last with the vividness with which we all remember epochs in our experience when some dear expectation dies, or some new motive is born. To-day she had begun to see that she had been under a wild illusion in expecting a response to her feeling from Mr Casaubon, and she felt the waking of a presentiment that there might be a sad consciousness in his life which made as great a need on his side as on her own. (211)

The passage carefully coordinates the proleptic possibilities of Dorothea's experience with Casaubon's perspective and our own, in terms of painful perception that echo Maggie's revelation, at the close of *The Mill on the Floss*, of "that wondrous happiness that is one with pain" (7.5.456). Here, the narrator recasts the moment in historical perspective: we are to identify the difference between the once and future Dorothea with our reflections upon our past and present selves. In this way, Dorothea's error of interpretation is allayed to our own errors in understanding, and to our potential for reform. At its most basic, Dorothea's mistake is that she imagines Casaubon is too much like her – she fosters an "illusion" that he will return her "feeling." But this failure of identification in turn opens up the possibility of a new and better understanding. By recognizing that Casaubon is *not* like her, Dorothea begins to perceive how he *is*. Specifically, it begins to dawn upon Dorothea that his social atrophy marks a "sad consciousness" which drives a "*need*" that is equivalent in magnitude, if not in kind, to her own. In this manner, the demystification of the higher criticism of Strauss and Feuerbach is reconfigured as a process of sympathetic identification that shatters the facile expectation of identity. Insofar as the narrator recuperates a failure in perception as the potential for more accurate understanding through a kind of negative hermeneutic, it is a dear and unstable connection. And the tenuous nature of this recognition is triply marked by its "wakening" state, its status as a "*pre*" sentiment, the hedge that it "might" hold true. Even more apposite is the form this connection finally takes: his "sad consciousness" makes "*as great a need on his side as her own.*" The grammar of analogy is rarely so explicit (the coordinating predicate "is to" is fulfilled by the compound predicate "made" and the possessive adjectives "his" and "her"). Casaubon's sad self is

to his need as Dorothea's sadness is to her own. Dorothea's earlier failure, then, is not in imagining that Casaubon is similarly driven by a deep and troubled need, but rather, in imagining that their needs are the same. What is produced is an analogy of desire, broadly construed, one that recognizes a basic distinction between differences in need along with the common features of desire itself.

Hence, the weight of these three chapters, bursting with narrative digressions, revisions, and shifts in perspective, is distilled into a single precious analogy between the independent configurations of self and other. If Eliot elsewhere states her avowed program succinctly as the "extension of our sympathies," the rich narrative texture gathered so carefully in these passages to describe this single troubled instance of sympathetic identification registers the complex mechanics of sympathy in Eliot's work.

To return to the quote from *Middlemarch* with which we began, it is this alliance which Eliot instantiates when she allies Dorothea's reflections with "the vividness with which we all remember epochs in our experience when some dear expectation dies, or some new motive is born." The coordinating "or" is causal: it is the death of the "dear expectation" that quickens the birth of "some new motive" in a movement from convention, to alienation, to the shock of recognition. It is a process rooted in analogization – the dialectical movement back and forth between similarity and difference. And this is an essentially historical process – the reexamination of what "we all remember" to see how it relates to the collective memory of Eliot's social reconstruction.

Eliot's attempt to carefully embed her historical creations in the discursive and political formations of their time corresponds to the New Historicist project of situating

text within context. As Catherine Gallagher and Stephen Greenblatt describe in *Practicing New Historicism*, one of the seminal moments in founding their critical practice was exposure to the work of cultural anthropologists working on a more discursive approach to their discipline, in particular, Clifford Geertz, and his advocacy of “thick description.”⁶⁷ Gallagher emphasizes “counter-history” – a concept she connects to the emphasis in the works of Raymond Williams and Michel Foucault upon the tension between experience and convention. (In Williams, Gallagher sees this as the tension between “experience” and “hegemony”; in Foucault, between unrealized orders and the cultural codes which regulate their integration into knowledge.⁶⁸) Similarly, Eliot’s narratives focus the character and the reader toward an epistemological break with what they *thought* they knew, an essential disanalogy of experience. Gallagher is sensitive to this element of Eliot’s fiction. In an essay on *Felix Holt* that revisits an earlier article on “The Failure of Realism,” she discusses at length how Felix’s form of authenticity is defined against the religious exceptionalism of Rufus Lyon, and the cultural exceptionalism of his daughter Esther, creating a crisis of interpretation. Gallagher notes that, paradoxically, “Felix’s significance is incomprehensible without reference to those realms.”⁶⁹ But it is also the referentiality of Felix’s moral perspective – its ascetic relation to Esther and to Rufus – that ultimately makes it intelligible to Esther. This calibration of similarity and difference allows Felix to communicate a relentlessly secular and principled advocacy of the position of the working class, in much the same way that Scott advocated for a historicism that negotiated the relation between historical content and contemporary convention.

In Gallagher's view, however, this recuperation is ultimately virtual, divorced from the object of representation. As Alan Liu has put it, "New Historicism proceeds tropologically *as if* literary texts and historical con-texts had equal priority."⁷⁰ Liu turns to tropology because, he argues, New Historicism is rooted metaphoricity – text is *like* context, but they are as different as tenor and vehicle. In Gallagher's article, this difference emerges from a double sense of the role "representation" plays in *Felix Holt*: on the one hand, the novel addresses the question of *political* representation and the relation between the distribution of labor and political structure, particularly in the "Representation of the People" bill of 1865. On the other, the novel is a *literary* representation of these social conditions. Gallagher allies theories of direct proportional representation with what I have characterized as naïve realism, which Gallagher sees as a "mere aggregation" of facts – both are "purely descriptive" in a pejorative sense. In this reading, political representation reflects a naïve realism that is composed of both "referential" political "details" (per Watt), and is defined by a logic of their metonymic coordination (per Lodge). The exceptionalism of Felix Holt then becomes an impossible aspiration to transcend realism, "a yearning for an antidescriptive politics and an analogous literary form."⁷¹ For Gallagher, the "analogous" has a divorced formal relationship to the object of correspondence; it is more allegory than a serial relationship that engages similarity and difference. Felix, as an inherently "referential" or object, represents a realm "composed of nothing but representations." In other words, Gallagher finds such comparisons to be *formal* analogies – analogies which, like the metaphorical logic that Liu attributes to New Historicism itself, establish a referential relationship. Ultimately, Gallagher's critique of Eliot's realism echoes the structuralist opposition

between “metaphoric” representation and the naïve interconnection of metonymy discussed earlier.

But as I have gone to great lengths to suggest, the theory of realism that emerges in Eliot’s writing, particularly in association with Lewes and her work with German biblical hermeneutics, provides a sophisticated model for the coordination of formal mediation and serial engagement. Moreover, the distinction between formal abstraction and direct engagement is breached through strategies that collapse “false” idealization and turn her characters and readers toward the perception of what she terms “an equivalent center of self.” In the passage from *Middlemarch* with which we began, the narrator continues, “We are all of us born in moral stupidity, taking the world as an udder to feed our supreme selves.” Through such moments of perception, we, as readers, share in “that distinctness which is no longer reflection but feeling.” As the distance between representation and experience collapses, we are invited to participate in discovery; Dorothea’s education becomes our own. I find it impossible to argue with the analogy which this experience yields, “an idea wrought back to the directness of sense, like the solidity of objects – that he had an equivalent centre of self, whence the lights and shadows must always fall with a certain difference.” As Kate Flint has noted, such passages mark the aspiration of the novel to material representation, “the potential of material objects to bear witness to the process of social history that underpins the world of the text ... and with the ways in which they are made to relate to the perceptual and emotional habits and responses of those who own, wear, desire, observe, or dispose of them.”⁷² To take the demands of Eliot’s sympathetic perception seriously, in terms “wrought back to the directness of sense, like the solidity of objects,” is not only to

accept the possibility of a collapse between the formal distancing of sympathetic identification into moments of true serial contact, but also to recognize the possibility of an engagement with the reader that similarly collapses the distance between text and material instance.

Perhaps the foremost example of the dynamism of analogy comes in a strange turn of events toward the close of *Middlemarch*. When the codicil to Casaubon's will becomes known, Will Ladislaw says goodbye to the now-widowed Dorothea, and leaves town. A year passes, taken up with striking events: a blackmail, a murder, a great scandal. Lydgate, who is connected to the scandal, finds himself unable to explain his largely innocent role to his wife Rosamond, and he accepts Dorothea's offer to intercede on his behalf. But when Dorothea first arrives at the Lydgate home, she is ushered in to find Will Ladislaw attending upon Rosamond. There is a misunderstanding – Dorothea believes Will is *Rosamond's* lover, and she leaves, heartbroken, – *only to return the next day on the same errand*.

The sequence once seemed superfluous to me – as if the narrative needed yet one more check to the potential union between Dorothea and Will in order to milk the suspense through a final book. Dorothea returns to her chamber, much as she did after her visit in Rome, and is wracked by anguish and jealousy. And in the small hours of the morning, she begins to recover from her grief. The passage explains:

[T]hat base prompting which makes a woman more cruel to a rival than to a faithless lover, could have no strength of recurrence in Dorothea All the active thought with which she had before been representing to herself the trials of Lydgate's lot, and this young marriage union which, like her own, seemed to have its hidden as well as evident troubles – all this vivid sympathetic experience returned to her now as a power: it asserted itself as acquired knowledge asserts itself[.] (788)

Dorothea's anguish is rooted in the displacement of her earlier intention to comfort Rosamond by green-eyed jealousy. One might say that their relationship is metaphorical in nature – based in substitution – as either Dorothea or Rosamond may be the object of Will's affections. But this triangulation is replaced by Dorothea's "acquired knowledge" – a knowledge rooted in an analogy that extends beyond this triangle. Specifically, Dorothea remembers that this "young marriage union" between Lydgate and Rosamond is "like her own" – it, too has "hidden as well as evident troubles." It is worth noting that this analogy has a compound object – the unions possess "hidden" *and* "evident" troubles. And this compound works to extend the analogy, mapping its structure onto a more complex network of relations. This greater complexity serves again to mark the particularity, the dissimilarities, in the analogy. It is clear enough to Dorothea that the "evident" troubles of the Lydgates are not identical to those she'd shared with Casaubon, and it is equally clear that the "hidden"ness of their further problems distinguish them further from Dorothea's experience.

Now firmly grounded again in a re-adjusted analogy between the Lydgate marriage and her own, Dorothea returns to visit Rosamond. Dorothea addresses Rosamond by explaining *why* she could understand Lydgate – their similar experiences of troubled marriage. In effect, Dorothea reconstitutes the analogy for Rosamond. And from the position of analogy, Dorothea turns quickly to the plural first person, "we." This turn toward first-person plural marks the complete accession of analogy, as Dorothea begins to narrate for them both – a shift from analogy to plural subject and unitary sentence that I have already discussed, in my first chapter, in the context of Paley's *Natural Theology*. But whereas, in Paley's treatise, this displacement of analogy into

doubled sentence served to distance his evidently analogical argument from the troubled discourse of “Analogy,” Eliot deploys the strategy in *Middlemarch* in order to emphasize the fellow-feeling of sympathetic perception (*Homo homini*) and secure Dorothea’s pedagogy. By narrating for both of them, Dorothea extends her own sympathetic understanding to Rosamond’s, tacitly asserting the commonality that analogy struggles to perceive. Dorothea continues: “Even if we loved some one else better than – than those we were married to, it would be no use I mean, marriage drinks up all our power of giving or getting any blessedness in that sort of love. ... it is so hard, it may seem like death to part with [this feeling] – and we are weak – I am weak –” (797). The trick of the passage lies in its refusal to collapse back into the love triangle that her first encounter with Rosamond and Will presented. By construing their larger desire (for companionship over sexual gratification) *as* common, Dorothea keeps that collapse at bay. Instead, Dorothea insists upon a larger analogy, between her own marriage and potential affair with Will, and Rosamond’s marriage, and potential affair, an analogy of love triangles, as it were. Insofar as Dorothea is speaking *for* Rosamond, she is *formalizing* their relation. Insofar as she participates *with* Rosamond in their relation, it is *serial*. Here, apparently, is the complex negotiation of participation and observer which Buzard has identified as the “autoethnography” of the Victorian novel. But it seems that the plural “we” has pushed Dorothea’s analogy to its breaking point. In asserting her power to speak for both of them, Dorothea may have overstepped her authority: the “we” can collapse two individuals into a single subject and predicate for only so long before threatening precisely that mistaken identification which formed the bases for their flawed marriages to begin with. This collapse of authority is what Dorothea notes as she revises herself –

“we are weak – I am weak.” Here Scott’s translational technique, instead of mediating between modern convention and historical specificity, negotiates between commonality and individuality – precisely the negotiation that sympathetic negotiation addresses for Eliot.

Dorothea can only push the analogy so far herself – she can no more force Rosamond’s understanding than she could Casaubon’s. It is a dilemma of correspondence between her representation and the truth of their experiences. Hence, the moment dramatizes discursively the essential bind of the realist novel, as it attempts to *both* admit the fiction of its story *and* to describe the real world. The relationship is saved from foundering by a completely unexpected turn of events. Much as we are surprised by the charity of the Gleggs in *The Mill on the Floss*, it is *Rosamond* who begins to sympathize with *Dorothea*, and “taken hold of by an emotion stronger than her own,” she assumes Dorothea’s role. Rosamond begins to narrate : ““You are thinking what is not true”” she tells Dorothea, ““When you came in yesterday, it was not as you thought”” (798). Rosamond continues by describing the misunderstanding, and reveals that Will remains is as much as ever Dorothea’s lover. By speaking so, Rosamond not only secures the analogy shared by the two women, but completes it, salvaging Will from the third rail of extra-marital lover, refurbishing him for the rôle of Dorothea’s future husband. Hence, just as Dorothea has interceded, on the basis of analogous experiences, by re-describing Rosamond’s marriage with Lydgate, Rosamond intercedes, on the same grounds, by re-describing Dorothea’s future marriage to Will. Hence, Rosamond’s intervention dramatizes a potential moment of failure; without her support, the

sympathetic analogy that Dorothea proffers would have remained virtual, uncertain in its application to Rosamond's circumstances.

To review: in these chapters, the terms of the analogy shift, first from a perceived analogy between the troubled Lydgate marriage and the defunct Casaubon union (which authorized Dorothea's attempt to intercede), second to the problematic love triangles which Will had introduced to each (and the threat this posed to both marriages and to Dorothea's attempt to help), and finally, to the potential reformation of the Lydgates, and the potential union of the Ladislaws (a potential resolution dependent upon Rosamond validating, reciprocating, and revising Dorothea's potentially false account). The essential *differentia* of Eliot's use of analogy is illustrated here – she leans as heavily on *dis*-analogy as an avenue to common understanding. In disanalogy, the comparison established between two sets of relations is leveraged to prove dissimilarity. In essence, disanalogy argues that what is *not* common trumps what *is*. Hence disanalogy produces a negative hermeneutic that contends with and even revises constructive analogies. Rosamond, in validating Dorothea's analogy, salvages it, while Casaubon, in refusing her sympathetic interpretations, forecloses the opportunity for mutual understanding.

Rosamond's participation also reframes Buzard's observation of autoethnography in Eliot's novels – that “absolute outsidersness cannot be permitted to hold sway any more than unreflective insidersness.”⁷³ The terms of Buzard's model are formal (outside versus in) and disciplinary. But instead of the challenge of what is “permitted to hold sway,” the evident challenge is what can be brought *together*. The novel resolves into a moment of shared mediation – a form of participation that escapes the framing assumption of the observer. Hence, the potential for Rosamond to refuse Dorothea's analogy verifies its

serial nature – the shared production of social knowledge provided by their contact. Participation, in such moments, is not participation *within* some larger remove. As we have seen, critics including Raymond Williams and Catherine Gallagher have criticized Eliot's fiction for equating aesthetic resolution with an address of the social concerns of her novels. And it is true that the potential which is projected by this moment of sympathetic understanding between Dorothea and Rosamond does not bear full fruit. No matter how much sympathy Dorothea lavishes upon Lydgate, he, like Casaubon, dies unhappy with Rosamond. But it is equally important to stress that it is *Rosamond's* moment of sympathy that catalyzes Dorothea's marriage to Will. And if there is something idyllic in Dorothea ultimately forsaking her fortune to marry Will, there is something equally jaded in Lydgate's posthumously-given comment about his wife: she is his *basil*, inasmuch as "basil was a plant which had flourished wonderfully on a murdered man's brains" (835). And in this fashion, at the broadest level, the shared analogy between Dorothea and Rosamond serves to point up their disanalogy – a nod to the particularity of experience and tragedy that *The Mill on the Floss* did not accept.

The point is that moments of sympathetic analogy in Eliot's fiction work to destabilize the distinctions between participant and observer, between object and subject, between fiction and realism. More particularly, they recognize the formal features of analogy (as well as of metaphor, allegory, and parable) as potentially distortional abstractions – the threat of "sympathy ready-made." As we have seen, Eliot's novels translated the demystifying strategies of German bible criticism into an epistemological model that coordinates potential analogies, the critique of disanalogy, and perception of the equivalence of the "Other." By its nature it is a provisional, unstable dynamic – one

that always maintains a tenuous relationship between serial recognition and erroneous formal abstraction.

But disanalogy, as a hermeneutic, also looks forward to the productive role philosophers of science would later ascribe to “falsifiability.” Earlier in this chapter, I suggested how the discourse of realism, as developed by Eliot and Lewes as a negotiation between particular truth and general significance, provides a literary case for what Daston and Galison have termed “structural objectivity.”⁷⁴ In the philosophy of science, the turn toward “structure” allowed the reformulation of scientific theory and development in terms of formal language, and reorganized models of scientific progress as a relationship between the formal language of scientific theory on the one hand, and observation and experiment on the other. It was in the context of this structural turn that Karl Popper proposed his theory of “falsifiability.”⁷⁵ While a given scientific theory can never be proven to formal satisfaction, he suggested, important theories should be capable of being *disproven* by experimental evidence. The theory of falsifiability articulates a productive relation between the development of scientific thought and a negative empiricism rooted in error. Of course, Eliot associates realism with the complexity of “historical language” in explicit contrast to formal languages like mathematics. And yet, at the center of her realist novels lies the same basic question: given the conventionality of language, what is the epistemologically productive relationship between formal abstraction and experience? Eliot’s solution – the turn toward disanalogy, and more generally, toward the demystification of false formalisms – marks an equivalently profound commitment to the power of falsification in the formation of new knowledge.

In the following chapter, I will explore how Charles Darwin, as one of Eliot's contemporaries, similarly deployed analogy, in all of its serial, formal, and falsifying complexity, to articulate new knowledge about natural relations, and the patterns that organized species development. As we shall see, *The Origin of Species*, every bit as much as one of Eliot's novels, is driven by a careful exploration of the possibilities of abstraction, formalism, and particular commitment offered by figurative language. For Darwin, as for Eliot, new knowledge emerges through power of pattern analysis – the dialectical movement back and forth between similarity and difference. Ultimately, this power is proven not through disquisition and analysis, but through moments of contact – of surprise and perception. The power of Eliot's writing accrues in such moments of stunning error and painful recognition, and it accrues because these moments enact the collapse of representation's distance. I am persuaded to participate in the analogy this experience offers, what Eliot insists is “an idea wrought back to the directness of sense, like the solidity of objects,” – the sense that, within Eliot's novel, there lies “an equivalent centre of self, whence the lights and shadows must always fall with a certain difference.”

5. Chapter 5

The Tangled Bank: On *The Origin of Species* as Abstract Knowledge Formation

In mid-July 1837 Darwin took the plunge and opened a clandestine transmutation notebook (called his ‘B’ Notebook). He was entering an intense and lonely world of monologues and musings. The brown-covered pad was small, and on the title page he inscribed in bold letters the word *Zoonomia*, to signal that he was treading the same path as his grandfather. He then burst into a continuous series of notes covering twenty-seven or so pages, a breathless and machine-gun-like effusion of telegraphic jottings, representing hurried and excited trains of thought on the law of life. Transmutation was a fact, and these scribbles set the framework for his exploration of the ways animals and plants changed.

Adrian Desmond and James Moore, *Darwin*¹

So do Desmond and Moore start, in crackling prose, to describe Darwin’s launch into the speculations that would culminate, more than two decades later, in *The Origin of Species*. The passage registers, in its energy, in its awareness of what would come, the break that the “B” notebook marks in Darwin’s own life, as he gave himself the speculative space to pursue his “dangerous idea.” And in this manner, the biographical incident echoes typologically the larger sense of historical exceptionalism and epistemic break that the publication of *The Origin* in 1859 has served in the history of science and Western thought. Of course, it was in part as an attempt to dismantle this exceptionalism, this sense of Darwin as “a seer, a genius out of time,” that Desmond and Moore wrote their biography.² As such, the work serves in a tradition of recent studies that have revised our sense of how Darwin and his ideas were woven into the fabric of his time and culture. In its most tendentious version, this argument insists that there was really not much special about Darwin or *The Origin* at all; in “Why Darwin?,” a recent review of a several studies marking the 150-year anniversary of Darwin’s famous book, Richard Lewontin

(one of the most vocal proponents of Darwin's un-exceptionalism) puts the case succinctly, arguing that the fundamental tenets of modern evolutionary theory were developed before and after Darwin's time, with the exception of a set of core insights which Darwin shared with less-credited Alfred Russell Wallace and Herbert Spencer.³ On this view, the towering place afforded to *The Origin of Species* in the history of science is, at best, a recognition of how effective Darwin was at enlisting popular interest and institutional support; at worst, arbitrary or mistaken.

As my introduction and the course of the proceeding argument have indicated, the effort of this chapter might be understood as bolstering our sense of Darwin's work as a reflection of the larger currents of historical thinking in the period, by working his writing into the context of contemporary comparative thought and the effort to reinterpret history through analogical relations. But at the same time, I wish to retain a sense of the specialness of Darwin's theory and the manner in which it is developed in *The Origin of Species*. As the following chapter will show, Darwin's writing was insistently and richly analogical, and his use of analogy to formulate and refine his theory of natural selection was a carefully-honed skill, developed over the course of twenty years of writing and revision. Darwin famously describes *The Origin* as "one long argument," and I will show that Darwin understood that argument to rest upon one big analogy between domestic and natural speciation (a central point that, as I will later discuss, early reviewers like Whitwell Elwin and Samuel Wilberforce recognized). Moreover, the contours of that analogy, and its interface with larger trends in nineteenth-century thinking about history, were shaped by the turn towards comparative historicism that I have illustrated in the previous chapters. It was in this connection that the nineteenth-century novels of Scott

and Dickens (and latterly, Eliot) played a major role in shaping the analogical narrative features of nineteenth-century prose, conditioning the style that Darwin drew upon in composing *The Origin*.

But to frame this emphasis on the language of Darwin's *Origin* merely in terms of style would not do justice to the importance of language as a representational technology that developed, articulated, and shaped the interpretation of Darwin's new theory of natural selection. As George Levine has recently put it, in his own review of the *Darwiniana* of 2009, "Darwin's language is not distinct from the ideas it expresses but intrinsic to them; it cannot be skimmed off. Alive with metaphor, twists, and hesitations, the prose is saturated with aesthetic, intellectual, and ethical energy, and with the sorts of ambivalences and multivalences characteristic of literature."⁴ My work engages a tradition of scholarship that explores the literary character of Darwin's work. It was only fifty years ago, on the hundredth anniversary of the publication of Darwin's dangerous book, that Stanley Edgar Hyman inaugurated the literary study of *The Origin of Species* in a sensitive and ground-breaking essay, stating his argument in bald terms: "I would submit that *The Origin of Species* caught the imagination of its time as a dramatic poem, and a dramatic poem of a very special sort."⁵ Hyman's study is remarkable for its attention to key elements of *The Origin* that remain central to Darwin criticism: its rhetoric,⁶ the function of figurative language (especially metaphor),⁷ its incorporation of Western myths and narrative forms,⁸ its Romantic understanding of nature's aesthetic organicism,⁹ its secular enchantment,¹⁰ its creation of new fictional models.¹¹ As an instance, take Hyman's argument about the famous "tangled bank" passage for which his book is named: "The image of the great Chain of Life is ordered, hierarchic, and static,

essentially medieval; the great Tree of Life is ordered, hierarchic, but dynamic and competitive, a Renaissance vision; but the great Tangled Bank of Life is disordered, democratic, and subtly interdependent as well as competitive, essentially a modern vision.”¹² At the same time, Hyman’s insistence that *The Origin* be read as a “poem” rested in an understanding of literature itself that has shifted radically over the last fifty years. Though Hyman suggests that the literary qualities of *The Origin* contributed to its effect, this argument was offered from a consensus position that the “literary” and “poetic” qualities of *The Origin* were, in some sense, extrinsic to the theory itself. To read something “as a dramatic poem,” for Hyman, meant to read it for its poetic and literary merits – to take a fresh look at *The Origin* as an object of aesthetic value. Thus, while Hyman’s work can be seen to complicate the interaction between science and literature, it generally accepts the strict distinction between them, most famously advanced by C. P. Snow in the same year as Hyman’s study, as a division between “Two Cultures.”¹³ In the fifty years since, scholarship has challenged the hard distinction between the study of literature and the practice of science precisely on the grounds that Hyman’s work indicates. If much of science, as practiced by writers like Darwin, draws upon the resources of language and its ostensibly “literary” features, is it not fair to suggest that those features constitute an important aspect of scientific practice – an aspect that can be usefully studied by literary scholars? In other words, can science be studied, not *as* literature, but as produced (in part) *by means of* literature? Criticism from Hyman’s time to our own has addressed this question by increasingly loosening the latter category in order to redefine the first – shifting the object from an exclusive focus on generic forms (dramatic poem, journal article) to larger categories (narrative, rhetoric,

culture) within which we can recognize both science and literature functioning. In ground-breaking works by Gillian Beer and George Levine, for instance, the science/literature contrast shifts to that between “narrative and argument” in order to “demonstrate[] the degree to which narrative and argument share methods” – the “shared, cultural discourse” where science and literature intersect.¹⁴ The present chapter takes up the nuanced attention to Darwin’s language in studies by Beer and Levine by focusing on the more basic category of language in itself. Hence, in addition to drawing upon analysis in my earlier chapters on the formation and disposition of the nineteenth century discourse of analogy, I will continue to elaborate upon the basic linguistic and semantic features of analogy and figurative language as they shape Darwin’s writing. Just as the important features of Scott’s historicism or Dickens’s social understanding were found in their distinct syntheses of analogical and formal organization into coherent representational systems, I will demonstrate that it was Darwin’s sophisticated strategies of consolidation – the coordination of various techniques of comparison and formalization – that served to establish the theory of natural selection, and reshaped the semantic features of the landscape of mid-nineteenth century naturalism within which he worked.

In describing Darwin’s characteristic synthesis of the larger context of comparative thought and naturalistic understanding into a new theory of biological development, I hope to reinforce our sense of why *The Origin of Species* deserves a special place in the history of science and among the intellectual productions of the nineteenth century. As such, this chapter contributes to our understanding of the “specialness” of evolutionary science itself, and contributes to a growing body of

scholarship upon the fundamental disunity of the sciences.¹⁵ It has long been recognized that evolutionary science, in Darwin's time and in our own, has peculiar features that distinguish it from the traditional physical sciences – it is particularly “historical” and “descriptive” in character, relying upon a reconstruction of past events rather than being “hypothesis-driven” or “experimental.”¹⁶ While these contrasts have come under increasing fire, they do present pressing arguments against the ultimate reducibility (or “consilience” in William Whewell's terms) of evolutionary theory to a logically entailed set of propositions, as described in the philosophy of science in the theory of scientific “unification,” by which sufficiently explanatory scientific theories are characterized by their recursive reducibility into more basic sets of strict propositions.¹⁷ If the “literary” features of Darwin's theory are not only functional but intrinsic, then there are features of the theory of natural selection that cannot be reduced to strict formal entailments – the role played by “ambivalences and multivalences” is central to *The Origin* because it is central to the science itself. As Evelyn Fox Keller has put this, with respect to later genetic science, “much of the theoretical work involved in constructing persuasive narratives of development out of genetic data depends on productive use of cognitive tensions generated by ambiguity and polysemy and, more generally, by the introduction of novel metaphors.”¹⁸

Finally, the peculiarly descriptive, narrative, and even novelistic features which have been recognized in the *The Origin of Species* are intimately related to the peculiarly textual fashion of Darwin's science. While Steven Shapin and Simon Schaffer have emphasized the importance of practical, paratextual knowledge in the development and communication of science,¹⁹ *The Origin* confronts its reader in a peculiarly non-practical

way – through an engagement characterized more by the imaginative engagement of the “virtual witnessing” than the formulation of protocols that could draw upon his readership as potential laboratories at a distance. As Darwin described *The Origin* project in a letter to John Murray,

It is the result of more than 20 years work; but as here given, is only a popular abstract of a larger work on the same subject, without references to authorities & without long catalogues of facts on which my conclusions are based. The book ought to be popular with a large body of scientific & semi-scientific readers, as it bears on agriculture & history of our domestic productions & on whole field of Zoology, Botany & Geology.

Darwin never intended his “abstract” as a plan of practical scientific action and investigation – that was for the later book. Instead, he wanted to establish what he had been privately referring to for decades as “his theory.” He cast his audience and his argument broadly and in language; in Galison’s terms, no “Fingerspitzengefühl” was required.²⁰

Yet the peculiarly textual nature of science as practiced through *The Origin* should not occlude the role that Darwin’s visual imagination played in that work and the theory of natural selection generally. Jonathan Smith has recently called attention to Darwin’s broad engagement with Victorian visual culture, and has carefully examined the hundreds of illustrations that feature throughout Darwin’s writings.²¹ Curiously, as Smith notes, from the perspective of its illustrations, *The Origin* seems again exceptional – its single figure a sharp contrast to the multitudinous plates and diagrams that Darwin commissioned for his other publications. Even so, Darwin emphasized the deep importance of that single chart of descent and evolution to secure his theory, and a final concern of this chapter will be to explore how the image engages with a textual network of comparison, differentiation and consolidation, in order to inculcate formal strategies of

analogical interpretation – a practice that reflects the collaboration between Dickens and Phiz in producing a visual model of comparative fluency for their readers. The formative role that Darwin’s thinking on analogy played as a motivation for *The Origin*’s diagram also serves to excavate the relation between analogization and modeling in Darwin’s theory, and can even serve to shed light on the place of modeling in nineteenth-century biological science more generally.

I. The Analogical Foundations of Darwin’s Theory

The previous chapters have teased out the complex nature of analogical practice in the nineteenth century, both in “analogy” as an explicit term for an increasingly outmoded form of philosophical speculation, and in the use of analogy in a variety of comparative practices that often eschewed the title, despite deep roots in the analogical traditions of language theory, biblical hermeneutics, and natural theology. A first look at the use of analogy in *The Origin* suggests how Darwin’s work reflects this heavily-conditioned compromise between unmarked deployments of comparative method and explicit discussions of its broad speculative features. Hence, after a brief introduction and a historiographical essay that establishes a comparative history of earlier theories of evolution, the first edition of *The Origin* begins with a sentence resonant with analogical relationships: “When we look to the individuals of the same variety or sub-variety of our older cultivated plants and animals, one of the first points which strikes us, is, that they generally differ much more from each other, than do the individuals of any one species or

variety in a state of nature.”²² To translate into a traditional notation for analogy [A : B :: C : D]:

“Individuals of the same variety or sub-variety of our older cultivated plants and animals”	:	“differ much more from each other”	::	“individuals of any one species or variety in a state of nature”	:	(differ less)
--	---	---------------------------------------	----	---	---	---------------

The structure of the sentence hangs upon a basic disanalogy between natural and domestic species. But there are further analogies implied within the statement. For instance, in order to make this evaluation, it is necessary to compare domestic species with natural, and to examine their relative variations: [species 1 : variation 1 :: species 2 : variation 2] . And the slippage between “varieties” and “subvarieties” suggests a further comparison that is drawn between the two types of group among domestic species: [varieties : variety-level variation :: sub-varieties : sub-variety-level variation]. The same for the relationship between “species” and “varieties” in nature. Finally, there is an implicit analogy drawn between the type of clades that are useful when talking of domestic versus natural species, so that [domestic varieties : domestic sub-varieties :: natural species : natural varieties]. In fact, because the phenomenon that Darwin is describing is rooted in a method of comparative observation, as developed by Jean Baptiste Lamarck, Georges Cuvier, Geoffrey St. Hillaire, Richard Owen and others, as forms of biological “analogy” (as discussed in my third chapter), it would in principle be possible to take this analysis of nested comparative relationships even further; we might extend it down to the relations between the properties of particular syntype and holotype specimens that were used within the classificatory analyses Darwin is drawing from here

– for instance, the thousands of barnacle specimens he’d used over the seven years he spent working on his studies of the Cirripedia (1851, 1854).

But Darwin doesn’t call these relations “analogies”; though the first few chapters of *The Origin* are filled with complicated and suggestive comparisons of this kind, Darwin generally reserves the term “analogy” for explicit speculations that move outside quasi-consensus observations from comparative anatomy. To take an example, it is in a movement from the latter to the former that Darwin refers to analogy in *The Origin* in a speculation that launches one of the most controversial passages of the work:

Analogy would lead me one step further, namely, to the belief that all animals and plants have descended from some one prototype. But analogy may be a deceitful guide. Nevertheless all living beings have much in common, in their chemical composition, their germinal vesicles, their cellular structure, and their laws of growth and reproduction. We see this even in so trifling a circumstance as that the same poison often similarly affects plants and animals; or that the poison secreted by the gallfly produces monstrous growths on the wild rose or oak-tree. Therefore I should infer from analogy that probably all organic beings which have ever lived on this earth have descended from some one primordial form, into which life was first breathed. (455)

The status of the analogy in this passage is largely ambiguous: what, exactly, *is* common in these germinal vesicles, or in the laws of growth and reproduction? What is analogous about the monstrous growths of the gallfly, and how does that provide evidence for “one primordial form”? With some background in science and careful thought, the analogies might be located, say, in the suggestion that if an animal (the gallfly) can directly affect the growth of plants by inducing galls, it must use a form of communication which the plants understand, indicating ancestral relation. But this interpretation is patently unclear.

To put this differently, the passage alludes to analogies, but does not produce them. Strictly speaking, the grammar of an explicit analogy (A is to B as C is to D) requires at minimum two clauses – two subjects and two predicates. Instead of such

syntactic parallels, the passage above relies upon plurals. In the first sentence, a compound noun phrase (“animals and plants”) is funneled into a unitary predicate (“have descended”), and in the third sentence, this compound becomes the plural “living beings.” Compare the above passage with the sentence which closes the first paragraph of the first chapter: “Our oldest cultivated plants, such as wheat, still often yield new varieties: our oldest domesticated animals are still capable of rapid improvement or modification” (71). Though Darwin does not call this analogy, the grammar of analogy is evident, and the analogy drawn between plants and animals is one which might even support the nominal analogy presented above. In the shift from explicit but unmarked analogies at the open of the work, to their marked translation into unitary sentences at its close, we can recognize a pattern earlier discussed with regard to Paley and Eliot in my first and fourth chapters – with one key exception: these translations from analogy (as it is incorporated into expressions not, strictly speaking, analogical) are what Darwin labels *as* “analogy.”

In light of the previous discussion of analogy’s history, and in particular, the historical trend toward translation into unmarked strategies of comparison, it’s worth asking to what degree Darwin recognized a connection between analogy as that “deceitful guide” which allows him to speculate on the common origin of biological life, and the nitty-gritty comparative technology that allowed formulating the relationships between specific species, varieties, and sub-varieties. After all, as the epigraph to this chapter points out, Darwin began his “B” Notebook with the title of Erasmus Darwin’s speculative work, *Zoonomia*, and Charles’s emphasis upon the potentially misleading

features of analogy is consistent with Erasmus's own criticisms of analogy at the opening of that work.

In fact, it is only by looking to Darwin's intense and evolving engagement with analogy as practice *and* as theory in the evolution notebooks that we can take stock of the complexity of Darwin's understanding of analogy – and the foundational role it played for his theory of natural selection. Early in the “B” notebook Darwin's use of analogy reflects his sense that it is a broad speculative connection. Analogy plays the same function that it had served, for instance, in his “A” notebook on geology, where it denominates broad speculative connections between widely disparate strata or formations. In the early pages of the “B” notebook that usage is conserved, as Darwin struggles to represent how individuals branch out to form distinct species, including a remarkable series of speculations on the effect of geographic isolation and several famous early sketches of what Darwin would call “The Tree of Life.” These pages of the notebook are absorbed with the question of how to represent and recognize speciation. This interest turns to a canvas of authorities who've examined the relationships between similar but distinct groups of organisms, in order to understand what the results of speciation might look like. Then, halfway through the notebook, he notes William Sharp Macleay's theory of “relations of analogy” in his *Horae Entomologicae* (1819-21). Macleay had a circular theory of species development – a bit like a Venn diagram – that argued for an overlap of distinct species that would develop more similar features in the areas of overlap. As Darwin excitedly notes,

The relations of Analogy of Macleay &c., appears to me the same, as the irregularities in the degradation of structure of Lamarck, which he says depends upon external influences. – For instance he says wings of bat are from external

influence. – Hence name of analogy, the structures of the two animals bearing relation to a third body, or common end of structure.²³

Earlier in the notebook, in an attempt to understand what would cause individuals of a species to diverge enough to establish distinct species, Darwin had discussed “affinities from three elements” – differential adaptation to aqueous, terrestrial, or aerial environments.²⁴ But it is only through Macleay’s emphasis upon analogy as a way of thinking about how species are acted upon by extrinsic rather than internal factors – the common relation to a “third body” – that Darwin finds a way of thinking about speciation that is tied to Lamarck’s earlier observations regarding the “degradation” of the ideal succession of forms. As I discuss in my third chapter, it was in order to address these gaps in the perfect series of biological forms that Lamarck had theorized what would later become understood as “Lamarckian” evolution. Later anatomists like St. Hillaire and Owen designated such adaptation to specific phases of environment as forms of “analogy” because they were evident in the similarity of structural modification toward a “common end,” as seen, for instance, in the similarity between bat and bird wings as organs of flight. But whereas, for Lamarck, adaptation to environment was a kludge that addressed the insufficiencies of this classificatory model, Darwin recognized in the forces that underpinned these specific “relations of analogy” a force that could drive speciation, because it marked how organisms of the *same* species would develop *differently* in *different* environments. Hence, “analogy,” in the specific biological sense of what would later be termed “convergent evolution,” simultaneously marked similarity between very distinct groups of organisms, and a potential engine of dissimilarity between closely-related individuals. Hence, analogy becomes a central tool for theorizing speciation.

