

Mercury of the Waves: Modern Cryptology and U.S. Literature

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## **Mercury of the Waves: Modern Cryptology and U.S. Literature**

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The doctoral dissertation examines United States literary and institutional history during the period 1900-1973. The study demonstrates how cryptology was detached from its philological residence over three phases (the amateur, institutional, and professional). In the amateur phase, which was regionally specific to the Midwest, the science was characterized by social reformist debate. In the second, institutional phase, the amateur version of cryptology was institutionalized by the United States federal government following WWI to imitate a specific institutional model (that of the French *Bureau du Chiffre*). During the third, professional phase, the prior two were enhanced during the interwar period by linguists, mechanical engineers, literary modernists, and cryptologists. Running parallel to this narrative is a modern American literary genealogy that, beginning with Henry Adams and extending through Thomas Pynchon, engaged cryptology during that same era. The dissertation locates their discourse within Vichian humanism, and in doing so it first explains how modern literature (and the American novel in particular), its practices, and institutions contributed discursive rhetoric, hermeneutical methods, and institutional models to the emergent 20<sup>th</sup> century U.S. security state; secondly, it argues that a particular genealogical style that spans the writings of Henry Adams, T.S. Eliot, William Faulkner, Raymond Chandler, and Thomas Pynchon elaborated an diverse rhetorical discourse by which to respond to that assemblage of new institutional entities, and without which that assemblage would be incoherent.

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## PREFACE

Run for we are discovered. I am forced to write this.<sup>1</sup>

### I.

The following study follows two divergent and occasionally convergent lines of a single discourse. Francis Bacon characterized the lines as a dual mission for the science of grammar in The Advancement of Learning (1605). The first outlined a study of the “popular” languages and literatures which congealed during the 19<sup>th</sup> century into scientific disciplines such as anthropology, archeology, and philology. Each of these sustained schools or methods dedicated to the study of “popular” languages and literatures; each was later institutionalized by the modern nations, thus assuring a continuation and longevity that reached beyond the individual scientists or schools and guaranteed that “popular” languages and literatures would reinforce national ambition with epistemological valence, among other things.

The second mission of Bacon’s proposal differed from the first insofar as it was to be a speculative mission, a science that would be “philosophical, examining the power and nature of words, as they are the footsteps and prints of reason.” (The Advancement of Learning 138). The Elizabethan philosopher deemed the philosophical branch neglected and worthy of further development. The second branch, while less easily integrated into the modern national institutions, also assumed more distinct forms during the 19<sup>th</sup>

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<sup>1</sup> Elizabeth Wells Gallup “The Mercury Example.” Note dated July 23, 1919 (The Bacon Cipher Collection, New York Public Library).

century (the most persistent being the Anglophone and Germanic schools of modern logic).

The two missions proposed by Bacon were not necessarily segregated. Baconian empiricism unleashed a tremendous challenge to modern thought: could the “popular,” anthropological branch, and the speculative, logical branch be combined in a single science? Anglophone intellectuals developed what is perhaps the most influential response to this question over the following centuries. Marcel Danesi has noted that beginning with Hobbes, modern British and American thinkers “believed that thinking was essentially a mechanical process and that, in principle, machines could be built that were capable of thought” (47). Following Cartesian principles, a school of Anglophone thought that included Boole, Russell, Whitehead, and Turing theoretically separated the mind’s operations from the human body. This mechanistic tradition, with its abstract model of the human mind, extended through the American Information theorist Claude Shannon, whose work demonstrated that “the brain could finally be studied as an information-processing device” (47), thus returning the mechanistic model to its corporeal habitus (yet with significant alterations).

There is another less familiar tradition (particularly to Anglophone readers) that elaborated the popular and speculative branches proposed by Bacon with The Advancement of Learning. This tradition begins with the Neapolitan philosopher Giambattista Vico who studied Bacon (or Lord Verulam, as Vico referred to him) and proposed that human history, rather than an abstract study of the rational mind, was the only possible field that could unite the two missions into a coherent entity.

Vico loosely followed the four types of history proposed in Book Two of The Advancement of Learning, those being “Natural, Civil, Ecclesiastical, and Literary,” with an eye, however, towards considering “Literary History” in the greatest detail. Beginning with the first edition of La Scienza Nuova (1725), Vico argued that the

“theological poets” of antiquity had founded the civilized nations (19). Over the two successive editions of La Scienza Nuova, the study of the ancient customs and the origins of institutions would depend increasingly upon the study of the origins and development of words and languages. Where Bacon had perceived “poesy” as a historical ornament, Vico had raised etymology, rhetoric, and grammar, to a privileged position: the “popular” languages and literatures of the ancient world, studied in the speculative manner, opened the door to a new endeavor: the human science of history.

Vico deployed the speculative component of Bacon’s system in a historical register against one of the most important philosophers of the previously cited mechanistic tradition, Rene` Descartes.<sup>2</sup> Vico posed the historical science in direct opposition to the Cartesian philosophy of “mind,” a theory which Vico objected to because it failed to explain the processes by which human individuals and their institutions developed (Vico was, after all, also a professor of Roman law). Without certain customs, rituals, and laws, Vico noted, human minds would not develop towards civilization and history. The conduit of that motion was the metaphorical potential of the language that expressed it, and which in turn formed dynamic patterns of institutional, cultural, and legal development. These were, as Edward W. Said noted in an eloquent essay on Vico, inseparable from the human body.<sup>3</sup> In the words of Marcel Danesi:

Vico’s approach to the study of mind has always stood in diametrical opposition to the mechanical view. For Vico, the study of rational thought was not a point of departure; it was its point of arrival. Modern computational theories of mind would be seen to be products of the metaphorical imagination. (47)

Vico’s argument that metaphor was the source of human thought and history effectively amplified Bacon’s empirical philosophy of grammar in a historical key.

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<sup>2</sup> For the most explicit critique of Descartes, see Vico’s On the Study Methods of Our Time.

<sup>3</sup> See “Vico on the Discipline of Bodies and Texts.” Reflections on Exile and Other Essays. 83-93.



Metaphor was the key to a scientific understanding of complex linguistic processes such as the relationship between words and things, which in turn suggested the origins of other creative historical processes. Vico afforded to Bacon's "popular" languages a far more dynamic - or "generative" - role than that offered by the mechanistic model of mind. For example, when Vico studied the ancient civilizations through their languages he argued that these constituted a "grammar" of human history. The "popular languages" defined by Bacon, when expressed as the ancient fables, consisted of a "parabolic" logic that was anterior to modern argument (The Advancement of Learning 83). Vico's speculations recognized the ancient tales as the precursors of modern history and also

That, consequent upon the previous error, the theological poets concealed the highest mysteries of a recondite wisdom in the fables: hence, the desire, from Plato's time down to our own, that of Bacon of Verulam, to discover the wisdom of the ancients within the fables. But the wisdom concealed in them was one of the kind whereby, in all nations, all sacred things were kept secret from the profane. (The First New Science 282)

The Vichian challenge to Cartesian mechanicity centralized hermeneutic action upon historical objects as central to historical human knowledge. In following this principle, Vico focused a great deal of his attention on the hermetic languages (after Hermes, the Greek god of messengers and secrets) of the hieratic civilizations, especially those of Egypt. Vico elaborated Bacon in this respect: he also regarded the study of human history as secular revelation. History was not a secret to be kept; in fact, it never had been, for the ancient fables had transmitted history in that "parabolic form," and effectively extended human life through languages, customs, and institutions. If historical study were to become scientific, it would necessarily render the hermetic "secret" its object by way of the physical action of interpretation, and without dividing human body from mind.

Vico's emphatic rendition of the hermetic in Bacon's thought expanded the latter's varied arguments on secrecy first proposed in The Advancement of Learning. Bacon had written often about hieroglyphics, secrets, and, in an appendix that followed the discussion of grammar, what he called "cyphars" (Bacon later amplified the importance of ciphers in De Augmentis Scientiarum, where he proposed a simple "bilateral cipher" that could be created by the manipulation of typography on the printing press).<sup>4</sup> While Vico did not elaborate any cipher system per se, his historical works retained Bacon's interest in hermetic languages. Hermetic languages - systems of obscure symbols, occult lore, and the mysteries of poetry - constituted the classical foundations of human history. If the remote and hermetic ancient metaphors constituted the secret grammar of human history, than the amphitheaters and pyramids were minor ruins when compared to the subterranean forces by which the ancient languages continued to shape contemporary laws, social forms, and, lasting institutions. By incorporating Bacon's interest in secret languages and extending it to the global scale of civilizations and empires, Vico had effectively proven that history, with its laws, peoples, institutions, arts, was governed also by hermetic forces, and these could only be brought to light by the combined speculative power and grammatical rigor of a *new* historical science that did not separate the human mind from human history.

After Vico human institutions, arts, or cultures could no longer be attributed simply to "nature" or "divinity;" nor could they remain the exclusive province of royalty or hieratic classes (such as the Bourbon and Habsburg royalty who ruled Vico's Naples with the Vatican's consent). Human language and a responsibility to its interpretation had displaced the prime mover (who, as Vico reasoned, held little interest in the imperfect business of human affairs). Vico's writings and lectures, and The New Science in particular, gradually compelled every major European intellectual of the 18<sup>th</sup> and 19<sup>th</sup>

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<sup>4</sup> See David Kahn, The Codebreakers. 882-883.

centuries to recognize in language and history the foundations for what they would have recognized as “discourse.”<sup>5</sup>

Historical discourse remained however coupled with its occult precedents. Vico’s synthesis of the two branches of Bacon’s grammar demanded a hermeneutic science whose object was the hermetic matter of history conceived as a dynamic phenomenal process. That such hermetic processes assumed more apparent institutional forms was demonstrated by Michel Foucault nearly three centuries later when he famously described new institutions and hermeneutic practices – hospitals, asylums, prisons – that were transmuted from the leper colonies of the Middle Ages.

While cryptology (the reading and writing of secret languages) and its institutions may seem entirely disconnected to the casual observer from the arguments central to Vichian historicism or Cartesian rationalism, the opposite is in fact true. Indeed, the mechanistic line inaugurated by Descartes would converge with modern cryptology (as would the Vichian reply). Beginning with George Boole in the mid-19<sup>th</sup> century and ending with Alan Turing following WWII, British scientists developed effective mathematical models and machines that would enable humans to build computers; and both Boole and Turing developed computers in relation to cryptology. Yet cryptology was sustained most often by literary humanists rather than mathematicians and engineers during the inter-regnum between Boole’s first computational devices and Turing’s *bombes* at Bletchley Park. The following study argues that the mechanistic model of modern cryptology is incomprehensible without the historical models of language and culture developed by literary humanists after Bacon and Vico.

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<sup>5</sup> I will return to Vico throughout the following study. The curious should refer to the editors’ introductory essay to The Autobiography of Giambattista Vico for a proper survey of his influence.

Mercury of the Waves: Modern Cryptology and U.S. Literature begins from the Vichian proposition that, just as minds cannot be separated from bodies, human languages cannot be separated from human institutions. It further recognizes a hermetic tendency central to them both in the dense aggregation of words, distilled into various practices, customs, rituals, sciences, that gravitate at times towards large-scale institutional forms (as in the institutional constellations that were formed within and reproduced across the modern nations). Following Vico, I regard “poets” – writers of a distinct rhetorical power – as messengers traveling the terrain of historical human life between language and institutions, and carrying its secrets to later generations. Their domain spans small scale examples such as words or even letters to large-scale entities such as nations and civilizations. The following study treats “poets” as distinct individuals and as also belonging to traditions that assume institutional forms with respect to other institutions and a common discursive ground. In this sense, the modern literary styles, hermeneutic traditions, institutions and sciences discussed in the following study are all progeny of the discourse founded by Bacon and elaborated by Bacon and conceived, as if by parthenogenesis, hundreds of years after the fact.

For example, cryptology was late, with respect to other modern institutions, in assuming a large-scale institutional form. This was partly because it did not have a public face (as did madness, for example) and partly because the governments of modern nations had only begun to recognize its political and military potential during Bacon’s era. It was not until the 19<sup>th</sup> century that the emergent secular institutional systems of the republican nations accelerated the study and development of more refined cryptological methods. Even then, the methods were nurtured within relatively limited confines. For example, Vico’s science of human history had set the precedent, initially strongest in France and England, for the archeological enterprise that was attendant to the French imperial ransack of Egypt (Vico had also dedicated extensive

sections of his works to hieratic Egyptian culture and its written languages).<sup>6</sup> The discovery of the Rosetta Stone and the long dispute over its decipherment, as Daniel Meyerson has recently shown, were as much involved in the violent competition for colonial territory (in this case, between the British and the French) as they were in revealing the ancient hieroglyphic secrets.<sup>7</sup> Despite the public notoriety of Champollion's discoveries, the practices that made them possible were limited to small-scale academic institutions. Yet they also unleashed a popular literary craze over cryptology that later would be re-absorbed into new republican institutions – in France, and later in the United States, and elsewhere.