Appearing, with its cognates, more than fifty times, “analogy” becomes a primary focus of the “C” notebook, where it serves as evidence for the forces of divergence between species. As Darwin puts it, “Descent, or true relationship, tends to keep the species to one form (but is modified). the relationship of analogy is a divellent power & tends to make forms remote antagonist powers.”²⁵ In chemistry texts of the period, “divellent” behavior describes substances like liquid water and aromatic compounds that were understood to vaporize easily and disperse.²⁶ Here, Darwin uses the term to mark analogy as a diagnostic of “antagonist powers” which could overcome the centripetal forces of inheritance, which “tend[] to keep the species to one form.” Darwin continues:

Hence relation of analogy may chiefly be looked for in the aberrant groups. – It is having walking fly catcher, woodpecker &c &c which causes confusion in this system of nature. – Whether species may not be made a little more vigour being given to the chance offspring who have any slight peculiarity of structure hence seals take victorious seals, hence deer victorious deer, hence males armed & pugnacious all order; cocks all war-like; this wars against resemblances relationship, the dissemblances analogy, in any class those points which are different from each other, & resemble some other class, analogy.²⁷

Darwin sees within the phenomenon of analogy both an explanation for the cladistic challenges of grouping distinct (and less-related) organisms like woodpeckers and fly catchers which both “walk,” and the larger patterns of sexual similarity between males and females of disparate species. Such morphological analogy, precisely because it presents challenges for classification, presents evidence of differential forces which cause divergence of individuals from the norm for a species. Notably, Darwin extends analogy in this sense to describe what he would eventually term “sexual selection” – the central theory of his later work on evolution, particularly, *The Descent of Man*.

As he continues to work through the implications of analogy as a form of evolutionary response to environment, the discussions of Macleay-Lamarckian analogy

become increasingly complex, and sometimes fanciful. At one point, he considers an “analogy ... traced between relationship of all men now living & the classification of animals” and imagines making the case that “a species,” like an individual person, “must be compared to family entirely separated from any degree” so that, while “tailor[s]” from different families “would be analogous to each other &c &c” they actually belong directly and exclusively only to the actual families from which they descend.²⁸ In such passages, it is clear, Darwin uses “analogy” in two distinct senses; first there is the analogy between “men now living” and “the classification of animals” – a formal analogy that is designed to illustrate the latter by framing it in terms of the former. But secondarily, there are “relations of analogy” in the hybrid Lamarck/Macleay sense, which mark serial relationships between individual species (or between individual men) that have evolved to share common features.

Analogy becomes an increasingly fraught term, as Darwin thinks through the possibilities it might offer to mark differentiation between distant species. He worries that while “it may be said argument will explain very close species in isld near continent, must we resort to quite different origin when species rather further. – Once grant good species as carrion crow & rook formed by descent or two of the willow wrens &c &c & analogy will necessarily explain the rest.”²⁹ While Darwin felt confident that geographical isolation could be used to suggest the divergence of closely-related species in cases, like islands, where two populations became separated, he felt it would be hard to explain further divergence; some mechanism was necessary to explain the “absence of varieties in a wild state.” He hoped that his new theory of analogical divergence would fulfill that function – though he “fear[ed that his] argument must rest upon analogy.”³⁰

And as he thought through the implications of the tree of life he had begun to sketch in the margins of the “B” notebook, he realized that analogy would also have to serve to explain the apparently similarities between, for instance, whales and fish, when they were necessarily descended from vastly different groups of organisms. He summarizes:

My theory drives me to say that there can be no animal at present time having an intermediate affinity between two classes. – there may be some descendant of some intermediate link. – the only connection between two such classes will be those of analogy, which when sufficiently multiplied become affinity yet often retaining a family likeness, & this I believe the case. – Any animal really connecting the fish & mammalia must be sprung from some source anterior to giving off of these two families, but we see analogies between fish.³¹

As this summary notes, analogy discloses the differential, adaptive forces that both serve to drive speciation in cases where no geographic isolation was possible, and also, to explain why there seemed to be odd intermediate cases between groups that were otherwise extremely distinct. Whereas Lamarck had agonized over the discontinuity of the putatively continuous chain of organisms, Darwin emphasized that there wasn’t *enough* clear discontinuity between extent groups, on the theory of common ancestors – and used analogy as evidence for the forces of adaptation to common environments that produced this problem.

It is tempting to speculate that analogy becomes unwieldy in the “C” notebook as it is applied to diagnose and explain a range of forces and features intrinsic to his developing theory of common descent. The above summary of analogy’s function seems to be an attempt to clear the way. In the writings that followed, Darwin abandoned Macleay’s terminology; analogy is restricted once again to broader speculative comparisons. At the same time, the specific features of differentiation, similarity, and convergence that Macleay and Lamarck’s “relations of analogy” marked in the “C” notebook retained a crucial place in Darwin’s thinking, and continued to be developed

through comparisons, like that discussed at the opening of *The Origin* of species, of the common and differential elements of individuals, varieties, and species. But one retained use of “analogy” is to mark how comparison between modern species and groups can help us to evaluate their historical development. In the “E” notebook, for instance, Darwin records a quote from an 1839 address of William Whewell to the Geological Society of London: “‘If we cannot reason from the analogies of the existing to the events of the past world, we have no foundation for our Science’.³ – ~~it is only analogy~~ but experience has shown we can & that analogy is *sure guide* & my theory explains why it is sure guide” (emph. added).³² Whewell’s point was general; in accord with Lyell’s argument for gradualism, he argues that contemporary processes can be used to evaluate past events. Darwin’s observation is much more pointed – by arguing that “my theory explains why it is sure guide,” Darwin is asserting that the analogies of comparative science are insights into the evolutionary history of individual species. It is the strength of this insight, I would suggest, that prompts him to cross out his initial observation that “it is only analogy” in favor of a more forceful assertion of analogy’s value. If he would later describe analogy as a “deceitful guide” in *The Origin*, such passages suggest how such critical performances belied his confidence in analogy’s role. As he had put it with fresh excitement back in the “B” notebook,

My theory would give zest to recent & fossil Comparative Anatomy, it would lead to study of instincts, heredity & mind heredity, whole metaphysics – it would lead to closest examination of hybridity & generation, causes of change in order to know what we have come from & to what we tend – to what circumstances favour crossing & what prevents it.³³

The elegance of his new theory was that it added historical depth to the analogical methods of comparative anatomy, at the same time that it explained some of its peculiar features – for instance while some kinds of comparison (like that between whales and

fishes) seemed to confuse taxonomy, others helped to clarify it. As Darwin recognized, his theory of natural selection was analogical through and through – it rested on the observations of comparative science, and it would require a sophisticated comparative examination of biological phenomena in order to support and defend it. While he could find other language to describe the processes that underpinned Macleay-Lamarckian “relations of analogy,” it was in this larger sense, as a “sure guide” to the connection between taxonomy and evolutionary history, that analogy would be invaluable.

II. The modes of analogy: Consolidation of meaning in *The Origin of Species*

In this way, as Darwin works through the remainder of his evolution notebooks, and eventually, the sketches and drafts that would emerge as *The Origin of Species*, the language of analogy becomes increasingly restricted to the larger claims and moves of his theory – the relation between modern species and the “third body” of their common ancestors; the assertion that all species have descended from some few and perhaps only a single original type. And he worked to develop an alternate language for the particular claims of species differentiation, divergence, and the comparison between species and variety that formed the texture of his argument. *The Origin* constructs its theory of natural selection within a network of different figurative and discursive practices – expressions that constitute an interlocking narrative of historical change and differentiation that changed how his reader would understand the operative terms of his argument and the phenomena it addressed. In other words, it effected a semantic shift, rewiring how key terms and concepts should be understood, and formulating new

expressions and theories, while constraining interpretation to secure their place within his theory. In terms of the semantic space model, Darwin's task with *The Origin* was to radically reconfigure the topography of his audience's interpretive space, so that striking new interpretations would gain depth and significance, while older dogmas, for instance, of species fixity, would appear shallow and unpersuasive.

The core power of analogy, as developed through *The Origin of Species*, lies in its ability to create new meaning – a process allayed in my introduction to “catachresis.” Darwin doesn't coin new words. Instead, he works to change the reader's understanding of old terms – either outright (as in the case of “species,” “variety,” “variation,” or even “nature”), or via new combinations, particularly “natural selection,” and “sexual selection.” As noted previously, the interpretation of meaning is heavily contextual, bringing all of our cultural, generic, and semantic experience to bear – what I have characterized as the “median of expectation.” This very context makes it more difficult to interpret a word used in a new way. It takes more than redefinition to change a term's meaning. Thomas Kuhn, in *The Structure of Scientific Revolutions*, described this dilemma in terms of paradigms, arguing that “each group must use its own paradigm to argue in that paradigm's defense. ... It cannot be made logically or even probabalistically compelling for those who refuse to step into the circle.”³⁴ Darwin was sensitive to this problem; in the third edition of *The Origin*, he responded to critics who “objected to the term Natural Selection” and “even imagined that natural selection induces variability.”³⁵ If the vast majority of contemporary works deploy a word in the conventional sense, the likelihood that an audience will accept a term's new sense is very low. The scale of *The Origin's* task, and the innovative interpretation which drives it, required a great deal of

“redundancy” in the sense of repetition and translation – features which, as I have already argued, provide the structural information necessary to stabilize new interpretations of old phenomena. Darwin coordinates this redundancy in order to produce a sharp, if startling, meaning.

It is precisely in the way that analogy is deployed within a network of expressions and alternative figures that serve to buttress the key theoretical insights of Darwin’s theory that *The Origin of Species* participates in the larger context of nineteenth-century comparative historicism. In doing so, Darwin drew from proliferating comparative discourses of the period, detailed throughout my earlier chapters: new philological theories of common descent, the anthropological arguments of Paley’s natural theology, and, more strikingly, the comparative historicist discourse of the contemporary novel. Previous studies of Darwin’s engagement with literature have provided illuminating accounts of the echoes of a handful of specific works in his evolutionary writing, in particular, *Paradise Lost*, which he famously carried with him while tromping over the mountains of the Andes and the plains of the pampas during the course of his Beagle voyage.³⁶ But I would suggest that, more generally, it was Darwin’s immersion in Victorian historical narratives, in particular, the ritual of having Emma read novels to him twice daily, which most influenced Darwin’s language. Outside of the scientific articles, references, and correspondence that he pored over while writing in his scientific works, it seems that novels constituted the largest share of Darwin’s textual environment. We know, for instance, that Darwin had a fondness for Scott’s historical romances, and read *The Antiquary* and Lockhart’s biography of Scott at the close of 1838 and early 1839.³⁷ And his avowed penchant for novels with happy endings suggests that Dickens may

featured in his readings as well, given his enormous popularity, alongside Scott imitators like Bulwer-Lytton. Like Eliot, Darwin privately theorized in terms of analogy and wrote in terms of juxtaposition. And like Scott and Dickens, for that matter, his popular work was deeply dependent upon strategies of comparative interpretation that were honed over time. Darwin's book transformed how nature would be understood by using networks of analogies to develop unusual interpretations, using techniques of displacement, consolidation, and translation that we've already examined in the fictional works of Scott, Dickens, and Eliot. The task of this chapter is to show how.

i. Disanalogy

It might seem strange to begin with the negative form of analogy, but as we have seen in the previous chapter, disanalogy can be enormously powerful, particularly in breaking down stale preconceptions. Within *Middlemarch*, it is the false analogy between self and other – “sympathy ready made” – and the frisson of disanalogy which this prepares, that mark the discovery of new understanding. Darwin is also a master of disanalogy, deploying it heavily in *The Origin* in order to pick apart the natural-theological consensus which still dominated English scientific thought in the mid-nineteenth century.³⁸ The use of disanalogy is most extensive in the first two chapters, on “Variation Under Domestication” and “Variation Under Nature.” To return to the first two sentences of the first chapter:

When we look to the individuals of the same variety or sub-variety of our older cultivated plants and animals, one of the first points which strikes us, is, that they generally differ much more from each other, than do the individuals of any one species or variety in a state of nature. When we reflect on the vast diversity of the

plants and animals which have been cultivated, and which have varied during all ages under the most different climates and treatment, I think we are driven to conclude that this greater variability is simply due to our domestic productions having been raised under conditions of life not so uniform as, and somewhat different from, those to which the parent-species have been exposed under nature. (71)

As I've already noted, the core disanalogy of the first sentence emphasizes that domestic species differ more, natural species less. And the following sentence adds a causal disanalogy: the greater variability of domestic species is due to the greater variability of their environment while natural species show less variability, because they experience less variable "conditions." Recognizing, as pointed out in my previous chapter, that "disanalogies" can be understood as analogies that stress dissimilarity over similarity, these two analogies do overlapping but distinct work. In the first, Darwin points to an apparent distinction between domestic and wild animals. Taken at face value, this distinction would be destructive to the aim of *The Origin*, which allies domestic breeding with an analogous natural force. (The argument for distinction, Darwin tells us, was "often made by naturalists ... that no deductions can be drawn from domestic races to species in a state of nature" (77).) The second analogy then *revises* the first, arguing that it is not a broad difference between domestic and wild animals that causes their differential variability, but rather, the different conditions under which they live. From a more strict disanalogy, we turn to an analogy of difference: rather than a distinction in kind, we get a distinction of degree. This shift might be represented by modifying how we represented the base structure of the analogy to include more than four parts:

domestic life	:	greater variability	:	more variable conditions	::	wild life	:	less variability	:	more uniform conditions
------------------	---	------------------------	---	--------------------------------	----	-----------	---	---------------------	---	-------------------------------

Alternatively, we might say that the second analogy clarifies how we should interpret the first; rather than a divine distinction between domestic and wild, variation provides evidence of continuity between the two. As readers, we are pushed from a more traditional interpretation to a less likely one – a shift reinforced by the teeming examples of domestic and natural variation throughout the first two chapters. On a first reading, we have to imagine the contemporary reader as unable to unpack the implications of the tension posited between species and variety which these analogies establish. While this opening passage models the analogical reading strategies on which the argument will depend, it does not yet provide the semantic restructuring necessary for this basic conundrum to make sense. This is precisely what the first four chapters will accomplish.

As an example, Darwin gives the development of the domestic and wild ducks: “for instance, I find in the domestic duck that the bones of the wing weigh less and the bones of the leg more, in proportion to the whole skeleton, than do the same bones in the wild duck; and I presume that this change may be safely attributed to the domestic duck flying much less, and walking more, than its wild parent” (74). Here the more complex form of the doubled analogy above is fully realized:

domestic duck	:	heavier leg bones, lighter wing bones	:	less flying, more walking	::	wild duck	:	lighter leg bones, heavier wings	:	more flying, less walking
------------------	---	--	---	---------------------------------	----	-----------	---	---	---	---------------------------------

We might choose to represent this basic structure in even more complex form, separating out the leg and wing variations, tying them independently to flying and walking behavior, but the point is clear. The systematic analogy of difference proposed in the first two sentences of the chapter has gained resolution and texture through the addition of two analogous differences between domestic and wild species. The source of the analogy

here is itself mathematical – Darwin has measured the proportional weight of leg and wing bone to skeleton for both wild and domestic ducks. This calculation produces two analogies in the strict mathematical sense discussed in my first chapter – the comparison of two ratios (one for leg bones, the other for wings). These mathematical analogies slip neatly into the framework of Darwin’s systematic analogy between wild and domestic species, much as Bohr, in my introduction, incorporated a natural language analogy into the formal language of physical equations. Of course, the larger task of *The Origin of Species* is not to prove the commonalities of domestic and wild creatures, but to develop Darwin’s theory of natural selection. But as the fundamental argument is that natural selection is analogous to human selection, such hybrid cases provide just the example Darwin was looking for: evidence that natural and human selection are analogous processes.

It turns out that Darwin’s limited first exposition of natural selection is drawn from precisely this hybrid of natural and domestic environments – and it is presented through a disanalogy:

In regard to the domestic animals kept by uncivilised man, it should not be overlooked that they almost always have to struggle for their own food, at least during certain seasons. And the same species, having slightly different constitutions or structure, would often succeed better in the one country than in the other, and thus by a process of “natural selection,” as will hereafter be more fully explained, two sub-breeds might be formed. (96)

The first sentence establishes the threshold environment produced by “uncivilised man.” Their domesticated animals are affected both by human selection (hence their “domestic” status) but also, “at least during certain seasons,” the struggle for existence (the engine of natural selection). Natural selection is entertained as a disanalogy:

a species with a specific constitution	•	succeeds better in one country	•	producing sub-breed 1	••	the same species but with a different specific constitution	•	succeeds better in a second country	•	producing sub-breed 2
---	---	--------------------------------------	---	--------------------------	----	--	---	--	---	--------------------------

As Darwin notes, natural selection – still sequestered in quotes – has not been fully developed. And hence, the disanalogy is still highly ambiguous. For instance, it is still unclear how “slightly different constitutions or structure” can affect the survivability of a semi-domesticated species, or why this difference in the species’ success in two different environments would produce two sub-breeds. Moreover, the disanalogy has taken a particularly narrative form; rather than analyzing differences in the same synchronic moment, the disanalogy serves to distinguish between two different stories.

The next several chapters of *The Origin* clarify all of these features, elaborating upon natural variation, differentiation, and natural selection at great length, in order to refine the ambiguities latent in Darwin’s analogy between human and natural selection, and explain what the narrative dimension of natural selection entails. In the near term, the most important task for disanalogy in *The Origin* is to destabilize the traditional understanding of the species concept. Disanalogy in *The Origin* often sets up a conflict between opposing views, as when Darwin notes: “Several most experienced ornithologists consider our British red grouse as only a strongly-marked race of a Norwegian species, whereas the greatest number rank it as an undoubted species peculiar to Great Britain” (105). Such disanalogies are singularly effective, because they establish the inherent arbitrariness of the conflict, in this case, the delineation of species and variety. Disanalogy is generally less ambiguous than a positive analogy. As argued in my previous chapter, it is this incisive break that gives disanalogy such epistemological

force in George Eliot's fiction. In the above case the disanalogy [experienced ornithologists : determine red grouse a variety : : most ornithologists : determine the grouse a species] falls wholly on the predicated relationships – it is the supposedly inherent and divine distinction between “variety” and “species” which generates the contrast. And because variety and species produce a disanalogy when applied to the same object (as Darwin examples repeatedly in *The Origin*) the quality of their distinction is brought to a crisis.

In order to get a clearer handle on disanalogy and its relation to analogy, it's useful to draw in some work from the philosophy of science. In *Realism Rescued*, Jerrod L. Aronson, Rom Harré, and Eileen Way argue that many scientific theories are rooted in analogies between one system of relations and another. Insightfully, the authors suggest that there are three parts to such analogies.³⁹ There is the *positive* analogy that constitutes the theory's contribution, there is the *neutral* analogy, potential points of comparison which are irrelevant to the system, either because there is no corresponding feature, or because its comparison is unexplored, and, finally, there is the *negative* analogy, the points of contrast which damage the overall comparison. In terms of the foregoing discussion, disanalogies are analogies that focus on the “negative” analogy. Hence, when Darwin teases a disanalogy from the consensus view (as with the red grouse) he elucidates a powerful critique of that understanding.

Harré et al. discuss how an analogy, initially established for its positive correspondences, can be critiqued by finding negative points of comparison. But it is also possible to salvage an analogy that has negative elements of comparison by reinterpreting the terms in such a manner that there are recognized as neutral or positive.

And this is Darwin's primary strategy with disanalogy in *The Origin of Species*: though initially produced as critiques of a creationist perspective, the same points are salvaged as evidence for his evolutionary theory. Hence, in the species/variety contrast with regard to the red Grouse, Darwin ultimately salvages the analogy by reinterpreting species and variety not as distinct categories, but as analogous degrees of relatedness. Many examples can be drawn from Darwin's discussion of the domestic breeding, which spends much effort debunking the belief of "all the breeders of the various domestic animals and the cultivators of plants, with whom I have conversed, or whose treatises I have read, ... that the breeds to which each has attended, are descended from so many aboriginally distinct species" (88). The key contrast is between a traditional perspective, that sees breeding as the "modification" of stock by mixing in traits derived from other "original" species, and an evolutionary perspective, that sees selection as capable of change beyond the boundary of supposed "original" stocks.

Perhaps no example provides a more classic case of disanalogy coopted for analogy than in Darwin's well-recognized engagement with the population theory of Thomas Malthus.⁴⁰ The core of Malthus' contribution was recognizing that the apparent steady state ratio of population to sustenance did not hold in Imperial colonies – particularly in the United States, where population was doubling every twenty-five years. In order to explain this, Malthus converted a simple ratio of foodstuffs to people into an analogy of two ratios drawn from the timescale of the American example: a comparison of the ratio of 25-year food increase to the ratio of potential population growth in 25 years. Malthus proposed that we accept the American model as an approximation of maximum population growth – doubling every 25 years. However, he argued, the

maximum increase in food production for a developed country (in which much of the arable land is tilled) is only “arithmetical,” increasing at a constant, rather than exponential (or “geometric”) rate. Malthus presents his conclusion succinctly in the second chapter:

Taking the population of the world at any number, a thousand millions, for instance, the human species would increase in the ratio of – 1, 2, 4, 8, 16, 32, 128, 256, 512, &c. and subsistence as – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, &c. In two centuries and a quarter, the population would be to the means of subsistence as 512 to 10, in three centuries as 4096 to 13, and in two thousand years the difference would be almost incalculable, though the produce in that time would have increased to an immense extent. (23)

The argument is brought home not through the technical language of arithmetic versus geometric increase, but in the stark disanalogy of a series incompatible ratios:⁴¹

$1/1 \quad :: \quad 2/2 \quad :: \quad 4/3 \quad :: \quad \dots \quad :: \quad 512/10 \quad :: \quad \dots \quad :: \quad 4096/13$
--

It is this implacable disanalogy that made Malthus’ argument so powerful. In the final analysis, what Malthus’ disanalogy demonstrates is the power of such disjunction. It was impossible to continue to argue for a harmonious steady-state relation between population and sustenance after this critical disanalogy had been introduced.⁴² In the previous chapter, I describe this dynamic of falsifiability in terms of Popper’s theory of science.⁴³

The power of Malthus’ disanalogy is clearly marked in his influence over Darwin and Wallace, each of whom directly credited Malthus’ thinking as essential to their independent conceptions of natural selection.⁴⁴ For Darwin, Malthus’ disanalogy, applied to nature, is enshrined as the “struggle for existence.” Just as Malthus looked to colonial Americans for an example of full geometrical increase, Darwin looks to species

transplants in America, Australia, and Asia for examples of the “geometrical ratio of increase, the result of which never fails to be surprising” (118). But rather than counterposing this geometrical increase to an equivalent of Malthus’ “arithmetical” foodstuffs, Darwin counterposes potential growth to actual homeostasis in natural populations – the predicted to the perceived. The extended disanalogy between potential and observed population growth, when applied to nature, results in an infinitely ramified analogy that sets each organism, and its survival, in parallel to each other. Seen in this light, the serial disanalogy which Malthus establishes becomes part of the larger positive analogy between beings:

creature 1	:	potential growth 1 / actual growth 1	::	creature 2	:	potential growth 2 / actual growth 2	::	...
------------	---	---	----	------------	---	---	----	-----

This reflects a key dimension of the serial analogy at the core of natural selection – an extended comparison between competing organisms. As long as each remain in rough homeostasis, and death balances birth, the analogy holds, and “We behold the face of nature bright with gladness, we often see superabundance of food; we do not see, or forget, that the birds which are idly singing round us mostly live on insects and on seeds, and are thus constantly destroying life” (116). However, in those moments of exponential growth, when through some quirk of food or environment, a species or individual multiplies without check, the negative portion of this serial analogy between beings emerges – the monstrous imbalance in Malthus’ formula becomes clear. It is this potential for imbalance, a disanalogy in growth due to an advantageous trait, that fuels the engine of “natural selection.” But there is a basic problem with this theory, as the

sources of this disparity, Darwin tells us, are largely unknown: “What checks the natural tendency of each species to increase in number is most obscure. Look at the most vigorous species; by as much as it swarms in numbers, by so much will its tendency to increase be still further increased. We know not exactly what the checks are in even one single instance” (119-20). It is a remarkably candid admission of ignorance – one of Darwin’s most disarming narrative traits. And if “we know not exactly what the checks are in even one single instance,” Darwin is unable to specify even one isolated set of relations within this massive analogy.

Instead, in order to shore up this disanalogy between theory and observation, Darwin taxes his representational vocabulary in describing the widespread destruction it implies. In a much-discussed passage dropped from the first edition of *The Origin*, he compares “the face of Nature ... to a yielding surface, with ten thousand wedges packed close together and driven inward by incessant blows, sometimes one wedge being struck, and then another with greater force” (119). Beginning with his evolution notebooks, Darwin’s use of the wedge metaphor evolved slowly over the twenty years over which he developed his theory.⁴⁵ The result, as Gillian Beer puts it, is that “the progressive condensations of language over the various versions have here resulted in an image of uncontrollably intense and repellant anthropomorphism.”⁴⁶ More strictly, the sentence is a hybrid of various forms of figuration, a personification linked by simile to a compound metaphor composed of several operative terms. Strictly speaking, it is the simile that makes the passage “repellant,” as it yokes the (implicitly feminine) face of nature to a dynamic figurative system characterized by violent impact. At the same time, this simile serves the key function of fusing a homeostatic system of stable analogical replenishment

– the “face of nature bright with gladness” – and the dynamic Malthusian disanalogy which it obscures. But what is the mechanism of this “condensation” – the process of consolidation through which a series of analogies is transformed into evocative and figurative prose? In this current case, unable to specify even one full term of the analogy underpinning the “struggle for existence” (as he could for domestic versus natural variation), unable to convey the serial Malthusian disanalogy that fills placid nature with death and destruction, Darwin turns to a complex and violent image. The massively parallel analogy becomes “ten thousand wedges” held, like roman voussoirs, in an stable dynamic of kinetic energy – the “incessant blows” of Malthusian violence counterbalanced by its own distributed force. Read in this light, this passage is clearly not rhetorical in a facile sense: the ringing image provides a visual analog, a model, to buttress the essential logic of analogy upon which his theory rests.

ii. “Positive” analogy

I will return to the relation between figurative language and analogy in the following section, but for now, I’d like to dig deeper into the technology of analogy in *The Origin* – where it appears, and how it is used. Most of Darwin’s analogies in *The Origin* are not disanalogies, but positive analogies which develop the overall synthesis of the analogy between natural selection and domestic selection. Hence, one of the largest class of these comparisons are explicit analogies between natural selection and domestication. As an example, take this periscopic sentence from his fourth chapter:

As we see that those variations which under domestication appear at any particular period of life, tend to reappear in the offspring at the same period; – for

instance, in the seeds of the many varieties of our culinary and agricultural plants; in the caterpillar and cocoon stages of the varieties of the silkworm; in the eggs of poultry, and in the colour of the down of their chickens; in the horns of our sheep and cattle when nearly adult; – so in a state of nature, natural selection will be enabled to act on and modify organic beings at any age, by the accumulation of profitable variations at that age, and by their inheritance at a corresponding age. (134-5)

The most striking feature of this sentence is its ungainly length; at 117 words, with two independent and almost a dozen sub-clauses, the sentence practices grammatically the parallelism that it indicates within the natural world. And this complexity illustrates a further point: explicit analogy is an unwieldy tool.

Explicit analogy is awkward because it does not fit neatly into basic sentence structure. Requiring, at the least, the comparison of two distinct subjects and predicates, analogy is hostile to unitary English sentence structure, with its primary object and predicate. Hence, an explicit analogy requires some sort of syntactic doubling, whether the formation of complex sentences, or the inclusion of nested and paralleled sub-clauses.⁴⁷ The unitary subject/predicate structure of the basic English sentence usually requires that one element of the analogy take precedent, typically by using a subordinator to demote the second half of the analogy to an adverbial clause.⁴⁸ Another solution is the division of the analogy into two independent clauses through a coordinating junction like “and,” or in the above case, a semi-colon. Suggestively, such coordination does little to focus the sentence upon the key relation – the analogy of the two phrases. In the above passage, Darwin reinforces this function with the linking particle “so,” which substitutes grammatically for the primary assertion of the previous independent clause.⁴⁹

Given the unwieldy structure of the sentence presented above, it is surprising that Darwin did not choose to revise it over subsequent editions. Though Darwin chopped down several of the largest sentences in the chapter, the passage above (the fourth longest

sentence in chapter four) is spared the editorial axe. In fact, while more than half of the sixty longest lines in the first chapter contain explicit analogies, only those without analogies are broken down in later revisions. The key question: what does the analogy gain by its full incorporation into a single sentence? One advantage is apparent if we return to the extended analogy above. Within the fully explicit analogy between domestic and wild ontogeny, nests a series of implied analogies between the traits of various domestic creatures. Within

ontogenetically-timed “variations” in domestic species	:	“reappear in the offspring at the same period”	::	“profitable” ontogenetically-timed variations in wild species	:	inherited at “corresponding age”
--	---	---	----	--	---	--

we get a subset of noun phrases, e.g., “seeds of the many varieties of our culinary and agricultural plants.” More specifically, for each of these sub-clauses, the implied analogy is clearly constituted of two terms – the ontogenetic appearance of the traits in one generation, and the inheritance of these developmental traits in later generations:

<i>ontogen.</i> traits of seeds of culinary/ agricultur al plants	:	<i>later</i> plants <i>inherit</i> <i>traits</i>	::	<i>ontogen.</i> traits of caterpillar and cocoon stages of silkworms	:	<i>later</i> silkworms <i>inherit</i> <i>traits</i>	::	<i>ontogen.</i> traits of poultry eggs and down	:	<i>later</i> chickens <i>inherit</i> <i>traits</i>	::	<i>ontogen.</i> traits of horns of sheep and cattle	:	<i>later</i> sheep and cattle <i>inherit</i> <i>traits</i>
--	---	---	----	---	---	--	----	---	---	---	----	--	---	---

My own difficulty unpacking these implied analogies into the table above can serve to indicate just how much is packed into that sentence. And even these analogies, strictly speaking, contain further nested analogies (separating out, for instance, the traits of poultry eggs versus the down of their chicks, or the horns of sheep from the horns of cattle). Clearly the relation between the terms of these parallel analogies is not strictly

the same as the relation between the natural/wild terms of the analogy in which they are embedded. Further, the relationship of these serial elaborations *to* the explicit analogy is different in kind. Rather than the more broad analogy between the patterns of inheritance in domestic versus wild species, this series of implied analogies presents examples of only the domestic half of that analogy, e.g.

<i>ontogenetically-timed</i> “variations” in domestic species	•	“reappear in the offspring at the same period”	∴	<i>ontogenetically-timed</i> “variations” in culinary/agricultural plants	•	inherited by later generations of plants
---	---	---	---	--	---	---

In order to pack all of this in to a single sentence, Darwin relies upon the zeugmatic function of various semi-colons and m-dashes, which serve to extend the series of predicated analogical relationships across a series of only partially denominated cases.

The example shows how the implied operator of analogy (: :) can represent many different types of relation, in this case, both parallel and type/exemplar relations. It turns out that many analogies in *The Origin* fall into one of two types: either type/case analogies or case/case analogies.⁵⁰ The extended analogy of ontogeny discussed earlier provides an excellent example. The analogy between domestic and natural ontogenetic traits – the explicit analogy of the independent clauses – serves as an example of case/case analogy; both terms are seen as equivalent cases. However, the domestic half of that analogy stands toward each of the implicit analogies – the noun phrases regarding sheep or chickens – in a type/case relationship (each serve as examples of the class of domestic ontogenetic variations). And further, each of these implicit analogies stand toward each other as case/case analogies.

Before exploring further the relationship between type/case and case/case relations, I'd like to point to two large classes of the latter. Earlier, in my discussion of the network of Malthusian dis-analogies between competing organisms, I noted that this network of comparisons is essentially synchronic and serial in character. Whenever Darwin talks of variation, or the divergent possibilities of parallel organisms, he is making a comparison that, in essence, isolates the serial terms of the analogy in a synchronous temporal moment. And this type of case/case relation is different from a second class of case/case comparisons – those between earlier generations and their progeny. In the examples where Darwin compares natural and domestic species, for instance, the argument for domestic selection rests in analyzing the divergence over time of natural and domestic characteristics. In essence, this comparison between currently existent forms (domestic & natural) is translated into a comparison between current domestic breeds and their ancestors – a serial but *diachronic* comparison. This diachronic case/case comparison is invoked each time Darwin speaks of survival and differentiation – measures of the change between previous and subsequent generations. Furthermore, much as type/case analogies produce categorical structure, diachronic analogies institute temporal structure – locating the analogy with reference to a scaled timeline – and in that sense they have a weak formal character. Multiple diachronic analogies (assuming that they exist within the same timeline, e.g., the earth's history) interact as a series of overlapping, nested, or consecutive comparisons, which interlock, as in the example above, with a network of synchronic serial analogies.

iii. Analogy and Hierarchy

Type/case and case/case analogies (specific classes of formal and serial analogy) can help structure such networks of comparison: for instance, in the ontogeny analogy given earlier, the nested grammatical relations of its unwieldy sentence recapitulate textually the type/case and case/case hierarchy being detailed. Hence, though awkward, the lengthy sentence allows Darwin to reinforce syntactically the semantic relations he describes. To make explicit something implied in earlier discussions of the relationship between serial and formal analogy, the case/case and type/case interaction clarifies how serial analogy can shift into formal analogy. In resorting to a normative expression for the analogies I've investigated, [**A : B :: C : D**], I have been making explicit what I see as the consensus of the structural information contained in any analogy. At this most abstract level, it is a structure that does not indicate, on its own, whether the relationship is serial or formal. But as noted above, the central operator of the analogy (**::**) can articulate different kinds of relationships; in the examples discussed above, various specific domestic species were set in a case/case comparison by their common elaboration of a general phenomenon of ontogenetic trait inheritance in all domestic species. Hence even as the operator of the analogy in a case/case comparison both asserts the serial relationship between the sets of predicates it compares, it also implies, through the specific semantic attributes that have been assigned to those relationships, their common relation to a larger formal category – the type/case relation. By the same measure, a type/case analogy only works if it asserts that there are, in principle, other potential cases, that is, that the case stands in serial relation to some other exemplars – sometimes unspecified, sometimes given, as in the example presented above. Hence, if

the serial versus formal opposition I've established for analogies represents two (exclusive) limits of analogical engagement, case/case versus type/case analogies provide actual examples that gesture toward those poles but fall somewhere in between. And insofar as case/case versus type/case analogies represent actual classes of analogies, they encode structural information that the consensus format of analogy [**A : B :: C : D**] cannot capture. To relate this to the series of embedded relationships within the extended sentence given above, while the zeugmatic syntax of the sentence, in particular, its series of semicolons and m-dashes, serve to pack in a nested network of case/case and type/case relations, there is nothing about that syntax that necessarily specifies which relations are which. Case/case and type/case relations in *The Origin* emerge from the specific semantic relations that are being asserted, in process with the larger constraints of the reader's median of expectation regarding what those expressions might mean, as well as the constraints upon interpretation exerted by the larger context of the work.

These type/case and case/case operations go far toward suggesting how the various analogies of *The Origin* are organized. The hierarchical function of type/case and case/case juxtaposition allows analogies to organize into systems of relations defined by inter-related classes of phenomena and their examples. There is an extensive body of literature that discusses the roles that analogy and modeling play in the organization of scientific theories. Harré, Aronson, and Way have suggested that the utility of a model based on analogy is not evaluated on the merits of degree of similarity or difference, but via its categorical relation as a parallel member of what they term a "type hierarchy."⁵¹ Taking the example Rutherford-Bohr "solar system" model of the atom (discussed in my introduction), they argue that the solar system, as well as the atom, both function within a

type hierarchy designated the “central force field system.” Underneath the central force field system are several larger groups – the gravitational field system, the electrical field system, the magnetic field system, etc. Because the solar system and the atom both exist as cases of field types (gravitational and electrical, respectively) which are themselves subtypes of the larger “central force field” type, the analogy between atom and solar system is anchored within an analogous set of forces. Hence gravity *is* analogous to charge, because they are parallel instances within a larger “type hierarchy.” While Harré et al. note that type hierarchies may shift over time, they do not evaluate the role of analogy in establishing these hierarchies to begin with. But the transition I have suggested between case/case and type/case analogy provides one way of attacking that problem.⁵² The role of analogy in creating and changing “type hierarchies” is a critical feature of its power in *The Origin of Species*. We’ve already examined several examples of this – for instance in the ontogenetic trait analogy, or the analogy between human and natural selection, or the analogy between Malthusian population and the natural “struggle for existence.” In my first chapter, for instance, I discussed Aristotle’s argument that analogy can trace patterns between unrelated genera. In terms of the “type hierarchy,” this suggests a kind of analogy that can help clarify case/case and type/case relationships without being restricted to them – more generally, as a comparison between “cases” that have no type. In fact, Aristotle’s discrimination between analogy and synecdoche rests upon this contrast between inter-hierarchy relationship and the intra-hierarchy relations (of case/case and type/case), for instance, in his discussion of metaphor within the *Poetics* (also discussed in my first chapter). As the previous discussion should make clear, we need not be so fastidious. Any relationship that is expressed in terms of an

analogy (and accords with the formula [**A : B :: C : D**]) can be recognized as such, whether it expressed synecdochic relationships or not.⁵³

Such type-hierarchy engagements find their most powerful function in the rewiring of the species/variety relationship within *The Origin*. Darwin devotes a huge portion of his work to the relationship between species and variety – a topic which dominates the first three chapters and features prominently in chapters eight and ten through twelve. At the beginning of chapter two, Darwin summarizes the problem of the old species concept: “Certainly no clear line of demarcation has as yet been drawn between species and sub-species ... or, again, between sub-species and well-marked varieties, or between lesser varieties and individuals” (107). The fixity of species constituted the most fundamental argument against evolution. Darwin spends considerable effort establishing a vast network of analogies connecting species and varieties, focusing especially on intermediate cases and hybridism. The point, as the example of alternative classifications of the red Grouse makes clear, was to reduce the distinction to an arbitrary convention. Or, as Darwin puts it, at the close of chapter two, “the species of large genera present a strong analogy with varieties. And we can clearly understand these analogies, if species have once existed as varieties, and have thus originated: whereas, these analogies are utterly inexplicable if each species has been independently created” (113). It is here that analogy functions as the “sure guide” to his theory – articulating contemporary correspondences that echo the ancient differentiation of their more distant ancestors. These analogies do more than establish a pattern – they work to make the natural world unintelligible to the older natural theological consensus.