Cryptology's shift from a popular to a republican and military institutional form can only be understood in literary-historical terms, for it was modern literature that sustained the art. The occult strains of Baconian empiricism and Vichian historicism had influenced the literature of European Romanticism and its heirs. In American letters there were three strains of this tendency. The first was that mid-century period known as the American Renaissance. As John Irwin demonstrated in American Hieroglyphics (1980), its writers (Poe, Hawthorne, Whitman, and Melville, to name a few) combined the technological languages of telegraphy with both continental European discoveries in archeology (such as Champollion's) and a gothic, historical sensibility. The second major strain of the hermetic tendency departed from Poe, and it extended through Baudelaire's scandalous poetry through Mallarmé, Rimbaud, Valéry, Apollinaire and other French writers. It ultimately merged again with U.S. literature in the 20<sup>th</sup> century writings of Pound, Eliot, Stein, H.D., and other major U.S. modernists. Kenneth Burke described this Francophilic 20<sup>th</sup> century strain as the "hermetic style," the story of which

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<sup>6</sup> In a significant passage, Vico refers to modern German attempts to decipher the languages of the classical world as made difficult due to a lack of knowledge with respect to "secret writing." The New Science 142-143.

<sup>7</sup> See The Linguist and the Emperor: Napoleon and Champollion's Quest to Decipher the Rosetta Stone.

was presented most lucidly by Edmund Wilson in Axels' Castle (1931), a work to which I will return in later chapters.

A third, less familiar or fashionable strain of literary hermeticism developed slightly later than the previous two. It appeared in the United States slightly after the excitement of the Rosetta Stone's decipherment had inflected the American Renaissance. This tangent of the hermetic style sought to ascribe the authorship of Shakespeare's plays to Francis Bacon (a scientist and aristocrat) rather than concede them to Shakespeare (a commoner). The gothic, American Renaissance version of the hermetic style and this tangent were indeed connected, as Nathaniel Hawthorne penned the introduction to one of its first major works, The Philosophy of the Plays of Shakespeare Unfolded by Delia Bacon (1857).<sup>8</sup>

A scandalous book by a Minnesota politician named Ignatius T. Donnelly had the most far-reaching consequences with respect to this third strain. Donnelly's book The Great Cryptogram (1888) returned to Bacon's "cyphars" in order to propose a controversial thesis: that the typographic design of the Folio editions of Shakespeare's plays concealed Sir Francis Bacon's signature. The signature was revealed, Donnelly claimed, when a mathematical system was applied to the text. The signature was a variation of the cipher system outlined by Bacon in the later De Augmentis Scientiarum. Donnelly claimed from this cryptological evidence that Francis Bacon was the true author of Shakespeare's works. Donnelly's "Baconian" theory was ridiculed in the American popular press.<sup>9</sup> The negative publicity ruined his publishing career. His previous books, one about the lost city of Atlantis, another on the Scandinavian myth of Ragnarok, had sold well; The Great Cryptogram did not. Donnelly's prospects for a national political

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<sup>8</sup> Shawn Rosenheim briefly discusses Hawthorne's contribution in The Cryptographic Imagination (11).

<sup>9</sup> See Kahn The Codebreakers 875-879.

career were also weakened by the reviews (he was then a member of the Minnesota State legislature, and the state's former lieutenant governor).

The Great Cryptogram provoked extensive debate between Shakespeareans and the Baconians who followed Donnelly. Pott's Francis Bacon and His Secret Society (1891) and Robert M. Theobald's Shakespeare Studies in Baconian Light (1901) reinforced the Baconian position. The Baconian's motives were not primarily scientific or aesthetic (as were those of the philologists who argued that Shakespeare composed the plays) but socio-political. The Baconians targeted often the 19<sup>th</sup> century educational reformists who were dedicated to using William Shakespeare, a 'commoner,' to educate the American immigrant underclass (Donnelly ran with disastrous results for Vice-President on the Populist ticket in 1900).

The conflict was particularly intense in the Midwestern states, where it found an important if minor institutional residence in the first decade of the twentieth century at the Riverbank Laboratories of a certain Colonel Fabyan, a wealthy Illinois businessman. Fabyan hired a Baconian, Elizabeth Wells Gallup, to direct a laboratory dedicated to the Baconian cipher. Gallup, a disciple of an earlier Baconian named Dr. Orville Ward Owen, directed the Riverbank cipher work until immediately before the First World War; it was then that a few of the Riverbank Baconians (together with several prominent English professors) volunteered to transform the U.S. military intelligence apparatus during WWI. This third strain of 19<sup>th</sup> century literary hermeticism was later institutionalized within the cyclopean mid-century system of U.S. intelligence services mandated by the National Security Act of 1947, the story of which occupies much of the current study.<sup>10</sup>

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<sup>10</sup> Elizabeth Wells Gallup was initially the driving force behind the cryptographic department of the Riverbank Laboratories in Illinois, of which more shall be written later with respect to the literary beginnings of the U.S. military-intelligence institutions. The most concise summary of the Shakespeare-Bacon Debate can be found in William

Donnelly's book also stirred controversy in England, where The Great Cryptogram was received as an insult to the nation and its empire. Donnelly was invited to England to present his theory, where he was soundly routed in debate at Oxford University.<sup>11</sup> Where the book was embroiled in the U.S. politics of social reformism and Social Darwinist elitism, Donnelly's theories were perceived in England as a threat to Shakespeare's foundational eminence in British history and, in turn, a threat to British cultural superiority.<sup>12</sup> The Bacon-Shakespeare debate lasted well into the 20<sup>th</sup> century, until two former Riverbank employees, William and Elizebeth Friedman, finally destroyed the methods underlying the Baconist argument in their 1957 book on that subject. The Friedmans' book decisively ended the line (after a full century of debate) that had distorted Bacon's "cyphars" to obscene socio-political ends. And they did so by a version of the inductive method advocated by Bacon himself, founded upon arguments that moved with conviction from empirical example to general theory.

The empirical, inductive method used by the Friedmans to destroy the Baconian argument was not the only possible trajectory of Bacon's science of grammar.<sup>13</sup> There

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and Elizebeth Friedman's The Shakespearean Ciphers Examined (1957). The Friedmans began their careers in cryptology at the aforementioned Riverbank Laboratories. Their book was published during the debate's brief mid-20<sup>th</sup> century resurgence. See also Calvin Hoffman's The Murder of the Man who was Shakespeare (1956), Olive Wagner Driver's The Bacon-Shakespeare Mystery (1960), Jacques Duchaussoy Bacon, Shakespeare, ou Saint-Germain? (1962), and Edward Johnson's The Shakspeare Illusion (1965). The last, Johnson, composed dozens of works on the subject.

<sup>11</sup> David Kahn. The Codebreakers. 878

<sup>12</sup> Nonetheless, Donnelly's argument was sustained in England well into the 1920's through the writings of George Greenwood. Greenwood composed several works that antagonized the "Shakesepariolaters who shrink from no hypothesis, however preposterous, in order to maintain the worship of their idol" (The Shakespeare Problem Restated 17).



remained also the “philosophical, examining the power and nature of words, as they are the footsteps and prints of reason.” Ignatius Donnelly’s The Great Cryptogram stirred a famous descendant of the philosophical-grammatical line that Bacon had proposed in The Advancement of Learning. Wandering feverishly in Turin’s sub-alpine arcades, the German philosopher Friedrich Nietzsche read the journalistic accounts of Donnelly’s visit to England in the fall of 1888. Nietzsche’s ruminations prompted a reference to Donnelly in Ecce Homo, his final book. Nietzsche wrote:

We all fear truth...And, to confess it: I am instinctively certain that Lord Bacon is the originator, the self tormentor of this uncanniest species of literature: what do I care about the pitiable chatter of American shallow-pates and muddle-heads? But the power for the mightiest vision of reality is not only compatible with the mightiest power for action, for the monstrous in action, for crime – *it even presupposes it...* We do not know nearly enough about Lord Bacon, the first realist in every great sense of the word, to know *what* he did, *what* he experienced within himself....and the devil may take it, my dear critics! (59)

Nietzsche’s German contains a particular series of terms that lose their primary, secondary, and even tertiary significance in English. The translator I have quoted made several necessary but reductive choices. The translator renders “*Art*” as “species.” The latter carries too much of Darwin and too little of Nietzsche’s poetry. “*Art*” suggests “breeding,” “behavior,” and “degeneracy” (as in “*Abart*”) in German, and it usually connotes “bad” behavior. These residual meanings are significant with respect to other terms in the passage. The German “*urheber*” suggests “copyright” and “authorship” (as well as the translator’s “originator.” Both *Art* and *urheber* inflect “*verbrechen*,” which is

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<sup>13</sup> Kenneth Burke’s phrase “the hermetic style” draws perhaps more upon the Freudian translation of the subject into an anthropological discourse of culture, and should not be confused with the Nietzschean point that follows.

translated literally as “crime.”<sup>14</sup> The three words suggest that Bacon perpetrated a transgressive literary act that was consonant with intellectual degeneracy rather than his noble life. Nietzsche thus inverted the Baconian elitist argument by arguing that Bacon was truthful *because* he was a criminal.

There is also a potent hermetic strain in Nietzsche’s diction. The translator offers “uncanniest” for the German “*unheimlichsten*,” and the translation is correct, if not overly gothic. What is lost is the spatial connotation of “*unheimlich*,” or, “without a home.” The German root “*heim*” signifies “home,” where “*heimlich*” has the secondary connotation of a “secret.” The prefix “un-” renders “*unheimlichsten*” as also “homeless” and “not secret” as well as “uncanny.” Together, Nietzsche’s hermetic terms impart a nomadic and criminal significance to Bacon (or Shakespeare), who had unmoored a diabolical secret that remained concealed to modern thought. That homeless, hermetic force that oscillates between rhetoric and philosophy compelled Nietzsche, in his feverish final days, to speculate on the historical lines of descent that carried it to his time like a cloaked messenger riding a tireless horse.

Like Vico, Nietzsche regarded Bacon as a pivotal figure in modern thought. Nietzsche’s French heir Michel Foucault would later argue that the Baconian turn from the Renaissance to the Enlightenment effectively destroyed that epoch “up to the second half of the fifteenth century, or even a little beyond, [when] the theme of death reigns alone.”<sup>15</sup> The Renaissance “theme of death” persisted nonetheless in Bacon’s philosophical hermeticism and the ciphers that cryptically concealed meanings under the surface of the text. In the midst of his great effort to bring both the world and the word under the microscope, Bacon devised a method to conceal death with language.

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<sup>14</sup> Bacon was Lord Chancellor and he pleaded guilty in 1621 to the crime of accepting bribes.

<sup>15</sup> Madness and Civilization 15.

In rendering secrecy and death relative to poetics, epistemology, and philology, Nietzsche undermined the provincial concerns of Donnelly and the Baconians who sought to align Bacon and Shakespeare with petty nationalist or aristocratic notions of authorship and language. Nietzsche placed the matter instead along the multiple tangents of a single philosophical problem. For Nietzsche, the problem opened by the stumbling American Baconians was not “who” composed the plays, but how to approach and study “the mightiest vision of reality” that is “*presupposed*” – that is to say, anterior – to Bacon and Shakespeare. What discourse bade them speak? How did they in turn willfully engage that discourse? These questions invoked a potential *genealogy*. Nietzsche’s genealogy would move as did Bacon’s ‘cyphars’ between the substratum and surface of language: between discourse and its agents. And it did so most often in a manner that suggested a logical method that was far removed from the analytical procedures of lesser Baconians such as Donnelly by incorporating a poetic element into the analytical power of genealogy.

Nietzsche’s commentators have generally ignored the connection between Nietzsche’s writings on the Shakespeare-Bacon debate and the more well-known matter of genealogy. Nietzsche’s most famous American reader, Walter Kaufmann, agreed that the “American shallow-pates and muddle-heads” refer to the Bacon debate spurred by Donnelly.<sup>16</sup> Citing a section in The Will to Power as further evidence, Kaufmann erroneously argued that Nietzsche “suspected that Bacon had written ‘Shakespeare’s’ works.”<sup>17</sup> He correctly situated the Baconian question as pertinent to “Nietzsche’s

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<sup>16</sup> See also Ecce Homo footnote 4, p. 138.

<sup>17</sup> Ibid. Footnote 8, page 265. For some unstated reason, Kaufmann uses quotation marks to frame “Shakespeare’s” and concedes that Nietzsche’s opinion of Bacon’s alleged authorship merits at least the skeptical recognition afforded by this typographical practice.

occasional insistence on a reversal of cause and effect," only to abandon the question as one that "can be safely ignored here" (265).

It was however with respect to cause, effect, and their reversals that Nietzsche's writings on the Baconian question were central to genealogy.<sup>18</sup> The primary difference between Donnelly and Nietzsche was, as Kaufmann correctly notes, evident in their differing approaches to causality. Where Donnelly merely shifted authorship along an anthropomorphic line from Shakespeare to Bacon, Nietzsche located the two writers at a shared point in which language, poetics, and method assumed a certain and renewed import in modern philosophy. Nietzsche intentionally confused the two writers. In an earlier section of the same passage in *Ecce Homo*, the "uncanniest species" was Shakespeare's verse drama, but the phrasing also referred to Bacon's 'ciphers.' And finally, Nietzsche affirmed that Bacon is the "originator" of that "species" which may be either the hidden ciphers or the plays themselves. Nietzsche offered that Shakespeare and Bacon were "originators" of the "uncanniest species" of both Shakespeare's plays and Bacon's ciphers. The multiple references were not a lunatic's reckless scribble – their subterranean currents propelled genealogy as the study of the transformations, similarities, and laws that shaped a new discourse of human life (and later with Vico, history).

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<sup>18</sup> Genealogy must also be distinguished in this respect from the psycho-analytic model of hermeticism. That line extends from Lacan's writings on Poe into U.S. literary thought through Irwin's *American Hieroglyphics* (1980) and more recently to Shawn Rosenheim's *The Cryptographic Imagination* (1997). Rosenheim's study imposes upon cryptology and literature a Lacanian psychoanalytical model of semiotics. The model connects literature and cryptology as an abstract process of transcendent signification rather than as a historical discourse. The result is that Rosenheim's model situates an ahistorical subjectivity at the center of knowledge and art, ignores the historical discursivity of certain sciences and styles pertinent to modern cryptology, the critical manner in which they differ, and how.

Nietzsche's genealogical understanding of the Bacon-Shakespeare debate stressed a secretive (*heimlich*) language of modern thought: discourse. For Nietzsche, a proper *genealogy* of modern discourse was to history what the ciphers were to the printed language: a contest between the substratum and surface of philosophy. Genealogy was thus composed from a hermetic language of descent, resemblance, and transformation.<sup>19</sup> These were predicated on the tension between inherited similarities and differences that took form as Bacon or Shakespeare. Genealogy was not, however, determinism: it stressed a contest between the exception and continuation, the truly great thinker (a Bacon or Shakespeare) against the sedimentary force of inherited custom.

Following this logic, Ecce Homo was both similar to and different from his previous genealogical writings. The book never returned, as Roberto Calasso noted, to the opening proposition of the previous On the Genealogy of Morals.<sup>20</sup> To that effect, Nietzsche's preface to Ecce Homo defiantly exclaimed "do not mistake me for someone else!" thus announcing another genealogical departure. It was with respect to Shakespeare or Bacon a *ruminatio* (to borrow a term from On the Genealogy of Morals), upon how a singularity might emerge from discourse and, in doing so, reconfigure modern thought in such a way that its origins were further concealed beneath a common language, available only to those whose ears were sensitive enough to hear what rumbled underground.

Nietzsche was writing of course from a different historical tradition than that of Bacon, or even Vico, and would have regarded the matter of cryptology differently; for

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<sup>19</sup> Nietzsche also introduced *genealogy* in the conventional sense, that of a family history, when he writes in Ecce Homo that he followed his own mother and father as a "riddle."

<sup>20</sup> Roberto Calasso notes in his introductory essay to Ecce Homo that the work opens with a "disconcerting" perspective on the previous On the Genealogy of Morals and its investigation of "origins" (157).

example, Nietzsche understood, through his former colleague Jakob Burckhardt, that the mathematical and statistical systems that favored the emergence of cryptology and its representative institution, the Black Chamber, in early Renaissance Europe, had been inherited from the Levant. These were the predecessors of that which Michel Foucault later engaged as the *mathesis* from which modern discourse emerged in the 16<sup>th</sup> and 17<sup>th</sup> centuries. That is to say that Nietzsche understood hermetic languages (after Bacon and Vico) in light of the historical role that secret language systems played in the emergent martial European states (he had after all served in the Prussian army). Nietzsche did not, however, historicize the contemporary military-intelligence institutions which would continue to dominate their like in the world for the next half century. He understood the debate over Bacon's ciphers as pointing to another set of questions belonging to the history of philosophy, and in particular the emergence of empiricism since Bacon and the threat that it posed to the German Idealism he despised. Its later crypto-military institutions were merely tragic, belated effects of a philosophical shift whose causes were discursively concealed.

My point in reciting how Nietzsche commented upon that third, minor strain of literary hermeticism in Donnelly's book is that Nietzschean *genealogy* followed a different path from Bacon's writings for which Donnelly's could not account. Nietzsche, like Vico, had sustained a continued interest in the hermetic properties of historical language as a grammatical matter, as Bacon had, but also as a philosophical one (a point that is always overlooked when Bacon's ciphers are discussed). The Bacon-Vico-Nietzsche line understood that hermeticism was a philosophical problem. For Bacon, it held the key to an empirical science of grammar and rhetoric; Vico developed it as the instrument of secular history. Nietzsche recognized in ciphers an epistemological problem that linked rhetoric and philology to modern philosophy in the twilight of metaphysics.

## II.

Genealogy has a storied and divided influence in recent literary history. Michel Foucault used it to analyze the rules that governed discourse over the course of his brilliant career; in another context, and as a counterpoint to Foucault, Edward W. Said elaborated a Nietzschean genealogy as a rigorous philological humanism. The tension between their renderings of Nietzschean genealogy must first be considered in order to proceed.

If one were to compose a proper *genealogy* of modern cryptology (or the writing and reading of secret languages) alone, it would be necessary to study how Baconian secrecy emerged from that epistemological crisis of the late Renaissance, where it appeared from the arcane and pseudo-scientific forms that had circulated through the Middle Ages (alchemy, metallurgy, etc.) and transmuted into other scientific forms.<sup>21</sup> For example, how did empiricism engage and re-order the foundations of scientific and literary knowledge? Why did the occult forms persist in the shadows, when even death had begun to emerge during the Enlightenment from that mystery? And what were the relations of those pseudo-sciences to the figures of madness and death that continued to haunt the scientific mind, as the figures that populated the paintings of Bosch? How did death come to regulate the anthropological parameters of human knowledge and life? Michel Foucault's early work engaged similar questions:

At the opposite pole to this nature of shadows, madness fascinates because it is knowledge. It is knowledge, first, because all these absurd figures are in reality elements of a difficult, hermetic, and esoteric learning.<sup>22</sup>

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<sup>21</sup> The reader should refer to Pamela Long's Openness, Secrecy, Authorship: Technical Arts and the Culture of Knowledge from Antiquity to the Renaissance.

<sup>22</sup> Madness and Civilization 21.

Foucault clearly regarded occult and hermetic forms as capable of producing *knowledge* within the parameters set by discourse (that is to say, there was little of “resistance” about them). It was with how genealogy engaged this productive discourse that Michel Foucault’s varied renditions of Nietzschean genealogy invite distinctions that are central to the following study. Genealogy assumed two distinct forms in his work. The first term that Foucault used in his early career was “archeology.” Archeology studies the layered confusion of a palimpsest-like archive. His major early works Madness and Civilization, The Birth of the Clinic, The Order of Things, and The Archeology of Knowledge proposed archeological accounts of *discursive* practice and language. As Michael Mahon has noted,

With Nietzsche, Foucault maintains that the a priori rules of formation of discourse are internal to discourse, rather than in the transcendental structures of the mind, and are, therefore, historical, rooted in the tumultuous history of what has been said. (6)

In the words of Foucault,

History is the concrete body of becoming; with its moments of intensity, its lapses, its extended periods of feverish agitation, its fainting spells’ and only a metaphysician would seek its soul in the distant ideality of the origin.  
 (“Nietzsche, Genealogy, History” 373)

Foucault distinguished clearly between “origins” and “genealogy.” Origins were anti-historical and metaphysical; their abstractions ignored the turbulent discursive record.<sup>23</sup> Genealogy was, conversely, the study of a historical record; but in Foucault’s later works, and in particular Discipline and Punish, genealogy expanded from its earlier archeological form to the study of how “discourse is inserted into systems of nondiscursive practices” (Mahon 103). In the earlier Madness and Civilization,

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<sup>23</sup> Foucault’s argument should recall the Vichian emphasis on the body’s unity and centrality in the study of historical knowledge.



archeology was the study of esoteric words (Shakespeare), figures (death), and languages (medicine), and in the later Discipline and Punish it rendered the study of statements (confessions), bodies (criminals), and institutions (prisons). Discourse nonetheless persisted with Foucault's later genealogy of non-discursive practices, if only in the shadow of their institutions.

The ordering of language as discourse (as opposed to "culture") remained a problematic category in Foucault's work. Genealogy must consider discourse - its archives, laws, and institutions - as a repository of many divergent currents, language as the geological accumulation of layers, rifts, and series both broken and intact. It must also contend with "lapses" or gaps or conclusive tangents in the record. Genealogy engaged the empirical and dynamic materiality of language without having to further conceal such absences. Genealogy was not bound, in that respect, to the prior modes of comparative philology, the scientific apparatus of modern linguistics, or the anthropological assumptions of Structuralism; it was carefully focused on the substratum of discourse. A clean separation of archeology from genealogy was impossible since both must engage language as a constitutive force, albeit with varying degrees of priority with respect to the discursive and non-discursive. Both retained nonetheless a flexibility that was not driven by the tyranny of discursive cohesion, and the potential human intervention was caught between the two poles.

The late Edward W. Said was one of Foucault's most incisive American readers. Edward W. Said's tremendous importance and critical eminence in U.S. literary studies need not be reviewed here, and I will summarize only those aspects of Said's genealogies that are pertinent to discourse. Paramount among these was how Said insisted upon the dramatic and continued investigation of discourse as the intellectual, responsible work of human secular history. As such, Said brought genealogy into the realm of modern humanism, from which it had strayed in spectacular fashion in the

work of Foucault, and subjected it to the historicism of Vico, the poetics of Auerbach, and even reconfigured it in relation to Nietzsche's own work.

Edward W. Said engaged Nietzschean genealogy both critically and creatively. His works most often recall - especially in Orientalism and Beginnings - the primarily discursive style of Foucault's earlier 'archeology.' Despite an important distinction that might be made between how Said discussed the political life of literature in the two works, they respectively engage genealogy, after Vico, as a combined philological and philosophical mode.<sup>24</sup> Beginnings (the plural is important) elaborated the question: where does writing begin? Said did not locate single sources or causes, but rather traced a cosmopolitan tradition of modern literature in several periods and languages across multiple trajectories. In reading those traditions in relation to each other, Said accorded to genealogy the manifold function that was developed by Nietzsche: that of a transgressive and exceptional written act that is simultaneously an interpretation of another work.<sup>25</sup> The conventional definition of genealogy also reappeared in Said's book as it had in the familial opening of Ecce Homo, as a modulation of how the modern novel traced the dynastic and patrilineal bourgeois family.<sup>26</sup>

Said's work also extended the historical implications of genealogy to the socio-historical terrain of the present. Drawing on Conrad, Nietzsche, the early Lukacs, and others, Said argued in Beginnings that a distinct entity appears from the collapse of the dynastic family. The entity is the modern exile (*unheimlich*). Said's genealogical investigations present the exilic figure in its complicated political, historical, and aesthetic forms. In this way, Said had resurrected the Vichian historical body and given it new life.

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<sup>24</sup> Danesi's book Vico, Metaphor, and the Origin of Language (61) discusses this conjunction in Vico, yet surprisingly never mentions Edward W. Said.

<sup>25</sup> See, for example, Orientalism 3, 22-23.

<sup>26</sup> Beginnings 138.

But the exile's standing as an extra-dynastic figure also necessitated that Said conduct a foundational critique of Foucault's genealogical anti-humanism. Said asserted the exile could intervene in the interest of contemporary humanism, and could do so against the anti-humanist limits that were imposed on genealogy by Michel Foucault. It is in this argument that Said's most potent evaluation of the apparent determinism of Foucault's genealogy was transmuted from philology to philosophy.

Genealogy, Said insists, is not deterministic, though a problem similar to determinism had been central to Foucault's mixed reception in U.S. literary debate. He summarized the problem in an elegiac essay to Foucault:

But with *Discipline and Punish*...., which emerges directly from Foucault's work on behalf of prisoners, and *The History of Sexuality*....whose basis in the vicissitudes of Foucault's own sexual identity is notable, knowledge has clearly been transformed into an antagonist. To it he pessimistically attaches power, as well as the ceaseless, but regularly defeated, resistance to which it gives rise. ("Michel Foucault, 1927-1984," 191)

Said noted that the later Foucault's pessimism with respect to individual action and the creative possibilities of subjectivity were a "trap."<sup>27</sup> More recently, Akeel Bilgrami recently invoked the problem in the foreword to Said's final book:

To know ourselves in history is to see ourselves as objects; it is to see ourselves in the third-person mode rather than to deliberate and act as subjects and agents in the first person. And it is the same tension that is echoed in Clifford's criticism of Said's earlier work, *Orientalism*....that he cannot reconcile the denial of the

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<sup>27</sup> "The Panic of the Visual: a Conversation with Edward W. Said." 49.

human subject and agency, in his appeal to Foucault in that work, with his own humanist intellectual urges.<sup>28</sup>

And Edward W. Said addressed the contradiction directly in his final work:

Although I was one of the first critics to engage with and discuss French theory in the American university, Clifford correctly saw that I somehow remained unaffected by that theory's ideological antihumanism, mainly, I think, because I did not (and still do not) see in humanism only the kind of totalizing and essentializing trends that Clifford identified.<sup>29</sup>

Edward W. Said affirmed humanist literary (discursive) practice against Foucault's apparent late misanthropy. Rather than resolve the conflict into a synthetic figure, however, Said situated the exile so as to allow the tension between human thought and inhuman processes to generate historical truth, most often through the rhetoric and historicity of literary language.<sup>30</sup> By redefining genealogy as a productive tension within figurative language and rhetoric, Edward W. Said reinvented humanism (in its more contemporary, exilic form) against the suffocating possibilities and quasi-deterministic implications of Foucault's late work.

Edward W. Said's engagement with genealogy should be understood as related to Nietzsche's insistence on heroic singularity in Ecce Homo. Where the latter emphasized singularity within a broader history of descent and its varied, but not unlimited, possibilities, the former traced singular literary achievements in the often contentious

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<sup>28</sup> "Foreword" xii.