Under that consensus, species and variety are essentially different types. But under Darwin's system, this distinction has collapsed, and they have become common cases of a larger type at different moments along an historical narrative. In this way, they reflect the kind of historical translation seen, for instance, in the juxtaposition of the mature Waverley and his portrait with Vich Ian Vohr – they domesticate apparently large historical distinctions by tying them to a contemporary scale. Or, as Darwin recorded Whewell in his "D" notebook, "If we cannot reason from the analogies of the existing to the events of the past world, we have no foundation for our Science." Just as the historical novel translated the "higher" meaning of eschatological time into the horizontal relation of historical events, what distinguishes species and genus in *The Origin* is not category, but temporality – their location along the timeline of history. The diagnostic of an essentially synchronic distinction (species vs. variety) is transformed into indication of a diachronic relationship. To put this simply, the type hierarchies which Darwin's analogies produce are incompatible with, and replace, some of the key type hierarchies of the natural-theological consensus.

iv. Model and figure

There is another way in which *The Origin* reflects *Waverley* and its final portrait, in that both rely upon the visual imagination to articulate a model of their comparative historicism. In my second chapter, I argued that the portrait described at the close of *Waverley* serves to formalize the central role that continuity and distinction play in describing the history through comparative process – a consolidation of the consistent

strategies of alienation and translation that feature throughout the *Waverley* novels.

Similarly, the famous diagram that Darwin included with *The Origin* was designed to present a visual model for the translation between the kinds of synchronic and diachronic analogy that I have just detailed, and in particular, translation between case/case and type/case comparisons.

Recent scholarship on the origin and development of *The Origin*'s diagram has served to flesh out the relationship between its earliest drafts, in a series of famous sketches within the "B" notebook, and its realized form. In particular, Heather Brink-Roby and Horst Bredekamp have recently emphasized the importance played by coral in Darwin's early thinking about how to visualize the relationships between species and their ancestors.⁵⁴ Their accounts capitalize especially on a passage in which Darwin, evaluating different ways of describing the relationship among organisms, suggests that "The tree of life should perhaps be called the coral of life, base of branches dead; so that passages cannot be seen."⁵⁵ The first two sketches in Darwin's "B" notebook⁵⁶ demonstrate his search for a visual vocabulary that would describe the relationship between distant and proximate evolutionary relations, in which "Organized beings represent a tree *irregularly branched* some branches far more branched – Hence Genera."⁵⁷ The third diagram also marks Darwin's growing attempts to begin to specify the relationship between different portions of the diagrams using letters and numerals. As Brink-Roby notes, in *The Origin*, this alphanumeric system aspires to the formal rigor of a geometric proof; Darwin begins, "Let A to L represent the species of a genus in its own country..." (159). Brink-Rokby doesn't further develop this suggestive echo of geometric representation, and suggests that Darwin's own description of the diagram as

“odd” marks his sense that it “a departure from conventional natural history images,” and Rokby seems to imply this marks a departure from geometric convention as well.⁵⁸

But in looking at the difference between those earlier sketches and the final form of *The Origin*’s sketch (Figure 5.1, following page),⁵⁹ it is immediately apparent how much Darwin’s visualization of what he came to describe as “the tree of life” transformed over the following twenty years. One of the key features of difference is the much greater schematization and abstraction of the diagram. Rather than aspiring to the naturalistic form of coral or the branches of an actual tree, the lines have been strictly linearized and rendered in a consistent combination of solid and dashed strokes. Moreover, the relation between different points along each line have been rigidly regularized by their inscription within a coordinate system of horizontal lines. As we have seen, throughout Darwin’s notebooks, he explored different ways of articulating the “analogy” between contemporary species and their ancestors. Often, he used the spatial language of the “horizontal” to distinguish synchronic comparison of contemporary species with diachronic comparison. For instance, in the “B” notebook, he suggested that “Now a gradual change can only be traced geologically (& then monuments imperfect) or horizontally.”⁶⁰ As Jonathan Smith has noted, in all of Darwin’s engagement with illustration, as one might expect, “he worked with the conventions where he could, modifying them in subtle but significant ways.”⁶¹ Many have noted that Darwin allayed the horizontal lines of his figure with geological layers – the explicit point of, his earlier observation regarding the distinction between “horizontal” and “geological” difference. Smith follows previous critics in identifying the conventions of *The Origin* sketch with contemporary geological representations of strata cross-sections.

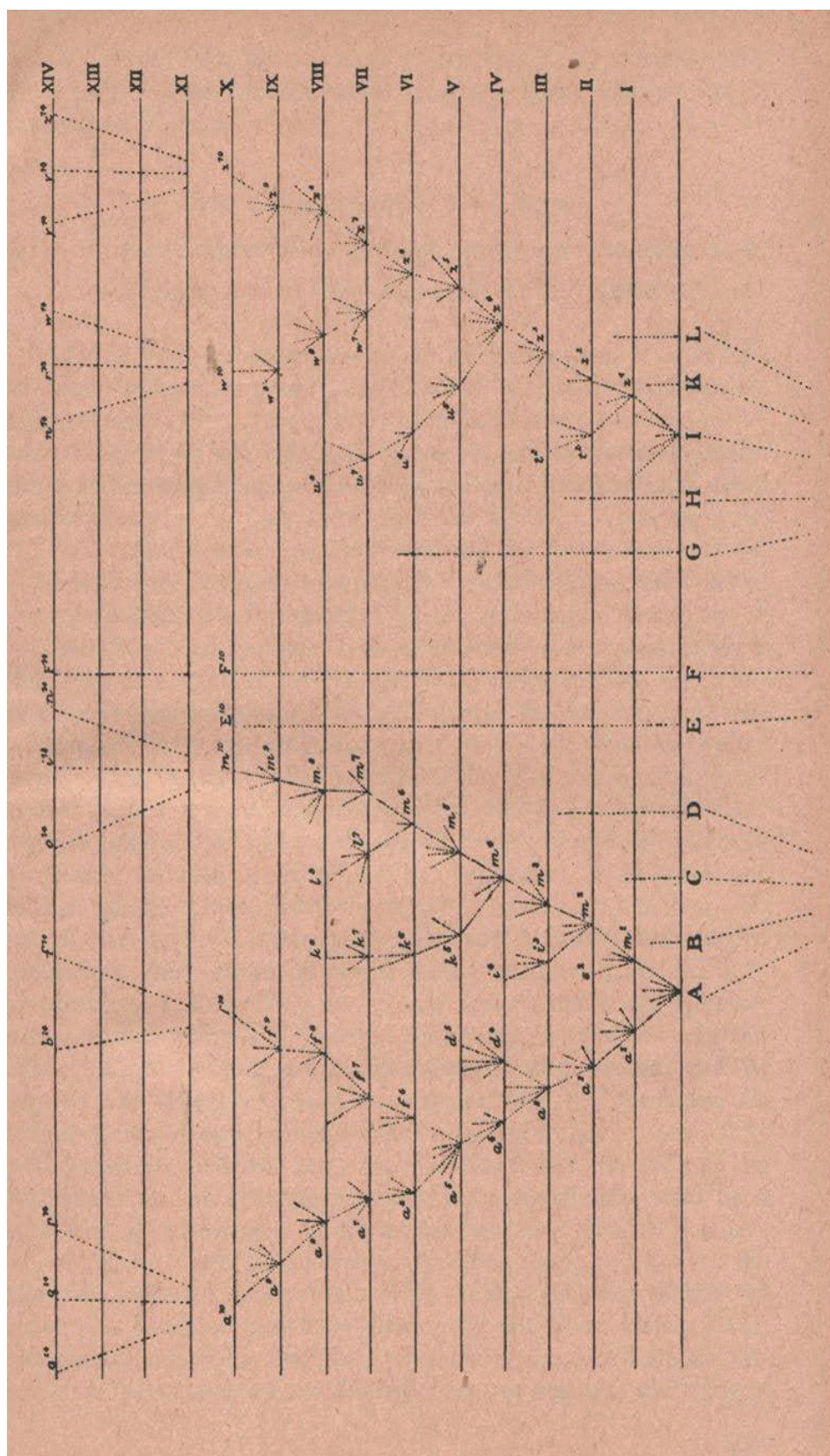


Figure 5.1 -- "Diagram" from *The Origin*

In Figures 5.2 and 5.3,
for instance, we have two
diagrams from Charles
Lyell's *Principles of
Geology* which illustrate
graphic conventions for
delineating strata.⁶² But as

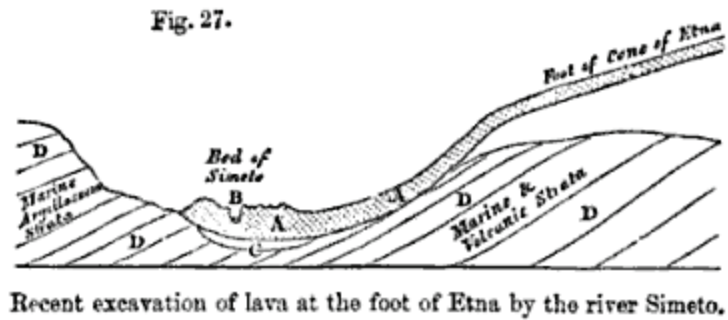


Figure 5.2 -- "Lava Excavated by the Simeto"

can be seen, while the
sketches do show an
emphasis upon horizontal
subsidence and elevation,
spatial relationships are

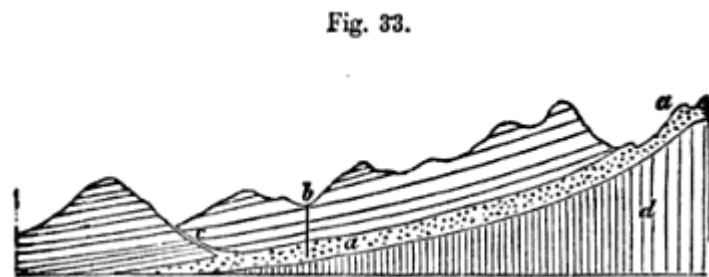


Figure 5.3 -- "Artesian Wells"

representational – the distance between lines and their orientation within two-dimensional space are allayed to their representation of actual topography, rather than their articulation of a rectilinear grid, as in *The Origin's* diagram. Moreover, while alphanumeric labeling was a convention of geological illustration, the convention was used to emphasize continuity rather than progression. Conspicuously, the upper or lower-case characters of the Latin alphabet are continuous within Lyell's diagrams – serving to indicate a continuity in the particular stratum which they designate. In the illustration from *The Origin*, on the other hand, alphabetic labeling serves to mark progression of lineage through time, along with its transformation into derivative varieties and species. Hence, lineage "A" branches into "*a*¹" and "*m*¹," and while "*a*¹" continues to develop in a series, "*a*², *a*³, *a*⁴, ..." "*m*¹" branches again into "*s*²" and "*m*²," etc. It's surprising that,

Brink-Rokby's brief engagement with geometric convention notwithstanding, comment upon the graphic conventions of Darwin's diagram have not engaged its collaboration with contemporary geometric illustration, in particular, with the then cutting-edge field of geometric projection.

Contemporary geometry was revolutionized in the wake of Jean-Victor Poncelet's enormously influential *Traité des propriétés projectives des figures* (1822), as the field was reformulated from an axiomatic format derived from Euclidian geometry toward a more algebraic discipline that understood

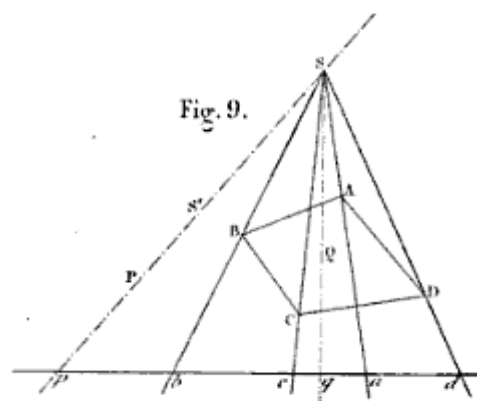


Figure 5.4 -- From Poncelet's *Traité des propriétés*

figures as particular articulations of more basic mathematical expressions.⁶³ Poncelet had shown that conic sections (figures like parabola, hyperbola, and ellipses) could be understood as various projections of a more fundamental, invariant relationship. Rather than concerning itself with cardinal measures of distance within space, Poncelet's geometry was rooted in the relative relationship between different structures – points, lines, figures – that was understood to lie behind them. In this, Poncelet's geometry marks a shift from specific relationship to patterns of relation that reflects the foundation of analogy as a relation between ratios (discussed in my first chapter). Moreover, Poncelet described the relationship between the resulting figures as one of “homology” to some more basic structure. It was probably Poncelet's geometry, with its theory of a more basic structure mapped into particular instantiations, which Cuvier had in mind

when he attempted to argue that the fundamental features of biological form could be tied to a more basic set of geometric relations (as discussed in my third chapter).

In order to represent his new projective geometry, Poncelet developed new geometric conventions which had equally broad influence. Figure 5.4 shows an illustration from his *Traité des propriétés*, while Figures 5.5 and 5.6 show the elaboration of conventions of projection in

Thomas Bradley's *Practical Geometry, Linear Perspective, and Projection, etc.* (1834).⁶⁴

Two key features stand out. First the use of parallel and often horizontal lines to mark planes of movement of the projected figure through two dimensional space. And second, the use of alphabetic characters to mark progression of that figure through distinct articulations in space. Figures 5.4, 5.5, and

5.6 use a variety of upper, lower, italicized and superscript transformations of specific Latin characters to mark their movement through these lines of transformation.

Based on these features, I am largely persuaded that Darwin, in collaboration with Murray's printer and illustrator, drew upon the conventions of projective geometry to produce his most famous figure for "the tree of life" in *The Origin*. Not only does that diagram use similar progressive notation, the strict horizontal rule isolates parallel

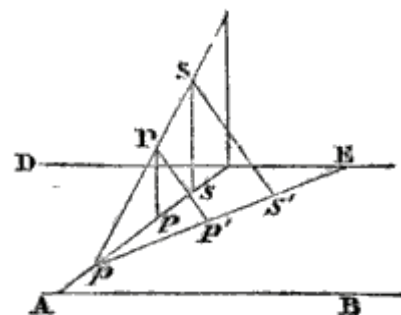


Figure 5.5 – From Bradley's *Practical Geometry*

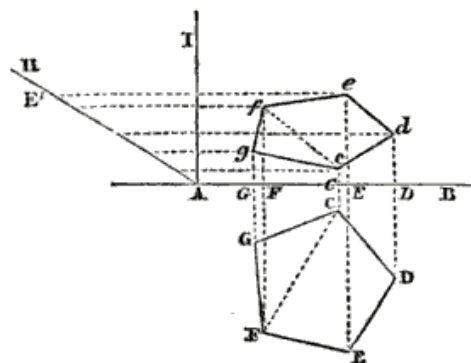


Figure 5.6 -- From Bradley's *Practical Geometry*

developments through time – a kind of historical projection. There is some suggestion that contemporary readers recognized interplay of geometric figuration as well; Samuel Wilberforce begins his well-known review of *The Origin* within the *Quarterly Review* by noting, “In this we have a specimen-collection of the vast accumulation; and, working from these as the high mathematician may work from the admitted results of his conic sections, he proceeds to deduce all the conclusions to which he wishes to conduct his readers.”⁶⁵ The impact of the theory and conventions of geometric projection also helps to clarify the close association, noted by Smith, between the “abstract form” of Darwin’s illustration, “Section of the Flower of an Orchid,” for *On the Various Contrivances by which British and Foreign Orchids were Fertilized by Insects*, published a few years after *The Origin* (in 1862). The abstract elliptical sections of the orchid in that example are evidently influenced by illustrations of conic sections, and Smith notes its engagement with the theory of homology, expressed in that work, as a “tracing of existing gradations” in the “modifications of one and the same ancestral organ.”⁶⁶

The observation of Darwin’s engagement with geometric convention yields two crucial insights. First, it’s notable that in his search for a visual representation of evolutionary descent, Darwin turned away from early sketches, rooted, as other have demonstrated, more closely in organic forms, and toward a more abstract visual vocabulary that would emphasize key structural relationships. We have already noted Darwin’s focus upon finding strategies to articulate the basic analogy between contemporary species and the ancestor species that form contemporary classes. By mapping these relations into the formalized coordinates of geometric space, these analogies take a specific graphic representation as the correspondence, continuity, and

difference between distinct horizontal sections. More generally, the illustration demonstrates the basic role of that formal abstraction plays in organizing and coordinating the various analogical observations that Darwin develops in *The Origin*. From the relation between the larger branches of speciation and the smaller bushy radiations of differentiation within a species, to the larger correspondences between extant species and their ancestors, almost all of the analogical comparisons that Darwin establishes are mapped into the figure.

Moreover, while the figure is generally understood as a formative representation of speciation and evolutionary kinship, it is not commonly recognized how the diagram illustrates differentiation as spatial dispersion. As Steven Jay Gould notes, a key purpose of the illustration in *The Origin* was to visualize what Darwin then termed the “principle of divergence” illustrated in the tendency to variation and differentiation. As Darwin described it, in his 1857 sketch,

Now, every organic being ... may be said to be striving its utmost to increase its numbers. So it will be with the offspring of any species after it has become diversified into varieties, or sub-varieties, or true species. ... Each new variety or species, when formed, will generally take the place of, and thus exterminate its less well-fitted parent. This I believe to be the origin of the classification and affinities of organic beings at all times; for organic beings always seem to branch and sub-branch like the limbs of a tree from a common trunk.⁶⁷

Gould perhaps overstates the case when he argues that Darwin’s figure was designed exclusively to “provide a surgically precise description of the principle of divergence,” but it is clearly a key component.⁶⁸ As Gould observes, the preferential selection of distant variants in the figure – in almost every generation, it is the variants furthest from others that survive. Darwin himself notes that “in the diagram I have chosen the extreme species (A), and the nearly extreme species (I), as those which have largely varied, and have given rise to new varieties and species” (165), and that “during the modifications of

the descendants of any one species, and during the incessant struggle of all species to increase in numbers, the more diversified these descendants become, the better will be their chance of succeeding in the battle of life” (170).

From our earlier analysis of Darwin’s speculations in his evolution notebooks, we can recognize in his theory of “divergence” the mature articulation of his earlier speculations regarding the “divellent” power of “relations of analogy.” Whereas, in its earlier incarnation, the (somewhat counter-intuitive) Macleay-Lamarckian articulation of “analogy” implied the *divergence* of closely-related species as an implication of the *convergence* of disparate evolutionary lines, these relationships are articulated in the horizontal dimension of *The Origin*’s illustration. And this, in turn, implies the use of the horizontal axis as a measure not only of evolutionary distance, but niche proximity. After all, the truncation of “B,” “C,” and “D” lines as they approach descendants of “A” only makes sense if proximity along the horizontal axis marks competition for the same environmental space. As Darwin puts this, “it is the species of the larger genera which oftenest present varieties of incipient species. ... Hence, the struggle for the production of new and modified descendants, will mainly lie between the larger groups, which are all trying to increase in number. One large group will slowly conquer another large group ... Small and broken groups and sub-groups will finally tend to dis-appear” (168). Success breeds success, as they say.

The foregoing discussion emphasizes just how information-rich Darwin’s illustration is as a consolidation of evolutionary relationships within a small, two-dimensional space – and reinforces Gould’s point that the illustration is not, as it is often understood to be, merely a phylogenetic tree. In terms of the kind of graphic analysis

developed by Edward Tufte,⁶⁹ the tree demonstrates (1a) the synchronic closeness (in niche space) of contemporary species, (1b) their synchronic divergence from common origins, (2) their diachronic relationship to earlier species (3) points of variation and divergence, (4) variety to species transitions (the dotted lines from XI to XIV), (5) species to genera transitions (in the groups of species at line XIV), (6a) historical and (6b) geological depth, and (7) scalability (as Darwin puts it, “each horizontal line has hitherto been supposed to represent a thousand generations, but each may represent a million generations” (167)). Depending on how you count it (how you register 1 and 6, for instance), the complexity of the information produced by Darwin’s illustration rivals the famous example of Charles Joseph Menard’s famous “Carte Figurative” of Napoleon’s march on Moscow – a work Tufte extols for its ability to encode six kinds of information into a single graphic.⁷⁰

On the other hand, in a strict Tuftean sense, Darwin’s diagram does not contain any information at all. That is because Tufte’s theory of illustration design is rooted in information theory of the kind practiced by Shannon (discussed in the appendix). This means that information is designated in terms of entropy, as the percentage of a maximally efficient code that is utilized. To put this in more accessible, if imperfect, terms, information, in the sense used by Tufte, is a numerical measure of the real-world content. Darwin’s diagram, on the other hand, expresses no quantitative information – the specific cardinal distance between any two points is meaningless. It is instead a description of the structural relationship that can be abstracted from actual relations in the world. It is here that my distinction between semantic and structural information, established in the introduction and appendix, is particularly useful. Because, while

Darwin's diagram may be poor in information in the strict sense used by Tufte, it is extremely rich in structural information. As pointed out earlier, the illustration serves to consolidate various formal and serial relationships, whether between competing individuals, or between an individual and its ancestors, or between extent classes, or between contemporary and historical groups.

It is in this sense that Darwin's diagram functions as a "model" for natural selection. I have used model somewhat loosely throughout the previous chapters in order to describe a formal correspondence between some set of relations and some other set (in part, as an attempt to avoid using "analogy" both as an object of enquiry and as a way to get at it). But given the common association between "analogy" and "model" as exchangeable terms for a certain kind of imaginative comparison, it is necessary to specify that relationship more carefully.

The literature on scientific modeling is enormously diverse, and a statement of key features rather than an extensive survey will prove more useful here. In the philosophy of science, models have most generally been theorized as scientific representations of either a state in the world (some set of phenomena) or a scientific theory (representing the relationships between some basic set of axioms or laws) or both.⁷¹ Harré et al. express the relation graphically:

Phenomena	= ¹	Descriptive model	– T –	Explanatory model	= ²	Generative mechanism
-----------	----------------	----------------------	-------	----------------------	----------------	-------------------------

where 'T' is a theoretical discourse, mapping the two models on to one another by linking descriptions of states of each by causal or reductionist hypotheses. ... The relations '=¹' and '=²' which express model to subject links, are idealization/abstraction and analogy respectively.⁷²

Setting aside, for the moment, their identification of "=²" as "analogy," this diagram provides a concise formulation of the role that modeling is generally understood to play

as an interface between phenomena and theory. On the one hand “descriptive models” provide a representation of phenomena, while “theoretical models” provide a representation of theories adduced to explain them. It is generally noted that, in each case, models serve to isolate and generalize the more important features of what is being described – a process described as alternatively “idealization,” “simplification,” or “abstraction.”⁷³

It is in terms of this process of “abstraction” that we can formalize the role of Darwin’s sketch in relation to its text. Fox Keller, in her work on biological theory, has emphasized the value of such abstraction, and details its function in both D’Arcy Wentworth Thompson’s “principle of negligibility” and Lewis Wolpert’s theory of “positional information.”⁷⁴ Bruno Latour has recently emphasized the importance of abstraction as a mediatory move in his theory of the “circulating reference.”⁷⁵ Briefly, the circulating reference specifies a way of understanding the series of interactions that links scientific observation and data to the larger features of scientific discourse and theory in terms of a series of “content” / “form” engagements. At each step, a specific phenomena is formalized as the content (measurement, expression, or model) of a new representation.⁷⁶ Each new representation can then serve as a member of a set of phenonema for a higher-level formalization. This is the essentially productive role of abstraction for Latour – increasing generalization across layers of phenomena that formalize them so that they can be brought into new productive relations. As Latour goes to great lengths to point out, this process of formalization and abstraction does not sever the tie to the original observation – it just serves to organize what features get through (just as, dialectically, the phenomena themselves determine what kinds of formalization

will be appropriate). It is a process of liberation and activation, in a positive sense, as much as distortion or mediation, in a pejorative sense. As such, Latour's theory of the circulating reference provides a sociological model for the function of what Lorraine Daston and Peter Galison term "structural objectivity," discussed in the previous chapter with regard to Eliot's realist epistemology.⁷⁷ To assert the power of abstraction in scientific models is to emphasize the importance of structural translation in scientific practice.

It is in this sense that Darwin's diagram in *The Origin* serves as a model that abstracts across the various analogical phenomena that he has described in order to bring them into a productive new synthesis (one that draws upon the visual conventions of nineteenth-century geometric representation). As we have seen, in terms of Harré et al.'s diagram of scientific modeling above, it is clear that "analogy," as a practice of explicit comparison between two sets of relationships, can serve equally to describe the translational move in " $=^1$ " as well as that in " $=^2$ ". Implicit in most uses of the language of "modeling" is precisely this kind of articulation, within a new format, of a distinct set of phenomena. Hence modeling, in any application, describes a kind of formalization and generally implies a movement between one medium and another. Thus "models" can be examples of formal analogies, (and vice versa). And it is in this sense that I argued that the portrait at the close of *Waverley* "models" the translational historicism that is practiced by the rest of the novel (even though, strictly speaking, it is a reflection in one textual representation of another). This understanding of the relationship between *The Origin*'s figure and its text emphasizes the productive features of what Smith, after W. J. T. Mitchell, calls the "imagetext" – "a composite, synthetic work combining image and

text” – over the friction of their interaction (what he terms “image/text”). Or, more properly, it asserts the value of the latter’s formal friction in service of the former. In this analysis, the interaction between illustration and argument in *The Origin* serves productively to produce an object distinct from its constituent parts in its ability to contribute to the production of powerful formalism in scientific practice.⁷⁸

iv. The Consolidation of Analogy into Metaphor

One of the virtues of this powerful interpretation of formal abstraction is in how it rewires the surface/depth distinction that is often invoked to deal with figurative language and meaning. On this view, the meaning of, for instance, a formal analogy, is not absent reference, or even the relationship between sense and reference, to borrow Frege’s terminology, but instead, a combination of its formal features and the content that they encode. In other words, meaning adheres in the analogy as a combination of semantic and syntactic information, rather than in a process of movement from surface toward some deeper (and to some degree, inaccessible) level to which it refers. I have argued that analogy helps Darwin to shift the meaning of key terms in *The Origin of Species* relative to his historical context, shifting the “median of expectations” that his reader brings to interpretation, and creating a new network of meaning within which his theory of natural selection can be understood. In making this argument, I have started to assume that analogies extend beyond the particular sentence, forming what I have termed a “network” of reinforcing comparisons. This interaction is clear when analogies in two sequential sentences refer explicitly to each other (as in the first two sentences of chapter

one discussed earlier, in which the lexical relation of terms like “variety,” “variation,” “species,” and, “cultivated” ensure a larger analogical comparison between the explicit analogies). In my discussion of *The Origin*’s diagram, I have similarly suggested that Darwin’s illustration encodes the structural relationships between various previous analogical arguments within a two-dimensional graphic representation. Darwin elaborates portions of those analogies throughout his fourth chapter in reference to specific portions of the illustration, but he does so explicitly from the standpoint of clarifying how to interpret the figure more generally – as he puts it “we may continue the process [of reading the diagram] by similar steps for any length of time” (162). In this way, the diagram serves to inculcate strategies of analogical interpretation in much the same manner that Halbot Browne’s illustrations produced a visual model for the analogical interpretation of Dickens’s novels, as discussed in my third chapter.

In both cases, visual representation serves to develop the reader’s capacity to adduce inexplicit analogies. These super-propositional comparisons have a distinct status: they are *virtual*, not *actual* analogies. In some cases, Darwin activates these potential analogies explicitly at a later point in the text – for instance, Darwin draws upon this virtual network when he sums up his variety/species argument by asserting “the species of large genera present a strong analogy with varieties” (113). Virtual analogies authorize, even invite the reader to try analogy formation on their own – in parallel to the narrative logic and explicit propositions of the work itself. This is one of the properties of model formation generally – they provide structured modes of interpretation that can be applied to additional cases. Hence the inherent mobility of models, and their relation

to Latour's theory of the "circulating reference": they provide portable representational packages that can be applied as interpretive strategies for new situations and phenomena.

The most important solution to the problem of formalization comes with the formulation of "natural selection" itself. After all, the diagram from *The Origin* is unable to capture the forces underpinning selection itself – the reason some varieties survive and other don't. As I noted earlier, Darwin is careful in the first few chapters to use the phrase only as a placeholder – designating a theory that will be later elaborated. It is only with chapter four that enough groundwork has been laid in *The Origin of Species* to formulate natural selection explicitly as the "preservation of favourable variations and the rejection of injurious variations" (131). Drawing from his Galapagos experience, Darwin invokes an island in which species are isolated from the immigration of new varieties, in order to present his first complete definition of natural selection:

In such case, every slight modification, which in the course of ages chanced to arise, and which in any way favoured the individuals of any of the species, by better adapting them to their altered conditions, would tend to be preserved; and natural selection would thus have free scope for the work of improvement. (131)

The sentence takes a form often used earlier in the expression of analogies: two independent clauses linked by semicolon. But there is clearly no explicit analogy between the clauses – the subjects and predicate relations of [every slight modification : would tend to be preserved] and [natural selection : would have free scope] are not analogous. Instead, the entire first clause is subsumed within "natural selection" – while "free scope" refers to the adverbial phrase "in such case" that itself links to the island situation established earlier.

Further, the initial independent/subclause formation consists of several distinct propositions: (1) the "such case" adverbial link to the island scenario; (2) the noun phrase

“slight modification”; (3) the adjectival description of the modification “which had chanced to arise”; (4) the linked description “which in any way had favoured the individuals” (5); the adverbial clarification of that description, “by better adapting them to their altered conditions (6); and finally, the base predicate “would tend to be preserved.” All of these propositions, save the first, are packed into “natural selection.” And what this chapter’s argument to this point has allowed us to recognize is that, of the five propositions absorbed by natural selection, all (except perhaps 3) are rooted in previous analogies. Hence, “slight modifications” is given meaning by the myriad of synchronic comparisons in chapters one and two which establish what such modifications look like, particularly through networks of disanalogies between specific features (for example, duck wings and thighs). Similarly, the sense in which Darwin means “favoured” with its clarification, “better adapting” was established primarily in chapter three, which, drawing upon the previous two chapters, established a series of comparative examples that translated the disanalogies of variation into disanalogies of favoured versus unfavourable traits. Finally, “would tend to be preserved” comprehends extensive diachronic analogies established in chapter three between previous ancestors and their traits, and the traits of offspring. Further, the transition from slight modification to better adaptation to preservation, as chapter three made clear, was itself articulated through a basic Malthusian disanalogy between resources and potential population.

Each element of this description relies upon a virtual network of analogies, developed over the previous chapters and largely organized by type/case and case/case relations, for interpretation. The “condensation” of networks of analogy into specific expressions consolidates various systems of comparison in order to distill their

interaction. Jorg Zinken, in a study of newspaper accounts, has argued for a similar phenomenon in which “discourse metaphors” are organized through their reference to regular, form-specific analogies.⁷⁹ This consolidation of analogy is the mechanism by which, as Gillian Beer puts it, “gradually and retrospectively ... the force of the argument emerge[s] from the profusion of example.”⁸⁰ Note that in the example above, consolidation is achieved by conversion into terms with anthropomorphic and metaphorical features – “modification,” “favour,” “adapt,” “preserve,” – a key feature of this consolidation. Each of these terms invoke an anthropocentric forms of judgment and decision that encode a paradigmatic situation of comparison and selection: discriminating different from same, better from worse, survival from death. To put this differently, these expressions invoke a paradigm of diagnostic analogy – a multi-part comparison that evaluates similarity and difference.

The chief example of such condensation into metaphor within *The Origin*, (a virtual analogy you’ve perhaps already anticipated?) is in “natural selection” itself. It is, after all, “natural selection” that unites the combinatorial structure of the first half of the passage above into a unitary power that performs the “work of improvement.” As George Levine has pointed out, the metaphor “natural selection” was a key problem for early readers and critics, particularly due to its anthropomorphic features and its invocation of a “nature” modeled on the creator of natural theology.⁸¹ But these features are also essential to its power to distill his theory in a singular metaphor. Natural selection consolidates analogy in at least two key respects. Most obviously, the adjective “natural” insists upon the basic analogy between the natural process it describes and the artificial processes of breeding and domestication – the central analogy on which his

argument hangs. But the term “selection” introduces an additional, perhaps even more fundamental, analogy. By evoking the paradigmatic situation of selection, the term transforms the series living beings it comprehends into a nexus of serial relations. At its core, this nexus of relationships distills the dual axes of the synchronic and diachronic analogy discussed earlier. In this paradigmatic case, the organisms are placed in imaginative synchronic parallel for simultaneous comparison. But there is also a necessary diachronic component – the differential generated between those that are selected and survive, and those not selected and consigned to the past. To put this differently, “selection” unites metaphorically the two diagnostic perspectives upon evolution detailed at length in the first three chapters of *The Origin* – the recognition that later generations are related to, but different from past, and the visible variation that exists between organisms at the same time. Just as, in the diagram from *The Origin*, the geometric convention of planes of projection served to stabilize lines of descent in moments of synchronic comparison, the anthropomorphic language inherent in “natural selection” serves to isolate individuals and species in synchronic moments of selection within which successful variants are picked. Hence metaphorical consolidation is more than a semiotic process – it’s not simply that the metaphor “natural selection” replaces the earlier analogies as their name. Instead, these implicit comparisons are incorporated as the content of phenomena that the metaphor of natural selection serves to formalize. And just as, for the circulating reference, it is the phenomena themselves which determine which kinds of formalization will work, the analogical network developed over the first four chapters produces a set of phenomenal constraints on interpretation that

focus the many possible meanings of the metaphor “natural selection” into Darwin’s theory.

The metaphorical nature of “natural selection” has been widely commented upon, not the least, by Darwin himself. In the third edition, Darwin responds to contemporary critics who took issue with the powers ascribed to natural selection:

In the literal sense of the word, no doubt, natural selection is a misnomer; but who ever objected to chemists speaking of the electric affinities of the various elements? – and yet an acid cannot strictly be said to elect the base with which it will in preference combine. It has been said that I speak of natural selection as an active power or Deity; but who objects to an author speaking of the attraction of gravity as ruling the movements of the planets? Every one knows what is meant and is implied by such metaphorical expressions; and they are almost necessary for brevity.⁸²

The use of a figurative expression for a new scientific theory has a long and august lineage, Darwin notes, and he singles out Newton’s theory of gravity (previously a term of social affect) and Torbern Bergman’s theory of chemical, or “elective” affinity as examples. In pointing to the centrality of such “metaphorical” expressions in key scientific theories, Darwin takes up Whewell’s observation, in his *History of the Inductive Sciences* (1830), that new scientific theories are often marked by “some new word or phrase, which becomes part of the current language of the philosophical world.”⁸³ The deeper insight lies in Darwin’s seeming aside: “they are almost necessary for brevity.” By providing a strong formalization for the analogical phenomena that are the “key” to his theory, such “metaphorical expressions” *are* indeed necessary for brevity, both in their service as a form of scientific modeling, and because they make possible a narrative conversion from networked analogies into narratives of change – from the organizing principle of lists to the narrative principle of stories.

Levine has discussed extensively the effect of Darwinian narratives on contemporary Victorian fiction.⁸⁴ This transition into narrative is a feature of *The Origin* as well; after setting out his key formalizations of his theory of natural selection and his figure for the tree of life in chapter four, Darwin turns in the following chapter to various “Difficulties on the Theory,” which he is able to address through the narrativization of hypothetical evolutionary and geological stories that might account for them. In these later chapters Darwin is perhaps closest to the novelists, as he seeks patiently to clarify the coherence of the somewhat demystified natural world that he articulates. Repeatedly, his strategy is to demystify apparently striking evidence of natural design, by a strategy of translation into story. I have noted how consolidation into metaphor and figure served as a form of mutually-beneficial stabilization, constraining interpretation of both the central theory of “natural selection,” and the more general practices of analogical interpretation of biological form within an historical context that the theory secured. In the same fashion, the later chapters of *The Origin* serve to stabilize both of these components by generating a wealth of particular narratives (some more, some less convincing to contemporary readers), that bound Darwin’s theory more closely to biological phenomena. Like Scott’s narratives, the central features of Darwin’s stories are moments of translation, most famously, Darwin’s revision of Paley’s case for the perfection of the eye as an instrument of perception. By translating Paley’s argument for design into a narrative of evolutionary development, he engaged in a mode of, on the one hand, alienation from design, on the other, articulation of narrative continuity, that serves the same function as Scott’s translation of doorpost into gibbet in the epistle to *Ivanhoe*. Just as the fictions of Scott, Dickens, and Eliot served to displace “higher” meaning and

eschatalogical time into historicized accounts of continuity and interpretation, Darwin's theory served to collapse the ontological gap between intelligent design and human fallibility. If Eliot's fictional demand in 1858's *Mill on the Floss* is to recognize that what Mr. Tulliver wants, "we know," *Punch* articulated the Darwinian extension of this sympathetic move in their famous cartoon of *The Origin*, in which an ape holds a sandwich board that reads, "Am I Not a Man and a Brother?" The racism of the illustration, which alludes to Darwin's connection to the Wedgewoods and their famous 1781 anti-slavery medallion (which popularized the slogan), is well-recognized. At the same time, the cartoon points up the narrative trajectory of Darwin's theory and the ease with which it could be read into the ethical and social coordinates of the contemporary novel, elaborated in my previous chapter with respect to Eliot's programme of sympathetic interpretation. The Victorian visual imagination was particularly inflected by narrative modes of interpretation, as artists, audiences, and critics alike deployed novelistic conventions as a formal strategy for organizing visual representation. As Kate Flint notes, drawing from Charles Taylor's observation of the narrative constitution of the modern sense of self: "It may well be that many of the stories the Victorians told themselves, or had reinforced, through reading paintings, were woefully predictable and familiar ones. Their consumership served ... to assure them of the unexceptionalness of their position within society, and hence their safety within a world of changing and competing values."⁸⁵ On this view, the humor of the *Punch* cartoon is a recognition of the potential instability which Darwin's theories produced for the "predictable and familiar" conventions of traditional narrative, as well as the impact of evolutionary theory in suggesting the consensual nature of convention itself, and perhaps even a gesture

toward alternative horizons of understanding. In this fashion, Darwin's theories register the same destabilizing epistemological function that motivated Eliot's fiction, insofar as analogy provided access to strategies of destabilizing comparison, synthetic coordination, and the potential for new formalizations that could reshape their readers' sense of what the human condition entailed. These strategies of comparison and consolidation help to explain how Darwin, in writing to a largely skeptical audience, was able to convince so many, even if some, like Lyell, struggled to "go the whole Orang."⁸⁶ In this dark sense of a link between responsibility and ethics, oddly enough, the *Punch* cartoon can be seen as an expression of the Stoic configuration of objectivity and the ethic of scientific practice that George Levine has memorably characterized as "Dying to Know."⁸⁷

III. Conclusion

In his 1860 review of *The Origin of Species*, Bishop Wilberforce illustrates the persistent instability of strategies of representational abstraction within naturalist science. As Wilberforce notes, the majority of his objections are couched "solely on scientific grounds" as a critique of Darwin's failure to produce his theory through strict "induction" according the "stern Baconian law of the observation of facts."⁸⁸ Wilberforce turns to this insistence upon induction immediately after quoting Darwin's conclusion that "Analogy would lead me one step further, namely to belief that all animals and plants have descended from on prototype," which he identifies as "the theory which really pervades the whole volume."⁸⁹ In emphasizing Darwin's dependence upon this analogy, Wilberforce no doubt drew upon the insight of his editor at *The Quarterly Review*,

Whitwell Elwin. Elwin had already reviewed the work for Murray before publication, and had urged a plan, attributed to Charles Lyell, that Darwin redact the work into a coffee-table monograph on the “single case” of pigeons (“Every body is interested in pigeons,” Elwin wrote, “The book would be received in every journal in the kingdom and would soon be on every table”).⁹⁰ But as Wilberforce and Elwin clearly recognized, the value of pigeons for Darwin’s work accrued solely in their service as a formal analogy by which domestic husbandry could model natural selection. In emphasizing strict “fact” and “evidence” each pursued a strategy of strict empiricism that mitigated against the structural modeling which Darwin’s analogies afforded. Wilberforce directly allays Darwin’s strategy to the theories of his grandfather, Erasmus Darwin, even providing quotes from *The Botanic Garden*, and an extract of Frere and Canning’s sendup in *The Anti-Jacobin*.⁹¹

But it’s clear that Darwin embraced the continuity between his thinking and Erasmus’s, and their mutual confidence in the power of analogy as a “sure guide.” Darwin famously suggested that when natural selection and “analogous views” become common, “The terms used by naturalists of affinity, relationship, community of type, paternity, morphology, adaptive characters, rudimentary and aborted organs &c., will cease to be metaphorical, and will have a plain signification” (456). It is this drive to materialize metaphor, as well as myth, which I take as the inspiration of *Darwin’s Plots*; as Beer puts it, “He needs to establish ways in which language may be authenticated by natural order, so that his own discourse and argumentation may be ‘naturalised,’ and so moved beyond dispute.”⁹² Beer’s formulation indicates a rhetorical perspective on Darwin’s language that is shared, in part, by Darwin and Wilberforce in their

characterization of his “argument.” So, to, does Levine note Darwin’s inherent anxiety over the status of scientific rhetoric:

His work, with its sometimes disingenuous style of patient and plodding detail, helped to foster the illusion that the power of science, and hence its authority, lay in its self-denying surrender to observed fact. Only the establishment of an authority alternative to religious tradition made it rhetorically possible to extend the rule of science to the human.

This isolation of scientific from rhetorical language can be taken as the originary myth of the scientific revolution. On this reading, Darwin’s style is closely allayed to theorization of the realist novel, discussed in the previous chapter, as producing the “illusion” of reality through the accumulation of detail.

But as I have tried to demonstrate, and as Levine and Beer elsewhere assert, if Darwin’s science in *The Origin* does exert scientific “power” and “authority” as a particularly textual form of scientific practice, a large measure of that power accrues in precisely the devices of representational abstraction and coordination that bring his writing closest to the literary practices of the period. If there is a diagnostic (rather than disciplinary) distinction that can be made between the epistemological practices of *The Origin* and a novel like *Middlemarch*, it is not at the level of the “literary” functions of figurative language, but rather, in the ground-level phenomena to which that language is applied. While, in Darwin’s writing, the functions of comparative juxtaposition and abstracting formalization are brought to bear on specific external phenomena, in Eliot’s fiction, they are applied to the (psychologically) intrinsic and general objects of introspection and interpersonal understanding. As such, I would argue, these writers developed enormously powerful formalisms, widely circulating epistemological models that were powerfully referential in Latour’s sense, with the major distinction of a wide

divergence in the accessibility of their particular domains of enquiry, and the degree of consolidation and constraint that those objects permitted.

In his theory of paradigm shift, Kuhn analyzes at length the “structure” of science before and after scientific “revolutions,” but, unable to specify the transitional structure of the revolutions themselves, he turns ultimately to the hazy transformation of “gestalt.” What I hope my work has helped to show, is that, in the case of the comparative strategies of representation deployed by Scott, Dickens, Eliot and Darwin, the transformation from one understanding of the world to another (whether historical, ethical, or scientific) is effected through language – not described by it. Understood in this light, the false opposition between rhetoric and science can be tracked to a misunderstanding about the nature of language itself. It is the non-semiotic function of language – its ability, through figuration and allied techniques, to say new things, that drives Darwinian discovery as well as literature.

In *The Singularity of Literature*, Derek Attridge points to the immense difficulty of specifying what makes literature. Attridge turns away from generic and aesthetic definitions, focusing instead upon the experience of literature: its ability to produce new meaning, and to alter our understanding through “the acknowledgement – which is at the same time the advent – of the other in an event of creation produc[ing] a lasting change in idioculture.”⁹³ This is perhaps *the* major function of analogy in the nineteenth century – allowing the intrusion of new patterns and new knowledge into convention. For Erasmus Darwin, analogy provided a key to reconciling the apparent division of literary and scientific knowledge, of harnessing poetry and poetic figure as scientific tools. And in the historical novels of Walter Scott, and the social novels of Charles Dickens, this

impulse to accommodate the other – to recognize interconnection beneath difference – is manifest in the deep analogical current of their fictional worlds. For George Eliot, analogy serves to engender static interpretations, which then open upon the productive reversal of disanalogy (the ability to access positive knowledge through its destruction of facile interpretations), a reversal I identify with the epistemology of realism. All of these explorations serve to illustrate how analogy formalizes the complex interrelationship of perception, patterning, and the creation of new knowledge. And in *The Origin of Species* this study finds the most expressive and extended exploration of analogy's power to articulate new meaning. In one respect, Darwin's chief work is the *most* literary of the texts in my current study, because it creates through careful consolidation the most extensively fleshed-out example of analogy's ability to elucidate new meaning. From out the tangled bank of patterns, blooms a new age rooted in tales of transformation.

It is perhaps for this reason, that sitting down to open his "B" notebook for the first time, Darwin wrote "Zoonomia" across the top. Wilberforce may have recognized this continuity, but he was unable to prise apart the relation between analogy as a compromised mode of philosophical speculation, and its power as a representational technology of epistemological engagement and formalization across phenomena. Darwin, after more than twenty years of writing and reading, immersed in the broad recuperative project of nineteenth century comparative historicism, could. In his grandfather's vatic perspective upon history as a cosmic process of interaction within difference, Charles Darwin recognized an intellectual kinship and the "sure guide" that would drive his profound discoveries, helping to cultivate what an evolutionary biologist has accurately described as a "rich and fertile mind, with a holistic view of nature. One

that sees the interconnectedness of living beings.”⁹⁴ It was this feature that drew Darwin closest to the novelists who shared this vision of the broad interconnected nature of life. And it leant him, in the privacy of his study, the electrifying sense of the analogy of self, amanuensis.

6. Appendix

Semantic Information, Structural Information, and Probability

It is possible to think of the information that an expression contains as a factor of its probability distribution. This is an insight that was developed by Claude Shannon, who noted that the potential information content of any specific symbolic expression is a function of its informational “entropy” – a measure of the probability that this sequence of symbols occurs as opposed to its alternatives, given that the system can be described by the relative frequency of its symbols.¹ Strictly speaking, Shannon developed this insight with respect to the actual distribution of letters within an English language text. But as his theories developed, he and other theorists suggested that the insight applies equally to higher levels of linguistic organization, for instance, the potential information content of any specific elements of an English expression or corpus as opposed to all possible alternatives.²

One challenge for my use of Shannon’s theory is that it is not a theory of semantics, but of information – it helps explain how much actual information can be encoded into a sequence of symbols for transmission. Allow me to explain. Information, in the technical sense that Shannon uses it, is the set of choices or contrasts between alternative possibilities contained within a message, a set which could be completely translated into an alternative code or language, given equally sufficiency. If I have a binary string “0100010,” the set of seven choices between 0 and 1 is the information it contains, and this could be communicated using any system that provides at least two possible options, for instance, in an alphabetic string like “abaaaba.” Semantic meaning,

on the other hand, could be approximated as set of descriptions which knowledgeable readers might offer as describing the “meaning” of the message. Each description would be, in some sense, partial or insufficient, but I think we can agree that some of those descriptions would be a great deal more useful, capturing more of the “meaning” of the expression than others, while beyond some point, additional descriptions would capture less additional meaning and the semantic return on those additional descriptions would diminish. Collectively, the set of descriptions which we could accept before the margin of diminishing returns becomes acute would capture most of what that expression “means.” I am proposing that, insofar as the semantic meaning attributed by those descriptions was communicated by the original expression, it is communicated using a subset of the information contained within that expression.

Shannon’s theory can provide a useful model for informational constraints upon any semantic system, like English, that communicates meaning. It is important to note that Shannon’s communication theory is symmetric; the maximum amount of information which can be encoded into a symbolic sequence is equivalent to the maximum amount which can be extracted from that sequence. For this reason, it is possible to think of Shannon’s entropic description as an upper ceiling for the maximum meaning communicated by a specific expression, given several considerations: (1) that the statistical description could ideally account for all potential information-carrying aspects of the expression; (2) that semantic content is communicated using a portion of the information content in a message; (3) Shannon’s model describes the maximum amount of information that could be communicated – a “ceiling” for the actual information contained in the message – and this ceiling drops as we account for every additional

source of noise or distortion; (4) that communication of meaning is inherently noisier, and hence, incapable of taking full advantage of the possible information content of a message. I will take these considerations in order.

Given enough time and attention, all of the “meaningful” aspects of a textual object could be modeled probabilistically in terms of the likelihood of that aspect versus alternative options. To take a print example, the first edition of Scott’s *Waverley* presents a series of expressive choices that could be evaluated probabilistically using historical information. We could estimate, with comparison to contemporary works, the probability that the first word would be “the” and the last “fulfilled,” or that the title would have the sequence of letters W-A-V-E-R-L-E-Y and contained a colon, or that the work had an appendix and a postscript. Similarly, to take media considerations, we have historical data for the frequency of the 1 volume format for fiction relative to 3 volume format (not as common) and the 1000 volume format (non-existent),³ and we could imagine, given enough effort, producing similar models for choices in the type of paper, the typesetting, the layout, the number of sheets, the odor of the pages, the total print run, etc. My argument is that any specific piece of information which we might find “meaningful” about a specific work (including its similarities to or differences from other works, or historical artifacts), could hypothetically be modeled probabilistically relative to other possibilities, given sufficient time and resources. My point is not that this would strictly determine the meaning, but that, according to Shannon’s theory, this would model the maximum amount of information that the specific example of that first edition could convey.

The key assumption that I would like to make is that the semantic content of a given textual object uses a portion of the object's informational capacity. We might think of this loosely as the maximum amount that *can* be said versus the actual amount that *is* said. This is a proposition that is hard to prove – while it strikes me as intuitive, based upon Shannon's model, and while it has been argued by some of Shannon's collaborators,⁴ it may make little sense to someone for whom the entropic modeling of information seems bizarre. On the other hand, the insights which this assumption yields may prove persuasive in themselves. And insofar as Shannon's model can describe any symbolic system in which alternatives can be described statistically, and those portions of a message which we take as meaningful can also be described probabilistically as choices within a set of alternative possibilities, the entropic theory of information can also provide a model of semantic information.⁵

It is also important to emphasize that the Shannon entropy is a *ceiling* of information: the maximum possible amount of information that can be communicated is reduced the noisier that format gets. To take a clear example, in a digital photograph, the effective resolution (conceived as the number of pixels that accurately correspond to pixels in the original facsimile) decreases as that photograph is transmitted, encoded into new formats, or as its bits rot sitting on a hard drive. After many generations of such transformations, we could produce an image with the same number of pixels, but a certain number of those pixels would no longer correspond to the original image. This loss of information can be modeled statistically, so that we could estimate a new, lower "maximum" amount of information after a specific number of such noisy transformations. To return to the *Waverley* example, imagine a first printing of a million,

rather 6,000. At some point, the lead and tin typeface would degrade to the point that specific letters would become harder and harder to recognize and, hence, “noisier.” The same consideration applies to any potential information-bearing element that has a degree of uncertainty – from a potential reference to a contemporary scandal, to an apparent “error” in the typesetting.

Finally, it is my key assertion that the semantic content of any particular expression is constrained by this informational model, because communication of meaning is inherently messier, and hence, more uncertain than the ideal maximum of information given by Shannon’s model. I have suggested that the semantic meaning of an expression can be understood as a set of possible descriptions of what that expression means, and these descriptions would contain various internal inconsistencies and contradictions. From the standpoint of information, this inability to determine, with certainty, between alternative possibilities represents noise – and a failure to take full advantage of the potential information content.⁶ The challenge of semantic ambiguity is equally central to literary representation and much of twentieth-century literary theory. It is the classical problem of interpretation, from Augustine’s attempts to adjudicate between the four-fold meanings of scripture, to William Empson’s *Seven Types of Ambiguity*. And the noisiness of interpretation is equally central to Derrida’s emphasis upon the irreducible “différance” at the heart of expression and interpretation.⁷

I am proposing a hierarchy of informational dependence: Shannon entropy describes the *maximum* amount of information that an expression could contain; a subset of that possible information is the *actual* amount of information that the expression contains, accounting for noise and other departures from maximally efficient

communication; and the *semantic* information in an expression is a further subset of the actual information it contains. That something like this hierarchy obtains in the case of natural languages seems supported by Shannon's own study of the amount of actual information contained in English versus the maximum amount it could contain; he found that English uses only about 50% of its informational capacity.⁸

While this series of dependencies marks the distance between semantic information and Shannon entropy, it is my central contention that certain features of Shannon's formal model of information content translate into semantic features. Shannon's central insight was two-fold: it showed both that information is dependent on the number of alternate possibilities, and that the amount of information is *inversely proportional* to the likelihood of the specific expression in question. In terms of semantics, this confirms our general sense that the more likely a given expression is within a specific context, the less it means. This sense is particularly sharp in the case of clichés. If I greet a friend casually and they respond "hi," they're not saying much, in part because "hi" is a typical response in that setting. But if I greet them and they respond "get lost," part of the power of this response, in addition to its specific meaning and connotations, lies in my surprise – I didn't expect them to say that, in part, because it was improbable. In terms of semantic information, "get lost" has more potential content in that context than "hi" simply because it's less common.⁹

At the same time, something that has become a cliché can offer a fresh opportunity for semantic innovation, because its very probability has made other usages and meanings improbable, and hence, ripe occasions for new meaning. Examples abound, but take Gertrude Stein's famous riff on a Victorian valentine commonplace, "A

rose is a rose is a rose.” Earlier and widespread iterations of the formula “Roses are ...” had both washed out the phrase’s meaning and established a small set of expected predicates (“red,” “sweet,” etc.). Hence Stein’s repetitious substitution of subject for predicate was immensely improbable, and therefore the condition for profound new meaning. By doubling the predicate, Stein encourages the reader to recognize the unexpected expression as intentional, rather than a mistake. In part, this is the trick of “serious” literature: its conventions require us to assume that a usage, however improbable, is meaningful. Though the meaning of Stein’s example is exclusively implicit, I think some such semantic recuperation is what Stein indicated when she argued that “in that line the rose is red for the first time in English poetry for a hundred years.”¹⁰

Information theory can reinforce our sense of why this should be so. From the standpoint of information theory, divergent language use can be described as a discrepancy between the probability distribution of the symbolic system being used to construct the expression, and the background or normal distribution which the interpreter brings to understanding that expression. (Remember, because Shannon is providing a communication model, the transmitter and receiver are symmetric, though one may be using a different “code” or set of probabilities than the other.) Once Stein has formulated the expression “A rose is a rose is a rose,” that sequence of terms is much more likely within her semantic understanding of English than it is for the average person. This divergence between compositional and interpretive probability distributions was modeled by Shannon as the “relative entropy” or “equivocation” between the two systems, which has also become recognized as a version of Kuliback-Leibler (or “K-L”) divergence.¹¹

Shannon's model for relative entropy has been reinterpreted, in turn, by Alfréd Rényi as a description of the information that would be gained by moving from the interpreter's expectation of probability to that being used by the composer.¹² A few plots can illustrate the point. In Figure 6.1 (following page), I've plotted the K-L divergence for the simple binary case where there are only two options, each with a true probability of (x) and $(1-x)$, respectively, where the receiver assumes that the probability of each is 50%.¹³ Notice that, close to the minima at 0.5, the slope of the curve is very low – you don't gain much information by moving either right or left. Close to an even distribution (where options are close to equivalent), a small difference between the assumed and actual distribution isn't that significant. But in Figures 6.2, 6.3, and 6.4, as the assumed distribution becomes more and more skewed, reflecting a case where one expression is increasingly more likely than others, this no longer holds. The slope of the curve to the immediate right of the minimum becomes larger and larger. In cases where, through repetition and the constraints of the language, a small set of options becomes vastly more likely than others, even small departures from that constrained set – making other possibilities more likely – can contain increasing amounts of information. The potential to communicate extra information increases as one maximizes the discrepancy between what is expected in an expression and what is actually given – and the maximization of this divergence is, in turn, reliant upon pre-established regularities. Intuitive connections to the relationship between literary form and meaning are countless: from the alliance between poetic meter and metric departure, to the function of genre and generic innovation, to the role of pattern and surprise in humor.

Input interpretation:

plot

$$-((1-x)\log(0.5) + x\log(0.5)) + ((1-x)\log(1-x) + x\log(x))$$

 $x = 0$ to 1 $y = 0$ to 2.5

Plot:

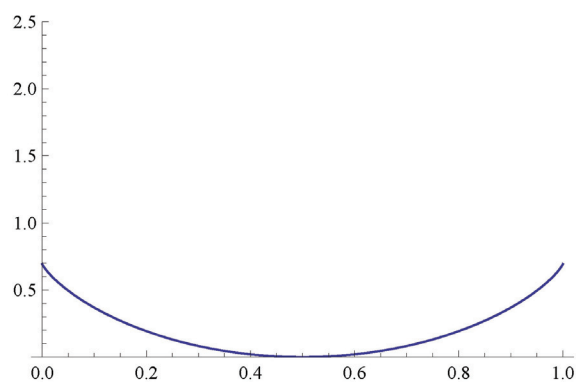


Figure 6.1 – KL Divergence on assumption of .50/.50 distribution

Input interpretation:

plot

$$-((1-x)\log(0.85) + x\log(0.15)) + ((1-x)\log(1-x) + x\log(x))$$

 $x = 0$ to 1 $y = 0$ to 2.5

Plot:

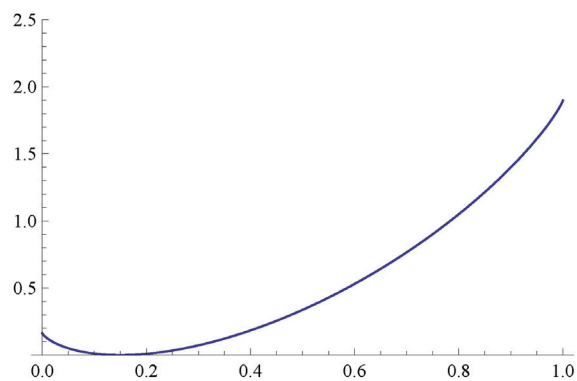


Figure 6.2 – KL Divergence on assumption of .85/.15 distribution

Input interpretation:

plot

$$-((1-x)\log(0.95) + x\log(0.05)) + ((1-x)\log(1-x) + x\log(x))$$

 $x = 0$ to 1 $y = 0$ to 2.5

Plot:

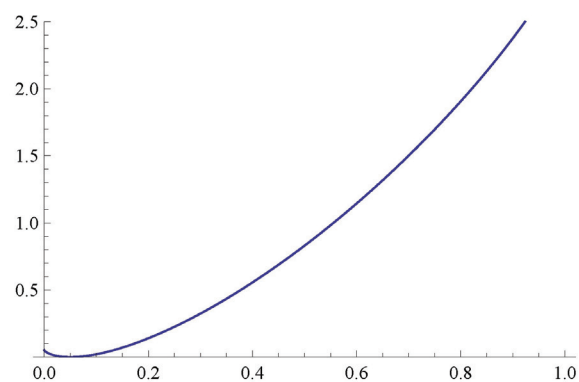


Figure 6.3 – KL divergence on assumption of .95/.05 distribution

Input interpretation:

plot

$$-((1-x)\log(0.99) + x\log(0.01)) + ((1-x)\log(1-x) + x\log(x))$$

 $x = 0$ to 1 $y = 0$ to 2.5

Plot:

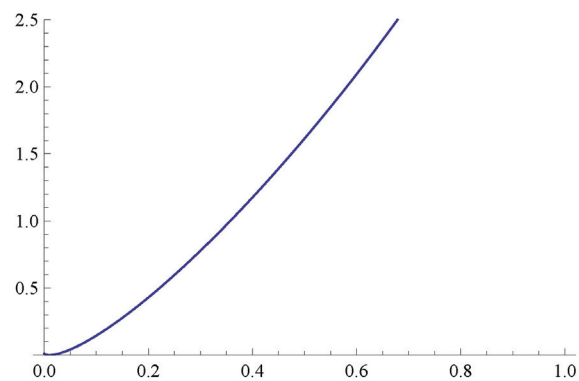


Figure 6.4 – KL divergence on assumption of .99/.01 distribution

An additional and invaluable feature of interpreting expression in terms of probabilities is that it provides a model for normative expressions. In Ricouer's classical formulation, the "deviation" of a rhetorical device from "normal" language rests upon the projection of a non-rhetorical language – a "degree-zero" rhetoric. Not only is it often difficult to provide, for a given trope, the "normal" expression that it departs from, this conceptualization seems to propose, paradoxically, a form of language that is strictly a-rhetorical. But if a specific expression is modeled in terms of a distribution of probabilities, relative to alternative possible expressions, this "degree zero" rhetoric can take the firmer shape of the *median* (or midpoint) of the probability distribution. The median is a position which need not be realized by any actual case or expression – but nevertheless bears a concrete statistical relation to all of the distribution's members. Hence, there is nothing paradoxical about modeling departures from normal expression in terms of distance from what I would call a "median of expectation" which has no exemplars.¹⁴ No single phrase can serve exclusively as the normative expectation for completing "A rose is ...," at the same time that the staying power of Stein's play on words illustrates the powerful coherence of the median of expectation brought to bear by her audience.

Information theory also offers a model for what this interpretive constraint looks like, insofar as the K-L divergence is more commonly interpreted as the amount of "discrimination information" needed to choose the new probability distribution instead of the old one.¹⁵ This means that an increase in the semantic information gained by moving from a previous to a new interpretation is equivalent to how much additional information needs to be communicated in order to constrain interpretation in favor of that new

understanding. In other words, the degree of departure from typical language use is correlated with how much buttressing – for instance, through rephrasing, interpretive conventions, or reinforcement – is necessary to take advantage of that departure’s potential information content and make it meaningful.

But what is the nature of those constraints? How is it that some information produced problematic ambiguity about the new meaning, while other information reduces it? One answer can again be drawn from an informational perspective upon the structure of the English language. Remember that Shannon, in analyzing the freedom of English letter combinations, has suggested that the language is only about 50% efficient.¹⁶ This means that the actual disposition of letters in English only uses about half the possible range of letter combinations that would be possible if each letter was used with absolute freedom. Shannon’s complementary observation was that the remaining 50% of letter combinations was “redundant” – and does not communicate further information. One factor in this redundancy is the historical, non-arbitrary nature of English orthography: conventions of spelling are largely drawn from Germanic and Romantic patterns (not to mention, constrained by the importance of vocalization). These patterns constrain the maximum freedom letter order that is required to maximize the informational capacity of English. And at the level of word selection, we can observe an additional factor to this redundancy in the vast over-representation of so called closed-class or “function” words in English – words like prepositions and determiners that serve to flesh out the syntactical relationships of a sentence but do not “represent” anything in themselves.¹⁷ These words are at least partially redundant, in that a sentence stripped of function words is still intelligible, even though interpretation is slower. For instance, approximately the same

meaning is communicated by saying that “The magician pulled out the rabbit” and “magician pulled rabbit.”¹⁸ This redundancy is also evident at the level of probability; in surveys of English word distribution, function words are the most common terms, which in terms of Shannon entropy, means that they are necessarily among the least informative.¹⁹ The same reflection applies to syntax itself, which constrains the possible locations of various kinds of words within standard English sentences; this constraint reduces the entropy of English and introduces a large degree of redundancy.

However, English’s “redundancies” serve several key purposes. First, they help clarify the relationships that obtain between the “content” words of a sentence, cutting down on the possibility of misinterpretation. Moreover, they can fine-tune these meanings, buttressing specific interpretations and reducing the likelihood that the understood meaning will be similar, but different. Finally, they make the process of communication more efficient from an experiential standpoint. Though in theory it might take less time to read *Tom Jones* stripped of all its function words (a more “efficient” text from an informational perspective), in practice, it would be much more difficult and take much longer, as we struggled to interpret sentences rendered less constrained and more ambiguous by the reduction of redundancy. I will characterize such useful redundancy as “structural information,” a subset of the redundancy which in Shannon’s interpretation, represents the 50% of unused informational capacity within English, as compared to an ideal language in which entropy is maximized through the most random probability distribution. Hence, structural information is set in contrast to the “semantic information” I earlier described as a subset of actual Shannon entropy of a sentence. Crucially, there is an inverse relationship between semantic information and structural

information: from the perspective of Shannon entropy, structural information is redundancy – the *unused* portion of the potential entropy of a system of communication – while semantic information is part of the *used* portion. This is a deeply counterintuitive principle, but it offers a remarkable way to articulate the basic form/content division of philosophical tradition and, more particularly, literary studies. In particular, it notes that the relationship between form and semantic content, for a given expression, can be thought of as accruing to distinct features of the expressions' probability distribution. This, in turn, provides one way of conceptualizing the relationship between, on the one hand, genre and the “horizon of expectations”; on the other, figurative language and the median of expectations. Just as formal theory has long conceptualized content as that which is delineated and contained by its form, my interpretation of information theory suggests that semantic information is communicated through portions of an expression that stand in an inverse relation to and are given shape by the structural information of that expression.

7. Notes

Introduction

ⁱ Charlotte Brontë, *Shirley* (New York: Oxford Univ. Press, 1998), 228. All subsequent references to *Shirley* are taken from this edition and will be noted parenthetically.

ⁱⁱ Greg Jackson has recently explored this dynamic as the “double vision” of a “transhistorical present” produced by what he has usefully characterized as “homiletic realism,” and argues that the “aesthetics of immediacy” produced by these homiletic practices shaped the larger representational project of American realism. *The Word and its Witness* (Chicago, IL: Univ. of Chicago Press, 2009). His point – that the pedagogical and ethical commitments of religious reading practices fostered the representational strategies of realism generally – has direct implication for nineteenth-century British literature, for instance, the pedagogical tropes and visitation narratives of the “social problem” novel.

ⁱⁱⁱ At the same time, this shift in magnitude was informed by various differences in perspective that extended beyond magnitude. From the nostalgic affect that marks historical perspective in Scott, to the anagogical heft of the full social imaginary in Dickens, or the stark alterity of the unknowable in Eliot’s psychology, later chapters will disclose how the shift from particular to global retained a variety of affective and phenomenological registers.

^{iv} John Stuart Mill, *Collected Works*, vol. 1 (Toronto: Univ. of Toronto Press, 1973), 554.

^v Discussed in chapter one. For an expansive discussion of Paley and analogy, see Colin Jager, *The Book of God: Secularization and Design in the Romantic Era* (Philadelphia: Univ. of Pennsylvania Press, 2007), chap. 4.

^{vi} Explored in chapters two and three.

^{vii} I will discuss higher criticism in chapter three; for a summary discussion, see George George Albert Wells, *Cutting Jesus Down to Size: What Higher Criticism has Achieved and Where it Leaves Christianity* (Chicago, IL: Open Court, 2009).

^{viii} Discussed in chapter two.

^{ix} Discussed in chapter four.

^x Earl R. Wasserman, “Nature Moralized: The Divine Analogy in the Eighteenth Century,” *English Literary History* 20, no. 1 (1953): 39-76.

^{xi} Michel Foucault, *The Order of Things* (New York: Vintage Books, 1994), 29-30.

^{xii} M. H. Abrams, *The Mirror and the Lamp* (New York: Norton, 1958), 31. The contrast between Wasserman and Abrams is instructive, in that it points up an opposition between historicizing and structural perspectives on analogy. On the one hand, per Wasserman, analogy can be used to designate the explicit discourse of “analogy” as a tradition central to, for instance, biblical hermeneutics and natural theology, as well as the historically-specific representational practices which “analogy” is used to designate. On the other hand, in Abrams’ sense, analogy is a trans-historical category of thought or representation, a description of any practice that uses one system of relationships (e.g., illumination) to model another (art).

^{xiii} Jager, *The Book of God: Secularization and Design in the Romantic Era*, 104.

^{xiv} As this language suggests, while it is not a concern of this dissertation, I would extend this broad turn towards comparativist historiography to nineteenth century economic theory, particularly the writings of Marx and Engels.

^{xv} For a recent account of secularization as differentiation, see Charles Taylor, *A Secular Age* (Cambridge, MA: Harvard Univ. Press, 2007). See also Talal Asad, *Formations of the Secular: Christianity, Islam, Modernity* (Stanford, Calif.: Stanford Univ. Press, 2003). For the classic presentation of “multiple modernities,” see S. N. Eisenstadt, “Multiple Modernities,” *Daedalus* 129, no. 1 (Winter 2000): 1-29. For a traditional account of differentiation in sociological theory, see Talcott Parsons, *Societies: Evolutionary and Comparative Perspectives* (Englewood Cliffs, NJ: Prentice Hall, 1966).

^{xvi} Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction* (Cambridge ; New York: Cambridge University Press, 2000). George Lewis Levine, *Darwin and the Novelists: Patterns of Science in Victorian Fiction* (Chicago: University of Chicago Press, 1988); *Darwin Loves You: Natural Selection and the Re-enchantment of the World* (Princeton, N.J.: Princeton University Press, 2006). Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge, MA: Harvard Univ. Press, 1999).

^{xvii} Levi Strauss, *The Savage Mind* (Chicago, IL: Univ. of Chicago Press, 1966), 259.

^{xviii} By the 5th edition of *The Origin*, Darwin had amended nearly a dozen instances of “analogy” and its cognates into expressions of “homology.” Charles Darwin, *The Origin of Species; A Variorum Text*, ed. Morse Peckham (Philadelphia: University of Pennsylvania Press, 1959).

^{xix} Charles Darwin, *The Origin of Species*, ed. J. W. Burrow (New York: Penguin Books, 1985), 455.

^{xx} Dedre Gentner, “Structure-Mapping: A Theoretical Framework for Analogy,” *Cognitive Science* 7, no. 2: 155-170.

^{xxi} Rom Harré, Jerrold L. Aronson, and Eileen C. Way, “Apparatus as Models of Nature,” in *Metaphor and Analogy in the Sciences*, ed. Fernand Hallyn (Dordrecht ; Boston:

Kluwer Academic, 2000), 6. Arthur I. Miller, "Metaphor and Scientific Creativity," in *Metaphor and Analogy in the Sciences*, ed. Fernand Hallyn (Dordrecht ; Boston: Kluwer Academic, 2000), 147-165..

^{xxii} Gentner, "Structure-Mapping: A Theoretical Framework for Analogy," 160, used with permission.

^{xxiii} Harré, Aronson, and Way, "Apparatus as Models of Nature," 6, "Central Force Field System," used with kind permission of Springer Science and Business Media.

^{xxiv} Miller, "Metaphor and Scientific Creativity," 165, figure 4, used with kind permission of Springer Science and Business Media.

^{xxv} It might fairly be objected that Gentner and others are not strictly interested in how Bohr and others actually use analogy on the page, and a case could be made that these diagrams diverge from textual usage because they are attempts to represent mental processes that are anterior to or beneath linguistic expressions. But to the degree that this is true, such models are not relevant the study of the specific function of analogy in scientific and literary writing.

^{xxvi} $w = \frac{\sqrt{2}}{\pi} \frac{W^{3/2}}{eE\sqrt{m}}$, $2a = \frac{eE}{W}$ Where w is the frequency of revolution, W the kinetic energy for a revolution, e and E the charges of the electron and nucleus, respectively, m the mass of the electron, and a is the radius of the orbit.

^{xxvii} $W = \tau h \frac{w}{2}$ Where W is now both the emitted energy and the kinetic energy of revolution, τ a whole number, h Planck's constant, and w the frequency of revolution.

The resulting equations are given as $W = \frac{2\pi^2 me^2 E^2}{\tau^2 h^2}$, $w = \frac{4\pi^2 me^2 E^2}{\tau^3 h^3}$,

$$2a = \frac{\tau^2 h^2}{2\pi^2 meE} .$$

^{xxviii} How is it that this vast gap emerged between how Bohr develops his "analogy," and the common description of the "Rutherford-Bohr" model in work about the history of science? The answer, I think, is rooted in popular accounts of scientific discovery. Mediators who described Bohr's work, from popular writers to historians of science, found the "solar system" a useful way to characterize both Bohr's incorporation of physical equations (originally derived from Kepler's astronomic equations), and the solar system-like illustrations of atomic structure that emerged in the wake of Bohr's paper and Nagaoka's speculations about the "Saturnian" atom. So A. S. Reve, in an article for *Science* on "Modern views on the constitution of the atom," appends Bohr's observations to a description derived from previous research on atomic structure: "Thus we can form a clear mental picture of the general character of the atom. It is a miniature solar system

.... A brilliant young Dane, Bohr, has gone a step farther and suggested the structure of the atom capable of explaining the series of spectral lines.” A. S. Reve, “Modern Views on the Constitution of the Atom,” *Science* 40, no. 1021 (July 20, 1914): 118. In January of the following year, a reprinted speech in *Science* cites Henri Poincaré’s description of the atom as “like a kind of solar system,” while a 1917 review of atomic theories credits Rutherford as theorizing “that the atom consists of a central nucleus or sun, and that the satellites of the miniature solar system are the negative electrons.” D. Cole, “Recent Evidence for the Existence of the Nucleus Atom,” *Science* 41, no. 1046 (January 15, 1915): 73. William D. Harkins, “The Structure of Atoms, and the Evolution of the Elements as Related to Composition of the Nuclei of Atoms,” *Science* 46, no. 1192 (November 2, 1917): 419. The popularization of the “solar system” model followed; a 1917 article on “The inside of the atom” in *Harper’s Weekly* (then published as part of the New York weekly *Independent*) describes how “The Bohr atom, duly magnified, would look something like the solar system. In the place of the sun would be the central nucleus ... [etc.]” “The Inside of the Atom,” *The Independent, with which is Incorporated Harper’s Weekly*, January 29, 1917. And by 1919 the connection between Bohr’s theories and the “solar system” model was well-enough established that an American Journal of Science article can observe off-handedly that “the Larmor-Bohr-Rutherford atom is likened to a solar system in which the negative electrons, like the planets, move substantially in a single plane.” Frank W. Very, “On a Possible Limit to Gravitation,” *American Journal of Science* 48, 4 (July 1919): 33-46. Because visual representations of the solar system were well-established, the “solar system model” of the atom could be quickly communicated, as a useful shorthand for one physical representation of the atom. Hence the extensive analysis of the “solar system model” of the atom in works on the philosophy of science and cognitive philosophy provide a description of scientific popularization rather than an account of how analogy functions in the formation of scientific theory. And this reliance upon popular account, in turn, allows the radical reduction of scientific analogy into a simple mapping between solar system and atomic structure – after all, something like a radical reduction is essential to popular scientific accounts.

^{xxix} Darwin, *The Origin of Species*, 71.

^{xxx} *The Philosophy of Rhetoric* (New York: Oxford Univ. Press, 1936), 100-1. I also do not mean to suggest that metaphors are exclusively “formal,” in the terms developed at the close of the introduction. The entire focus of Max Black theory of metaphoric “interaction” was grounded in an attempt to recapture the serial element of metaphorical comparison that does not reduce to a formal relation.