<sup>29</sup> Humanism and Democratic Criticism. 10.

<sup>30</sup> Bilgrami notes the same tension in his foreword, xiii.

kinship between artistic language and other institutional, social, or historical forces. The poets who rendered exile in its most tremendous forms, Said often noted, were some of the greatest modern literary artists (Dante figures as the most important).

The dynamic, even violently dramatic tension of Said's genealogical critique, his exilic figures, and the complicated relations they assume with respect to contemporary history have often been misinterpreted and abused. Said's work has been carelessly subject to reactionary attacks by nefarious groups and those who prophesy the "end of history."<sup>31</sup> It has even been assaulted by some within the humanities who have attempted to label the fundamental questions of Said's work as "one-dimensional and exhausted."<sup>32</sup>

Edward W. Said consistently deflated such attempts to undermine the dynamic position that a renewed humanism might occupy in the contemporary world. The relentless contest permitted Said to assert, at the end of his life, that "Change is human history, and human history as made by human action and understood accordingly is the very ground of the humanities" (Humanism and Democratic Criticism 10). The dynamic and turbulent engagement, constituted as a tension between human effort and inhuman force, is what Said described in the same work as "worldliness." Said's style set the precedent for other major works of literary history that have likewise affirmed the possibilities of secular humanism, and they often departed from Edward W. Said's critique of Foucault's Nietzschean genealogy.<sup>33</sup>

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<sup>31</sup> See Humanism and Democratic Criticism 10.

<sup>32</sup> The phrase is located in a passage from Amit Chaudhuri's recent and ill-conceived review of the post-colonialist Dipesh Chakrabarty's latest book. See "In the Waiting Room of History." 3-8.

<sup>33</sup> Said's genealogical style opened the path to other similar and influential studies. For example, Jonathan Arac's Commissioned Spirits: The Shaping of Social Motion in Dickens, Carlyle, Melville, and Hawthorne (1989). Arac's work resembles the Foucault

The following study regards such possibilities as an occasion to discuss an area of contact between U.S. literary and institutional history. It is first necessary to amplify how I understand the terms “humanism” and “rhetoric” in relation to Said’s particular interpretation of genealogy and its relevance to the following study. I noted earlier that Edward W. Said incorporated the figure of the exile into new genealogical trajectories for literary humanism. Of these, figural thinking was the most important. Edward W. Said inherited figural thinking from various sources. These included the 18<sup>th</sup> century Neapolitan philosopher Giambattista Vico and Erich Auerbach’s 20<sup>th</sup> century philological writings. Auerbach’s writings on figural thinking in Western thought amplified a long and eminent debate that stretched from Aristotle and the Greeks through the Roman Christian theologians, and from there through the Renaissance and modern culture.

Auerbach argued in Mimesis and other works that modern rhetorical strategies inventively adapted the figural thinking of the classical pagan and early Christian writers to the historical momentum of humanism.<sup>34</sup> The turning point, Auerbach argues in a wonderful passage in Mimesis, was when Dante in The Divine Comedy populated

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of the later, non-discursive conception of genealogy (as do Said’s writings on the role of the Western media in the Middle East). Jonathan Arac engaged a different body of texts – a different archive, so to speak – that involved popular works, limited mostly to the modern Anglo-American tradition, many of which circulated in the mid-19<sup>th</sup> century press before publication in book form. The “popular” contained the account of the emergence of a new professional class of intellectuals who took one particular form as police detectives and their intellectual methods. Drawing from the later work of Foucault – in particular Discipline and Punish – Arac’s book offers the genealogy of “social motion” and its categories of visual perception.

Eugenio Donato’s chapter on Flaubert’s Orientalism in The Script of Decadence also deserves mention as one of the more original engagements of Said’s work with respect to Nietzsche and modern literary thought (35-55).

<sup>34</sup> See also Scenes from the European Drama 11-76.

the after-life with *human* figures. Figural thinking anticipated with rhetoric the world of human secular history and literature, for which he finds a powerful testament in La Scienza Nuova of Giambattista Vico. I will have more to say concerning Vico and Auerbach in later chapters of the study, but I must first isolate a specific problem pertinent to this tradition.

Humanism and the “human” were undermined during the post-structuralist revolution and terms such as “discourse” precluded the possibility of human action.<sup>35</sup> As I noted earlier, Edward W. Said elaborated genealogy to challenge the implied determinative force of discourse. In doing so, he also maintained that humanism and the very idea of the human could always be corrupted by ambiguous and often anti-human applications in the contemporary world.<sup>36</sup> This corruption was one, but not the only reason, to renew humanism in contemporary thought. Its renewal required more than a response to life-negating historical situations such as those, say, in the Balkans or Palestine. It required continually elucidating the discourse underlying contemporary historical life by those means unique to humanist style. Following Nietzsche and Foucault (and often against them), Said demonstrated that humanists could make genealogical claims of truthful import, embodied in the complex, physical actualities of human language and history, that other methodologies could not achieve.<sup>37</sup>

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<sup>35</sup> Paul Bove` offers one of the better discussions of this moment in contemporary thought in Mastering Discourse (“Introduction” 1-18).

<sup>36</sup> See Humanism and Democratic Criticism 7.

<sup>37</sup> Paul De Man once noted that the anthropomorphic “gesture” was elaborated in 19<sup>th</sup> century modern literature at the nexus between epistemology and rhetoric (Nietzsche was among his major examples), yet such claims remained entirely within the domain of aesthetics (“Anthroporphism and Trope in the Lyric,” 1984).

To return to the examples of Donnelly and Nietzsche, it must be noted that the two were methodologically distinct. The Baconian empirical model espoused by Donnelly was later reduced by U.S. cryptologists to a technical practice without any historical or discursive potential (in that respect, it drifted towards the mechanistic line of Descartes-Boole-Turing); it justified its own existence merely by its technical efficiency (that is to say, by its institutionalized, non-discursive practice). Nietzschean genealogy, whose debt to Vichian philology and Baconian empiricism is often underestimated, offered an historical and epistemological model for how institutions and languages produce truth. The two lines of historical hermeticism had already begun to diverge into respective institutional and genealogical forms by the late 19<sup>th</sup> century, yet the hermetic world of cryptology and its institutions would become unintelligible in the absence of a genealogical mind. It was such a mind, distilled through two generations of U.S. authors (roughly from Henry Adams to Thomas Pynchon) that developed a sophisticated rhetorical apparatus to engage those emergent institutions.

I have erred on the side of literary humanism in the following study so as to emphasize its concrete intervention in the discourse of life, labor, and language that regulated the emergence of cryptology in the modern nations, and in particular the republican institutions of the United States of America. My reasons for this approach follow those offered by Edward W. Said, who demonstrated that Nietzschean genealogy was not merely misanthropic but concerned rather with a vital difference between two differing attitudes towards humanism. The first was merely anthropological, an attitude that reinforced the inherited belief that humanism was a fixed identity and essence whose mind could be extracted and replicated as a machine. The other was genealogical, which distinguished a mode of thought and life capable of sustaining tremendous discursive tensions in an ethical and historical register. The latter's commitment to literary-historical life stresses the distinction between simply being things and taking responsibility, even within the restrictions of discourse, for an intelligent elaboration of how things come to be - or what they might yet become.



### III.

The question that motivated the following study emerged indirectly from my reading of Nietzsche's Ecce Homo: how did the Baconian ciphers re-appear with such force in the 19<sup>th</sup> century? I have already introduced that late 19<sup>th</sup> century version of the hermetic style which appeared in U.S. political and literary debate with Donnelly's The Great Cryptogram; the matter of how it would later become the vast network of U.S. intelligence agencies is relegated to later chapters (in particular chapters two and five). Nietzsche's late genealogy discerned that secrecy, hermeticism, and cryptology occupied a specific place on the productive underside of modern discourse; he did not engage how they were slowly transferred, over the course of four centuries, from the Elizabethan realm of Baconian empiricism to the intelligence institutions of the late 19<sup>th</sup> and 20<sup>th</sup> century nation states. The following study does not, however, attempt such a historiographic project.

The current study attempts a genealogy of the intervention made by modern literature upon the institutions of state intelligence, most often military intelligence. The two are joined historically by a particular practice: how they interpret written language or a language transcribed from speech. That interpretive work is known in military jargon as "Signals Intelligence" (or "SIGINT") and "Communications Intelligence" (or "COMINT"), as opposed to "Human Intelligence," or "HUMINT," which is gathered by human espionage (and what most persons normally associate with intelligence institutions). Signals Intelligence is captured from communications devices such as telegraphs, telephones, computers, guidance systems, etc. The interpretative methods of SIGINT were derived in part from what was once known as philology - the precursor of today's university English or Literature Departments.

These institutions and practices later took unprecedented forms with respect to other institutions in the U.S. republic at mid-century. The study is not a comprehensive

history of those institutions (such a history is impossible, due to the laws that govern national security), but rather it engages an era that is for the most part prior to the massive institutional entities and superstructures of the Cold War. It is perhaps difficult to imagine since so much of what has been written with respect to those institutions emerged only after World War Two and carries the birthmark of other, more contemporary struggles. What I have written is not entirely disconnected from the present, but its affiliations are wired along different routes than those that have come to structure the discussion over the past half-century.

I have avoided, for the most part, two such familiar and well-traveled routes. The first is that of the national archival sources that are only partly reliable because governments guard secrets closely, then edit them before release, or simply will not even part with them. The incredible volume of information that is cleared for public release from time to time by certain agencies is overwhelming, and most of it was often irrelevant to the aims of this study. I avoided also a second, provincial route. The history of modern state intelligence institutions is little discussed outside specific national boundaries. They are understood within those boundaries by small groups of academic specialists, commercial journalists, and independent amateurs. Like the archives, their writings are useful, and often they are pioneers. They suffer nonetheless from a myopic quality, induced by a proximity that tends to prevent any forceful engagement with their cloaked subject. Conversely, an international history of those institutions has not been written, and, while it is not my hope to compose one, I will offer a limited survey of their beginnings that is international in scope. I do so both to familiarize the reader with certain terms and to introduce how the techniques of the modern intelligence institutions were dispersed, and always, between nations and civilizations, and have never been unique to any one nation, despite the particular and unrivaled aggregation of their forms in the United States during the second half of the twentieth century.

The modern intelligence institutions took their familiar form during the 19<sup>th</sup> century. They were carried over from the diplomatic “Black Chambers” of the monarchies, city-states, and the Vatican that had traditionally been used to decipher diplomatic correspondence. The Black Chambers were bound to monarchical political forms and little concerned with what today we would recognize as civilian life. They were concerned, rather, with the disputes and intrigue of the incestuous European royal families and political power struggles; the role of secret communications in the case of Mary, Queen of Scots, and in France, with the man in the iron mask, are perhaps the most popularly known pre-modern examples of the Black Chambers’ historical work.

The role of the Black Chambers changed dramatically when Napoleon’s armies unleashed a new kind of warfare upon the world. The engineers of Napoleon’s armies developed semaphore communications systems to send and receive messages at high-speed across great distances. The systems consisted of series of relays and posts from which lights were flashed in the intended directions; these signals constituted the first modern visual military codes. The systems were soon put to civilian use. French historian Armand Mattelart has noted their rapid spread to England and the United States, where these signals systems formed a “cohesive vision of the national territory [that] gave form to regulations assuring the flow of merchandise and people.”<sup>38</sup> Secrecy of communication was no longer restricted to the royal courts, but a pervasive force in quotidian affairs.<sup>39</sup>

Telegraphy quickly displaced the primitive semaphore system of light relays in the mid-19<sup>th</sup> century. It also spurred the development of machinic languages such as Morse Code; military intelligence in France, England, Austria-Hungary, and Prussia grew

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<sup>38</sup> Mapping World Communication 4.

<sup>39</sup> Peter Gallison’s insightful work Einstein’s Clocks, Poincare’s Maps: Empires of Time (2003) places this problem in its appropriate scientific context.

apace. Each developed sophisticated military “signal corps” in the 19<sup>th</sup> century, and these engaged in a cycle of growth with technologies and secret languages used in the commercial sector. The study of secret languages achieved unprecedented sophistication during this period within the modern states; France, again, was at the vanguard, as it was in archeology, beginning with Champollion’s decipherment of the Levant’s hieratic written languages that were unearthed by the imperial conquests. For every step taken by the military or commerce, the study of human history took another. As I noted earlier, modern literature also developed a vector in this direction, as John Irwin demonstrated in his study of the American Renaissance following Champollion’s decipherments of the Rosetta Stone.

These varied hermetic languages, arts, and technologies developed separately for the better part of the 19<sup>th</sup> century. The turning point in their institutional history, however, was the Franco-Prussian War. Subsequent to the French defeat in that war, the French Black Chamber, the *Bureau du Chiffre* (literally, the ‘cipher bureau’), became the most effective and highly organized intelligence institution among those of the modern nations. It organized intelligence collection, analysis, and distribution according to a strict division of labor with a singularity of purpose: to monitor, prevent, and defeat Prussian militarism. While other nations used military or diplomatic intelligence occasionally in times of crisis (as did the British in the Crimea, or the Union Armies during the Civil War), the French *Bureau du Chiffre* maintained its intensity consistently until the end of World War One. Then it grew lazy and relied excessively on the fortifications of the Maginot Line, much to its later regret. But its methods of signals interpretation, how it organized its human interpreters into working groups, and how their interpretations influenced strategic and tactical policy were widely replicated in the intelligence institutions of the twentieth century. In the United States in particular, the adoption and growth of the French institutional model was accelerated in a unique manner during WWI by a group of literary scholars who had been trained in or against the methods of the anti-Shakespearean Baconists.