^{xxxi} Pierre Fontanier, *Les Figures du Discours* (Paris: Flammarion, 1830), 230.

^{xxxii} For a quick discussion, see Peter Dixon, *Rhetoric* (New York: Routledge, 1971), 65-70.

^{xxxiii} *The Rule of Metaphor*, trans. Robert Czerny (Toronto; Buffalo: Univ. of Toronto Press, 1977), 161-70.

^{xxxiv} My brief here is still under development, but of particular issue is the influence of structural linguistics per Saussure, with its insistence on the arbitrariness of the sign, and the isolation of syntagmatic and paradigmatic forms of figuration, as seen in, Jakobson's contrast between metonymy and metaphor. These are touched upon in the fourth chapter. For the case against structural linguistics, see Diane Larsen-Freeman and Lynn Andrea Stein, *Complex Systems and Applied Linguistics* (New York: Oxford Univ. Press, 2008), 86-90.

^{xxxv} For an extended discussion of the problem of computational assumptions, see Lynn Andrea Stein, "Challenging the Computational Metaphor: Implications for How We Think," *Cybernetics and Systems* 30, no. 6 (1999): 473-508. For an extension of this critique into the modularity concept with regard to fuzzy and dynamic systems, see Michael Spivey, *The Continuity of Mind* (Oxford; New York: Oxford Univ. Press, 2007), chap. 1.

^{xxxvi} Hans R. Jauss, Timothy Bahti, and Paul De Man, *Toward and Aesthetic of Reception, Theory and History of Literature 2* (Minneapolis, MN: Univ. of Minnesota Press, 1989), 25-32.

^{xxxvii} For a survey of dynamic systems and complexity theory, see Mitchell Waldrop, *Complexity* (New York: Penguin, 1994); Alicia Juarrero, *Dynamics in Action* (Cambridge, MA: MIT Press, 1999).

^{xxxviii} We're using two dimensions for simplicity's sake. But we could add as many dimensions as necessary to reflect the additional complexity of each particular understanding and its subtle differences from others.

^{xxxix} This figure and the following reproduced from Spivey, *The Continuity of Mind*, 17-8, used with permission.

^{xl} I have settled on this vocabulary after a long search for the appropriate terminology for this contrast. I considered internal versus external analogy (as suggested by Colin Jager in *The Book of God*, p. 181), horizontal versus vertical (Ricouer, *The Rule of Metaphor*, p. 384), the homology versus analogy divide developed in nineteenth century science and discussed in chapter three, even "homoformal analogy" (suggested by Stacey Margolis, "Homo-Formalism: Analogy in The Sacred Fount," *Novel: A Forum on Fiction* 34, no. 3 (Summer 2001): 291-410..).

Chapter 1

¹ The classical critique of the "history of ideas" is Quentin Skinner's in "Meaning and Understanding in the History of Ideas," *History and Theory* 8, no. 1 (1969): 3-53.

² The sobriquet he adopted with fellow Lunarian Joseph Priestly. For an extended discussion of the Lunar Society and Darwin, see Jennifer S. Uglow, *The Lunar Men : Five Friends Whose Curiosity Changed the World* (New York: Farrar, Straus, and Giroux, 2002).

³ Jenny Uglow, *Sexing the Plants*, 2002.

⁴ C.f. Desmond King-Hele, *Erasmus Darwin and the Romantic poets* (New York: St. Martin's Press, 1986).

⁵ Quoted in Charles Darwin and Desmond King-Hele, *The Life of Erasmus Darwin* (New York: Cambridge University Press, 1879), ix.

⁶ Samuel Taylor Coleridge and Earl Leslie Griggs, *Collected letters* (Oxford: Clarendon Press, 1971), 216.

⁷ Cf. Gavin Budge, "Erasmus Darwin and the Poetics of William Wordsworth: 'Excitement without the Application of Gross and Violent Stimulants'," *Journal for Eighteenth-Century Studies* 30, no. 2 (October 2008): 279-308.

⁸ Quoted in E. J. Browne, *Charles Darwin: a Biography* (New York: Knopf : Distributed by Random House, 2002), 472.

⁹ Catherine Packham, "The Science and Poetry of Animation: Personification, Analogy, and Erasmus Darwin's Loves of the Plants," *Romanticism* 10, no. 2 (2004): 191-16.

¹⁰ Dahlia Porter, "Scientific Analogy and Literary Taxonomy in Erasmus Darwin's Loves of the Plants," *European Romantic Review* 18, no. 2 (2007): 213-7. Michael Page, "The Darwin before Darwin: Erasmus Darwin, Visionary Science, and Romantic Poetry," *Papers on Language and Literature: A Journal for Scholars and Critics of Language and Literature* 41, no. 2 (2005): 146-24.

¹¹ Erasmus Darwin, *Zoonomia; or, The Laws of Organic Life* (Dublin: P. Byrne, and W. Jones, 1794), 1. All subsequent references to Darwin's *Zoonomia* will be given parenthetically by page number.

¹² See Laurence R. Horn, "Contradiction (Stanford Encyclopedia of Philosophy)," *Stanford Encyclopedia of Philosophy*, 2006, <http://plato.stanford.edu/entries/contradiction/>.

¹³ Aristotle and Jonathan Barnes, *The Complete Works of Aristotle : the Revised Oxford Translation*, vol. 1 (Princeton, N.J.: Princeton University Press, 1995), 122. All future references to the *Posterior Analytics* will be given parenthetically.

¹⁴ Aristotle, *Posterior Analytics*, Loeb Classical Library (Cambridge, MA: Harvard Univ. Press, 1989), 68.

¹⁵ "ἀναλογοῦν – ἕω" Henry George Liddell et al., *A Greek-English Lexicon* (Oxford; New York: Clarendon Press; Oxford University Press, 1996).

¹⁶ This is the consensus of commentary on analogy as it is deployed in classical works on rhetoric. C.f. E. M. Cope, "E. M. Cope, Commentary on the Rhetoric of Aristotle, book

2, chapter 19, section 2,” *Perseus*,

<http://www.perseus.tufts.edu/hopper/text;jsessionid=CC76E451AA8B91C4E7BAD130C084F7A4?doc=Perseus%3Atext%3A1999.04.0080%3Abook%3D2%3Achapter%3D19%3Asection%3D2>. Cope glosses Aristotle’s use in the *Rhetoric*: “This is a variety of the argument from analogy. We have a tendency, which appears to be natural and instinctive, to infer from any manifest or apparent resemblance between two objects, that is, from certain properties or attributes which they are seen or known to possess in common, the common possession of other properties and attributes, which are not otherwise known to belong to them, whereby we are induced to refer them to the same class. So here, the likeness of two things in certain respects, is thought to imply something different, which is also common to both; a common capacity or possibility. The argument being here applied solely to the use of Rhetoric, the things in question are rather actions and their consequences than facts and objects: if it has been found possible to effect something, to gain some political advantage for instance, in several previous cases, we argue that in the similar, parallel case which is under consideration, the like possibility may be expected.

This however, though the popular view of the argument from analogy, and the ordinary mode of applying it, is not, strictly speaking, the right application of the term. Analogy, *τὸ ἀνάλογον*, is arithmetical or geometrical proportion, and represents a similarity, not between objects themselves, but between the relations of them.”

¹⁷ Aristotle, *Posterior Analytics* (Loeb Classical Library), 242.

¹⁸ I would note, parenthetically, that analogy’s violation of Aristotle’s essential paradigm is not restricted to the violation of hierarchy – analogy violates the Laws of Thought as well as the syllogistic method. Analogy, as a relation of likeness, falls into the very gray area which the Laws of Thought were meant to exclude. To say that a falcon’s claw is analogous to a porcupine’s spine is not quite to say that a falcon’s claw *is the same as* a porcupine’s spine, nor is it to say that they are *not the same*. It is an intermediate case – a case not permitted by the bivalent logic of the Law of Non-Contradiction and the Law of the Excluded Middle. Moreover, Aristotle’s syllogistic logic – which permits only the four operators “all are,” “some are,” “some are not,” and “all are not” – does not allow “are analogous to” as an argument. For a discussion of Aristotle’s syllogisms in terms of modern logic’s “operators,” see Jan Lukosiewicz, *Aristotle’s Syllogistic Logic from the Standpoint of Modern Logic*, (Oxford: Clarendon Press, 1957). To put it differently, “are analogous to” is a form of qualified predication, the adverb analogous qualitatively altering the nature of “to be,” – a qualitative shift excluded by the strict predication of syllogistic logic. The inclusion of analogy in Aristotle’s scientific method is thus triply problematic, because it violates the hierarchical order upon which it depends, it breaks down the strict either/or formulation of its logic, and produces statements that do not fit into the rigid grammar of its syllogisms.

¹⁹ Aristotle and Jonathan Barnes, *The Complete Works of Aristotle : the Revised Oxford Translation*, vol. 2 (Princeton, N.J.: Princeton University Press, 1995), 2332.

²⁰ Richards, *The Philosophy of Rhetoric*, 132-4.

²¹ Aristotle's example focuses upon interchanging different words (draw and sever) that can each be understood as "taking away."

²² In the introduction, I introduce the key opposition between the "formal" and "serial" dimensions of analogies. I also lay out the informational model which underpins this opposition, in particular, its reliance upon the relationship I theorize between semantic and structural information.

²³ For a survey of the rediscovery of Aristotle's works and their early Latin translations, particularly 12th century, see Bernard G. Dod, "Aristotle-latinus," in (New York: Cambridge Univ. Press, 1982).

²⁴ Ralph McInerney and John O'Callaghan, "Saint Thomas Aquinas (Stanford Encyclopedia of Philosophy)," *Stanford Encyclopedia of Philosophy*, 2009, <http://plato.stanford.edu/entries/aquinas/>.

²⁵ "principium," P. G. Glare, ed., *Oxford Latin Dictionary* (Oxford: Clarendon Press, 2002).

²⁶ E. Jennifer Ashworth, "Medieval Theories of Analogy (Stanford Encyclopedia of Philosophy)," *Stanford Encyclopedia of Philosophy*, 2009, <http://plato.stanford.edu/entries/analogy-medieval/>.

²⁷ John F. Wippel, "Metaphysics," in *The Cambridge Companion to Aquinas*, ed. Norman Kretzman and Eleonore Stump (New York: Cambridge Univ. Press, 1993), 89.

²⁸ The relationship between such analogy of predication and the four-part mathematical relation of proportionality was later emphasized by Thomas de Vio, who revised Aquinas' theory of analogy by subdividing it into three classes; only the last, "Analogy of Proportionality" was truly analogous, because it alone rested upon a quaternary structure of proportion, again taking "principium" as the key example. In Thomas de Vio, *The Analogy of Names and the Concept of Being*, trans. Edward A. Bushinski (Pittsburgh, PA: Duquesne Univ. Press, 1953), 25-6.

²⁹ In Henry Chadwick, *Early Christian Thought and the Classical Tradition: Studies in Justin, Clement, and Origen* (Oxford: Clarendon P., 1966), 13.

³⁰ See Peter Robert Lamont Brown, *Augustine of Hippo: a Biography* (London: Faber, 1967), pt. 3-4.

³¹ Aquinas, *Summa Theologica*, 1, q. 1, a. 10, ad. 2. Note that there's a wealth of disagreement over the degree to which Aquinas' four-fold interpretation reflects Augustine's. Additional confusion has been introduced by the substitution of "anagogy" for "analogy" in some accounts. See following note.

³² Victor Harris, "Allegory to Analogy in the Interpretation of Scripture," *Philological Quarterly* 45 (1966): 4. While Aquinas described this as the "four fold method" there is

some disagreement as to whether his version corresponds with Augustine's. Moreover, while Augustine himself included "analogy" as well, the substitution of "anagogy" by a later church father led to further confusion. Karlfried Froehlich, *Biblical Interpretation in the Early Church* (Philadelphia: Fortress Press, 1984), 28.

³³ Saint Bishop of Hippo Augustine, *The Works of Aurelius Augustine: A New Translation*, ed. Marcus Dods, vol. 9 (Edinburgh: T. & T. Clark, 1892), 93.

³⁴ *Ibid.*, 9:95.

³⁵ Brown, *Augustine of Hippo: a Biography*, chap. 9.

³⁶ In Rita Copeland, *Rhetoric, Hermeneutics, and Translation in the Middle Ages: Academic Traditions and Vernacular Texts* (New York, NY: Cambridge Univ. Press, 1991), 44.

³⁷ Thomas Aquinas, *Summa Theologica*, trans. Fathers of the English Dominican Province (Raleigh, NC: Hayes Barton, 1947), 21-3.

³⁸ Harris, "Allegory to Analogy in the Interpretation of Scripture."

³⁹ *Ibid.*, 20.

⁴⁰ For a discussion of the Tractarian context of Goodwin's *Hagio-Mastix* and the later postscript, see John Coffey, *John Goodwin and the Puritan Revolution* (Rochester, NY: Boydell, 2006), 143-9.

⁴¹ For a seminal collection of essays on the sources of this prose revolution, see Richard Jones, ed., *The Seventeenth Century: Studies in the History of English Thought and Literature from Bacon to Pope* (Stanford, CA: Stanford Univ. Press, 1951).

⁴² The breadth of the change as well as its motives has been powerfully reconsidered by critics, in particular, Brian Vickers, "The Royal Society and English Prose Style," in *Rhetoric and the Pursuit of Truth*, ed. Thomas F. Wright (Los Angeles: Univ. of California Press, 1985).

⁴³ One central feature of classical rhetoric was the division established by Aristotle's discrimination between "invention" as the discovery of arguments (the thought-content of debate) and "disposition" and "elocution" (the articulation of those arguments in language). (For a succinct but comprehensive summary of classical rhetoric's development, see Roland Barthes, "The Old Rhetoric: An aide-mémoire," in *The Semiotic Challenge*, trans. Richard Howard (Berkeley, CA: Univ. of California Press, 1994), 11-94. Aristotle's decision to isolate invention from disposition and elocution was in part rooted in the desire to salvage rhetoric from the Sophists and affirm its truth-value; as he puts it: "Rhetoric is the antistrophos [complement] to dialectic, for both are concerned with such things as are, to a certain extent, within the knowledge of all people and belong to no separately defined science" Aristotle, *On Rhetoric*, trans. George A.

Kennedy (New York: Oxford Univ. Press, 1991), 28. In his desire to emphasize rhetoric's complementarity to dialectic – the logical system of scientific argument – Aristotle articulates in rhetoric's *inventio* an intellectual complement to the dialectic of science, making the former the logic of *probable* arguments – those things known generally, if not certainly, to be true – the complement of the logic of *necessary* arguments in the latter.

Whereas Aristotle understood the “gems of thought” produced by invention to be the substance of rhetoric, which was then arranged and expressed in words through disposition and elocution, for later theorists of rhetoric, the gems of thought become “embellishments” alongside the “flowers of language,” a collapse of invention into disposition, that made dialectical statements equivalent to expressive language Cicero, “De Oratore,” in *Readings from Classical Rhetoric*, ed. Patricia Matsen, Philip Rollinson, and Marion Sousa, trans. Harris Rackham (Carbondale and Edwardsville, IL: Univ. of Southern Illinois Press, 1990), 95. This language of ornamentation, decoration, and embellishment launched an enormously consequential metaphysics of superficiality, contributing to the sense in which expression is a mere vestment to the embodied sentiment. With Desiderus Erasmus's *De Copia* (1512), the ability to generate an essentially infinite set of related and yet distinct circumlocutions becomes both central to rhetorical art and the central problem of style.

⁴⁴ Henry Peacham, *The Garden of Eloquence* (London: R. H. for H. Jackson, 1593).

⁴⁵ Richard Sherry, *A treatise of schemes [and] tropes very profytable for the better vnderstanding of good authors, gathered out of the best grammarians [and] oratours* (London: Iohn Day, 1550), liii EEBO image 19.

⁴⁶ Thomas Spratt, *The History of the Royal Society of London, for the Improving of Natural Knowledge* (London: J. Martin at the Bell, 1667), 167.

⁴⁷ *Ibid.*, 113.

⁴⁸ Cf. William Samuel Howell, *Eighteenth-Century British Logic and Rhetoric* (Princeton, NJ: Princeton Univ. Press, 1971).

⁴⁹ The debate about the origins of the plain style controversy has three main heads. First, there is the argument, powerfully formulated by Richard Foster Jones, that the plain style was the product of an empirical spirit in the seventeenth century Jones, *The Seventeenth Century: Studies in the History of English Thought and Literature from Bacon to Pope*. This emphasis upon empiricism provides a counterpoint to arguments, like that advanced by George Williamson, that the “plain style” of the seventeenth century was really an extension of sixteenth-century anti-Ciceronianism, a literary movement that turned toward less elaborate systems of rhetoric, taking Seneca as a particular model George Williamson, “Senecan Style in the Seventeenth Century,” *Philological Quarterly* 15 (1936): 321-51. Finally, the prevalence of the plain style argument in religious treatises has also prompted the argument that the plain style controversy made explicit a latent

difference between the innately elaborate style of the non-conformists and the chaste eloquence of the Anglican clergy Richard Foster Jones, "The Attack on Pulpit Eloquence in the Restoration: An Episode in the Neo-Classical Standard for Prose," *The Journal of English and German Philology* 30, no. 2 (April 1931): 188-217.

⁵⁰ As Vickers points out, it is clear from examining the various works on both sides of the controversy that neither side had a monopoly upon or strict repugnance toward rhetorical language: "The New Scientists and the Latitudinarians or church moderates were not against language, or rhetoric, or the imagination. They were against their opponents' misuse of them – or, perhaps more simply, they were against their opponents. They included their enemies' language as part of a comprehensive refutation, one which, indeed, succeeded." Vickers, "The Royal Society and English Prose Style," 62. As a result of recognizing the political, rather than methodological thrust of the plain style movement, Vickers, along with William Samuel Howell, has argued that the attack upon figurative and rhetorical language, instead of being seen as an attack upon rhetoric itself, must be seen as an adjustment of rhetoric in the seventeenth century, an adjustment through which rhetoric thrived. Howell, *Eighteenth-Century British Logic and Rhetoric*, 481-9.

⁵¹ John Wilkins, *An essay toward a real character, and a philosophical language* (London: Sa. Gellibrand for John Martyn, 1668), 21.

⁵² Wilkins formulation of a "real character and language" required an articulation of principle that verges upon the stylistic doctrine of analogy: "But not if these *Marks* and *Notes* could be so contrived, as to have such a *dependence* upon, and relation to, one another, as might be suitable to the nature of the things and notions which they represented; and so likewise, if the *Names* of things could be so ordered, as might be some way answerable to the nature of the things they signified; ... we should, by learning the *Character* and the *Names* of things, be instructed likewise in their *Natures*, the knowledg of both which out to be conjoyned." (Ibid.).

⁵³ Peter Browne, *Things Divine and Supernatural Conveived by Analogy with Things Natural and Human* (London: Willian Innys and Richard Manby, 1733), 2.

⁵⁴ Dugald Stewart, *Elements of the Philosophy of the Human Mind*, vol. 2, 4th ed., *The Collected Works* (London: Hamilton, Adams, & Co., 1856), 278.

⁵⁵ Jager, *The Book of God: Secularization and Design in the Romantic Era*, 102-23. Jager observes that Paley pursues a more modest analogical project than the confident parallelism of mundane and divine organization exemplified in Butler's *Analogy of Religion*; rather than arguing the correspondence between nature and heaven, Paley emphasizes more limited analogies between the patterns of natural design and physical mechanism (pp. 111-3).

⁵⁶ George Campbell, *Philosophy of Rhetoric* (Edinburgh: George Ramsay, 1808), 166-7.

⁵⁷ Ibid., 123.

⁵⁸ Ibid., 124.

⁵⁹ Ibid.

⁶⁰ Geoffrey St. Hillaire, "Mémoires sur la Structure et les Usages de l'Appareil olfactif dans les Poissons," *Annale des Sciences Naturelles* 1, no. 6 (1825): 341-2. Richard Owen, *On the Archetypes and Homologies of the Vertebrate Skeleton* (London: John Van Voorst, 1848), 5.

⁶¹ The *OED* locates the first use of "similarity" in Henry Power's 1664 *Experimental Philosophy* (Oxford University Press, *The Oxford English Dictionary*, 1999., s.v. "similarity"). As Catherine Packham points out, Campbell makes a disciplinary distinction for deployments of analogy: while it might properly serve rhetoric as a class of uncertain argument, analogy is not proper to science because it is founded on "remote similitude." (Packham, "The Science and Poetry of Animation: Personification, Analogy, and Erasmus Darwin's Loves of the Plants," 198-9).

⁶² John Locke, *An Essay Concerning Human Understanding* (Amherst, NY: Prometheus Books, 1995), 564-5.

⁶³ David Hume, *An Enquiry Concerning Human Understanding* (Indianapolis, IN: Hackett, 1977), 31, 71 n. 42.

⁶⁴ Locke, as an early fellow of the Royal Society, was heavily influenced by the empiricist ideas of the society, as well as their critique of language. Locke's discussion of rhetorical language in chapter ten of the third book of *An Essay Concerning Human Understanding* (1689), "On the Abuse of Words," reads like an elaborate distillation of the critiques developed by Spratt and particularly Wilkins. Locke's argument that words need to be chastened and tied directly to things and ideas extended the project of effacing language's independence.

⁶⁵ Joseph Butler, *The Analogy of Religion* (New York: Phillips and Hunt, 1879), 37. All future references to *The Analogy* to be given parenthetically by page number.

⁶⁶ Abrams, *The Mirror and the Lamp*, 296.

⁶⁷ Earl R. Wasserman, *The Subtler Language* (Baltimore, MD: Johns Hopkins Univ. Press, 1968), 182.

⁶⁸ Erasmus Darwin, *Zoonomia; or, The Laws of Organic Life* (London: J. Johnson, 1796), 5.

⁶⁹ For a brief summary, see Edward H. Madden, "The Common-Sense School," in *Routledge Encyclopedia of Philosophy* (New York: Routledge, 1998), 446-8.

⁷⁰ Erasmus Darwin, *The Botanic Garden, A Poem, in Two Parts; Containing The Economy of Vegetation and the Loves of the Plants* (London: J. Jones, 1825), 138, 137.

⁷¹ C.f. his discussion of "Succession and Uniformity," in *A Philosophical Enquiry into the Origins of our Ideas of the Sublime and the Beautiful*, vol. 1, *The Works of Edmund Burke* (Boston: Charles Little and James Brown, 1839), 114-5.

⁷² Darwin, *The Botanic Garden, A Poem, in Two Parts; Containing The Economy of Vegetation and the Loves of the Plants*, 11, ll. 103-14. All future references to Darwin's *Economy* cited parenthetically by line.

⁷³ Alexander Pope, "The Rape of the Lock," in M. H. Abrams, *The Norton Anthology of English Literature. The Major Authors* (New York: Norton, 1996), 1079, ll. 101-2.

⁷⁴ Derek Attridge, *The Rhythms of English Poetry* (New York: Longman, 1982), 252-3.

⁷⁵ "In common time," Darwin explains, "there is a division between every two crotchets, or other notes of equivalent time." But Darwin specifically characterizes what he terms "the English grave or heroic verse," as an example of triple time (and cites the iambic pentameter of Pope's *Iliad*) – while classifying the iambic *hexameter* of French Alexandrines, (along with Christopher Anstey's humorous anapestic trimeter in *The New Bath Guide* (1766)) as *common* time (p. 296). The division seems bizarre (English heroic iambs as triple time; Anstey's trimeter in "common" or duple time) but it indicates the challenge of fixing English pentameter in musical time. Derek Attridge has suggested that it is precisely this difficulty which makes iambic pentameter attractive (Attridge, p. 143). Evidently, Darwin uses the division of the line to indicate the appropriate musical time. Both the Alexandrine and Anstey's verse emphasize a medial break. Iambic pentameter, on the other hand, usually incorporates a phrasal pause after the second foot (Ibid.); and in order to get the entire line into a divisible measure that fits this phrasing, it's necessary to add a rest after the final foot, which results in three two-foot measures.

⁷⁶ A point brought to my attention by my colleague Cale Scheinbaum.

⁷⁷ Anna Laetitia Barbauld, "'A Summer Evening's Meditation,'" by Anna Laetitia Aikin - *Poems* (1773) by Anna Laetitia Aikin - Electronic Editions, Romantic Circles," *Romantic Circles*, <http://www.rc.umd.edu/editions/contemps/barbauld/poems1773/meditation.html>.

⁷⁸ Jager, *The Book of God: Secularization and Design in the Romantic Era*, 84.

⁷⁹ I think it is important to emphasize the distinction between this kind of structural translation and the ideological displacement familiar from Marxist literary theory, in which the formal frameworks of literary genre adapt to contain the displaced content of fundamental ideological commitments (an extension of the reflection of base economic structure in the superstructure of cultural production). The expression "formal displacement" has previously found a place in the critical vocabulary; C.f. Susan Wells in "The Jacobean City Comedy and the Ideology of the City," *English Literary History* 48, no. 1 (Spring 1981): 37-60. Wells's usage is an extension of the ideological displacement familiar in Marxist literary criticism, as she argues that Jacobean dramatists responded to the ideological cross-pressures of city life and inoculated their plays from criticism by the

incorporating market ideology into dramatic convention, in the “presentation of a dramatic world protected from the operations of conventional morality.” For some foundational reflections upon ideological displacement, see Frederic Jameson on the displacement of traditional literary terminology by the perspective of media studies, and on the displacement of a production-oriented perspective on social structure by a market-oriented perspective provided by Adam Smith’s economic theories, (Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism* (Durham, NC: Duke Univ. Press, 1991), 68, 272.) In an early incarnation, he argued that “the elaboration of fairy tale or myth is essentially a process of transformation or disguise, of distortion or displacement of that basic content [the wish]” (Fredric Jameson, *Marxism and Form* (Princeton, NJ: Princeton Univ. Press, 1974), 145.).

⁸⁰ C.f. King-Hele, *Erasmus Darwin and the Romantic poets*.

⁸¹ Budge, “Erasmus Darwin and the Poetics of William Wordsworth: 'Excitement without the Application of Gross and Violent Stimulants',” 279-308.

⁸² Jager, *The Book of God: Secularization and Design in the Romantic Era*, 179-80.

⁸³ *Ibid.*, 113.

⁸⁴ Some of my readers have objected that this is a crude simplification of allegory, as compared to evaluations by Paul De Man or Rita Copeland. But my point is rather simple. Insofar as allegory requires us to “read through” what is given on the page, what we take as the referential content is constrained by formal and semantic features of what is given on the page – even if that constraint induces various degrees of richness, tension, indeterminacy, and self-reflection.

⁸⁵ Peter Hans Reill, “The Legacy of the Scientific Revolution,” in , ed. Roy Porter, *Cambridge History of Science: Vol. 4, Eighteenth-Century Science* (New York: Cambridge University Press, 2003), 35-6.

⁸⁶ Darwin, *The Botanic Garden, A Poem, in Two Parts; Containing The Economy of Vegetation and the Loves of the Plants*, vii.

⁸⁷ As I discuss in the third chapter, this tension culminates in the mid-century expulsion of “analogy” from anatomical discourse, as it is traded for “homology.”

Chapter 2

¹ Walter Scott, *Waverley : or, 'Tis sixty years since* (Oxford; New York: Clarendon Press; Oxford University Press, 1981), 3. All further references to *Waverley* will be given parenthetically by page number.

² Alexander Welsh, *The Hero of the Waverley Novels: With New Essay on Scott*, 2nd ed. (Princeton, N.J.: Princeton Univ. Press, 1992), ch. 2. William Hazlitt et al., *The complete works of William Hazlitt* (London, Toronto: J.M. Dent and Sons, Ltd., 1934), 252-3.

György Lukács, *The Historical Novel* (London: Merlin Press, 1962), 363. Walter Scott, "Review of Tales of My Landlord," *Quarterly Review*, 1817.

³ *OED*, "wave" 2nd. ed., 1989. While there are some uses of "waver" that seem to in fact derive from Old French (*OED*, "waver", 2nd ed. 1989), by 1800 it was assumed that the distinct usage of "waver" for a still-standing tree was derived from "wave."

⁴ Jane Millgate, *Walter Scott : The Making of the Novelist* (Toronto ; Buffalo: University of Toronto Press, 1984). See especially chapter one, "Editorial Strategies: The Minstrelsy and the Lay."

⁵ Walter Scott, *Poetical Works* (New York, NY: Oxford Univ. Press, 1971), 650.

⁶ *Ibid.*

⁷ Alexander Fraser Tyler, Lord Woodhouselsee, *Essay on the Principle of Translation* (London: T. Cadell and W. Davies), 423.

⁸ Jean Le Rond d'Alembert, "Observations sur l'art de traduire," in *Translation/History/Culture: A Sourcebook*, ed. André Lefevere, trans. André Lefevere (London: Routledge, 1992), 110.

⁹ Scott, *Poetical Works*, 650.

¹⁰ *Ibid.*, 651.

¹¹ Michael Gamer, "Authors in Effect: Lewis, Scott, and the Gothic Drama," *ELH* 66, no. 4 (1999): 831-61, 851.

¹² Scott, *Poetical Works*, 651.

¹³ John Sutherland, *The Life Of Walter Scott: A Critical Biography* (Oxford: Blackwell Publishing, 1995), 80.

¹⁴ *Ibid.*

¹⁵ M. R. Dobie, "The development of Scott's Minstrelsy: an attempt at reconstruction," *Transactions of the Edinburgh Bibliographical Society* 2, no. 1 (1940): 66-87.

¹⁶ Sutherland, *The Life Of Walter Scott: A Critical Biography*, 79-90.

¹⁷ Walter Scott, "Biographical Memoir of John Leyden, M. D.," in *The Edinburgh Annual Register for 1811*, vol. 4 (Edinburgh: John Ballantyne and Co., 1813), xli-lxviii.

¹⁸ For an extended survey of ballad collection, see chapter 7 of Albert B. Friedman, *The Ballad Revival: Studies in the Influence of Popular on Sophisticated Poetry* (Chicago, IL: U of Chicago P, 1961).

¹⁹ *A Collection of Old Ballads* (London: Printed for J. Roberts, 1723). All future references to *A Collection* will be cited parenthetically by page number. Thomas Percy, "An essay on the ancient minstrels in England," in *Reliques of Ancient English Poetry* (London ; New York: Henry Washbourne and Co., 1857).

²⁰ Barbara M. Benedict, *Curiosity: a cultural history of early modern enquiry* (Chicago, IL: Univ. of Chicago Press, 2001).

²¹ Lorraine Daston and Katherine Park, *Wonders and the Order of Nature, 1150-1750* (New York, NY: Zone Books, 2001).

²² Katie Trumpener, *Bardic Nationalism: the Romantic Novel and the British Empire* (Princeton, N.J.: Princeton Univ. Press, 1997).

²³ Joseph Ritson, "Observations on the ancient English minstrels," in *Ancient Songs and Ballads from the reign of King Henry the second to the revolution*, vol. 1, 2 vols. (London: Payne and Foss, 1829). All further references to *Ancient Songs* will be given parenthetically by page number.

²⁴ Thomas Percy and Henry B. Wheatley, *Reliques of Ancient English Poetry*, vol. 1, 3 vols. (London: Bickers and Son, 1876).

²⁵ Lorraine Daston and Peter Galison, *Objectivity* (Cambridge, MA: Zone Books, 2007).

²⁶ Michael McKeon, *The Secret History of Domesticity: Public, Private, and the Division of Knowledge* (Baltimore, MD: Johns Hopkins Univ. Press, 2005).

²⁷ Sutherland, *The Life Of Walter Scott: A Critical Biography*, 91.

²⁸ Walter Scott, *Minstrelsy of the Scottish Border* (Edinburgh: Printed by J. Ballantyne, for Longman and Rees, London, 1803), 168. All future references to *The Minstrelsy* will be given parenthetically by page number.

²⁹ Walter Scott, "Introductory Remarks on Popular Poetry," in *Sir Walter Scott's Minstrelsy of the Scottish Border*, vol. 1, 2nd ed. (New York, NY: C. Scribner's Sons, 1902), 39. All further references to the "Introductory Remarks" to be given parenthetically by page number. Scott cannot bring himself to deliver even muted criticism of Percy directly; instead he quotes Robert Harding Evans in his collection *Old Ballads, Historical and Narrative*, who praises Percy but notes that "the severe antiquary, who desires to see the old English ballads in a genuine state, must consult a more accurate edition than this celebrated work" (40). He always recalled with passion his first experience of the *Reliques* as he sat beneath a tree in a Kelso orchard, sweeping through the metrical legends and over-riding the dinner hour by several furlongs as he galloped through Percy's romantic collection (John Sutherland, *The Life Of Walter Scott: A Critical Biography*, 24

³⁰ Walter Scott, *The Antiquary* (Oxford, UK: Clarendon Press, 1914), 431. All future references to *The Antiquary* will be given parenthetically by page number.

³¹ Reprinted in Adriana Cracuin et al., "Romantic Spinstrelsy: Anne Bannerman and the Sexual Politics of the Ballad," in *Scotland and the Borders of Romanticism* (New York, NY: Cambridge University Press, 2004), 204-224.

³² Letter to Malcolm Laing, 14 April 1806. In H. J. C. Grierson, *The Letters of Sir Walter Scott 1787-1807*, Centenary. (London: Constable & Co., 1932).

³³ Scott, "Biographical Memoir of John Leyden, M. D.", p. lii.

³⁴ Grierson, *The Letters of Sir Walter Scott 1787-1807*.

³⁵ Gamer, "Authors in Effect: Lewis, Scott, and the Gothic Drama."

³⁶ Walter Scott, *Minstrelsy of the Scottish Border*, vol. 1 (New York: Charles Scribner's Sons, 1902), 221-2.

³⁷ *Ibid.*, 1:224-5.

³⁸ Ian Duncan, *Modern Romance and Transformations of the Novel : the Gothic, Scott, Dickens* (Cambridge ; New York: Cambridge University Press, 1992), 7.

³⁹ Mikhail Mikhailovich Bakhtin and Michael Holquist, *The Dialogic Imagination: Four Essays* (Austin, TX: Univ. of Texas Press, 1981).

⁴⁰ Scott, *Minstrelsy of the Scottish Border* (1902), 1:230.

⁴¹ Letter to R. Cleator, 4 June 1802. Grierson, *The Letters of Sir Walter Scott 1787-1807*.

⁴² *Ibid.*

⁴³ Scott, "Biographical Memoir of John Leyden, M. D.", pp. xlv, .

⁴⁴ Armin Burkhardt, Hugo Steger, and Herbert Ernst Wiegand, *History of the Language Sciences: An International Handbook on the Evolution of the Study of Language from the Beginnings to the Present*, vol. 2, 3 vols. (Berlin, New York: Walter de Gruyter, 2001).

⁴⁵ William J. Poser and Lyle Campbell, "Indo-European practice and historical methodology," in *Proceedings of the Eighteenth Annual Meeting of the Berkeley Linguistics Society*, <http://www.billposer.org/Papers/iephm.pdf>.

⁴⁶ Grierson, *The Letters of Sir Walter Scott 1787-1807*.

⁴⁷ John Leyden, *The Complaynte of Scotland, Written in 1548* (Edinburgh: Archibald Constable, 1801), 51.

⁴⁸ Ibid., 52.

⁴⁹ Burnet, James Lord Monboddo, *Of the Origin and Progress of Language*, vol. 1 (Edinburgh: J. Balfour, 1774), 439. Note: volume I, which focuses on grammatical analysis, is filled with this form of analogy, though its best definition occurs in volume II.

⁵⁰ Ibid., 1:302.

⁵¹ Woodhouselee, *Essay on the Principle of Translation*, 6-7.

⁵² Ibid., 13-14.

⁵³ Scott, *Minstrelsy of the Scottish Border*, 29.

⁵⁴ Copeland, *Rhetoric, Hermeneutics, and Translation in the Middle Ages: Academic Traditions and Vernacular Texts*.

⁵⁵ Thomas M. Greene, *The Light in Troy: Imitation and Discovery in Renaissance Poetry* (New Haven, CT: Yale Univ. Press, 1982).

⁵⁶ Copeland, *Rhetoric, Hermeneutics, and Translation in the Middle Ages: Academic Traditions and Vernacular Texts*.

⁵⁷ Henry Peacham, *The Garden of Eloquence* (London: R. H. for H. Jackson, 1593).

⁵⁸ Antoine Houdar de la Motte, "Preface to translation of the Iliad," in , ed. André Lefevere, trans. André Lefevere, *Translation/History/Culture: A Sourcebook* (London: Routledge, 1992), 29.

⁵⁹ Jacques Dellile, "Preface to translation of Virgil's Georgics," in , ed. André Lefevere, trans. André Lefevere, *Translation/History/Culture: A Sourcebook* (London: Routledge, 1992), 37.

⁶⁰ Friedrich Schleiermacher, "Über die verschiedenen Methoden des übersetzens," in , ed. André Lefevere, trans. André Lefevere, *Translation/History/Culture: A Sourcebook* (London: Routledge, 1992), 147-8.

⁶¹ Sutherland, *The Life Of Walter Scott: A Critical Biography*, 89-92.

⁶² Ibid., 92.

⁶³ Walter Scott, "Introduction," in *Sir Tristrem; a metrical romance of the thirteenth century; by Thomas of Ercildoune, called the Rhymer. Edited from the Auchinleck MS. by Walter Scott, Esq.*, 1st ed. (Edinburgh: James Ballantyne, 1804), lii.

⁶⁴ Ibid., lxvii.

⁶⁵ Ibid., xc.

⁶⁶ Talal Asad, "The Concept of Cultural Translation in British Social Anthropology," in *Writing Culture: The Poetics and Politics of Ethnography* (Berkeley, CA: Univ. of California Press, 1986), 141.

⁶⁷ James Chandler, *England in 1819: The Politics of Literary Culture and the Case of Romantic Historicism* (Chicago, IL: Univ. of Chicago Press, 1998), 147.

⁶⁸ Schleiermacher, "Über die verschiedenen Methoden des Übersetzens," 141-2.