WWI was the point at which the varied strains that informed cryptology as an amateur literary pursuit and a technical-bureaucratic institution converged. The relationship between modern literary rhetoric, the university, and military intelligence institution was not a constant one prior to the war. It was scattered, since at least the late eighteenth century, across varied works in diverse sciences. And it was until recently an entirely unregulated and undisciplined ‘field,’ if it may even be described as such (confusion perhaps maintained its quiet historical energy). I will not try to discuss the subject in its entirety and I only refer to its previous 19<sup>th</sup> century and later 20<sup>th</sup> century forms when necessary. I wish only to point to the international history of the intelligence institution and the evolution of its specific modern form across varied technologies, political forms, and sciences (especially the sciences of human language) through the paradigmatic Black Chamber, the French *Bureau du Chiffre* (the reader might keep in mind, however, that extinct and remote phrases such as the arcane European “Black Chamber” and “signal corps” have recently resurfaced).<sup>40</sup>

What then, is the relationship between modern cryptology and literature? The claim may seem outlandish, even paranoid, but it is actually mundane – indeed, even Bacon had learned cryptology while working in the diplomatic branch of the British monarchy’s secret services.<sup>41</sup> Cryptology lingered, as Bacon had known it, at the margins of grammar and rhetoric, and later philology, until it jumped from philology to the federal institutions. The reasons for that leap were many, but the most important

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<sup>40</sup> For example, The 9/11 Commission Report advises that major cities such as Washington D.C. and New York form their own “signal corps” (397).

<sup>41</sup> David Kahn has argued that Bacon most probably developed an interest in the hermetic languages “during his service under the English ambassador from 1576 to 1579” (The Codebreakers 882). Bacon’s biographers have discussed this period in his life, and the importance of cryptology to it, in Hostage to Fortune: the Troubled Life of Francis Bacon (43-56). For the history of the British intelligence agencies during Bacon’s life, see Kenneth Ellis, The Post-Office during the Eighteenth Century.

was a discursive shift that challenged the scientific credentials of “philology” (literally, the “love of words”). Cryptology escaped, together with other sciences, from philology’s 19<sup>th</sup> century borders. While the following study is developed largely in the national context of the United States, the disruption and dispersal of philology that allowed the modern-nation states to absorb and refine cryptology was generally international, common, and simultaneous in the modern industrial states of the West and East (especially Japan).

The first field to emerge from the ruin of philology was linguistics. Linguistics developed abstract scientific methods that separated it from the historical concerns of philology. In the United States, linguistics drifted towards psychology (in the work of Bloomfield) and anthropology (in the work of Sapir). In Europe, linguistics developed after the writings of Saussure in the direction of logic (especially in England) and founded a new science known as semiology. It too had a later convergence with anthropology (with Levi-Strauss). Generally speaking, modern linguistics favored the study of spoken languages, and it displaced written language from its formerly central position in philology.

Literary study was also re-invigorated by this shift. In England, I.A. Richards and C.K. Ogden criticized Saussure in order to advocate the new field of semantics (or the study of meaning), in which written literature would once again occupy a privileged space (in Russia the work of Saussure inspired scholars to study the narrative structures of the folktale, and their work provided an early link between anthropology and literary study). Literary study also moved away from philology in the United States, where it engaged the relations between literature and social movements, and thus had become “political” (after the works of London, Sinclair, Reed, Gilman, and others); conversely, there was a reaction, as literary scholars in both England and the United States. In the United States, the New Criticism, following T.S. Eliot and I.A. Richards, formulated a new model for literary study. As we shall see, both linguistics and literary study

maintained and elaborated terms particular to cryptology, and intellectuals in all three fields maintained disciplinary contacts.

The following study thus ventures a more thorough account of a relationship between modern U.S. literary studies and U.S. intelligence institutions than has been documented, if only in footnotes or brief asides, in varied works of military and literary history; it also strikes an altogether different course from preceding studies and from much of current literary-historical debate. I have attempted, then, to modulate genealogy in accordance with the literary writings and archival materials pertinent to its subject. I have followed a problem suggested to me from one of Leo Spitzer's footnotes in Linguistics and Literary History. At first it was no revelation; the note caught my eye while I was working in the Butler Library at Columbia University because the first three words I cite were underlined in red ink by some previous reader:

*"Read your texts!" My "circular" method is, in fact, nothing but an expansion of the common practice of "reading books": reading at its best requires a strange cohabitation in the human mind of two opposite capacities: contemplativity on the one hand and, on the other, a Protean mimeticism. That is to say, an undeflected patience that "stays with" a book until the forces latent in it unleash in us the recreative process. (38)*

The words are not all Spitzer's (he cites the French scholar Gustave Lanson). I had previously, and also impatiently, admired Spitzer's writings for their stuffy authority, but I had overlooked something central to Spitzer's style. Its effect became pronounced with how the word "recreative" might describe Spitzer and the other illustrious émigrés at Princeton during that time (Mann, Einstein, Auerbach). Without it, they would have been crushed by a shared historical predicament had they not emphasized, in that precarious moment, that the humanist's work belongs to, yet stands slightly apart, from the tenuous and contingent matters of our historical life after the horrors of WWII.

Everything following the encounter with Spitzer depended on a patient interaction, a “recreation” of some argument that was specific to the archives, literary works, secondary sources, and institutions that I was studying. To cite an essay by Sacvan Bercovitch on William Faulkner, I decided that “method is a context appropriate to the materials being analyzed” (285). This is not to say that the following study subscribes to a correspondence theory of language that “realistically” renders a prior era. The emphasis of Spitzer’s previous phrase is on how the literary work *unleashes a force*; one’s own work, one’s responsibility to judgment, shapes that force into something coherent and unique. The coherence depends on conveying the specificity of a work or works (a “Protean mimeticism”) whose complex relationship to “history” would encompass both the present and the past along other temporal vectors extrinsic to the work itself. No, the works I studied do not speak through me; they only appear once more in another language, which is also capable of distortion, and against which we must be careful yet not impervious.

Mercury of the Waves: U.S. Cryptology and Modern Literature thus affirms, after Nietzsche, that genealogy is to study “what is documented, what can actually be confirmed and has actually existed, in short, the long, hieroglyphic record, so hard to decipher, of the moral past of mankind!”<sup>42</sup> Genealogy modulates its object (discourse) and uncovers (“unheimlich”) something that the discourse in question cannot articulate of its own volition. It is a thoroughly Vichian assumption: that the truth of human history is available through the careful study of poetic language and its institutions.

I have accorded human institutions, and in particular those that are among my primary examples, a generative role in the following study according to their scale. Quite simply, human institutions enjoy a greater longevity than do human individuals, and

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<sup>42</sup> On The Genealogy of Morals 21.



they exert pressures - sometimes slight, sometimes overt - on other individuals and aggregations: languages, economies, rituals, etc.

For example, it would be difficult if not impossible to discuss the 19<sup>th</sup> century French or British novel without defining in some way the family as an institution. All of the major 20<sup>th</sup> century historians of the novel from Georg Lukacs to Edward W. Said have dealt with the topic in some manner. While their accounts and aims vary, we can certainly conclude that the institution of the family has a formative role in the 19<sup>th</sup> century British novel. One can triangulate from there its relation to the macrocosmic forms of a particular era (i.e. "early industrial capitalism") or their microcosmic expression (i.e. why Madame Bovary's psychology predisposes her to reading certain types of literature). In either case, a small institution such as the family is both relative and effective. It is relative with respect to individuals or other institutions; it is effective insofar as it betrays an influence that is disproportionate to its size with respect to other, larger institutions (such as the Chancery in Charles Dicken's Bleak House).

U.S. literature has in its short lifespan fostered a different constellation of institutional relationships. For example, where the colonialism is a major institution in the modern European novel, slavery has carried a greater institutional weight in modern U.S. literature, where it generates a rich inquiry with respect to other related institutions (transatlantic trade, electoral politics, the histories of small-scale social networks such as families and communities, etc) and with respect to contemporary life. U.S. literature and literary studies have engaged the matter with an unrivaled moral force. Human institutions are not merely effects: they generate waves of influence that resonate through human historical life.

And literature, as the Harvard scholar Harry Levin once argued, is also an institution.<sup>43</sup> I take this to suggest that it must be understood as a dynamic entity whose relationship to human life is continuous and fluid; at times it even remains distinct from other institutions. The following dissertation sustains Levin's claim, and perhaps qualifies it, by tracing how a particular phase in the institutional history of literary study in the U.S. humanities was transferred to another institution (that of military intelligence) while at the same time insisting upon distinctions between literary acts and the actual institutions, scientific methods, or social practices they engage. In doing so, I continuously extend what Levin elsewhere defined as an "oscillation" between the "typical and the individual."<sup>44</sup> The latter form is not necessarily occupied by a person (such as Gramsci's "traditional intellectual"); rather, it stresses the singularity of a literary act; as Edward W. Said noted in his reading of Levin, "Every novel is at the same time a form of discovery and also a way of accommodating discovery, if not to a social norm, then to a specialized 'novelistic' reading process" (Beginnings 82). Each novel is a point of departure, means, and an end; each demands an attentive *procedure* rather than the total imposition of some model or method upon it.<sup>45</sup> Each sustains an oscillation.

For the present purposes, I would stress that genealogy favors the willful individual rather than the institutional effect. Like Levin and Said, I refuse to accept that literature

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<sup>43</sup> Levin published an essay entitled "Literature as an Institution" (1946), which he later revised as a section of his book The Gates of Horn (1963). With respect to the problem that ends the preceding paragraph, Levin noted in the first version of his essay that "Literature is not only the effect of social causes; it is also the cause of social effects" (163).

<sup>44</sup> Symbolism and Fiction 21.

<sup>45</sup> The first version of Levin's essay cautioned more forcefully against reducing literature to a purely social act, while recognizing, at the same time, the importance of their connection.

is entirely a social act. The invisible (or unconscious) hand of ideology is overestimated in our current milieu. The reason for this is due, among other things, to a tendency to reduce institutions to sameness in terms of their scale and regard them as uniformly diffuse. There are differences of scale, intensity, and effect that must be considered in such comparisons and evaluations. And once all the factors have been studied, and such an influence located and assured, can it be quantified? And the interdisciplinary drift of political literary thought, while occasionally truthful, rarely offers to measure such distinctions of scale, even when it relies on the hope for a uniform ideological or scientific ground for the study of literature. Genealogy pretends to no such hope.

#### IV.

The following study engages a period of exceptional change in both the institutions of U.S. literature and U.S. intelligence. Their transformation shared certain fundamental assumptions; they also generated significant differences between literary and intelligence institutions. Institutions also vary in their speed of growth, and the following study is concerned with a particular period of accelerated growth that was perhaps unique with respect to intelligence institutions in human history (and most certainly in U.S. history), during which intelligence institutions changed far more quickly than the stubborn habits of philology and literary life, which has remained a conservative institution.

Some evidence of the rate of change appeared from the respective archival materials used in this study. For example, the cryptological “archive” of the period in question is composed of notes, letters, pamphlets, essays, and books left behind by a variety of intellectuals, among them humanists, who first labored to reform the emergent military intelligence institutions of the U.S. Portions of that archive – in particular the Bacon Cipher Collection of the New York Public Library and the personal papers of Dr. John Manly, the great Chaucer scholar from the University of Chicago – descended directly from Donnelly’s The Great Cryptogram. Other sections of the archive belong to later

figures and movements, and operate at a remove from the literary beginnings of U.S. military intelligence, but are nonetheless its heirs. The majority is removed from public eyes by a variety of laws. Some of it will never be read or published.

By contrast, the literature I discuss is composed of more poetic modes: the letters, essays, novels, and poems of the most important U.S. literary intellectuals of the 20<sup>th</sup> century. These include Henry Adams, T.S. Eliot, William Faulkner, Gertrude Stein, Raymond Chandler, and Thomas Pynchon, all of whom were curious, and occasionally committed, to understanding the operations of the nascent U.S. intelligence institutions or the history of modern cryptology. Yet the form of their engagements resulted from lifetimes of careful study and toil toward a rhetorical style. Unlike the cryptologists, who eventually became mere bureaucrats, trained in easily reproducible technique, the writings in question were not reproducible, and they were the result of greater effort.

Yet there was a common ground. Some of them, including T.S. Eliot, even attempted to enlist in U.S. Naval Intelligence during the First World War. William Faulkner was trained to take and transmit Morse Code in the Canadian R.A.F. And we may deduce from certain early stories such as “The Small Rain” that Thomas Pynchon was most likely assigned to military communications or Signals Intelligence during his brief Navy career in the mid-1950’s. Those experiences at times left significant traces in certain works (by Faulkner and Pynchon especially) and a minor or less obvious imprint on others (as in those of Eliot or Chandler).