⁶⁹ Walter Scott, *The Letters of Sir Walter Scott 1811-1814*, vol. 3 (New York: AMS Press, 1971), 457.

⁷⁰ Peter Garside, "Popular Fiction and National Tale: Hidden Origins of Scott's Waverley," *Nineteenth-Century Literature* 46, no. 1 (June 1991): 30-53.

⁷¹ Scott, "Biographical Memoir of John Leyden, M. D.," li.

⁷² A Shepherd (Hogg), "A Journey through the Highlands of Scotland, in the Months of July and August, 1802, in a Series of Letters," *Scots Magazine*, October 1802, 815-7.

⁷³ Leyden, *The Complaynte of Scotland, Written in 1548*, 128.

⁷⁴ A Shepherd (Hogg), "A Journey through the Highlands of Scotland, in the Months of July & August 1802, in a Series of Letters," *Scots Magazine*, December 1802.

⁷⁵ John Leyden and James, ed. Sinton, *Journal of a Tour in the Highlands and Western Islands of Scotland in 1800* (Edinburgh and London: William Blackwood and Sons, 1903), 42.

⁷⁶ *Ibid.*, 155-6.

⁷⁷ Grierson, *The Letters of Sir Walter Scott 1787-1807*, 323.

⁷⁸ Leyden, *The Complaynte of Scotland, Written in 1548*, 180.

⁷⁹ *Ibid.*, 178.

⁸⁰ Annabel M. Patterson, *Censorship and Interpretation: the Conditions of Writing and Reading in Early Modern England* (Madison, Wisc.: Univ. of Wisconsin Press, 1984).

⁸¹ For a few further examples from *The Complaynt*: Leyden description of the author's remonstrance to bearers of heraldic arms "given to your ancestors for the noble deeds they achieved; by bearing their arms, you engage to tread in their steps; or you deserve to be degraded from rank, and divested of your honourable arms" (231) presages Baron Bradwardine's arms and ultimate service to Prince Charlie. The theory of chivalry he presents in the Dissertation, as the encoded ideology of feudalism later softened by moralists and the Christian church into romance (202-3) is directly along the lines of the

argument Scott would later make in his *Essays on Chivalry, Romance, and Drama* for the 1815-24 edition of the *Encyclopedia Britannica*. Even Leyden's extended discussion of medieval astrology, and his observation that "The popular belief in Astrology, or *planet-casting*, is hardly extinct in the south of Scotland; and many of the popular stories still hinge upon it. To this study, the Moss troopers of the marches were particularly addicted; and many of the charms, or amulets, by which they endeavoured to counteract the malignant influence of their stars, existed at a very late period" (174-5) seems to suggest the framing conceit of Scott's *Guy Mannering, or the Astrologer* (1815). Leyden, *The Complaynte of Scotland, Written in 1548*.

⁸² Grierson, *The Letters of Sir Walter Scott 1787-1807*, 259, 324.

⁸³ *Ibid.*, 342-3.

⁸⁴ Cracuin et al., "Romantic Spinstrelsy: Anne Bannerman and the Sexual Politics of the Ballad," 219.

⁸⁵ See particularly chapter 2, "*Waverley*: Romance as Education." Millgate, *Walter Scott : The Making of the Novelist*.

⁸⁶ David Daiches, "Scott's Achievement as a Novelist," in *Literary Essays* (New York, NY: Philosophical Library, 1957), 88.

⁸⁷ George Levine, "Sir Walter Scott: The End of Romance," *The Wordsworth Circle* 10 (1970): 147.

⁸⁸ A further interesting connection between *Waverley* and Leyden's *Complaynt* is the latter's extensive discussion of the relationship between prose and verse works, and the authorship; Leyden, in arguing that *The Complaynt* was written by the poet Sir David Lindsay, argues that the turn to prose from verse required Lindsay's anonymous authorship in order to allow the freedom to participate in a potentially scandalous critique of aristocracy (25-6).

⁸⁹ In fulfilling this role, *Waverley*'s experiences often access the language of impression and experience that dominated eighteenth century aesthetic theory, as well as its hallmark focus on dramatic form. Hence, *Waverley*'s first experience of the Highland chief Vich Ian Vohr's banquet has been noted as rooted in theatrical staging and tableau, and we can interpret this generic engagement with drama as organized around communication, a transcription of the cultural object, Scott's "reality in itself," into a modern formal analogue, the drama. As noted earlier, Scott's extensive (if unsuccessful) background in theater composition, from translations to original works, encouraged Scott writes, in an anonymous review of his own *Tales of my Landlord*, that the blank hero "serves as ... apology for entering into many minute details which are reflectively, as it were, addressed to the reader through the medium of the hero. ... he gives interest to [these details] by exhibiting the effect which they produce upon the principal person of the drama" (Scott, "Review of *Tales of My Landlord*," 432). As such, the formal dynamics of drama help describe the role that *Waverley* plays in cultivating an "analogy of

impression” – in the words of Schleiermacher – that draws upon Augustan aesthetic theory.

⁹⁰ Schleiermacher, “Über die verschiedenen Methoden des übersetzens,” 142.

⁹¹ The language of gothic architecture which Edie employs serves as a strong visual vocabulary for this fragmentation. But whereas such fragmented connections with the past function as a projection of destabilizing and dangerous forces inside the Gothic novel, in the historical novel, they represents a precious opportunity to recuperate some part of that past in order to make sense of the present. For an extensive description of Scott’s engagement with the gothic novel, see Duncan, *Modern Romance and Transformations of the Novel : the Gothic, Scott, Dickens*.

⁹² Welsh, *The Hero of the Waverley Novels: With New Essay on Scott*, 180.

⁹³ Chandler, *England in 1819: The Politics of Literary Culture and the Case of Romantic Historicism*, 239.

⁹⁴ Ibid., 316.

⁹⁵ Leyden, *The Complaynte of Scotland, Written in 1548*, 289.

⁹⁶ Ibid., 289-90.

⁹⁷ Ibid., 292.

⁹⁸ Juliet John, *Dickens's Villains: Melodrama, Character, Popular Culture* (Oxford: Oxford Univ. Press, 2001), 49.

⁹⁹ Peter D. Garside, “Scott and the 'Philosophical' Historians,” *Journal of the History of Ideas* 36, no. 3 (September 1975): 497-512. Kathryn Sutherland, “Fictional Economies: Adam Smith, Walter Scott and the Nineteenth-Century Novel,” *ELH* 54, no. 1 (Spring 1987): 97-127.

¹⁰⁰ In his section “Of the History of Arts,” for instance, Ferguson dispatches with examples of cultural transmission succinctly: “From a few examples of this sort, we learn to consider every science or art as derived, and admit of nothing original in the practice or manners of any people. The Greek was a copy of the Egyptian, and even the Egyptian was an imitator, though we have lost sight of the model on which he was formed.” Adam Ferguson, *An Essay on the History of Civil Society* (London: T. Cadell, 1793), 472.

¹⁰¹ Thomas Hearne, *Ductor historicus: or, a short system of universal history, and an introduction to the study of it. The second edition, very much augmented and improv'd*, vol. 1 (London: Tim Childe, 1704), 540. Further references to *Ductor historicus* will be given parenthetically by page number.

¹⁰² Moreover, this universal chronology is subdivided into two parallel histories, that of the “City of God,” -- the ecclesiastical history divided into the Old and New Testaments, further divided into the Hebrew, Greek, and Latin Churches -- and the “City of the World,” the history of monarchies and republics before and after Christ (131-3).

¹⁰³ “Natural productions are generally formed by degrees. Vegetables are raised from a tender shoot, and animals from an infant state. The latter, being active, extend together their operations and their powers, and have a progress in what they perform, as well as in the faculties that they acquire. This progress in the case of man is continued to a greater extent than in that of any other animal. Not only the individual advances from infancy to manhood, but the species itself from rudeness to civilization ...” (Ferguson, *An essay on the history of civil society*, 1-2). Ferguson takes for granted that his reader will accept some degree of analogy between man, as an “animal” and the products of nature. A trickier question is to what degree man in combination, and the products of culture, represent an “unnatural” system, hence one outside of the coherent order of a natural system. Ferguson’s solution is to dismiss the artificiality of man: “Of all the terms that we employ in treating of human affairs, those of *natural* and *unnatural* are the least determinate in their meaning ... for all the actions of men are equally the result of their nature” (15).

¹⁰⁴ Adam Smith, *An inquiry into the nature and causes of the wealth of nations*, vol. 1 (Dublin: Whitestone, Chamberlain, and W. Watson, 1776), 30-35, 168-70, 415.

¹⁰⁵ Sutherland summarizes these enquiries succinctly: “He had, of course, been thoroughly exposed to ‘philosophic history’, during his second spell at the University of Edinburgh. Enlightenment writers like Stewart, Hugh Blair, Adam Smith had formed his mind. Philosophical historians like Alexander Tytler, David Hume and Adam Ferguson imbued him with a sense of social institutions” Sutherland, *The Life Of Walter Scott: A Critical Biography*, 41.

¹⁰⁶ Daiches, “Scott’s Achievement as a Novelist,” 93.

¹⁰⁷ William St. Clair, *The Reading Nation in the Romantic Period* (New York, NY: Cambridge Univ. Press, 2004). Ian Duncan, *Scott’s Shadow: The Novel in Romantic Edinburgh* (Princeton, N.J.: Princeton Univ. Press, 2007). Chandler, *England in 1819: The Politics of Literary Culture and the Case of Romantic Historicism*.

Chapter 3

¹ Charles Dickens, *Bleak House*, ed. George Ford and Sylvère Monod (New York: W. W. Norton, 1977), 197. All subsequent references to Dickens’s *Bleak House* will be given parenthetically by page number.

² Daniel Hack argues that we should take more seriously Dickens’s insistence “that certain formal techniques and narrative events analogize and impinge upon one another to significant effect.” In Daniel Hack, “‘Sublimation Strange’: Allegory and Authority in ‘Bleak House,’” *English Literary History* 66, no. 1 (Spring 1999): 136.

³ McKeon details the separation out of history and story in the English novel at length in *The Origins of the English Novel, 1600-1740*, 2nd ed. (Baltimore, MD: Johns Hopkins Univ. Press, 2002), 221-38.

⁴ Gregory Jackson explores the role of such reading strategies, and argues persuasively for their contribution to American realism, through what he describes as the “homiletic novel.” In *The Word and its Witness*.

⁵ For analogy’s historical accession in hermeneutics, see Harris, “Allegory to Analogy in the Interpretation of Scripture.” For the burgeoning role of analogy in apologetic natural theology, one need only look to Bishop Joseph Butler’s *Analogy of Religion* (1736) or William Paley’s *Natural Theology* (1802). For a nuanced account of Paley’s fraught relation toward the epistemological status of analogy, see Jager, *The Book of God*.

⁶ For a discussion of Bunyan’s “homiletics,” see Jackson, *The Word and its Witness*, 104-6.

⁷ George Eliot, *Middlemarch*, ed. Rosemary Ashton (New York, NY: Penguin, 1994), 838.

⁸ Duncan, *Modern Romance and Transformations of the Novel : the Gothic, Scott, Dickens*, 191.

⁹ This figure comes from juxtaposing the figure St. Clair gives for Scott editions by 1868 with a generous approximation based on the numbers Altick gives for Dickens’s works through the late 60’s. *The Reading Nation in the Romantic Period*, 419. *The English Common Reader* (Chicago, IL: Univ. of Chicago Press, 1957), 383-4. In neither case does this account for pirate publications of the works.

¹⁰ *Ibid.*, 273-4.

¹¹ C.f. Robert L. Patten, “‘Pickwick Papers’ and the Development of Serial Fiction,” *Rice University Studies* 61, no. 1 (Winter 1975): 51-74.

¹² Rachel Malik, “Horizons of the Publishable: Publishing in/as Literary Studies,” *English Literary History* 75, no. 3 (Fall 2006): 724.

¹³ Michael Steig has also noted the influence of Hogarth upon Browne’s illustrative practice. In *Dickens and Phiz* (Bloomington, IN: Indiana Univ. Press, 1978), 3.

¹⁴ All illustrations from *Pickwick* reproduced from David Perdue’s Charles Dickens Page, < <http://www.charlesdickenspage.com/illustrations-pickwick.html> >; used with permission.

¹⁵ For an extended discussion of the relationship between Victorian visual imagination and writing, see Kate Flint, *The Victorians and the Visual Imagination* (New York: Cambridge Univ. Press), chap. 8.

¹⁶ Letter from William Godwin to Archibald Constable, in Archibald Constable, *Archibald Constable, and His Literary Correspondents*, ed. Thomas Constable, vol. 2 (Edinburgh: Edmonston and Douglas, 1873), 75.

¹⁷ Duncan, *Scott's Shadow: The Novel in Romantic Edinburgh*, 139.

¹⁸ Charles Dickens, *The Pickwick Papers*, ed. Mark Wormald (New York: Penguin, 2003), 580. All subsequent references to Dickens's *Pickwick* will be given parenthetically by page number. The Penguin edition is based upon the first volume edition of the work; rather than re-labeling the second chapter 18 as chapter 19, it is marked 18ii, which means the later chapters are one less than some other standard versions.

¹⁹ In marked contrast with the mass culture "cult figure" status that Patricia Anderson locates in the popularity of Turpin illustrations within periodicals of the 1830s and 40s. In *The Printed Image and Transformation of Popular Culture, 1790-1860* (Oxford: Clarendon Press, 1991), 164-5.

²⁰ To take two examples, Ian Duncan's *Modern romance and transformations of the novel*, and Margaret Bruzelius's *Romancing the Novel: Adventure from Scott to Sebald* (Lewisburg, PA: Bucknell Univ. Press, 2007).

²¹ Chandler, *England in 1819: The Politics of Literary Culture and the Case of Romantic Historicism*, 238 n. 56.

²² Duncan, *Modern Romance and Transformations of the Novel : the Gothic, Scott, Dickens*, 222.

²³ James Buzard, *Disorienting Fiction: The Autoethnographic Work of Nineteenth-Century British Novels* (Princeton, N.J.: Princeton Univ. Press, 2005), 12, 24-5. At the same time, as argued in my introduction, I think it is important to emphasize the greater precision of the terminology of serial and formal analogy as compared with, for instance, the critical commonplace of contrasting "metonymic" and "metaphorical" modes of literary organization. I would propose that this latter opposition, drawn from Prague linguistic structuralism and particularly the writings of Roman Jakobson, continues to play an unreasonably large role in literary study, given the loose sense in which it is sometimes deployed. For classic treatments of the metaphor/metonymy dichotomy, see Roman Jakobson, "Two Aspects of Language and Two Types of Disturbances," in *On Language*, ed. Linda Waugh and Monique Monville-Burston (Cambridge, MA: Harvard Univ. Press, 1990). and David Lodge, *The Modes of Modern Writing* (London: Edward Arnold, 1977). In the chapter that follows, I discuss the problem of the metaphor/metonymy contrast with respect to the realist novel.

²⁴ For more information on Sloane, see G. R. de Beer, *Sir Hans Sloane and the British Museum* (London: Oxford Univ. Press, 1953). While Buffon was not an explorer, in his capacity as director of the *Jardin du Roy*, later to become the *Muséum national d'Histoire naturelle*, he coordinated the vast collection apparatus of the French imperial project.

With regard to 19th-century specimen collection in Britain, see Peter Raby, *Bright Paradise* (Princeton, NJ: Princeton Univ. Press, 1997).

²⁵ All quotes taken from Jean Baptiste Pierre Antoine de Monet de Lamarck, *Zoological philosophy; an exposition with regard to the natural history of animals ...*, trans. Hugh Samuel Roger Elliott (London: Macmillan and Co., limited, 1914), 29. All subsequent references to Lamarck's *Philosophy* will be given parenthetically by page number.

²⁶ I do not mean to argue that Lamarck imagined this larger organizational structure as happening through a biblical act of creation – he argued, instead, that this broad organizational structure was driven by physical processes of excitement and sensibility driven by supernatural forces. What I mean to point out is that Lamarck imagined this physical process as temporally isolated, a moment outside history, before the chaotic effect of individual differentiation set in to wedge organisms apart, and such lapsarian concepts draw upon a biblical model of history.

²⁷ Georges Cuvier, *Georges Cuvier, fossil bones, and geological catastrophes : new translations & interpretations of the primary texts*, trans. M. J. S. Rudwick (Chicago: University of Chicago Press, 1997), 185. All further citations to Cuvier's *Fossil Bones* will be given parenthetically by page number.

²⁸ “La voie de l’analogie est loin de pouvoir fournir des indications précis.” In St. Hillaire, “Mémoires sur la Structure et les Usages de l’Appareil olfactif dans les Poissons,” 342.

²⁹ For a description of geometric homology, particularly the work of J. V. Poncelet, see Luigi Cremona, *Elements of Projective Geometry*, London. (Oxford Univ. Press: 1885), ix; or Morris Kline, *Mathematical Thought from Ancient to Modern Times*, vol. 3 (Oxford: Oxford Univ. Press, 1990), 842-3.

³⁰ He is said to have remarked, “I wish they would be content to let me be the Owen of England.” In Richard Owen, *The Life of Richard Owen*, vol. 1 (London: John Murray, 1894), 327.

³¹ Levine, *Darwin and the Novelists: Patterns of Science in Victorian Fiction*, 124.

³² Owen, *On the Archetypes and Homologies of the Vertebrate Skeleton*, 668, 674.

³³ *Ibid.*, 3-6.

³⁴ The relationship between formal analogy and theories of scientific modeling is taken up in my fifth chapter.

³⁵ Jay Clayton, *Charles Dickens in Cyberspace: The Afterlife of the Nineteenth Century in Postmodern Culture* (New York, NY: Oxford Univ. Press, 2003), 94.

³⁶ Susan Shatto, "Byron, Dickens, Tennyson, and the Monstrous Efts," *Yearbook of English Studies* 6 (1976): 144-55. For more on the biblical interpretation of Cuvier in England, see also Martin J. S. Rudwick, *The Meaning of Fossils: Episodes in the History of Paleontology* (New York: American Elsevier, 1972), 135-6.

³⁷ J. Hillis Miller, "Introduction," in *Bleak House* (New York: Oxford Univ. Press, 1971).

³⁸ D. A. Miller, *The Novel and the Police* (Berkeley, CA: Univ. of California Press, 1988), 67.

³⁹ P. Tucker, "The Early History of the Court of Chancery: A Comparative Study," *English Historical Review* 115, no. 463 (2000): 791-811.

⁴⁰ Henry Horwitz and Patrick Polden, "Continuity or Change in the Court of Chancery in the Seventeenth and Eighteenth Centuries?," *The Journal of British Studies* 35, no. 1 (January 1996): 24-57.

⁴¹ William Searle Holdsworth, *Charles Dickens as a Legal Historian* (New Haven, CT: Yale Univ. Press, 1928), chap. 3.

⁴² The signal role of disease in *Bleak House* has long stood as a critical commonplace. C.f. Michael Ragussis, "The Ghostly Signs of 'Bleak House'," *Nineteenth-Century Fiction* 34, no. 3: 253-80. Moreover, as Ann Wilkinson once pointed out, even the question of spontaneous combustion in the novel can be tied to Dickens's consultation with Faraday upon the subject of oxidation, and a series of *Household Words* articles in 1850 which detailed oxidation in candles and human lungs, in which spontaneous combustion is linked to "some disturbance of the system, intended by nature to throw them off, which is called Disease." In "'Bleak House': From Faraday to Judgement Day," *English Literary History* 34, no. 2 (June 1967): 237.

⁴³ Dennis Walder argues that Dickens presents a "social gospel" in *Bleak House* and *David Copperfield*, one tuned to a much less explicitly religious religion of social reciprocity, connected to his Unitarianism (though he consistently plays down the degree to which Dickens might be characterized as a Unitarian, preferring to see him as a not-quite secular broad church). *Dickens and Religion* (London ; Boston: Allen & Unwin, 1981).

⁴⁴ Strauss Dodd, "Strauss's English Propagandists and the Politics of Unitarianism," *Church History* 50, no. 4 (June 1967): 424-5.

⁴⁵ Richard Gannet and Edward Gannet, *Life of W. J. Fox* (New York: John Lane, 1910), 37.

⁴⁶ Suzy Anger, *Victorian Interpretation* (Ithaca, N.Y.: Cornell Univ. Press, 2005), 24-5. Charles Laporte, "The Bard, the Bible, and the Shakespeare Question," *English Literary History* 74, no. 3 (Fall 2007): 609-28.

⁴⁷ 20 Mar. 1851. *Letters of Charles Dickens: 1820-1870*. 2001. Intelix Corporation. (Pilgrim edition, 1st Release.)

⁴⁸ Edward Taggart et al., *The Service at the Settlement of the Rev. Edward Taggart* (London: Arthur Taylor, 1825), 30-1.

⁴⁹ Jan. 28, 1847. *Letters of Charles Dickens: 1820-1870*. 2001. Intelix Corporation. (Pilgrim edition, 1st Release.)

⁵⁰ Oct. 25, 1864, *Letters of Charles Dickens: 1820-1870*. 2001. Intelix Corporation. (Pilgrim edition, 1st Release.)

⁵¹ Edgar Johnson, *Charles Dickens; His Tragedy and Triumph* (New York: Simon and Shuster, 1952), xlx.

⁵² For a discussion of Strauss' miraculous dualism, see Wells, *Cutting Jesus Down to Size: What Higher Criticism has Achieved and Where it Leaves Christianity*, 74-7.

⁵³ Charles Dickens, *A Tale of Two Cities*, ed. Richard Maxwell (London, England ; New York, N.Y.: Penguin Books, 2003), 488. All subsequent references to Dickens's *Tale* will be given parenthetically by page number.

⁵⁴ John Kucich, "The Purity of Violence," *Dickens Studies Annual* 8 (1980): 121.

⁵⁵ C.f. David Marcus, "The Carlylean Vision of 'A Tale of Two Cities'," *Studies in the Novel* 8, no. 1 (1976): 56-86.

⁵⁶ Nicholas Rance, "Charles Dickens: 'A Tale of Two Cities' (1859)," reprinted in *Essays on Charles Dickens's 'A Tale of Two Cities'* (New York: G. K. Hall, 1998), 74-88.

⁵⁷ John Wilson Croker, "Revolutionary Literature," *Quarterly Review* 89 (1851): 492-3.

⁵⁸ Michael Goldberg, "Carlyle, Dickens, and the Revolution of 1848," *Dickens Studies Annual* 12 (1983): 223-32.

⁵⁹ "MON AMI, je trouve que j'aime tant la République, qu'il me faut renoncer ma langue et écrire seulement le langage de la République de France" (29 Feb. 1848, letter to John Forster in *Letters of Charles Dickens: 1820-1870*. *Letters of Charles Dickens: 1820-1870*. 2001. Intelix Corporation. (Pilgrim edition, 1st Release). The latter story is told in Sala's autobiography, George Augustus Sala, *The Life and Adventures of George Augustus Sala* (London: Cassell and Co., 1898), 251.

⁶⁰ Priti Joshi, "Mutiny Echoes: India, Britons, and Charles Dickens's 'A Tale of Two Cities'," *Nineteenth-Century Literature* 62, no. 1 (June 2007): 48-87.

⁶¹ Letter to Austen Henry Layard, 10 February 1855, in Charles Dickens, *The Letters of Charles Dickens*, ed. Graham Storey and Margaret Brown, vol. 7 (Oxford: Clarendon Press, 2002), 587.

⁶² Benedict Anderson, *Imagined Communities* (New York: Verso, 1983), 68.

⁶³ Wilhelm Heinrich Riehl, *The Natural History of the German People*, ed. David J. Diephouse, trans. David J. Diephouse, *Studies in German Thought and History* 13 (Lewiston, NY: Edwin Mellen Press, 1990). Charles V. Langlois, "The Comparative History of England and France During the Middle Ages," *The English Historical Review* 5, no. 18 (April 1890): 259-63.

⁶⁴ John Stuart Mill, *A System of Logic, Ratiocinative and Inductive*, ed. J. M. Robson, vol. 8, *The Collected Works of John Stuart Mill* (Toronto; Buffalo, 1976), 917-8.

⁶⁵ Marcus, "The Carlylean Vision of 'A Tale of Two Cities'," 25.

⁶⁶ Dwight A. Culler, *The Victorian Mirror of History* (New Haven, CT: Yale Univ. Press, 1985), 61.

⁶⁷ Ferguson, *An Essay on the History of Civil Society*. Frederick Temple, "The Education of the World," in *Essays and Reviews: The 1860 Text and its Readings*, ed. Victor Shea and William Whitla (Richmond, VA: Univ. of Virginia Press, 2000), 137-80.

⁶⁸ For an overview of Scotch universal history's influence upon Scott, see Garside, "Scott and the 'Philosophical' Historians." For a more full discussion of the national tale as genre, see Katie Trumpner's *Trumpener, Bardic Nationalism: the Romantic Novel and the British Empire*.

⁶⁹ Earle Davis, *The Flint and the Flame* (Columbia, MO: Univ. of Missouri Press, 1963), 247.

⁷⁰ Madame Defarge later performs a form of self-allegorization when she compares herself to an agent of nature ("tell Wind and Fire where to stop; not me!" (354)). But I would distinguish between the self-consciousness of this formal transformation, in which Defarge exerts complete control over her own representation, and the authorial imprimatur bestowed upon La Vengeance, who is the passive object of its transformation.

⁷¹ Buzard connects such "metaphorization" to the burgeoning Victorian discourse of "culture," arguing persuasively that such moments reach toward the unified understanding of culture's social and physical dimensions which would become the primary task of cultural anthropology—moments explored, in the novel, through what he terms "autoethnography" (Buzard, *Disorienting Fiction: The Autoethnographic Work of Nineteenth-Century British Novels*, 12, 41-2).

⁷² "...cette sève, mal dirigée, tourmentée, se fait tort à elle-même." In Jules Michelet, *Le Peuple* (Paris: Hachette et Paulin, 1846), 38.

⁷³ Hayden White, *Metahistory: The Historical Imagination in Nineteenth-Century Europe* (Baltimore, MD: Johns Hopkins Univ. Press, 1973), 149.

⁷⁴ *Ibid.*, 150.

⁷⁵ Catherine Gallagher, "The Duplicity of Doubling," *Dickens Studies Annual* 12 (1983): 126.

⁷⁶ Michelet, *Le Peuple*, 38. Note that Dickens's meeting with Michelet, less than two years before *Le Peuple* was published, touched upon Guizot; it's hard to imagine both that Michelet failed to express this distinction to Dickens *and* that Dickens failed to poke through Michelet's work when it was translated, immediately, in London (Johnson, *Charles Dickens; His Tragedy and Triumph*, 537). For a brief description of the encounter, see Una Pope Hennessy, *Charles Dickens, 1812-1870* (Edinburgh: A. R. Clark, 1947), 233.

⁷⁷ Jack Lindsay, "A Tale of Two Cities'," in *Twentieth-Century Interpretations of 'A Tale of Two Cities'*, ed. Charles Beckwith (Englewood Cliffs, NJ: Prentice Hall, 1972), 53.

⁷⁸ Dickens met Michelet in Paris in 1844, and it's likely this would have encouraged his interest Michelet's *Histoire de la révolution Française* (1847-1853), with its trumpeting endorsement of revolution. But within Dickens's novel, it is the Micheletian ventriloquism of the wronged dead, particularly via Manette's own letter, which continue to fuel the conflagration of the Terror.

⁷⁹ J. M. Rignall, "Dickens and the Catastrophic Continuum of History in A Tale of Two Cities," *English Literary History* 51, no. 3 (1984): 575.

⁸⁰ Paul R. Hanson, *Historical Dictionary of the French Revolution* (Lanham, MD: Scarecrow Press, 2004), 257.

⁸¹ It was Charles X, who famously said, against pressure for a parliamentary monarchy along English lines, "I'd rather saw wood than be a King of the English type." His announcement of discontent was a harbinger of the July edicts of 1830 that catalyzed the riots which displaced him. In Shirley Elson Roessler, Reny Miklos, Reinhold Miklos, *Europe 1715-1919* (Lanham, MD: Rowman and Littlefield, 2003), p. 133.

⁸² Similarly, as Gallagher notes with regard to both the Old Bailey trial, public executions in England served to tie together "personal narrative" with "a synoptic view of society; the very two things the novel prided itself on doing." (Gallagher, "The Duplicity of Doubling," 131).

⁸³ Discussions of the various forms of doubling have long been central to criticism of *A Tale of Two Cities*. C.f. John Gross, "A Tale of Two Cities'," in *Dickens and the Twentieth Century*, ed. John Gross and Gabriel Peterson (Toronto: Univ. of Toronto Press, 1962), 189.

⁸⁴ Anderson, *Imagined Communities*, 24. Buzard, *Disorienting Fiction: The Autoethnographic Work of Nineteenth-Century British Novels*, 31.

⁸⁵ Illustration scanned by Philip V. Allingham and reproduced at The Victorian Web, <<http://www.victorianweb.org/art/illustration/phiz/8.html>>, used with permission.

⁸⁶ It is striking that *A Tale of Two Cities* marks the last of Dickens's collaborations with Phiz, the culmination of an increasingly strained relationship. The causes and motivations for Dickens's choice to terminate Browne remain active and intriguing objects of critical speculation. Cf. Valerie Brown Lester, *Phiz, The Man Who Drew Dickens* (London: Chatto and Windus, 2004), 162-4.

⁸⁷ To take two examples, Linda K. Hughes and Michael Lund emphasize that serial authors used the cultivation of a "commitment to the story" as a key strategy for securing audience, while J. Don Vann argues that key narrative devices like cliff hangers were key narrative techniques. In Linda K. Hughes and Michael Lund, *The Victorian Serial* (Charlottesville, VA: Univ. of Virginia Press, 1991), 13; J. Don Vann, *Victorian Novels in Serial* (New York: Modern Language Association of America, 1985), 13-5.

⁸⁸ In this connection, it is striking that Carton seems, from early in the novel, the most attuned to interpretive practice. As Richard Maxwell suggests (*A Tale*, xi), Carton's ability to distill an enormous wealth of documents into their essential narratives serves as an analogue to Dickens's composition of *A Tale*, both in relation to his extensive background reading, and for the shortened numbers of the serial edition. Of perhaps even larger significance is Dickens's explicit characterization of Carton's ability to both "typify" and serve as type. Lucy relates to Carton her sense that the footsteps outside are "the footsteps of the people who are to come into my life, and my father's," and Carton responds: "I take them into mine! ... I ask no questions and make no stipulations. There is a great crowd bearing down upon us, Miss Manette, and I see them!—by the Lightning.' He added the last words, after there had been a vivid flash which had shown him lounging in the window. 'And I hear them!' he added again, after a peal of thunder. 'Here they come, fast fierce, and furious!' It was the rush and the roar of rain that he typified" (107). It is a remarkable passage, both in the comic length to which Carton takes Lucy's "foolish fancy"—and in the degree to which Dickens, in alluding Carton's future sacrifice, awkwardly jimmies his expression into scriptural language ("I take them into mine!"). The joke, in at least two senses, is on Carton, insofar as he insufficiently appreciates the power of Lucy's vision, nor the eventually fatal ramifications of playing along. But the comic distance is important in another connection, as it emphasizes the degree of separation which Dickens seeks to place between the biblical interpretation which gains such control over the narrative, and the historicized, "material" world of his novel.

⁸⁹ Janet Larson, *Dickens and the Broken Scripture* (Athens, GA: Univ. of Georgia Press, 1985), 12.

⁹⁰ Kucich, "The Purity of Violence," 120.

⁹¹ As of May, 2009, an MLA search for titles containing “a tale of two” and excluding “Dickens” yielded nearly one hundred seventy independent titles, while the same search in Google yielded more than three and a half million hits.

⁹² James Mahoney and Dietrich Rueschemeyer, eds., *Comparative Historical Analysis in the Social Sciences* (New York: Cambridge Univ. Press, 2003).

Chapter 4

¹ David Kurnick, “An Erotics of Detachment: *Middlemarch* and Novel-reading as Critical Practice,” *ELH* 74 (2007): 583-608.

² George Levine, *Dying to Know: Scientific Epistemology and Narrative in Victorian England* (Chicago, IL: Univ. of Chicago Press, 2002). Amanda Anderson, *The Powers of Distance: Cosmopolitanism and the Cultivations of Detachment* (Princeton, N.J.: Princeton Univ. Press, 2001).

³ Levine, *Dying to Know: Scientific Epistemology and Narrative in Victorian England*, 151.

⁴ George Eliot, *Essays and Leaves from a Notebook*, *The Complete Works of George Eliot* (London: Blackwell and Sons, 1883), 192-3.

⁵ Anger, *Victorian Interpretation*. Fionnuala Dillane, “Re-reading George Eliot's 'Natural History': Marian Evans, 'the People,' and the Periodical,” *Victorian Periodicals Review* 42, no. 3 (Fall 2009): 244-266.

⁶ Matthew Arnold, *Literature and Dogma* (New York, NY: Macmillan, 1914), 257.

⁷ Eliot, *Middlemarch*, 264. All further citations to *Middlemarch* will be given parenthetically by page number.

⁸ John Guillory, “The Sokal Affair and the History of Criticism,” *Critical Inquiry* 28, no. 2: 499.

⁹ George Eliot, *A Writer's Notebook, 1854-1879, and Uncollected Writings*, ed. Joseph Wiesenfarth (Charlottesville, VA: Univ. Press of Virginia, 1981), 240.

¹⁰ Schleiermacher, “Über die verschiedenen Methoden des Übersetzens,” 147-8.

¹¹ Walter Scott, *Ivanhoe, a Romance* (New York: Penguin, 2000), 9.

¹² George Eliot, *The Essays of George Eliot, Complete*, ed. Nathan Sheppard (New York: Funk & Wagnalls, 1883), 145.

¹³ Anger, *Victorian Interpretation*, 107-10.

¹⁴ Raymond Williams, "The Knowable Community in George Eliot's Novels," *Novel: A Forum on Fiction* 2, no. 3 (Spring 1969): 261.

¹⁵ Ibid., 259, 261.

¹⁶ Eliot, *The Essays of George Eliot, Complete*, 164.

¹⁷ Schleiermacher, "Über die verschiedenen Methoden des Übersetzens," 141-2.

¹⁸ Eliot, *The Essays of George Eliot, Complete*, 165.

¹⁹ Anderson, *The Powers of Distance: Cosmopolitanism and the Cultivations of Detachment*, 3.

²⁰ Eliot, *The Essays of George Eliot, Complete*, 166.

²¹ Eliot uses the term "analogy" and its cognates four times in the review – as many times as the term appears in all of her prose fiction combined.

²² Riehl goes to great lengths to illustrate the complex interrelation of the historical processes of cultural influence and immigration and influence of local environment. This prompts Riehl to remark, for instance, that the mountain dwellers of the Voralberg have more in common with Styrians at the opposite extreme of the Alps, than a Swabian shares with nearby inhabitants of the Palatinate. Riehl, *The Natural History of the German People*, 88.

²³ Eliot, *The Essays of George Eliot, Complete*, 165.

²⁴ Wilhelm Heinrich Riehl, *Die Naturgeschichte des Volkes als Grundlage einer Deutschen Social-Politik*, vol. 2 (Struttgart; Augsburg: J. B. Cotta [Elbiron Classics], 1855), 23-4. My translation.

²⁵ Dillane, "Re-reading George Eliot's 'Natural History': Marian Evans, 'the People,' and the Periodical," 248.

²⁶ Eliot, *The Essays of George Eliot, Complete*, 164.

²⁷ Dillane, "Re-reading George Eliot's 'Natural History': Marian Evans, 'the People,' and the Periodical," 257.

²⁸ Barry Qualls, *The Secular Pilgrims of Victorian Fiction: The Novel as Book of Life* (New York: Cambridge Univ. Press, 1982), 145-7. Barry Qualls, "George Eliot and Religion," in *The Cambridge Companion to George Eliot*, ed. George Levine (Cambridge; New York: Cambridge Univ. Press, 2001), 119-37.

²⁹ Susan E. Hill, "Translating Feuerbach, Constructing Morality: The Theological and Literary Significance of Translation for George Eliot," *Journal of the American Academy of Religion* 65, no. 3 (Fall 1997): 635-53.

³⁰ Gordon Haight, *George Eliot: A Biography* (New York: Oxford Univ. Press, 1968), 53.

³¹ David Friedrich Strauss, *The Life of Jesus: Critically Examined*, ed. George Eliot, vol. 1, 4th ed. (London: Chapman, 1846), 6, 17. All future references to *The Life* will be given parenthetically by volume and page number.

³² Asad, *Formations of the Secular: Christianity, Islam, Modernity*, 23.

³³ Michael McKeon, *The Theory of the Novel: A Historical Approach* (Baltimore, MD: Johns Hopkins Univ. Press, 2000), 96-7.

³⁴ *Ibid.*, 73.

³⁵ *Ibid.*, 133-41.

³⁶ Lodge, *The Modes of Modern Writing*, 78. One wonders on what grounds Lodge found the evidence "persuasive."

³⁷ Jonathan Culler, *The Pursuit of Signs: Semiotics, Literature, Deconstruction* (New York: Ithaca, NY), 225.

³⁸ *Diagnostic and Statistical Manual of Mental Disorders* (Washington, D.C.: American Psychiatric Association, 1994), 56-60. "Mental and Behavioural Disorders," *International Classification of Disease 10*, <http://apps.who.int/classifications/apps/icd/icd10online/?gf80.htm+f800>.

³⁹ Lodge, *The Modes of Modern Writing*, 94-6.

⁴⁰ *Ibid.*, 99.

⁴¹ Reprinted in McKeon, *The Theory of the Novel: A Historical Approach*, 378.

⁴² Stephen Regan, *The Nineteenth-Century Novel: A Critical reader* (New York: Routledge, 2005), 37.

⁴³ Eliot, *The Essays of George Eliot, Complete*, 144-5.

⁴⁴ *Ibid.*, 142.

⁴⁵ John J. Sproute, ed., *The Irish Industrial Exhibition of 1839: A Complete Catalogue* (London: William S. Orr, 1854), 449.