Conversely, military intelligence figures engaged modern literature. Many of the post-WWI U.S. cryptologists were also literary scholars and amateurs. John Matthews Manly studied I.A. Richards; William Friedman studied and wrote about Poe and corresponded with the New Critic W. K. Wimsatt, and Norman Holmes Pearson, who belonged to the later Cold War generation, was a Yale English professor as well as a C.I.A. employee. Some wrote novels, others transferred some of the techniques of

literary rhetoric and humanism to the hermeneutic techniques of U.S. intelligence institutions, and yet others remained in contact with certain areas of modern literary study during that time, even venturing from their chambers to publish the occasional literary essay or book. They actively used the rhetoric of humanism, and it is common to find the intelligence institutions described in anthropomorphic terms and figures typical of humanist rhetoric. The matter was also non-discursive: when William Friedman applied in the 1920's a "behavioral" statistical model to languages, he drew upon a model of the human mind, and when the U.S. Army used the Navajo code-talkers during WWII it borrowed from anthropology itself.<sup>46</sup> The biographical connections are extensive, as we shall see, but they are sustained by a more profound, and also divergent, discursivity. As a general rule, the cryptological archive is the record of a science refined towards rather orthodox institutional application, while the literary record to which I refer is more often the champion of anarchy and individual heresy. Where the cryptologists cast concrete and wire over the grain of modern literary problems, the literary figures carved strange idols.

What happened to Auerbach's *figura*, then, when modern writers reconfigured it with respect to these new institutions of the secular world? How did Henry Adams configure the human with respect to the historical disruptions of thermodynamics and its incarnation in the dynamo? How did the cryptologists apply a figural language, by means of an anthropomorphic rhetoric, to a new science? How did T.S. Eliot react and develop, after reading Henry Adams, a monumental approach to the matter of rhetoric and figural thinking? How did William Faulkner dissolve figural thinking into the more

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<sup>46</sup> The relationship between anthropology and cryptology will be addressed in an as yet unfinished chapter of the study. It is important to note a rhetorical relationship between the two sciences. A specific rhetoric of the human body (or culture and institutions described in human anatomical terms) has saturated the major cryptological histories written since the 1960's. The trend begins with David Kahn's The Codebreakers, through James Bamford's numerous works, and finally in the more recent 9/11 Commission Report; its academic origins most likely date to the early 20<sup>th</sup> century relationship between linguistics and anthropology in the United States.

fluid temporalities of dynastic genealogies? How did Thomas Pynchon develop figural thinking to the point when, in Gravity's Rainbow, it could devise from rhetoric a figure capable of opening human history to a new, inhuman machinic intelligence? What relation did figures such as Eliot's "patient etherized upon a table," the speechless Donald Mahon in William Faulkner's first novel, of Thomas Pynchon's disintegrating protagonist Tyrone Slothrop (who vanishes into the ballistic trajectories of the post-WWII U.S. state) have in relation to a discourse of the new institutions? How did that abject figure, summarized best in U.S. literature by Ralph Ellison's Invisible Man and in modern European literature by the figure prostrate under the machine in Kafka's penal colony, become capable of tremendous historical insight and moral authority with respect to the new, aggregate powers that surrounded and absorbed it? This figure - a cipher, as it were - was reconfigured by the rhetoric of humanism in relation to a new institutional situation, and in doing so it drew upon a specific link between literature and certain new institutions. The following study is as much a genealogy of that figure as it is a study of the varied discourses that stimulated its advent, of which I offer a brief review.

The first chapter is dedicated entirely to Henry Adams' writings. It begins with Adams in Paris, studying the Dreyfus Affair. The chapter proceeds to the discussion of how Adams' analyses of a new military-institutional power in the Dreyfus Affair were situated in relation to his writings about U.S. institutions. The chapter follows Adams's elaboration of this problem across several areas - mathematics, history, and political philosophy - and how the questions he posed to those sciences and traditions failed to explain the emergent American system of the early twentieth century. This failure liberated Adams's work insofar as it lifted the certain scientific constraints and allowed him to develop the rhetorical style of The Education of Henry Adams (1918).

The second chapter introduces the emergent relationship between secret languages and state power during the First World War. From there, the chapter discusses how two

groups of American literary intellectuals, both located in or near the city of Chicago, began to develop their amateur interest in the arcane art of cryptology (whose roots were in the Bacon-Shakespeare debate) into the modern, institutional forms of national military intelligence. The chapter ultimately argues that the new generation of military cryptologists had transferred the reformist tendencies of social and literary debate to these new military institutions under the auspices of President Woodrow Wilson and considers their writings and institutional reforms within that context. By contrast, Henry Adams' novel Democracy (1880) is juxtaposed to those developments.

The third chapter jumps forward to introduce Thomas Pynchon's first major short story, "Entropy" (1959) in relation to the discussion of Adams' "entropy" in Chapter One and the "ciphers" of Chapter Two. The chapter draws upon modern and classical theories of poetic figuration (in particular those of Vico and Auerbach) to explicate the story's unique approach to its subject. It also introduces how Pynchon first engaged, after Adams, the aggregate intelligence of the National Security Agency in his first attempt at a figural discourse of the new American security state. The chapter discusses how Pynchon elaborated figures of aggregate and human intelligence from those previous styles. These introduced a figural discourse, specific to Pynchon's novels, which is distinct from yet related to prior discursive formations.

The fourth chapter returns to the WWI period and introduces T.S. Eliot to the study. It begins with Eliot in London as he attempts to enlist in the U.S. intelligence services during WWI. It discusses how both that experience and his reading of Henry Adams that immediately followed it inflected his later writings. This relationship established the anti-institutional intelligence inherited by Eliot from Adams. The chapter then situates Pynchon's first novel, V., in relation to both Eliot and Adams. Eliot's readings of Adams in his reviews and poetry is contrasted with Pynchon's study of both Adams and Eliot, Pynchon's response to modernist theories of poetics, and the extraordinary development of new figures, contra those of Eliot, in Pynchon's first novel. Drawing

upon the varied modern poetics of space, I argue that Pynchon's varied, dramatic mappings of Eliot and Adams constitutes what I call the geo-linguistic figure of Pynchon's first novel.

I return to the subject of U.S. cryptology in chapter five. Where the second chapter discussed the literary beginnings of WWI U.S. cryptology and its resonance with the hermetic style of modern poetry, I describe two distinct processes in chapter five. The first is the drift of U.S. cryptology away from literary humanism and towards mathematics during the post-WWI era. This line of argument introduces how a more quantifiable model of the science made it possible for certain existing U.S. military and diplomatic institutions to incorporate it into new institutional forms. The second line of inquiry concerns how a particular area of U.S. literary studies was transformed by linguistics in the post-WWI period. Using the correspondence between the U.S. cryptologists and the New Criticism, I discuss how the two groups shared and dissented over a set of common problems that included the relationship of literary hermeneutics to other sciences. Finally, the chapter discusses how Pynchon alluded to these questions through the geo-linguistic form of *V.*, and how he in turn began to modulate his depiction of the post-WWII U.S. intelligence state in his own novels after the techniques of William Faulkner's genealogical style.

The sixth chapter begins with William Faulkner's attempt to list as an aviator in the U.S. Army Signal Corps during WWI. The chapter examines Faulkner's enlistment in the Canadian R.A.F., where he studied aeronautics, the new reconnaissance technologies (topography), and languages of secret communication (telegraphic ciphers and codes). As I did with T.S. Eliot in Chapter Four, I discuss the influence of Henry Adams on William Faulkner, but in a genealogical rather than dramatic register. Where Eliot argued for an "immutable" poetic order against the chaos of history as Adams conceived it, Faulkner responded to both Eliot and Adams with a distinct, genealogical style whose dynamic, historical elaboration is closer to the writings of Henry Adams



than to those of Eliot. The sixth chapter then explicates how, after Faulkner, cryptology proliferated in U.S. popular fiction in the 1930's and the WWII period. Using two examples - Dalton Trumbo's Johnny Got His Gun and Raymond Chandler's The Big Sleep (1939) - I discuss how Faulkner was a conduit for how the hermetic style was transferred to novelistic prose. The chapter then discusses the influence of that novelistic version of the hermetic style on Thomas Pynchon's second novel, The Crying of Lot 49.

The seventh and final chapter engages the magisterial rhetorical achievement of Pynchon's Gravity's Rainbow. It brings to a close the study of the figures (in particular, the 'arc') that distinguish Pynchon's writings from Adams, Eliot, and Faulkner. I also discuss the transmutation of the "geo-linguistic thesis" of V. into what I describe as the "bio-linguistic thesis" of Gravity's Rainbow. Not so much a summary as an anticipation of the state that will emerge after WWII, the chapter closes, as does Pynchon's novel, with the end of WWII, William Friedman's successful merging of cryptology with thermodynamics, the imminent transformation of the Department of War into the Department of Defense, and the obscure simulation of human intelligence that Pynchon referred to in "Entropy" as "people like the...NSA." The chapter brings Pynchon's early mature fiction (1959-1973) and its pre-history (1918-1945) to a common vanishing point.

The reader will note after reading this chapter summary that I dedicate a great deal of attention to Pynchon's works. While the following study dedicates a great deal of discussion to Pynchon's early fiction (1958-1973), it is not however a single author study. A brief review of Pynchon's early career and the criticism dedicated to his work should suffice to explain the matter.

Pynchon's writing career began with his first published stories during the years 1958-1961 (collected and published in 1984 under the title Slow Learner). The stories were followed by his award-winning first novel V. (1962), and his novella The Crying of Lot

49 (published in 1965). The early period ends with Gravity's Rainbow (1973). Pynchon published, in total, only one novel, a novella, a few stories, and a journalistic essay during the first fourteen years of his career (1959-1973); he has published three novels and a handful of essays and reviews since he first summoned those early writings from the demimonde. The rarity of his publications attests superficially to the careful skill dedicated to their composition.

Pynchon's novels have in turn attracted a singular attention within two connected yet distinct areas of academic discussion. He is considered by most the hermetic figure par excellence of 20<sup>th</sup> century U.S. literary history. This evaluation of Pynchon draws upon a long tradition of modern literary criticism that regards the author as a figure to be deciphered. In addition to the prominent Lacanian psychoanalytic tradition mentioned in an earlier section with respect to cryptology, a writer working in the hermeneutic wing of German idealism also proposed a hermetic model for the understanding of that authorial self with respect to modern literature.

The Hungarian Georg Lukacs' 1915 book The Theory of the Novel, which begins with this stunning rendition of the Kantian sublime:

Happy are those ages when the starry sky is the map of all possible paths - ages whose paths are illuminated by the light of the stars? Everything in such ages is new and yet familiar, full of adventure and yet their own. The world is wide and yet it is like a home, for the fire that burns in the soul is of the same essential nature as the stars; the world and the self, the light and the fire, are sharply distinct, yet they never become permanent strangers to one another, for fire is the soul of all light and all fire clothes itself in light. (29)

Lukacs is here beginning with the revolution in modern German thought that sustained much of German Idealist philosophy and, within it, a strong branch of hermeneutics. The Kantian sky, a perfect metaphysical system of things is the ideal realm of epic poetry. But the epic was banished by the ironic modern consciousness in Lukacs'

account.<sup>47</sup> The closure of classical poetics provoked a new aesthetic of secrecy, divination, and complexity bent upon deciphering the modern self. The concealment of the heavens revealed in turn a dark map of modern consciousness that achieved unprecedented yet incomplete aesthetic development in the modern novel. The dramatic force of that closure - and the philosophical appeal of its investigation - was punctuated by Lukacs' use of the hermetic language, and in particular the diction of cryptology, in several important passages of the work, with verbs such as "decipher" (entziffert) and adjectives such as "riddled" (ratselvolle) and "secret" or "cryptic" (geheimnisvolle).<sup>48</sup>

Hermetic language was common in 19th century German scientific writing, and the terms appear throughout the Natural Sciences.<sup>49</sup> But the hermetic tropes appear in a

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<sup>47</sup> Walter Benjamin proposes a similar argument contra Lukacs in the opening pages of his evaluation of the poetry of Charles Baudelaire. See Benjamin 155-200.

<sup>48</sup> These terms may be found in the forms "deciphering" and decipher/decode" on pages 30 and 41 of the English translation respectively, yet the first usage of the phrase "enigmatic yet decipherable messages" has been translated from the German "Wahnsinn sprechen ratselvolle," while the translation of "meaning can be deciphered and decoded" (41) is rendered from the German "der Zeitalter mehr entziffert und herausgedeutet" in the original, where "heraus" means to "bring out" and "deuten" means to interpret (Lukacs Die Theorie des Romans: Ein geschichtsphilosophischer Versuch über die Formen der grossen Epik. 23, 35.). The term "hieroglyph" (page 35 in the English translation) may be included in this general rubric, as we shall see later, and grouped under Lukacs' penchant for the use of the term "riddle" ("Geheimnisse") throughout the book, the prefix of which is shared by the German word for secret police: "Geheimdienst."

<sup>49</sup> These terms often function to suggest the mysterious workings of nature and their explanation by the natural sciences. See for example Justus von Leibig:

Nature is for most of you at this moment, as I must presuppose, a book written in unknown ciphers, a book that you want to understand, that you would like to learn to read. The words and symbols with which it speaks to us, however, are ciphers of a special kind; the phenomena with which you will have to become acquainted are peculiar ones indeed. A series of these phenomena, which occur

different register in Lukacs, where they mediate connections between the modern novel and a historical crisis (WWI) that interrupted the work (The Theory of the Novel was a preface to an unfinished study of Dostoevsky's novels). Lukacs' hermetic verbs also sensed the tectonic movements in the military uses of scientific knowledge in Prussian culture; they were a threat to the novel – an action against it. The many questions raised by The Theory of the Novel must always include these contextual “motives” for using cryptographic terms to describe the modern literary mind.<sup>50</sup> Motives that include the relationship between war, modern political formations, and the material-industrial practices of the modern German state are certainly among them. The Theory of the Novel thus appeared at the intersection where modern German philosophy struggled with the collapse of 19<sup>th</sup> century Germanic literary thought (in particular Goethe's work, whose debt to Vico has been noted) before the militarized German state. The First World War presented new energies to Lukacs' implicit understanding of the nation-state during this period of crisis, energies that inflected his discussion of the modern literary subject.<sup>51</sup>

The Theory of the Novel also extended the basic structure of the Hegelian dialectic to literary-historical thought. In this way, Lukacs used the Hegelian vocabulary of totality as a counterweight to the occult forces that persisted in the modern individual at a remove from the rational movement of the modern state. The hermetic style was dispersed in fragments throughout The Theory of the Novel just as the modern literary mind was dispersed throughout. They were the ruins of Romanticism.<sup>52</sup>

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when a small number of bodies are brought together with others, can be thought of as the alphabet with which we decipher the book. (46)

<sup>50</sup> In particular the question of whether Lukacs does, as Fredric Jameson suggests, elaborate its questions throughout his career.

<sup>51</sup> The war novel is a problem that Lukacs returns to in his later writings. See Georg Lukacs The Historical Novel 23-24.

Lukacs had intended to designate Dostoevsky as the culmination of Western literary thought in his unwritten sequel to The Theory of the Novel. The following study attempts, in an altogether different way, to situate American writers such as Henry Adams, William Faulkner and Thomas Pynchon (and to a lesser extent, T.S. Eliot and Gertrude Stein) along a genealogical trajectory that culminates with Pynchon. The endeavor is however not circumscribed by the individual or questions of “consciousness,” but by how those writers engaged an emergent system of institutions, the scientific practices that were integrated into it, and the singular capability of post-romantic U.S. literary thought to articulate a historical discourse on that matter. The following study is the culmination of an altogether different trajectory of the modern literary intelligence in a time when, to borrow a phrase from Lukacs, “it becomes a state.”<sup>53</sup>

The 19<sup>th</sup> century usage of cryptological terms such as “codes” persists in contemporary literary study, especially in the United States.<sup>54</sup> Indeed, it persists in its most useful

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<sup>52</sup> Hegel writes: “The sight of the ruins of some ancient sovereignty directly leads us to contemplate this thought of change in its negative aspect. What traveler among the ruins of Carthage or Palmyra, Persepolis, or Rome, has not been stimulated to reflections on the transiency of kingdoms and men, and to sadness at the thought of a vigorous and rich life now departed – a sadness which does not expend itself on personal losses and the uncertainty of one’s undertakings, but is a disinterested sorrow at the decay of a splendid and highly cultured national life!” (The Philosophy of History 72-79). The importance of the ruin in Germanic thought may also be found in the sections of Johann Jacob Bachofen’s essay on German Law that deal with Greek epigrammatic poetry. See the section on “mortuary art” and archaeology in Bachofen 171-184.

<sup>53</sup> Lukacs writes “As form, the novel establishes a fluctuating yet firm balance between becoming and being; as the idea of becoming, it becomes a state” (Theory of the Novel 73).

<sup>54</sup> To cite a more contemporary example, Fredric Jameson’s The Political Unconscious uses the term “code” dozens if not hundreds of times over the course of its *tour de force* opening chapter (and sometimes in meaning contained in the gerund form, as

form, as a way to discuss the “self.” John Irwin’s excellent 1980 study, American Hieroglyphics, outlined how the major 19<sup>th</sup> century U.S. romanticists (Poe, Melville, Hawthorne, etc) had incorporated the hermetic languages of the Human Sciences, born at the intersection of philology and archeology, into their fiction, with particular emphasis on that old Emersonian draft-horse, the “self.”

This hermetic critical tradition persists through the commentary on Pynchon’s writings, even as Pynchon’s readers have adopted widely differing positions on the matter. One element is common to them all, however, and it is the commitment to understanding Pynchon’s novels as constituted by an extensive discourse on the individual or the self. Their discourse has extended a long and distinguished debate that is central to U.S. literary history. For example, Pynchon critic Alan Brownlie has recently argued that “Pynchon’s first three novels present an argument that begins in V. (1963), is developed in The Crying of Lot 49 (1966), and concludes in Gravity’s Rainbow (1973)” (1). Brownlie’s argument is correct insofar as it admits to a significant continuity in Pynchon’s writings of his early career; it is erroneous insofar as it reverts to the thesis that the “argument” of Pynchon’s work is that “truth is ultimately subjective” (1). Brownlie emphasizes the “subject” as the discursive core of Pynchon’s style. The same argument informs another recent study of Pynchon’s writings, Cyrus Patell’s Negative Liberties: Pynchon, Morrison, and the Problem of Liberal Ideology. Patell’s book argues that

Pynchon’s first three novels – *V.* (1963), *The Crying of Lot 49* (1966), and *Gravity’s Rainbow* (1973) – dramatize a deconstructive and implicitly communitarian

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“codification”), and a reader today may open any contemporary literary journal and find these words scattered throughout any number of essays. For a more recent example, see the uses of the terms “code,” “encrypted,” “coding” and “encryption” in Gary Dyer. “Thieves, Boxers, Sodomites, Poets: Being Flash in Byron’s *Don Juan*.” PMLA. 116:3. (2001): 562-578.) Why have they persisted? How have they been modulated across the decades? And what mechanism might explain their continued presence?

response to the narrative of individualism, depicting a version of the alienation that communitarian thinkers like Alasdair MacIntyre and Michael Sandel describe as individualism's inevitable result: individuals are isolated and detached or else entangled in destructive relationships. (30)

Where Brownlie imparts a creative subjectivity to a concept of the "self in Pynchon's works, Patell regards Pynchon's work as skeptical of the subject's agency. Both propose that Pynchon's works can be conducive to pragmatic appropriation aimed at bolstering or amplifying a discourse of the self that is institutionalized in part by the professional schemes of the literary academy.

Such myopic readings of Pynchon's writings speak more to the state of current U.S. literary study than to the potent rhetorical and discursive force of their examples. It is from the latter, however, that questions pointing to the "truth" escape. What of Pynchon's engagement of the "hermetic style?" Was it merely a repetition of the modernisms that preceded it? His elaboration of Faulknerian genealogy and his dramatization of Henry Adams and T.S. Eliot suggest otherwise. Pynchon's readers who cite the "asystemic" or anarchic nature of the self in Pynchon's works obscure such arguments that cannot be subordinated or reduced to the "self." Primary among these is the *figural discourse* of his work, which I explore in its institutional, genealogical, and socio-historical forms, throughout the following study.

The question at stake is not whether "truth is subjective" but rather if a figural discourse of the novel can make epistemological claims that other discursive traditions and rhetorical styles – even competing literary styles – cannot achieve. As a result, both the anarchic and the "subjective" arguments collapse once the rigorous discursivity of Pynchon's figures is introduced; in the same gesture, such claims about the "self" are impossible without first a proper investigation of the figural discourse.

Two other traditions in Pynchon studies should be noted. The first is that of how Pynchon's writings have, from the beginning, been situated within a variety of generic and historical categories since their appearance. His works were first considered as examples of "black humorist" fiction, in the tradition of Kurt Vonnegut or Joseph Heller, but they later assumed a more varied significance with respect to a broader field of questions during the 1970's as Pynchon's works garnered more serious critical attention. The landmark study was the anthology of critical essays published in 1976 as Mindful Pleasures: Essays on Thomas Pynchon. The anthology engaged the same period of Pynchon's career that I attend to in the following dissertation, with the exception that it offers a different range of generic, scientific, narratological, and socio-political readings of his fiction. Later collections and single-author studies of Pynchon's works have continued to expand upon the trajectories introduced by that first anthology. Indeed, while Pynchon has published only two works of fiction in the thirty years since Gravity's Rainbow was published (Vineland and Mason and Dixon), the literary criticism dedicated to his work has grown exponentially, and a proper review of that continuous stream of secondary sources would consume an entire book. I have therefore drawn upon it only when relevant or necessary.

The second area of investigation pertinent to Pynchon's career shares an institutional history with American Studies and American Literature in U.S. academia. The intellectual tradition from which it is derived draws upon an internationalist or, better yet, comparative tradition of literary-historical thought, as opposed to the more introverted geographic parameters of "American Literature." This second area where Pynchon's name often appears goes by "critical theory" and includes "post-modernism." The latter term is commonly associated with Thomas Pynchon's writings, but it deserves some clarification.

The major work on the subject of postmodernism was Fredric Jameson's famous 1991 book Postmodernism, or, the Cultural Logic of Late Capitalism. While Pynchon's name



had been associated with postmodernism prior to 1991, Jameson demonstrated, in this work and others, the uncanny ability to situate Pynchon's writings within a broad set of analyses whose ends were those of a revised historical materialism (which draws primarily from European thinkers in the Hegelian tradition). Jameson's portrayal of Pynchon as a postmodern novelist is distinct however from other uses of "postmodernism." In particular, it differs from the more common association of postmodernism with post-WWII continental European thought, and in particular the French post-structuralist writings that have also influenced Pynchon's readers and, as some would argue, Pynchon himself. The difference rests in the fact that the majority of post-structuralists criticized and rejected historical materialism as a mode of analysis, while Jameson's work, and that of his predecessors and heirs, sought to revitalize it in the terms of a re-organized economic world that assumed a particularly aggressive form in the United States during the Cold War. In this respect, Jameson treats Pynchon as belonging to the classical part-to-whole systematicity of the Hegelian dialectic, by which Pynchon's art engaged innovations and crises in the economic base. The following dissertation offers a running commentary on the tradition to which Jameson belongs (primarily in the footnotes).

The paths of postmodernism are many, and Pynchon's readers have seemingly traveled them all. The story that I tell about Thomas Pynchon's fiction is distinct from that offered by them and the traditions described above. In short, the following study is not concerned with either an economic base of history or the matter of how postmodern aesthetics refracts the subject through the prismatic lenses opened by a critique of structural linguistics and its definition of literary genera. Rather, I have approached Pynchon's writings not as effects of a totalizing system but as "novelistic discourses." I have attempted to translate the irreproducible rhetorical style of their discourse so as to distinguish its most forceful examples from the genealogy to which it belongs but also to situate it with respect to the cryptological discourse of secrecy, its institutions, and related phenomena in the United States. In the end, I have not used Pynchon's writings

as a means to reconstruct an occult “self,” but I composed Mercury of the Waves to compliment the dynamic form of those figures.

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## 1. HENRY ADAMS AND THE INSTITUTIONS OF AGGREGATE INTELLIGENCE

### I. ON THE RECOURSE OF HUMAN INSTITUTIONS

France mobilized its political institutions in 1893 toward the millennial 1900 Exposition. The French authorities feared that Germany would embarrass the French national reputation as consummate Exposition hosts by mounting a rival event. French newspapers quickly transformed the preparations into a geo-political race; the French government ultimately subsidized the Exposition with support from the major banks.<sup>55</sup> Alfred Picard, an engineer, was appointed to the Exposition's General Committee. He was to direct the French elite to the ends of the Exposition. Various public and private committees began planning exhibits, courting exhibitors, and organizing the logistics of advertisement, transportation, and profit. The Germans eventually conceded defeat before the French mobilization, and varied German firms (including the Siemens Corporation) rushed to plan exhibits as the millennium approached. Germany was assigned a palatial location on the *Quai des Nations* between Norway and Spain: "a whole new city was growing in the centre of Paris. Gas lines were disconnected, traffic diverted, trees uprooted" (Mandell 57). The outer city was also transformed; by 1899, the boulevards were swept, the sewers flushed, and new buildings, arches, and pavilions loomed over the barricades that sheltered the Exposition's inner city.

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<sup>55</sup> Richard Mandell provides a summary of this rivalry in Paris 1900: The World's Fair. 31-32, 38. Mandell's pioneering histories of the 19<sup>th</sup> century Exhibitions has since been succeeded by others. See for example, Peter Hoffenberg, An Empire on Display: English, Indian, and Australian Exhibitions from the Crystal Palace to the Great War.

In the summer of 1899, tourists and Exposition clients rushed out from Paris on railcars. They crowded with the Parisian bourgeoisie into the courts of provincial Rennes; the Dreyfus Affair had returned to absorb France and the world as it had not since its first eruption in 1894. Preparations for the Exposition were interrupted; many feared the Trial would destroy its international momentum.