⁴⁶ Dickens, *The Letters of Charles Dickens*, 7:487 n.1.

⁴⁷ Reprinted in McKeon, *The Theory of the Novel: A Historical Approach*, 617.

⁴⁸ Regan, *The Nineteenth-Century Novel: A Critical reader*, 38.

⁴⁹ Reprinted in McKeon, *The Theory of the Novel: A Historical Approach*, 617.

⁵⁰ Reprinted in Regan, *The Nineteenth-Century Novel: A Critical reader*, 38.

⁵¹ René Wellek, "The Concept of Realism in Literary Scholarship," *Neophilologus* 45, no. 1: 7.

⁵² Daston and Galison, *Objectivity*.

⁵³ In chapter two, I use the contrast between mechanical objectivity and truth to nature to articulate a contrast between two eighteenth-century regimes of evidence within ballad collection. In this case, I'm comparing Lewes's theory of realism to structural realism instead of truth to nature because he combines a strict sense of accuracy with an advocacy of the powers of judgment to improve particular representation.

⁵⁴ U. C. Knoepfelmacher, *George Eliot's Early Novels; The Limits of Realism*, Berkeley, CA. (Univ. of California Press: 1968), 181-2. George Eliot, *The Mill on the Floss*, ed. Gordon S. Haight (Boston: Houghton Mifflin, 1961), v, xix-xx.

⁵⁵ Quoted in Robert Karl Frederick, *George Eliot: A Biography* (New York: W. W. Norton, 1995), 216.

⁵⁶ Riehl, *The Natural History of the German People*, 107.

⁵⁷ See Sally Shuttleworth, *George Eliot and Nineteenth-Century Science: The Make-Believe of a Beginning* (New York: Cambridge Univ. Press, 1984). Thomas Pinney, "The Authority of the Past in George Eliot's Novels," *Nineteenth-Century Fiction* 21, no. 2 (September 1966): 134. Marc E. Wohlfarth, "Daniel Deronda and the Politics of Nationalism," *Nineteenth-Century Literature* 53, no. 2 (September 1998): 188.

⁵⁸ Eliot, *The Essays of George Eliot, Complete*, 147-8.

⁵⁹ Wells, *Cutting Jesus Down to Size: What Higher Criticism has Achieved and Where it Leaves Christianity*.

⁶⁰ Cited in Asad, *Formations of the Secular: Christianity, Islam, Modernity*, 23 n. 6.

⁶¹ Ludwig Feuerbach, *The Essence of Christianity*, trans. George Eliot, 2nd ed. (Amherst, NY: Prometheus Books, 1989), xx. All further references to *The Essence* will be given parenthetically by page number.

⁶² Asad, *Formations of the Secular: Christianity, Islam, Modernity*, 53.

⁶³ Qualls, *The Secular Pilgrims of Victorian Fiction: The Novel as Book of Life*, 187.

⁶⁴ Eliot, *Essays and Leaves from a Notebook*, 218.

⁶⁵ Edward Bulwer Lytton, *The Last of the Barons*, vol. 1 (New York: Charles Scribner's Sons, 1903), vii.

⁶⁶ The passage also marks how the aural imagination has been reconfigured from the seductive music of Maggie Tulliver's experience into a register for the language of sympathy – expressed in a variety of harmonic, reverberating metaphors.

⁶⁷ Catherine Gallagher and Stephen Greenblatt, *Practicing New Historicism* (Chicago: Univ. of Chicago Press, 2000).

⁶⁸ *Ibid.*, 52-67.

⁶⁹ Catherine Gallagher, "The Politics of Culture and the Debate over Representation," *Representations* 5 (Winter 1984): 131.

⁷⁰ Alan Liu, "The Power of Formalism: The New Historicism," *English Literary History* 56, no. 4 (Winter 1989): 744.

⁷¹ Gallagher, "The Politics of Culture and the Debate over Representation," 117.

⁷² Kate Flint, "Materiality in Middlemarch," in *Middlemarch in the Twenty-First Century*, ed. Karen Chase (Oxford: Oxford Univ. Press, 2006), 66.

⁷³ Buzard, *Disorienting Fiction: The Autoethnographic Work of Nineteenth-Century British Novels*, 290.

⁷⁴ Daston and Galison, *Objectivity*.

⁷⁵ Karl R. Popper, *The Logic of Scientific Discovery* (London ; New York: Routledge, 1959).

Chapter 5

¹ Adrian Desmond and James R. Moore, *Darwin: The Life of a Tormented Evolutionist* (New York: W. W. Norton, 1992), 229.

² *Ibid.*, xx.

³ Richard C. Lewontin, "Why Darwin?," *New York Review of Books*, May 28, 2009.

⁴ George Levine, "Reflections on Darwin and Darwinizing," *Victorian Studies* 51, no. 2 (Winter 2009): 226.

⁵ Stanley Edgar Hyman, *The tangled bank; Darwin, Marx, Frazer and Freud as imaginative writers* (New York: Atheneum, 1962), 27.

⁶ The purview of “rhetoric of science,” see for instance John Angus Campbell, “Why was Darwin believed? Darwin's Origin and the Problem of Intellectual Revolution,” *Configurations* 11 (2003): 203-307.

⁷ A focus of many studies, from Gillian Beer's *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction*, to George Lewis Levine, *Darwin and the Novelists: Patterns of Science in Victorian Fiction*, to Bob Young's *Darwin's Metaphor: Nature's Place in Victorian Culture* (Cambridge Cambridgeshire ; New York: Cambridge University Press, 1985). It is hard to find anyone writing about Darwin's language without discussing his use of metaphor.

⁸ An animating inquiry for *Darwin's Plots* and the first two chapters of *Darwin and the Novelists*.

⁹ See especially Robert J. Richards, *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe* (Chicago: University of Chicago Press, 2002) and George Lewis Levine, *Darwin Loves You: Natural Selection and the Re-enchantment of the World*.

¹⁰ A focus of *Darwin Loves You*.

¹¹ A key interest in both *Darwin's Plots* and *Darwin and the Novelists*.

¹² Hyman, *The tangled bank; Darwin, Marx, Frazer and Freud as imaginative writers*, 33.

¹³ C. P. Snow, *The Two Cultures* (London; New York: Cambridge Univ. Press, 1993).

¹⁴ “Preface to the Second Edition,” *Darwin's Plots*, xxv, and *Darwin and the Novelists*, 3.

¹⁵ J. A. Fodor, “Special sciences (or: The disunity of science as a working hypothesis),” *Synthese* 28, no. 2 (October 1974): 97-115.

¹⁶ For an evaluation of the contrast between “historical” and “experimental” science, see Carol E. Cleland, “Historical science, experimental science, and scientific method,” *Geology* 29, no. 11 (November 2001): 987-90. For a tendentious account of the “descriptive” versus “hypothesis-driven” contrast see Arturo Casadevall and Ferric C. Fang, “Descriptive Science,” *Infection and Immunity* 76, no. 9 (September 1, 2008): 3835-6.

¹⁷ Carl G. Hempel, “Aspects of Scientific Explanation,” in *Aspects of Scientific Explanation* (New York: Free Press, 1965), 331-496. Michael Friedman, “Explanation and Scientific Understanding,” *Journal of Philosophy* 71, no. 1 (January 17, 1974): 5-19. Philip Kitcher, “Explanatory Unification,” *Philosophy of Science* 48, no. 4 (December 1981): 507-531. For a critique of unification with regard to biological science, see Evelyn Fox Keller, *Making Sense of Life: Explaining Biological Development with Models, Metaphors, and Machines* (Cambridge, MA: Harvard Univ. Press, 2002), 300-1.

¹⁸ Ibid., 7.

¹⁹ Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, N.J.: Princeton Univ. Press, 1985).

²⁰ Peter Galison, *Image and Logic: A Material Culture of Microphysics* (Chicago, IL: Univ. of Chicago Press, 1997), 62.

²¹ Jonathan Smith, *Charles Darwin and Victorian Visual Culture* (Cambridge: Cambridge Univ. Press, 2006).

²² Charles Darwin, *The origin of species by means of natural selection; or, The preservation of favoured races in the struggle for life*, ed. J. W. Burrow (New York: Penguin Books, 1985), 71. All future references to *The Origin* will be given parenthetically by page number.

²³ Charles Darwin, "Darwin, C. R. Notebook B: [Transmutation of species (1837-1838)]. CUL-DAR121.-," 129-30, <http://darwin-online.org.uk/content/frameset?itemID=CUL-DAR121.-&viewtype=side&pageseq=1>.

²⁴ Ibid., 43.

²⁵ Charles Darwin, "Darwin, C. R. Notebook C: [Transmutation of species (1838.02-1838.07)]. CUL-DAR122.-," 60, <http://darwin-online.org.uk/content/frameset?itemID=CUL-DAR122.-&viewtype=side&pageseq=1>.

²⁶ William Prout, *Chemistry, Meteorology, and the Function of Digestion Considered with Reference to Natural Theology*, 4th ed. (London: Henry Bohn, 1855), 79.

²⁷ Darwin, "Darwin, C. R. Notebook C: [Transmutation of species (1838.02-1838.07)]. CUL-DAR122.-," 61.

²⁸ Ibid., 139-40.

²⁹ Ibid., 176-7.

³⁰ Ibid.

³¹ Darwin, "Darwin, C. R. Notebook C: [Transmutation of species (1838.02-1838.07)]. CUL-DAR122.-," 202.

³² Charles Darwin, "Darwin, C. R. Notebook E: [Transmutation of species (1838-1839)] CUL-DAR124.-," 128, <http://darwin-online.org.uk/content/frameset?viewtype=side&itemID=CUL-DAR124.-&pageseq=1>.

³³ Darwin, "Darwin, C. R. Notebook B: [Transmutation of species (1837-1838)]. CUL-DAR121.-," 228.

³⁴ Thomas S. Kuhn, *The structure of scientific revolutions* (Chicago, IL: University of Chicago Press, 1996), 94.

³⁵ Darwin, *The Origin of Species; A Variorum Text*, 164-5.

³⁶ Cf. Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction*. Richards, *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe*.

³⁷ "Darwin C. R. Notebook N: [Metaphysics and expression (1838-1839)]. CUL-DAR126.-," 19e, 46, <http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=CUL-DAR126.-&keywords=scott+walter&pageseq=48>.

³⁸ This is not to say that the concepts of natural theology and science were monolithic in the early nineteenth-century – even within the Bridgewater Treatises, there is considerable variation of opinion. But the fixity of species, as well as the intelligent design of nature, were still more than majority of opinions. Hence the outrage generated by *Essays and Reviews* in the 1860s – a collection which I would place within the tradition of natural theology, but which departed too radically from the main current of the consensus. I also do not mean to argue that Darwin represents an essential break with religious science – this would ignore the rich body of work which connects Darwin's practice to Paley and other natural theologians. Instead, I intend to explore what Colin Jager has characterized as "the first positive alternative to a simplistic design hypothesis" (*The Book of God*, 218).

³⁹ Jerrold L. Aronson, Rom Harré, and Eileen Cornell Way, *Realism rescued : how scientific progress is possible* (Chicago: Open Court, 1995), 91.

⁴⁰ Many thinkers before Malthus, including David Hume, Robert Wallace, and Adam Smith, had argued that human populations throughout history had been held in check by their proportion to the production of food. And this largely homeostatic perspective is reflected in Malthus's own steady-state orientation: as the production of food cannot be drastically changed, there is little (besides abstinence) to be done. Certainly, the notoriety of Malthus' conclusions regarding poor laws and charity contributed to his instant celebrity. As Godwin puts it in full Jeremiad mode: "What havoc do these few maxims make with the old received notions of morality!" T. R. Malthus, *An Essay on the Principle of Population: Text, Sources, Background Criticism*, ed. Philip Appleman (New York: Norton, 1976), 145. All further references to *An Essay* will be given parenthetically by page number. But the durability of Malthus' pamphlet bears some explanation – after all, it is Malthus, not Hume or Smith, who is still cited as a primary influence upon population studies. David Lucas, *Beginning Population Studies*, vol. 2 (Canberra: Australian National University, 1980), 19.

⁴¹ Again, this draws upon analogy's classic association with the ratio of proportions, discussed in my first chapter.

⁴² And it was often over the status of this analogy that Malthus critics as well as supporters bickered. Hence Engels, after desecrating Malthusian politics, settles down to critique the core of the theory. After recapitulating the mathematics behind Malthus' argument, Engels comments: "The difference is obvious and horrifying—but is it correct?" The answer is, not surprisingly, no. The solution is to increase the rate of food production in line with population through "science, the progress of which is just as limitless and just as rapid as that of population." Malthus, *An Essay on the Principle of Population: Text, Sources, Background Criticism*, 150.

⁴³ For Popper's theory of falsifiability, see Popper, *The Logic of Scientific Discovery*, 18-9.

⁴⁴ Darwin and Wallace corresponded on this subject – see his April 6, 1859 letter (Charles Darwin, Frederick Burkhardt, and Sydney Smith, *The Correspondence of Charles Darwin*, vol. 7 (Cambridge England ; New York: Cambridge University Press, 1985), 279).

⁴⁵ Howard E. Gruber, "Evolving Systems Approach to Creative Scientific Work: Charles Darwin's Early Thought," in , ed. Thomas Nickles, *Scientific Discovery: Case Studies* (Dordrecht: Reidel, 1980), 113-130.

⁴⁶ Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction*, 66.

⁴⁷ Even the most simplistic explicit formula for analogy "w is to x as y is to z" doubles an awkward predicate phrase construction "is to" and, even more unusually, uses the subordinating preposition "as" to launch an adverbial phrase – rather than the prepositional phrase which "as" more often ushers. Sidney Greenbaum, *The Oxford English Grammar* (London: Oxford University Press, 1996), 159.

⁴⁸ The function of "as" in the example given in the previous note. For more on adverbial clause construction, see *Ibid.*, 158-9, 320-7.

⁴⁹ *Ibid.*, 379, 530.

⁵⁰ It should be immediately apparent that these relations also characterize classical synecdoche – a point which will be discussed later.

⁵¹ Harré, Aronson, and Way, "Apparatus as Models of Nature."

⁵² For instance, among the many key analogies which structure the first four chapters of *The Origin*, the analogy between human and natural selection suggests the possibility of a larger type, "selection" of which each is a subtype; and it is fair to say that before Darwin and Wallace no such type hierarchy existed. Take for instance, Darwin's suggestion, from chapter four, that "in nearly the same way as two men have sometimes independently hit on the very same invention, so natural selection ... has sometimes modified in very nearly the same manner two parts in two organic beings, which owe but

little of their structure in common to inheritance from the same ancestor” (223). Here, the analogy clarifies the sometimes striking coincidences of contingency without relying, in any strict sense, upon a common type hierarchy that would connect the mechanism of human invention to natural selection. It is a case/case analogy that does not bear type/case elaboration.

⁵³ In the example of the relationship between variation discussed earlier, Darwin initially presents the larger variability of traits in domestic creatures as a disanalogy to their counterparts in nature. But after accounting for this difference in terms of the analogous processes that produce them – domestic versus natural selection – Darwin recuperates the seemingly disparate phenomena as analogous phenomena between domestic and natural selection. In terms of type-hierarchy, the previously dis-analogous cases become illustrations of the larger category of selection, as examples of selection’s two subtypes, domestic and natural.

⁵⁴ Heather Brink-Roby, “Natural Representation: Diagram and Text in Darwin's *On the Origin of Species*,” *Victorian Studies* 51, no. 2 (Winter 2009): 247-73. Horst Bredekamp, *Darwins Korallen: Frühe Evolutionsmodelle und die Tradition der Naturgeschichte* (Berlin: Klaus Wagenbach Verlag, 2005).

⁵⁵ Darwin, “Darwin, C. R. Notebook B: [Transmutation of species (1837-1838)]. CUL-DAR121.-,” 25.

⁵⁶ *Ibid.*, 26, 36.

⁵⁷ *Ibid.*, 21.

⁵⁸ Brink-Roby, “Natural Representation: Diagram and Text in Darwin's *On the Origin of Species*,” 247.

⁵⁹ Reprinted from Charles Darwin and Ernst Meyer, *On the Origin of Species: A Facsimile of the First Edition* (Cambridge, MA: Harvard Univ. Press, 1964), insert after page 116.

⁶⁰ Darwin, “Darwin, C. R. Notebook B: [Transmutation of species (1837-1838)]. CUL-DAR121.-,” 239.

⁶¹ Smith, *Charles Darwin and Victorian Visual Culture*, 16.

⁶² Charles Lyell, *The Principles of Geology or the Modern Changes of the Earth and its Inhabitants*, vol. 1, 11th ed. (New York: D. Appleton, 1892), 353, 388.

⁶³ Kline, *Mathematical Thought from Ancient to Modern Times*, 3:842-3.

⁶⁴ Jean-Victor Poncelet, *Traité de propriétés projectives des figures*, vol. 2, 2 vols., 2nd ed. (Paris: Gauthier-Villars, 1866), plate 1. Thomas Bradley, *Practical Geometry, Linear Perspective, and Projection, etc.* (London: Baldwin & Cradock, 1834), 266, 232.

-
- ⁶⁵ Samuel Wilberforce, "[Review of] On the Origin of Species, by means of Natural Selection; or the Preservation of Favoured Races in the Struggle for Life," *Quarterly Review* 108, no. 215 (July 1860): 226.
- ⁶⁶ Smith, *Charles Darwin and Victorian Visual Culture*, 156.
- ⁶⁷ Charles Darwin, "Darwin, C. R. [1857] [Abstract of species theory sent to Asa Gray]. CUL-DAR6.51 Transcribed by John van Wyhe. (Darwin Online, <http://darwin-online.org.uk/>)," *The Complete Works of Charles Darwin Online*, 6, <http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=CUL-DAR6.51&keywords=be+any+will+offspring+it+the+species+so+with+of&pageseq=6>.
- ⁶⁸ Stephen Jay Gould, *The Structure of Evolutionary Theory* (Cambridge, MA: Belknap Press, 2002), 236.
- ⁶⁹ Edward R. Tufte, *The Visual Display of Quantitative Information* (Cheshire, CT: Graphics Press, 1986).
- ⁷⁰ Ibid., 40.
- ⁷¹ Roman Frigg and Stephan Hartmann, "Models in Science (Stanford Encyclopedia of Philosophy)," <http://plato.stanford.edu/entries/models-science/#SemModRep>.
- ⁷² Harré, Aronson, and Way, "Apparatus as Models of Nature," 2.
- ⁷³ Max Black, *Models and Metaphors; Studies in Language and Philosophy* (Ithaca, NY: Cornell Univ. Press, 1962), 220-3. Ronald N. Giere, *Explaining Science; A Cognitive Approach* (Chicago: Univ. of Chicago Press, 1988), 78, 224-5.
- ⁷⁴ Fox Keller, *Making Sense of Life: Explaining Biological Development with Models, Metaphors, and Machines*, 75, 181-2.
- ⁷⁵ Latour, *Pandora's Hope: Essays on the Reality of Science Studies*, 48-9.
- ⁷⁶ Ibid., chap. 2.
- ⁷⁷ Daston and Galison, *Objectivity*.
- ⁷⁸ Smith, *Charles Darwin and Victorian Visual Culture*, 2.
- ⁷⁹ Jorg Zinken, "Discourse metaphors: The link between figurative language and habitual analogies," *Cognitive Linguistics* 18, no. 3 (2007): 445-466.
- ⁸⁰ Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction*, 42.
- ⁸¹ Levine, *Darwin and the Novelists: Patterns of Science in Victorian Fiction*, 99. For an extended discussion of the relation between Darwin's theory and the language of design,

see Michael Ruse, *Darwin and Design: Does Evolution Have a Purpose?* (Cambridge, MA: Harvard Univ. Press, 2003).

⁸² Darwin, *The Origin of Species; A Variorum Text*, 165.

⁸³ William Whewell, *History of the inductive sciences, from the earliest to the present time* (New York: D. Appleton, 1890), 45.

⁸⁴ Levine, *Darwin and the Novelists: Patterns of Science in Victorian Fiction*.

⁸⁵ Flint, *The Victorians and the Visual Imagination*, 235.

⁸⁶ Charles Lyell and Lyell, *Life, letters, and journals of Sir Charles Lyell, Bart.* (New York: AMS Press, 1881), 365.

⁸⁷ Levine, *Dying to Know: Scientific Epistemology and Narrative in Victorian England*.

⁸⁸ Wilberforce, “[Review of] *On the Origin of Species, by means of Natural Selection; or the Preservation of Favoured Races in the Struggle for Life*,” 256, 239.

⁸⁹ *Ibid.*, 231.

⁹⁰ Whitwell Elwin, “Letter from Whitwell Elwin to John Murray III, 3 May 1859 - MS.42197,” *The John Murray Archive: ideas that made the world*, 3-4, <http://www.nls.uk/jma/gallery/title.cfm?id=27>.

⁹¹ Wilberforce, “[Review of] *On the Origin of Species, by means of Natural Selection; or the Preservation of Favoured Races in the Struggle for Life*,” 254-5.

⁹² Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction*, 49.

⁹³ Derek Attridge, *The Singularity of Literature* (London ; New York: Routledge, 2004), 27.

⁹⁴ Olivia Judson, “An Original Confession,” July 8, 2008.

Appendix

¹ Claude Shannon, “Prediction and Entropy of Printed English,” *Bell Systems Technical Journal* 30 (January 1951): 50-64. For a discussion of its linguistic implications, see John Lyons, *Introduction to theoretical linguistics* (London: Cambridge U.P., 1995), 84. I have already illustrated some of what is lacking in such cognitive approaches with regard to the “structure mapping” theory of analogy when applied to the actual use of analogy in scientific writing. A further point should be made about the “structure mapping” model of analogy, in that it is rooted in a computational paradigm that is foundational for much of the work in cognitive science. In this model, the brain can be

likened to a computer, and its operations are analogized to the function of algorithms which take information and transform it into something else. Hence the language of “mapping” tries to describe how one part of the analogy can be transformed algorithmically into the other part of the analogy. Such models are profoundly directional.

² Warren Weaver, “Some Recent Contributions to the Mathematical Theory of Communication,” in *The Mathematical Theory of Communication*, ed. Claude Shannon and Warren Weaver (Urbana, IL; Chicago, IL: Univ. of Illinois Press, 1963), 1-28.

³ The two most commanding studies of role of single versus three-volume format publication in the nineteenth century are Altick, *The English Common Reader*. St. Clair, *The Reading Nation in the Romantic Period*.

⁴ Cf. Weaver, “Some Recent Contributions to the Mathematical Theory of Communication,” 5-10.

⁵ It might also be objected that meaning is a product of the interaction between an expression and some larger background, whether tacit knowledge, or a relation between text and context. But I would suggest that, inasmuch as that larger context can be expressed, and hence, evaluated in the probabilistic manner described above, it represents an extension of the same symbolic system. This was implied in the example drawn from *Waverley*, as I extended probabilistic modeling to the format of the work and its references to historical context. Hence the question of the relation between text and context becomes a scalar question of how much of the set of all symbolic expression needs to be brought under consideration – rather than a challenge of the entropic model itself.

⁶ As I will elaborate in the following chapters, the situation is particularly acute when someone is trying to communicate “new” meaning – from a novel poetic device to a new scientific theory.

⁷ Jacques Derrida, “Différance,” in *The Margins of Philosophy* (Chicago, IL: Univ. of Chicago Press, 1982), 17.

⁸ Weaver, “Some Recent Contributions to the Mathematical Theory of Communication,” 13.

⁹ This doesn’t mean that the expression takes full advantage of this potential – my friend might not be talking to me at all, or might have a sudden onset of Turret’s syndrome, or may be advising me to pick up N.B.C.’s lagging drama series.

¹⁰ Gertrude Stein and Thornton Wilder, *Four in America* (New Haven, CT: Yale Univ. Press, 1947), iv.

¹¹ Weaver, “Some Recent Contributions to the Mathematical Theory of Communication,” 20. Since Shannon’s paper, this measure has been recognized as a case of Kullback-

Leibler divergence, which can be expressed as

$D_{KL}(P||Q) = -\sum_x p(x) \log q(x) + \sum_x p(x) \log p(x)$, where P and Q represent distinct probability distributions. (See Solomon Kullback, "Kullback Information," *Encyclopedia of Statistical Sciences*, v. 4. Eds. S. Kolz and N. L. Johnson (New York: Wiley, 1984), pp. 421-5.

¹² Rényi sums it up: "for the sake of brevity, *the information of order α obtained if the distribution P [being used to interpret the expression] is replaced by the distribution Q [used to actually create the expression].*" Alfréd Rényi, "On Measures of Entropy and Information," in *Proceedings of the 4th Berkeley Symposium on Mathematics, Statistics, and Probability, 1960* (Berkeley, CA: Univ. of California Press, 1961), 554.

¹³ The fact that I chose the binary case instead of a more complicated series is for simplicity's sake. If I'd modeled the range of options as an infinite series of choices between probability p_1 of x_1 versus the probabilities $p_{x_2 \dots x_n}$ of $[x_2, x_3, x_4 \dots x_n]$, where $p_1 + p_n = 1$, and $p_1 \geq p_n$, the shape of the curves would be the same and their relationships would hold for the same values of p_1 .

¹⁴ The similarity to Jauss's "horizon of expectation" is intentional, and will be developed with respect to the genre of the historical novel in my second chapter. *Aesthetic Experience and Literary Hermeneutics* (Minneapolis, MN: Univ. of Minnesota Press, 1982). Focus on the "median" rather than the "horizon" reorients us from the periphery to the center point of expectation.

¹⁵ S. Kullback and R. A. Leibler, "On Information and Sufficiency," *The Annals of Mathematical Statistics* 22, no. 1 (March 1951): 79-86.

¹⁶ Weaver, "Some Recent Contributions to the Mathematical Theory of Communication," 13.

¹⁷ Greenbaum, *The Oxford English Grammar*, 92-3.

¹⁸ At the same time, this does not mean that function words lack semantic content; the preposition "out" clearly modifies and constrains how we understand the magician's action in this case – though it does not strictly change the primary relation between the subject, predicate, and object.

¹⁹ James L. Morgan, Rushen Shi, and Paul Allopenna, "Perceptual Bases of Rudimentary Grammatical Categories: Toward a Broader Conceptualization of Bootstrapping," in *Signal to Syntax*, ed. James L. Morgan and Katherine Demuth (Mahwah, NJ: Lawrence Erlbaum, 1996), 267.

8. Bibliography

- A Collection of Old Ballads*. London: Printed for J. Roberts, 1723.
- A Shepherd (Hogg). "A Journey through the Highlands of Scotland, in the Months of July & August 1802, in a Series of Letters." *Scots Magazine*, December 1802.
- . "A Journey through the Highlands of Scotland, in the Months of July and August, 1802, in a Series of Letters." *Scots Magazine*, October 1802.
- Abrams, M. H. *The Mirror and the Lamp*. New York: Norton, 1958.
- . *The Norton Anthology of English Literature. The Major Authors*. New York: Norton, 1996.
- Altick, Richard. *The English Common Reader*. Chicago, IL: Univ. of Chicago Press, 1957.
- Anderson, Amanda. *The Powers of Distance: Cosmopolitanism and the Cultivations of Detachment*. Princeton, N.J.: Princeton Univ. Press, 2001.
- Anderson, Benedict. *Imagined Communities*. New York: Verso, 1983.
- Anderson, Patricia. *The Printed Image and Transformation of Popular Culture, 1790-1860*. Oxford: Clarendon Press, 1991.
- Anger, Suzy. *Victorian Interpretation*. Ithaca, N.Y.: Cornell Univ. Press, 2005.
- Aquinas, Thomas. *Summa Theologica*. Translated by Fathers of the English Dominican Province. Raleigh, NC: Hayes Barton, 1947.
- Aristotle. *On Rhetoric*. Translated by George A. Kennedy. New York: Oxford Univ. Press, 1991.
- . *Posterior Analytics*. Loeb Classical Library. Cambridge, MA: Harvard Univ. Press, 1989.
- Aristotle, and Jonathan Barnes. *The Complete Works of Aristotle : the Revised Oxford Translation*. Vol. 1. 2 vols. Princeton, N.J.: Princeton University Press, 1995.
- . *The Complete Works of Aristotle : the Revised Oxford Translation*. Vol. 2. 2 vols. Princeton, N.J.: Princeton University Press, 1995.
- Arnold, Matthew. *Literature and Dogma*. New York, NY: Macmillan, 1914.

- Aronson, Jerrold L., Rom Harré, and Eileen Cornell Way. *Realism rescued : how scientific progress is possible*. Chicago: Open Court, 1995.
- Asad, Talal. *Formations of the Secular: Christianity, Islam, Modernity*. Stanford, Calif.: Stanford Univ. Press, 2003.
- . "The Concept of Cultural Translation in British Social Anthropology." In *Writing Culture: The Poetics and Politics of Ethnography*. Berkeley, CA: Univ. of California Press, 1986.
- Ashworth, E. Jennifer. "Medieval Theories of Analogy (Stanford Encyclopedia of Philosophy)." *Stanford Encyclopedia of Philosophy*, 2009.
<http://plato.stanford.edu/entries/analogy-medieval/>.
- Attridge, Derek. *The Rhythms of English Poetry*. New York: Longman, 1982.
- . *The Singularity of Literature*. London ; New York: Routledge, 2004.
- Augustine, Saint Bishop of Hippo. *The Works of Aurelius Augustine: A New Translation*. Edited by Marcus Dods. Vol. 9. Edinburgh: T. & T. Clark, 1892.
- Bakhtin, Mikhail Mikhailovich, and Michael Holquist. *The Dialogic Imagination: Four Essays*. Austin, TX: Univ. of Texas Press, 1981.
- Barbauld, Anna Laetitia. "'A Summer Evening's Meditation,'" by Anna Laetitia Aikin - *Poems* (1773) by Anna Laetitia Aikin - Electronic Editions, Romantic Circles." *Romantic Circles*.
<http://www.rc.umd.edu/editions/contemps/barbauld/poems1773/meditation.html>.
- Barthes, Roland. "The Old Rhetoric: An aide-mémoire." In *The Semiotic Challenge*, translated by Richard Howard, 11-94. Berkeley, CA: Univ. of California Press, 1994.
- de Beer, G. R. *Sir Hans Sloane and the British Museum*. London: Oxford Univ. Press, 1953.
- Beer, Gillian. *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction*. Cambridge ; New York: Cambridge University Press, 2000.
- Benedict, Barbara M. *Curiosity: a cultural history of early modern enquiry*. Chicago, IL: Univ. of Chicago Press, 2001.
- Black, Max. *Models and Metaphors; Studies in Language and Philosophy*. Ithaca, NY: Cornell Univ. Press, 1962.
- Bradley, Thomas. *Practical Geometry, Linear Perspective, and Projection, etc.* London: Baldwin & Cradock, 1834.

- Bredekamp, Horst. *Darwins Korallen: Frühe Evolutionsmodelle und die Tradition der Naturgeschichte*. Berlin: Klaus Wagenbach Verlag, 2005.
- Brink-Roby, Heather. "Natural Representation: Diagram and Text in Darwin's *On the Origin of Species*." *Victorian Studies* 51, no. 2 (Winter 2009): 247-73.
- Brontë, Charlotte. *Shirley*. New York: Oxford Univ. Press, 1998.
- Brown, Peter Robert Lamont. *Augustine of Hippo: a Biography*. London: Faber, 1967.
- Browne, E. J. *Charles Darwin: a Biography*. New York: Knopf : Distributed by Random House, 2002.
- Browne, Peter. *Things Divine and Supernatural Conceived by Analogy with Things Natural and Human*. London: William Innys and Richard Manby, 1733.
- Bruzeliuss, Margaret. *Romancing the Novel: Adventure from Scott to Sebald*. Lewisburg, PA: Bucknell Univ. Press, 2007.
- Budge, Gavin. "Erasmus Darwin and the Poetics of William Wordsworth: 'Excitement without the Application of Gross and Violent Stimulants'." *Journal for Eighteenth-Century Studies* 30, no. 2 (October 2008): 279-308.
- Burke, Edmund. *A Philosophical Enquiry into the Origins of our Ideas of the Sublime and the Beautiful*. Vol. 1. The Works of Edmund Burke. Boston: Charles Little and James Brown, 1839.
- Burkhardt, Armin, Hugo Steger, and Herbert Ernst Wiegand. *History of the Language Sciences: An International Handbook on the Evolution of the Study of Language from the Beginnings to the Present*. Vol. 2. 3 vols. Berlin, New York: Walter de Gruyter, 2001.
- Butler, Joseph. *The Analogy of Religion*. New York: Phillips and Hunt, 1879.
- Buzard, James. *Disorienting Fiction: The Autoethnographic Work of Nineteenth-Century British Novels*. Princeton, N.J.: Princeton Univ. Press, 2005.
- Campbell, George. *Philosophy of Rhetoric*. Edinburgh: George Ramsay, 1808.
- Campbell, John Angus. "Why was Darwin believed? Darwin's Origin and the Problem of Intellectual Revolution.." *Configurations* 11 (2003): 203-307.
- Casadevall, Arturo, and Ferric C. Fang. "Descriptive Science." *Infection and Immunity* 76, no. 9 (September 1, 2008): 3835-6.
- Chadwick, Henry. *Early Christian Thought and the Classical Tradition: Studies in Justin, Clement, and Origen*. Oxford: Clarendon P., 1966.
- Chandler, James. *England in 1819: The Politics of Literary Culture and the Case of*

- Romantic Historicism*. Chicago, IL: Univ. of Chicago Press, 1998.
- Cicero. "De Oratore." In *Readings from Classical Rhetoric*, edited by Patricia Matsen, Philip Rollinson, and Marion Sousa, translated by Harris Rackham. Carbondale and Edwardsville, IL: Univ. of Southern Illinois Press, 1990.
- Clayton, Jay. *Charles Dickens in Cyberspace: The Afterlife of the Nineteenth Century in Postmodern Culture*. New York, NY: Oxford Univ. Press, 2003.
- Cleland, Carol E. "Historical science, experimental science, and scientific method." *Geology* 29, no. 11 (November 2001): 987-90.
- Coffey, John. *John Goodwin and the Puritan Revolution*. Rochester, NY: Boydell, 2006.
- Cole, D. "Recent Evidence for the Existence of the Nucleus Atom." *Science* 41, no. 1046 (January 15, 1915): 73-81.
- Coleridge, Samuel Taylor, and Earl Leslie Griggs. *Collected letters*. Oxford: Clarendon Press, 1971.
- Constable, Archibald. *Archibald Constable, and His Literary Correspondents*. Edited by Thomas Constable. Vol. 2. Edinburgh: Edmonston and Douglas, 1873.
- Cope, E. M. "E. M. Cope, Commentary on the Rhetoric of Aristotle, book 2, chapter 19, section 2." *Perseus*.
<http://www.perseus.tufts.edu/hopper/text;jsessionid=CC76E451AA8B91C4E7BAD130C084F7A4?doc=Perseus%3Atext%3A1999.04.0080%3Abook%3D2%3Achapter%3D19%3Asection%3D2>.
- Copeland, Rita. *Rhetoric, Hermeneutics, and Translation in the Middle Ages: Academic Traditions and Vernacular Texts*. New York, NY: Cambridge Univ. Press, 1991.
- Cracuin, Adriana, Leith Davis, Ian Duncan, and Janet Sorensen. "Romantic Spinstrelsy: Anne Bannerman and the Sexual Politics of the Ballad." In *Scotland and the Borders of Romanticism*, 204-224. New York, NY: Cambridge University Press, 2004.
- Cremona, Luigi. *Elements of Projective Geometry*. London. Oxford Univ. Press: 1885.
- Croker, John Wilson. "Revolutionary Literature." *Quarterly Review* 89 (1851): 491-543.
- Culler, Dwight A. *The Victorian Mirror of History*. New Haven, CT: Yale Univ. Press, 1985.
- Culler, Jonathan. *The Pursuit of Signs: Semiotics, Literature, Deconstruction*. New York: Ithaca, NY.
- Cuvier, Georges. *Georges Cuvier, fossil bones, and geological catastrophes : new*

translations & interpretations of the primary texts. Translated by M. J. S. Rudwick. Chicago: University of Chicago Press, 1997.

d'Alembert, Jean Le Rond. "Observations sur l'art de traduire." In *Translation/History/Culture: A Sourcebook*, edited by André Lefevere, translated by André Lefevere. London: Routledge, 1992.

Daiches, David. "Scott's Achievement as a Novelist." In *Literary Essays*. New York, NY: Philosophical Library, 1957.

"Darwin C. R. Notebook N: [Metaphysics and expression (1838-1839)]. CUL-DAR126.-." <http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=CUL-DAR126.-&keywords=scott+walter&pageseq=48>.

Darwin, Charles. "Darwin, C. R. [1857] [Abstract of species theory sent to Asa Gray]. CUL-DAR6.51 Transcribed by John van Wyhe. (Darwin Online, <http://darwin-online.org.uk/>)." *The Complete Works of Charles Darwin Online*. <http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=CUL-DAR6.51&keywords=be+any+will+offspring+it+the+species+so+with+of&pageseq=6>.

———. "Darwin, C. R. Notebook B: [Transmutation of species (1837-1838)]. CUL-DAR121.-." <http://darwin-online.org.uk/content/frameset?itemID=CUL-DAR121.-&viewtype=side&pageseq=1>.

———. "Darwin, C. R. Notebook C: [Transmutation of species (1838.02-1838.07)]. CUL-DAR122.-." <http://darwin-online.org.uk/content/frameset?itemID=CUL-DAR122.-&viewtype=side&pageseq=1>.

———. "Darwin, C. R. Notebook E: [Transmutation of species (1838-1839)] CUL-DAR124.-." <http://darwin-online.org.uk/content/frameset?viewtype=side&itemID=CUL-DAR124.-&pageseq=1>.

———. *The Origin of Species*. Edited by J. W. Burrow. New York: Penguin Books, 1985.

———. *The Origin of Species; A Variorum Text*. Edited by Morse Peckham. Philadelphia: University of Pennsylvania Press, 1959.

Darwin, Charles, Frederick Burkhardt, and Sydney Smith. *The Correspondence of Charles Darwin*. Vol. 7. Cambridge England ; New York: Cambridge University Press, 1985.

Darwin, Charles, and Desmond King-Hele. *The Life of Erasmus Darwin*. New York: Cambridge University Press, 1879.

Darwin, Erasmus. *The Botanic Garden, A Poem, in Two Parts; Containing The*

- Economy of Vegetation and the Loves of the Plants*. London: J. Jones, 1825.
- . *Zoonomia; or, The Laws of Organic Life*. Dublin: P. Byrne, and W. Jones, 1794.
- . *Zoonomia; or, The Laws of Organic Life*. London: J. Johnson, 1796.
- Daston, Lorraine, and Peter Galison. *Objectivity*. Cambridge, MA: Zone Books, 2007.
- Daston, Lorraine, and Katherine Park. *Wonders and the Order of Nature, 1150-1750*. New York, NY: Zone Books, 2001.
- Davis, Earle. *The Flint and the Flame*. Columbia, MO: Univ. of Missouri Press, 1963.
- Dellile, Jacques. "Preface to translation of Virgil's Georgics." In , edited by André Lefevere, translated by André Lefevere. *Translation/History/Culture: A Sourcebook*. London: Routledge, 1992.
- Derrida, Jacques. "Différance." In *The Margins of Philosophy*, 1-29. Chicago, IL: Univ. of Chicago Press, 1982.
- Desmond, Adrian, and James R. Moore. *Darwin: The Life of a Tormented Evolutionist*. New York: W. W. Norton, 1992.
- Diagnostic and Statistical Manual of Mental Disorders*. Washington, D.C.: American Psychiatric Association, 1994.
- Dickens, Charles. *A Tale of Two Cities*. Edited by Richard Maxwell. London, England ; New York, N.Y.: Penguin Books, 2003.
- . *Bleak House*. Edited by George Ford and Sylvère Monod. New York: W. W. Norton, 1977.
- . *The Letters of Charles Dickens*. Edited by Graham Storey and Margaret Brown. Vol. 7. Oxford: Clarendon Press, 2002.
- . *The Pickwick Papers*. Edited by Mark Wormald. New York: Penguin, 2003.
- Dillane, Fionnuala. "Re-reading George Eliot's 'Natural History': Marian Evans, 'the People,' and the Periodical." *Victorian Periodicals Review* 42, no. 3 (Fall 2009): 244-266.
- Dixon, Peter. *Rhetoric*. New York: Routledge, 1971.
- Dobie, M. R. "The development of Scott's Minstrelsy: an attempt at reconstruction." *Transactions of the Edinburgh Bibliographical Society* 2, no. 1 (1940): 66-87.
- Dod, Bernard G. "Aristotle-latinus." New York: Cambridge Univ. Press, 1982.
- Dodd, Strauss. "Strauss's English Propagandists and the Politics of Unitarianism."

Church History 50, no. 4 (June 1967): 415-35.

Drawin, Charles, and Ernst Meyer. *On the Origin of Species: A Facsimile of the First Edition*. Cambridge, MA: Harvard Univ. Press, 1964.

Duncan, Ian. *Modern Romance and Transformations of the Novel : the Gothic, Scott, Dickens*. Cambridge ; New York: Cambridge University Press, 1992.

———. *Scott's Shadow: The Novel in Romantic Edinburgh*. Princeton, N.J.: Princeton Univ. Press, 2007.

Eisenstadt, S. N. "Multiple Modernities." *Daedalus* 129, no. 1 (Winter 2000): 1-29.

Eliot, George. *A Writer's Notebook, 1854-1879, and Uncollected Writings*. Edited by Joseph Wiesenfarth. Charlottesville, VA: Univ. Press of Virginia, 1981.

———. *Essays and Leaves from a Notebook*. The Complete Works of George Eliot. London: Blackwell and Sons, 1883.

———. *Middlemarch*. Edited by Rosemary Ashton. New York, NY: Penguin, 1994.

———. *The Essays of George Eliot, Complete*. Edited by Nathan Sheppard. New York: Funk & Wagnalls, 1883.

———. *The Mill on the Floss*. Edited by Gordon S. Haight. Boston: Houghton Mifflin, 1961.

Elwin, Whitwell. "Letter from Whitwell Elwin to John Murray III, 3 May 1859 - MS.42197." *The John Murray Archive: ideas that made the world*. <http://www.nls.uk/jma/gallery/title.cfm?id=27>.

Ferguson, Adam. *An Essay on the History of Civil Society*. London: T. Cadell, 1793.

Feuerbach, Ludwig. *The Essence of Christianity*. Translated by George Eliot. 2nd ed. Amherst, NY: Prometheus Books, 1989.

Flint, Kate. "Materiality in Middlemarch." In *Middlemarch in the Twenty-First Century*, edited by Karen Chase, 65-86. Oxford: Oxford Univ. Press, 2006.

———. *The Victorians and the Visual Imagination*. New York: Cambridge Univ. Press.

Fodor, J. A. "Special sciences (or: The disunity of science as a working hypothesis)." *Synthese* 28, no. 2 (October 1974): 97-115.

Fontanier, Pierre. *Les Figures du Discours*. Paris: Flammarion, 1830.

Foucault, Michel. *The Order of Things*. New York: Vintage Books, 1994.

Fox Keller, Evelyn. *Making Sense of Life: Explaining Biological Development with*

- Models, Metaphors, and Machines*. Cambridge, MA: Harvard Univ. Press, 2002.
- Frederick, Robert Karl. *George Eliot: A Biography*. New York: W. W. Norton, 1995.
- Friedman, Albert B. *The Ballad Revival: Studies in the Influence of Popular on Sophisticated Poetry*. Chicago, IL: U of Chicago P, 1961.
- Friedman, Michael. "Explanation and Scientific Understanding." *Journal of Philosophy* 71, no. 1 (January 17, 1974): 5-19.
- Frigg, Roman, and Stephan Hartmann. "Models in Science (Stanford Encyclopedia of Philosophy)." <http://plato.stanford.edu/entries/models-science/#SemModRep>.
- Froehlich, Karlfried. *Biblical Interpretation in the Early Church*. Philadelphia: Fortress Press, 1984.
- Galison, Peter. *Image and Logic: A Material Culture of Microphysics*. Chicago, IL: Univ. of Chicago Press, 1997.
- Gallagher, Catherine. "The Duplicity of Doubling." *Dickens Studies Annual* 12 (1983): 125-45.
- . "The Politics of Culture and the Debate over Representation." *Representations* 5 (Winter 1984): 115-47.
- Gallagher, Catherine, and Stephen Greenblatt. *Practicing New Historicism*. Chicago: Univ. of Chicago Press, 2000.
- Gamer, Michael. "Authors in Effect: Lewis, Scott, and the Gothic Drama." *ELH* 66, no. 4 (1999): 831-861.
- Gannet, Richard, and Edward Gannet. *Life of W. J. Fox*. New York: John Lane, 1910.
- Garside, Peter. "Popular Fiction and National Tale: Hidden Origins of Scott's Waverley." *Nineteenth-Century Literature* 46, no. 1 (June 1991): 30-53.
- Garside, Peter D. "Scott and the 'Philosophical' Historians." *Journal of the History of Ideas* 36, no. 3 (September 1975): 497-512.
- Gentner, Dedre. "Structure-Mapping: A Theoretical Framework for Analogy." *Cognitive Science* 7, no. 2: 155-170.
- Glare, P. G., ed. *Oxford Latin Dictionary*. Oxford: Clarendon Press, 2002.
- Goldberg, Michael. "Carlyle, Dickens, and the Revolution of 1848." *Dickens Studies Annual* 12 (1983): 223-32.
- Gould, Stephen Jay. *The Structure of Evolutionary Theory*. Cambridge, MA: Belknap Press, 2002.

- Greenbaum, Sidney. *The Oxford English Grammar*. London: Oxford University Press, 1996.
- Greene, Thomas M. *The Light in Troy: Imitation and Discovery in Renaissance Poetry*. New Haven, CT: Yale Univ. Press, 1982.
- Griener, Ronald N. *Explaining Science; A Cognitive Approach*. Chicago: Univ. of Chicago Press, 1988.
- Grierson, H. J. C. *The Letters of Sir Walter Scott 1787-1807*. Centenary. London: Constable & Co., 1932.
- Gross, John. "A Tale of Two Cities'." In *Dickens and the Twentieth Century*, edited by John Gross and Gabriel Peterson. Toronto: Univ. of Toronto Press, 1962.
- Gruber, Howard E. "Evolving Systems Approach to Creative Scientific Work: Charles Darwin's Early Thought." In , edited by Thomas Nickles, 113-130. *Scientific Discovery: Case Studies*. Dordrecht: Reidel, 1980.
- Guillory, John. "The Sokal Affair and the History of Criticism." *Critical Inquiry* 28, no. 2: 470-508.
- Hack, Daniel. "Sublimation Strange': Allegory and Authority in 'Bleak House'." *English Literary History* 66, no. 1 (Spring 1999): 129-56.
- Haight, Gordon. *George Eliot: A Biography*. New York: Oxford Univ. Press, 1968.
- Hanson, Paul R. *Historical Dictionary of the French Revolution*. Lanham, MD: Scarecrow Press, 2004.
- Harkins, William D. "The Structure of Atoms, and the Evolution of the Elements as Related to Composition of the Nuclei of Atoms." *Science* 46, no. 1192 (November 2, 1917): 419-27.
- Harré, Rom, Jerrold L. Aronson, and Eileen C. Way. "Apparatus as Models of Nature." In *Metaphor and Analogy in the Sciences*, edited by Fernand Hallyn, 1-16. Dordrecht ; Boston: Kluwer Academic, 2000.
- Harris, Victor. "Allegory to Analogy in the Interpretation of Scripture." *Philological Quarterly* 45 (1966): 1-23.
- Hazlitt, William, P. P. Howe, Alfred Rayney Waller, Arnold Glover, and James Thornton. *The complete works of William Hazlitt*. London, Toronto: J.M. Dent and Sons, Ltd., 1934.
- Hearne, Thomas. *Ductor historicus: or, a short system of universal history, and an introduction to the study of it. The second edition, very much augmented and improv'd*. Vol. 1. London: Tim Childe, 1704.

- Hempel, Carl G. "Aspects of Scientific Explanation." In *Aspects of Scientific Explanation*, 331-496. New York: Free Press, 1965.
- Hennessy, Una Pope. *Charles Dickens, 1812-1870*. Edinburgh: A. R. Clark, 1947.
- Hill, Susan E. "Translating Feuerbach, Constructing Morality: The Theological and Literary Significance of Translation for George Eliot." *Journal of the American Academy of Religion* 65, no. 3 (Fall 1997): 635-53.
- Holdsworth, William Searle. *Charles Dickens as a Legal Historian*. New Haven, CT: Yale Univ. Press, 1928.
- Horn, Laurence R. "Contradiction (Stanford Encyclopedia of Philosophy)." *Stanford Encyclopedia of Philosophy*, 2006. <http://plato.stanford.edu/entries/contradiction/>.
- Horwitz, Henry, and Patrick Polden. "Continuity or Change in the Court of Chancery in the Seventeenth and Eighteenth Centuries?." *The Journal of British Studies* 35, no. 1 (January 1996): 24-57.
- Howell, William Samuel. *Eighteenth-Century British Logic and Rhetoric*. Princeton, NJ: Princeton Univ. Press, 1971.
- Hughes, Linda K., and Michael Lund. *The Victorian Serial*. Charlottesville, VA: Univ. of Virginia Press, 1991.
- Hume, David. *An Enquiry Concerning Human Understanding*. Indianapolis, IN: Hackett, 1977.
- Hyman, Stanley Edgar. *The tangled bank; Darwin, Marx, Frazer and Freud as imaginative writers*. New York: Atheneum, 1962.
- Jackson, Greg. *The Word and its Witness*. Chicago, IL: Univ. of Chicago Press, 2009.
- Jager, Colin. *The Book of God: Secularization and Design in the Romantic Era*. Philadelphia: Univ. of Pennsylvania Press, 2007.
- Jakobson, Roman. "Two Aspects of Language and Two Types of Disturbances." In *On Language*, edited by Linda Waugh and Monique Monville-Burstin. Cambridge, MA: Harvard Univ. Press, 1990.
- Jameson, Fredric. *Marxism and Form*. Princeton, NJ: Princeton Univ. Press, 1974.
- . *Postmodernism, or, The Cultural Logic of Late Capitalism*. Durham, NC: Duke Univ. Press, 1991.
- Jauss, Hans R., Timothy Bahti, and Paul De Man. *Toward and Aesthetic of Reception. Theory and History of Literature 2*. Minneapolis, MN: Univ. of Minnesota Press, 1989.

- Jauss, Hans Robert. *Aesthetic Experience and Literary Hermeneutics*. Minneapolis, MN: Univ. of Minnesota Press, 1982.
- John, Juliet. *Dickens's Villains: Melodrama, Character, Popular Culture*. Oxford: Oxford Univ. Press, 2001.
- Johnson, Edgar. *Charles Dickens; His Tragedy and Triumph*. New York: Simon and Shuster, 1952.
- Jones, Richard, ed. *The Seventeenth Century: Studies in the History of English Thought and Literature from Bacon to Pope*. Stanford, CA: Stanford Univ. Press, 1951.
- Jones, Richard Foster. "The Attack on Pulpit Eloquence in the Restoration: An Episode in the Neo-Classical Standard for Prose." *The Journal of English and German Philology* 30, no. 2 (April 1931): 188-217.
- Joshi, Priti. "Mutiny Echoes: India, Britons, and Charles Dickens's 'A Tale of Two Cities'." *Nineteenth-Century Literature* 62, no. 1 (June 2007): 48-87.
- Juarrero, Alicia. *Dynamics in Action*. Cambridge, MA: MIT Press, 1999.
- Judson, Olivia. "An Original Confession," July 8, 2008.
- King-Hele, Desmond. *Erasmus Darwin and the Romantic poets*. New York: St. Martin's Press, 1986.
- Kitcher, Philip. "Explanatory Unification." *Philosophy of Science* 48, no. 4 (December 1981): 507-531.
- Kline, Morris. *Mathematical Thought from Ancient to Modern Times*. Vol. 3. 3 vols. Oxford: Oxford Univ. Press, 1990.
- Knoepfmacher, U. C. *George Eliot's Early Novels; The Limits of Realism*. Berkeley, CA: Univ. of California Press: 1968.
- Kucich, John. "The Purity of Violence." *Dickens Studies Annual* 8 (1980): 119-37.
- Kuhn, Thomas S. *The structure of scientific revolutions*. Chicago, IL: University of Chicago Press, 1996.
- Kullback, S., and R. A. Leibler. "On Information and Sufficiency." *The Annals of Mathematical Statistics* 22, no. 1 (March 1951): 79-86.
- Kurnick, David. "An Erotics of Detachment: Middlemarch and Novel-reading as Critical Practice." *ELH* 74 (2007): 583-608.
- de Lamarck, Jean Baptiste Pierre Antoine de Monet. *Zoological philosophy; an exposition with regard to the natural history of animals ..* Translated by Hugh Samuel Roger Elliott. London: Macmillan and Co., limited, 1914.

- Langlois, Charles V. "The Comparative History of England and France During the Middle Ages." *The English Historical Review* 5, no. 18 (April 1890): 259-63.
- Laporte, Charles. "The Bard, the Bible, and the Shakespeare Question." *English Literary History* 74, no. 3 (Fall 2007): 609-28.
- Larsen-Freeman, Diane, and Lynn Andrea Stein. *Complex Systems and Applied Linguistics*. New York: Oxford Univ. Press, 2008.
- Larson, Janet. *Dickens and the Broken Scripture*. Athens, GA: Univ. of Georgia Press, 1985.
- Latour, Bruno. *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, MA: Harvard Univ. Press, 1999.
- Lester, Valerie Brown. *Phiz, The Man Who Drew Dickens*. London: Chatto and Windus, 2004.
- Levine, George. *Dying to Know: Scientific Epistemology and Narrative in Victorian England*. Chicago, IL: Univ. of Chicago Press, 2002.
- . "Reflections on Darwin and Darwinizing." *Victorian Studies* 51, no. 2 (Winter 2009): 223-245.
- . "Sir Walter Scott: The End of Romance." *The Wordsworth Circle* 10 (1970): 147-12.
- Levine, George Lewis. *Darwin and the Novelists: Patterns of Science in Victorian Fiction*. Chicago: University of Chicago Press, 1988.
- . *Darwin Loves You: Natural Selection and the Re-enchantment of the World*. Princeton, N.J.: Princeton University Press, 2006.
- Lewontin, Richard C. "Why Darwin?." *New York Review of Books*, May 28, 2009.
- Leyden, John. *The Complaynte of Scotland, Written in 1548*. Edinburgh: Archibald Constable, 1801.
- Leyden, John, and James, ed. Sinton. *Journal of a Tour in the Highlands and Western Islands of Scotland in 1800*. Edinburgh and London: William Blackwood and Sons, 1903.
- Liddell, Henry George, Robert Scott, Henry Stuart Jones, and Roderick McKenzie. *A Greek-English Lexicon*. Oxford; New York: Clarendon Press; Oxford University Press, 1996.
- Lindsay, Jack. "'A Tale of Two Cities'." In *Twentieth-Century Interpretations of 'A Tale of Two Cities'*, edited by Charles Beckwith, 52-63. Englewood Cliffs, NJ: Prentice

- Hall, 1972.
- Liu, Alan. "The Power of Formalism: The New Historicism." *English Literary History* 56, no. 4 (Winter 1989): 721-71.
- Locke, John. *An Essay Concerning Human Understanding*. Amherst, NY: Prometheus Books, 1995.
- Lodge, David. *The Modes of Modern Writing*. London: Edward Arnold, 1977.
- Lord Monboddo, Burnet, James. *Of the Origin and Progress of Language*. Vol. 1. 2 vols. Edinburgh: J. Balfour, 1774.
- Lucas, David. *Beginning Population Studies*. Vol. 2. Canberra: Australian National University, 1980.
- Lukács, György. *The Historical Novel*. London: Merlin Press, 1962.
- Lyell, Charles. *The Principles of Geology or the Modern Changes of the Earth and its Inhabitants*. Vol. 1. 2 vols. 11th ed. New York: D. Appleton, 1892.
- Lyell, Charles, and Lyell. *Life, letters, and journals of Sir Charles Lyell, Bart.* New York: AMS Press, 1881.
- Lyons, John. *Introduction to theoretical linguistics*. London: Cambridge U.P., 1995.
- Lytton, Edward Bulwer. *The Last of the Barons*. Vol. 1. 3 vols. New York: Charles Scribner's Sons, 1903.
- Madden, Edward H. "The Common-Sense School." In *Routledge Encyclopedia of Philosophy*, 446-8. New York: Routledge, 1998.
- Mahoney, James, and Dietrich Rueschemeyer, eds. *Comparative Historical Analysis in the Social Sciences*. New York: Cambridge Univ. Press, 2003.
- Malik, Rachel. "Horizons of the Publishable: Publishing in/as Literary Studies." *English Literary History* 75, no. 3 (Fall 2006): 707-32.
- Malthus, T. R. *An Essay on the Principle of Population: Text, Sources, Background Criticism*. Edited by Philip Appleman. New York: Norton, 1976.
- Marcus, David. "The Carlylean Vision of 'A Tale of Two Cities'." *Studies in the Novel* 8, no. 1 (1976): 56-86.
- Margolis, Stacey. "Homo-Formalism: Analogy in The Sacred Fount." *Novel: A Forum on Fiction* 34, no. 3 (Summer 2001): 291-410.
- McInerny, Ralph, and John O'Callaghan. "Saint Thomas Aquinas (Stanford Encyclopedia of Philosophy)." *Stanford Encyclopedia of Philosophy*, 2009.

<http://plato.stanford.edu/entries/aquinas/>.

McKeon, Michael. *The Origins of the English Novel, 1600-1740*. 2nd ed. Baltimore, MD: Johns Hopkins Univ. Press, 2002.

———. *The Secret History of Domesticity: Public, Private, and the Division of Knowledge*. Baltimore, MD: Johns Hopkins Univ. Press, 2005.

———. *The Theory of the Novel: A Historical Approach*. Baltimore, MD: Johns Hopkins Univ. Press, 2000.

“Mental and Behavioural Disorders.” *International Classification of Disease 10*. <http://apps.who.int/classifications/apps/icd/icd10online/?gf80.htm+f800>.

Michelet, Jules. *Le Peuple*. Paris: Hachette et Paulin, 1846.

Mill, John Stuart. *A System of Logic, Ratiocinative and Inductive*. Edited by J. M. Robson. Vol. 8. The Collected Works of John Stuart Mill. Toronto; Buffalo, 1976.

———. *Collected Works*. Vol. 1. Toronto: Univ. of Toronto Press, 1973.

Miller, Arthur I. “Metaphor and Scientific Creativity.” In *Metaphor and Analogy in the Sciences*, edited by Fernand Hallyn, 147-165. Dordrecht ; Boston: Kluwer Academic, 2000.

Miller, D. A. *The Novel and the Police*. Berkeley, CA: Univ. of California Press, 1988.

Miller, J. Hillis. “Introduction.” In *Bleak House*. New York: Oxford Univ. Press, 1971.

Millgate, Jane. *Walter Scott : The Making of the Novelist*. Toronto ; Buffalo: University of Toronto Press, 1984.

Morgan, James L., Rushen Shi, and Paul Allopenna. “Perceptual Bases of Rudimentary Grammatical Categories: Toward a Broader Conceptualization of Bootstrapping.” In *Signal to Syntax*, edited by James L. Morgan and Katherine Demuth, 263-83. Mahwah, NJ: Lawrence Erlbaum, 1996.

de la Motte, Antoine Houdar. “Preface to translation of the Iliad.” In , edited by André Lefevere, translated by André Lefevere. Translation/History/Culture: A Sourcebook. London: Routledge, 1992.

Owen, Richard. *On the Archetypes and Homologies of the Vertebrate Skeleton*. London: John Van Voorst, 1848.

———. *The Life of Richard Owen*. Vol. 1. London: John Murray, 1894.

Packham, Catherine. “The Science and Poetry of Animation: Personification, Analogy, and Erasmus Darwin's Loves of the Plants.” *Romanticism* 10, no. 2 (2004): 191-16.

- Page, Michael. "The Darwin before Darwin: Erasmus Darwin, Visionary Science, and Romantic Poetry." *Papers on Language and Literature: A Journal for Scholars and Critics of Language and Literature* 41, no. 2 (2005): 146-24.
- Parsons, Talcott. *Societies: Evolutionary and Comparative Perspectives*. Englewood Cliffs, NJ: Prentice Hall, 1966.
- Patten, Robert L. "'Pickwick Papers' and the Development of Serial Fiction." *Rice University Studies* 61, no. 1 (Winter 1975): 51-74.
- Patterson, Annabel M. *Censorship and Interpretation: the Conditions of Writing and Reading in Early Modern England*. Madison, Wisc.: Univ. of Wisconsin Press, 1984.
- Peacham, Henry. *The Garden of Eloquence*. London: R. H. for H. Jackson, 1593.
- Percy, Thomas. "An essay on the ancient minstrels in England." In *Reliques of Ancient English Poetry*. London ; New York: Henry Washbourne and Co., 1857.
- Percy, Thomas, and Henry B. Wheatley. *Reliques of Ancient English Poetry*. Vol. 1. 3 vols. London: Bickers and Son, 1876.
- Pinney, Thomas. "The Authority of the Past in George Eliot's Novels." *Nineteenth-Century Fiction* 21, no. 2 (September 1966): 131-47.
- Poncelet, Jean-Victor. *Traité de propriétés projectives des figures*. Vol. 2. 2 vols. 2nd ed. Paris: Gauthier-Villars, 1866.
- Popper, Karl R. *The Logic of Scientific Discovery*. London ; New York: Routledge, 1959.
- Porter, Dahlia. "Scientific Analogy and Literary Taxonomy in Erasmus Darwin's Loves of the Plants." *European Romantic Review* 18, no. 2 (2007): 213-7.
- Poser, William J., and Lyle Campbell. "Indo-European practice and historical methodology." In *Proceedings of the Eighteenth Annual Meeting of the Berkeley Linguistics Society*. <http://www.billposer.org/Papers/iephm.pdf>.
- Press, Oxford University. *The Oxford English Dictionary*, 1999.
- Prout, William. *Chemistry, Meteorology, and the Function of Digestion Considered with Reference to Natural Theology*. 4th ed. London: Henry Bohn, 1855.
- Qualls, Barry. "George Eliot and Religion." In *The Cambridge Companion to George Eliot*, edited by George Levine, 119-37. Cambridge ; New York: Cambridge Univ. Press, 2001.
- . *The Secular Pilgrims of Victorian Fiction: The Novel as Book of Life*. New York: Cambridge Univ. Press, 1982.

- Raby, Peter. *Bright Paradise*. Princeton, NJ: Princeton Univ. Press, 1997.
- Ragussis, Michael. "The Ghostly Signs of 'Bleak House'." *Nineteenth-Century Fiction* 34, no. 3: 253-80.
- Rance, Nicholas. "Charles Dickens: 'A Tale of Two Cities' (1859)." In *Essays on Charles Dickens's 'A Tale of Two Cities'*, 74-88. New York: G. K. Hall, 1998.
- Regan, Stephen. *The Nineteenth-Century Novel: A Critical reader*. New York: Routledge, 2005.
- Reill, Peter Hans. "The Legacy of the Scientific Revolution." In , edited by Roy Porter. *Cambridge History of Science: Vol. 4, Eighteenth-Century Science*. New York: Cambridge University Press, 2003.
- Rényi, Alfréd. "On Measures of Entropy and Information." In *Proceedings of the 4th Berkeley Symposium on Mathematics, Statistics, and Probability, 1960*, 547-61. Berkeley, CA: Univ. of California Press, 1961.
- Reve, A. S. "Modern Views on the Constitution of the Atom." *Science* 40, no. 1021 (July 20, 1914): 115-21.
- Richards, I. A. *The Philosophy of Rhetoric*. New York: Oxford Univ. Press, 1936.
- Richards, Robert J. *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe*. Chicago: University of Chicago Press, 2002.
- Ricouer, Paul. *The Rule of Metaphor*. Translated by Robert Czerny. Toronto; Buffalo: Univ. of Toronto Press, 1977.
- Riehl, Wilhelm Heinrich. *Die Naturgeschichte des Volkes als Grundlage einer Deutschen Social-Politik*. Vol. 2. 2 vols. Struttgart; Augsburg: J. B. Cotta [Elbiron Classics], 1855.
- . *The Natural History of the German People*. Edited by David J. Diephouse. Translated by David J. Diephouse. *Studies in German Thought and History* 13. Lewiston, NY: Edwin Mellen Press, 1990.
- Rignall, J. M. "Dickens and the Catastrophic Continuum of History in A Tale of Two Cities." *English Literary History* 51, no. 3 (1984): 575.
- Ritson, Joseph. "Observations on the ancient English minstrels." In *Ancient Songs and Ballads from the reign of King Henry the second to the revolution*. Vol. 1. London: Payne and Foss, 1829.
- Rudwick, Martin J. S. *The Meaning of Fossils: Episodes in the History of Paleontology*. New York: American Elsevier, 1972.

- Ruse, Michael. *Darwin and Design: Does Evolution Have a Purpose?* Cambridge, MA: Harvard Univ. Press, 2003.
- Sala, George Augustus. *The Life and Adventures of George Augustus Sala*. London: Cassell and Co., 1898.
- Schleiermacher, Friedrich. "Über die verschiedenen Methoden des übersetzens." In , edited by André Lefevere, translated by André Lefevere. *Translation/History/Culture: A Sourcebook*. London: Routledge, 1992.
- Scott, Walter. "Biographical Memoir of John Leyden, M. D.." In *The Edinburgh Annual Register for 1811*, 4, pt. 2:xli-lxviii. Edinburgh: John Ballantyne and Co., 1813.
- . "Introduction." In *Sir Tristrem; a metrical romance of the thirteenth century; by Thomas of Ercildoune, called the Rhymer. Edited from the Auchinleck MS. by Walter Scott, Esq.* 1st ed. Edinburgh: James Ballantyne, 1804.
- . "Introductory Remarks on Popular Poetry." In *Sir Walter Scott's Minstrelsy of the Scottish Border*. Vol. 1. 2nd ed. New York, NY: C. Scribner's Sons, 1902.
- . *Ivanhoe, a Romance*. New York: Penguin, 2000.
- . *Minstrelsy of the Scottish Border*. Edinburgh: Printed by J. Ballantyne, for Longman and Rees, London, 1803.
- . *Minstrelsy of the Scottish Border*. Vol. 1. New York: Charles Scribner's Sons, 1902.
- . *Poetical Works*. New York, NY: Oxford Univ. Press, 1971.
- . "Review of Tales of My Landlord." *Quarterly Review*, 1817.
- . *The Antiquary*. Oxford, UK: Clarendon Press, 1914.
- . *The Letters of Sir Walter Scott 1811-1814*. Vol. 3. New York: AMS Press, 1971.
- . *Waverley : or, 'Tis sixty years since*. Oxford; New York: Clarendon Press; Oxford University Press, 1981.
- Shannon, Claude. "Prediction and Entropy of Printed English." *Bell Systems Technical Journal* 30 (January 1951): 50-64.
- Shapin, Steven, and Simon Schaffer. *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*. Princeton, N.J.: Princeton Univ. Press, 1985.
- Shatto, Susan. "Byron, Dickens, Tennyson, and the Monstrous Efts." *Yearbook of English Studies* 6 (1976): 144-55.
- Sherry, Richard. *A treatise of schemes [and] tropes very profytable for the better*

understanding of good authors, gathered out of the best grammarians [and] oratours. London: Iohn Day, 1550.

Shuttleworth, Sally. *George Eliot and Nineteenth-Century Science: The Make-Believe of a Beginning.* New York: Cambridge Univ. Press, 1984.

Skinner, Quentin. "Meaning and Understanding in the History of Ideas." *History and Theory* 8, no. 1 (1969): 3-53.

Smith, Adam. *An inquiry into the nature and causes of the wealth of nations.* Vol. 1. Dublin: Whitestone, Chamberlain, and W. Watson, 1776.

Smith, Jonathan. *Charles Darwin and Victorian Visual Culture.* Cambridge: Cambridge Univ. Press, 2006.

Snow, C. P. *The Two Cultures.* London; New York: Cambridge Univ. Press, 1993.

Spivey, Michael. *The Continuity of Mind.* Oxford; New York: Oxford Univ. Press, 2007.

Spratt, Thomas. *The History of the Royal Society of London, for the Improving of Natural Knowledge.* London: J. Martin at the Bell, 1667.

Sproute, John J., ed. *The Irish Industrial Exhibition of 1839: A Complete Catalogue.* London: William S. Orr, 1854.

St. Clair, William. *The Reading Nation in the Romantic Period.* New York, NY: Cambridge Univ. Press, 2004.

St. Hillaire, Geoffrey. "Mémoires sur la Structure et les Usages de l'Appareil olfactif dans les Poissons." *Annale des Sciences Naturelles* 1, no. 6 (1825): 322-54.

Steig, Michael. *Dickens and Phiz.* Bloomington, IN: Indiana Univ. Press, 1978.

Stein, Gertrude, and Thornton Wilder. *Four in America.* New Haven, CT: Yale Univ. Press, 1947.

Stein, Lynn Andrea. "Challenging the Computational Metaphor: Implications for How We Think." *Cybernetics and Systems* 30, no. 6 (1999): 473-508.

Stewart, Dugald. *Elements of the Philosophy of the Human Mind.* Vol. 2. 4th ed. The Collected Works. London: Hamilton, Adams, & Co., 1856.

Strauss, David Friedrich. *The Life of Jesus: Critically Examined.* Edited by George Eliot. Vol. 1. 3 vols. 4th ed. London: Chapman, 1846.

Strauss, Levi. *The Savage Mind.* Chicago, IL: Univ. of Chicago Press, 1966.

Sutherland, John. *The Life Of Walter Scott: A Critical Biography.* Oxford: Blackwell Publishing, 1995.

- Sutherland, Kathryn. "Fictional Economies: Adam Smith, Walter Scott and the Nineteenth-Century Novel." *ELH* 54, no. 1 (Spring 1987): 97-127.
- Taggart, Edward, William Pitt Scargill, Edward Taylor, William Turner, and William Johnson Fox. *The Service at the Settlement of the Rev. Edward Tagart*. London: Arthur Taylor, 1825.
- Taylor, Charles. *A Secular Age*. Cambridge, MA: Harvard Univ. Press, 2007.
- Temple, Frederick. "The Education of the World." In *Essays and Reviews: The 1860 Text and its Readings*, edited by Victor Shea and William Whitla, 137-80. Richmond, VA: Univ. of Virginia Press, 2000.
- "The Inside of the Atom." *The Independent, with which is Incorporated Harper's Weekly*, January 29, 1917.
- Trumpener, Katie. *Bardic Nationalism: the Romantic Novel and the British Empire*. Princeton, N.J.: Princeton Univ. Press, 1997.
- Tucker, P. "The Early History of the Court of Chancery: A Comparative Study." *English Historical Review* 115, no. 463 (2000): 791-811.
- Tufte, Edward R. *The Visual Display of Quantitative Information*. Cheshire, CT: Graphics Press, 1986.
- Uglow, Jennifer S. *The Lunar Men : Five Friends Whose Curiosity Changed the World*. New York: Farrar, Straus, and Giroux, 2002.
- Uglow, Jenny. *Sexing the Plants*, 2002.
- Vann, J. Don. *Victorian Novels in Serial*. New York: Modern Language Association of America, 1985.
- Very, Frank W. "On a Possible Limit to Gravitation." *American Journal of Science* 48. 4 (July 1919): 33-46.
- Vickers, Brian. "The Royal Society and English Prose Style." In *Rhetoric and the Pursuit of Truth*, edited by Thomas F. Wright. Los Angeles: Univ. of California Press, 1985.
- de Vio, Thomas. *The Analogy of Names and the Concept of Being*. Translated by Edward A. Bushinski. Pittsburgh, PA: Duquesne Univ. Press, 1953.
- Walder, Dennis. *Dickens and Religion*. London ; Boston: Allen & Unwin, 1981.
- Waldrop, Mitchell. *Complexity*. New York: Penguin, 1994.
- Wasserman, Earl R. "Nature Moralized: The Divine Analogy in the Eighteenth Century." *English Literary History* 20, no. 1 (1953): 39-76.

- . *The Subtler Language*. Baltimore, MD: Johns Hopkins Univ. Press, 1968.
- Weaver, Warren. "Some Recent Contributions to the Mathematical Theory of Communication." In *The Mathematical Theory of Communication*, edited by Claude Shannon and Warren Weaver, 1-28. Urbana, IL; Chicago, IL: Univ. of Illinois Press, 1963.
- Wellek, René. "The Concept of Realism in Literary Scholarship." *Neophilologus* 45, no. 1: 1-20.
- Wells, George Albert. *Cutting Jesus Down to Size: What Higher Criticism has Achieved and Where it Leaves Christianity*. Chicago, IL: Open Court, 2009.
- Wells, Susan. "The Jacobean City Comedy and the Ideology of the City." *English Literary History* 48, no. 1 (Spring 1981): 37-60.
- Welsh, Alexander. *The Hero of the Waverley Novels: With New Essay on Scott*. 2nd ed. Princeton, N.J.: Princeton Univ. Press, 1992.
- Whewell, William. *History of the inductive sciences, from the earliest to the present time*. New York: D. Appleton, 1890.
- White, Hayden. *Metahistory: The Historical Imagination in Nineteenth-Century Europe*. Baltimore, MD: Johns Hopkins Univ. Press, 1973.
- Wilberforce, Samuel. "[Review of] On the Origin of Species, by means of Natural Selection; or the Preservation of Favoured Races in the Struggle for Life." *Quarterly Review* 108, no. 215 (July 1860): 225-264.
- Wilkins, John. *An essay toward a real character, and a philosophical language*. London: Sa. Gellibrand for John Martyn, 1668.
- Wilkinson, Ann Y. "Bleak House': From Faraday to Judgement Day." *English Literary History* 34, no. 2 (June 1967): 225-47.
- Williams, Raymond. "The Knowable Community in George Eliot's Novels." *Novel: A Forum on Fiction* 2, no. 3 (Spring 1969): 255-268.
- Williamson, George. "Senecan Style in the Seventeenth Century." *Philological Quarterly* 15 (1936): 321-51.
- Wippel, John F. "Metaphysics." In *The Cambridge Companion to Aquinas*, edited by Norman Kretzman and Eleonore Stump. New York: Cambridge Univ. Press, 1993.
- Wohlfarth, Marc E. "Daniel Deronda and the Politics of Nationalism." *Nineteenth-Century Literature* 53, no. 2 (September 1998): 188-210.

Woodhouse, Alexander Fraser Tyler, Lord. *Essay on the Principle of Translation*.
London: T. Cadell and W. Davies.

Young, Bob. *Darwin's Metaphor: Nature's Place in Victorian Culture*. Cambridge
Cambridgeshire ; New York: Cambridge University Press, 1985.

Zinken, Jorg. "Discourse metaphors: The link between figurative language and habitual
analogies." *Cognitive Linguistics* 18, no. 3 (2007): 445-466.

9. Curriculum Vitae

Devin Griffiths

Jan. 2002 to May 2010 Rutgers University, New Brunswick
 Ph.D. Literatures in English
 M.A. Literatures in English

Sept. 1996 to Sept. 2002 The University of Texas, Austin
 B.A. English
 B.S. Molecular Biology

Publications

Griffiths, D. “‘Intuitive Analogy,’ Pattern, and Skeptical Philosophy in Erasmus Darwin’s Meter” *Studies in English Literature* (Summer, 2011).

Olsen, M., Stephens, D., Griffiths, D., Daugherty, P., Georgiou, G., Iverson, B. “Function-Based Isolation of Novel Enzymes from a Large Library” *Nature Biotechnology* 2000, no. 18(10): 1071-4.