A new crisis had returned Captain Dreyfus to the courts: "On June 3, 1899, the highest French court of appeal...set aside the 1894 condemnation of Dreyfus and ordered another court-martial" (Mandell 93). Dreyfus' supporters convinced the government to review the evidence; the government, eager to reinforce its case, also confronted earlier errors. Prominent among these were previous misinterpretations of diplomatic intelligence, in particular telegrams that were intercepted by the French Black Chamber (the Foreign Ministry's Bureau du Chiffre) as they passed between the Italian military attaché and his superiors in Rome. The revised evidence suggests that the Black Chamber's interpreters were rushed by politicians in their decipherment of the telegrams that "proved" Dreyfus' treason. Telegrams that had earlier been offered by the French authorities as evidence of collaboration between Dreyfus, the Italian government, and possibly others, including Germany, were now less reliable; the ambiguities and errors of these and other documents would exculpate Captain Dreyfus. Even the celebrated French mathematician Henri Poincaré truthfully exposed certain false signatures to that end.<sup>56</sup>

The re-deciphered telegrams lifted any suspicions of Dreyfus' collaboration with the Italians, but they did not dissuade the rabid French military judicial system and the anti-Dreyfusards. The court found the defendant guilty of "intelligence with the enemy

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<sup>56</sup> Einstein's Clocks, Poincaré's Maps. 213-215. Poincaré contributed to the analysis of certain other documents that included alleged handwriting samples that were later proved false.

with attenuating circumstances.”<sup>57</sup> Monolithic bureaucracy and the reckless interpretation of the diplomatic codes combined to win the day. Dreyfus was returned to Devil’s Island on September 9<sup>th</sup>, 1899; Paris returned to its preparations for the Exposition amidst international uproar against the court’s decision. Under tremendous international pressure, the French political authorities pardoned Dreyfus on September 19, 1899. The decision was motivated by the desire to rescue the 1900 Paris Exposition from a growing international boycott.<sup>58</sup>

The American historian Henry Adams quietly followed the trial from his Paris rooms. He wrote in September:

I grant the innocence of Dreyfus, if that is wanted, without question. The party who is on trial now is not Dreyfus but the army and the people of France; and all I want to know is whether they are more rotten than other armies and other peoples. Thus far I have been impressed by the good appearance of the army, and the relatively bad appearance of everybody else.<sup>59</sup>

Adams’ distinction between the institution of the “army” and “everybody else” renewed the historian’s concern with a specific object. As we shall later see, Adams was increasingly interested with finding ways to distinguish between the historical analysis of anthropomorphic and non-anthropomorphic historical entities. In this case, Adams ascribed human characteristics to the French military as though its institutions were

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<sup>57</sup> The quote is cited from the archive of the French Ministry of Foreign Affairs. See Mandell, 93 (footnote 14).

<sup>58</sup> An account of the details of the telegrams and their decoding may be found in David Kahn (The Codebreakers 254-262). Mandell’s account of the relation between the Dreyfus Affair and the Paris Exposition is also excellent (See Chapter Five of Paris 1900: The World’s Fair).

<sup>59</sup> “To Elizabeth Cameron, 5 September, 1899.” Letters of Henry Adams: 1892-1918. 239. See also “To John Hay” 231.



liable to human success, judgment, and fallibility. The “relatively bad appearance of everybody else” referred not only to individuals but also to other aggregate or composite forces that Adams rendered by this anthropomorphic style (they included the Exposition’s organizing committee, who carried on their preparations as if the consequences of the second Dreyfus Trial would not deter their planning). Henry Adams returned to the U.S. in the fall with the aggregate, anthropomorphic behavior of the French institutions heavy on his mind.<sup>60</sup>

The Exposition in the meantime rendered Paris increasingly chaotic. On March 7<sup>th</sup>, 1900, a bomb was thrown through a window at the home of M. Alfred Picard, the Commissioner-General of the Paris Exposition.<sup>61</sup>

Mid-March, as the first American tourists began arriving in Paris, the Universal Exposition was well behind schedule. The French blamed the weather. The Americans blamed the inefficiency of French workmen. Whatever the reasons, with the opening just a month away, the streets were filled with cranes and debris. *Scientific American* reported ‘gawkers wading through quagmires of sticky white mud.’<sup>62</sup>

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<sup>60</sup> I use the term “aggregate” here, and throughout the study, in a specific sense which Jean Piaget defined as “composites formed of elements that are independent of the complexes in which they enter” (Structuralism 7). This sense is distinct from the term “structure,” which presumes a form prior to the particular elements that constitute its wholeness. This contrast will assume greater relevance in Chapter Five when I discuss how general linguistics was formed from a composite of prior elements. The empirical “elements” of “aggregation” do not necessarily lead, furthermore, to a philosophical or historical model that is synonymous with determinism. Indeed, determinist models (such as those of positivism) have often relied on systemic or “structural” totalities, rather than more dynamic aggregate systems, to define themselves.

<sup>61</sup> See Judy Crichton. America 1900: The Turning Point. 87.

<sup>62</sup> *ibid* 89.

Fleets of transatlantic steamships transported tens of thousands of visitors to the Exposition; over fifty million people would visit by the end of the Exposition's single year. The Paris Exposition was instantly famous for its unprecedented display of manufacturing power and the wonders of the Second Industrial Revolution; it "was the first to include large numbers of automobiles, the first to present the steam turbine, X-ray machines, escalators, and wireless telegraphy" (Crichton, 186). The Exposition also included exhibits dedicated to the social sciences; at the margins of the Exposition, W. E. B. Dubois co-organized an exhibit on the American Negro.<sup>63</sup> Anarchists repeatedly attacked the Exposition, setting fire to the displays.<sup>64</sup>

Henry Adams returned as well, in the spring of 1900, as the political chaos congealed. He visited Rodin's studio and mingled with the haute bourgeoisie in the French salons. But Adams was concerned above all with the Hall of Dynamos. As with the "army" and "everybody else," the Dreyfus Affair and the Hall of Dynamos posed new problems to the workings of the anthropomorphic historical mind that had heretofore governed 19<sup>th</sup> century thought. These would appear later in Adams' final books as the distinct forms of a new non-anthropomorphic historical power. The Dreyfus Affair had exposed a process in which individuals and political parties failed to control or to govern the new institutions of the French Republic, and in particular the French military which had since the disaster of 1870 become unique in its reliance upon the Bureau du Chiffre. The military and political officials who rushed to judgment in the Dreyfus Affair on the basis of incorrectly decoded telegrams had exposed their carelessness and lack of control before the ambiguous technological and hermeneutic power of the Black Chamber; the Black Chamber itself had been outmaneuvered and manipulated by even larger international, geo-political institutions that were concurrent with other crises in the world, as we shall see below. Adams recognized that the institutions exposed by the

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<sup>63</sup> See Crichton, 186-187. See also Smith, 217.

<sup>64</sup> See Crichton, 189.

Dreyfus Affair had, in both error and correction, played unwitting roles in processes that formed the new “hierarchies and meshworks” of interdependent, emergent global entities.<sup>65</sup> The institutions betrayed the behavioral characteristics of a new, inhuman intelligence that resisted human control.

The Dynamos suggested a process that was related to the institutional process and crisis of the Dreyfus Affair. The dynamos converted the latent energy of fossil fuels into the active energy of electricity; they relayed energy from one state to another. Institutions, Adams thought, performed a similar operation: they converted human intelligence into geo-political force and retained, in doing so, the human veneer of “everybody else” when in fact human intelligence was merely the process that the institutions converted into their own momentous power. The Dreyfus Affair had exposed the process and raw materials and the dynamos had exposed their principle of conversion. Adams concluded that historians who insisted upon anthropomorphic models of history could not formulate a scientific theory to define human intelligence and history in relation to the aggregate powers and networks of the new, pseudo-anthropomorphic institutional forces. The emergence of anthropology and sociology at the 1900 Exposition, or “man” and “society,” as objects of history were a mere footnote to the problem. Adams would hereafter abandon the new theories of human society and agency. He would focus instead upon how the raw materials of historical, human life were processed through the institutional conduits of the modern nations. The problem demanded that Adams evacuate the anthropomorphic model of history (sponsored most famously by Carlyle), and this required a tremendous reevaluation of style.

Recent scholarship has however understood Adams’ response to the Dreyfus Affair along the anthropomorphic trajectory. Adams scholar J.C. Levenson has argued, for example, that “Along with the anti-Dreyfusards generally, he thought that the Army

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<sup>65</sup> I borrow the term “meshwork” from Manuel De Landa. See [A Thousand Years of Non Linear History](#), 32.

represented the French nation better than its political institutions" ("The Etiology of Israel Adams" 584). Adams' temporary anti-semitism, which is reviewed in outstanding detail by Levenson, accounts there for only the "private" Adams of the 1890's. Levenson proposes the postmodern solution of "multiple selves" to accommodate the contradictions of Adams' personal letters.<sup>66</sup> By reducing Adams' interpretation of the Dreyfus Affair to a biographical problem, grounded in the anthropomorphic categories of ethnicity or the individual, Levenson excludes the central non-anthropomorphic categories of Adams' late style.<sup>67</sup> These include its critique of varied models of social and natural-scientific thought and the discursive and interpretive (as opposed to mimetic, or representative) innovations of that period. The biographical interpretation is not only contradicted by Adams' last major historical works, it ignores the details from Adams' thinking of 1899-1900 that exposed the limits of the anthropomorphic mind. I will argue in later chapters that it is with that late style, rather than with Adams' petty personal beliefs, that the genealogical import of his work for 20<sup>th</sup> century U.S. literary thought would be most apparent, and in particular during the period following the First World War.

The late style emerges from two specific areas of the Dreyfus Affair. As I noted earlier, the first area was the increased momentum and geo-political inter-dependence of the new institutions. Varied degrees of contingency and consequence governed the behavior of national institutions in an increasingly martial and imperialist system of international relations. Could those processes and institutions be reduced and ascribed to the actions and decisions of heroic individuals (as Thomas Carlyle had done)? If they were not human, then what laws governed such institutions, and what equations could

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<sup>66</sup> The continued and incessant insistence on the "self" as the dominant category of Henry Adams' work has also been offered, more recently, by John Carlos Rowe. See "Introduction." New Essays on the Education of Henry Adams. 1-22.

<sup>67</sup> While the phrase "late style" is Theodore Adorno's, I have generally followed Edward Said's elaboration of the phrase.

quantify their operations? For example, it is notable that Adams sided with the French Army in his letters of 1899-1900. Adams, who was a careful student of modern French history, would have expected the Black Chamber of the French Foreign Ministry to side with the Army rather than the political institutions. The reasons for alignment were historical: the French Black Chamber belonged to the Napoleonic militarization of revolutionary France in the late 18<sup>th</sup> century.

This alignment was however challenged when the Black Chamber's divided institutional operations in the Dreyfus Affair rippled through a precarious geo-political order. France had backed away from England during the Fashoda Crisis along the Nile in 1898, the same year the U.S. defeated Spain in Cuba and the Philippines (in which the French supported Spain). The fall of the Spanish Empire and the French embarrassment along the Nile dragged down the European markets; it also amplified the British military blunders in South Africa, where war weakened the gold market, pushed the United States and England into an alliance that polarized the other major powers against them, reinforced the bonds between Russia and France against Germany, and threatened a repeat of the Panic of 1893. The accusations of German and Italian complicity in the Dreyfus Affair that issued from the French military and political institutions antagonized a situation at the height of its imperial militarization.

The French Black Chamber occupied an ambivalent position with respect to military crises, foreign policy, and the economic markets. It did not stand completely with the Army in the Dreyfus Affair, but was torn between competing institutional forces (including the Exposition Committee). The multiplicity of forces was evidence for Adams of a new inhuman power. The competition and pressure did not however lead to questions of institutional reform (as they had in Adams' early works, or as they would in the United States with Theodore Roosevelt's "Great White Fleet"); they led Adams to engage how history could grasp the significance of such pressures in a

manner that did not impose anthropomorphic designs on the new order of institutional entities and the shifting relations of force that governed their behavior.

The second problem concerned how the geo-political character of institutions varied according to the specific history of a particular nation. The United States had recently entered a rapidly changing international system after decades of relative isolation from European affairs. Henry Adams had already historicized U.S. institutions in earlier works, as we shall see, but his thinking with respect to them was accelerated with the geo-political consequences and institutional responses of the United States during its 1898 war with Spain. The war was inextricably linked to the French political affairs of the mid-to-late 1890's. The United States was positioned, Adams argued, to take profitable advantage of the international crisis described above. The collapse of Spain after the war of 1898 opened trade routes in the Pacific and the Caribbean. The U.S. acquired colonies and an advantage in trade fueled by the unprecedented corporate power of what Adams refers to as 'Pennsylvania.'<sup>68</sup> The United States, Adams argued, could finally supersede the combined economic and military powers of Europe. Adams attempted to anticipate what role the U.S. would play in a war between Germany, Austria-Hungary, and their neighbors, and speculated as to what the role of Russia will be in such a scenario.

The Dreyfus Affair challenged U.S. intellectuals to confront an increasingly complex and contingent institutional world. For example, if republican France – the political and diplomatic vanguard of the 19<sup>th</sup> century – was governed by corporate entities such as institutions rather than leaders or peoples, what would become of the United States? How had previous models of the U.S. republic failed to account for the emergence of inhuman forces in this new situation? And what historical style offered the greatest

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<sup>68</sup> Adams' uses the state to invoke a connotative series that includes mineral resources such as coal, processed industrial materials such as chemicals and metals, and finally the political influence that accompanies their refinement and profit.

possibilities for development in that direction? For example, the French Black Chamber's errors and corrections resulted from a long historical process of reforms that had rendered the European Black Chambers political as well as military entities within a broader system of institutional relations; similar "reforms" had been initiated only recently in the United States. They would accelerate during the final decades of Adams' life and consume his correspondents and friends, as well as his late style. As we shall see in the following section, these questions would lead Adams to attempt a mathematical equation to explain the intensification of forces that re-designed national and international history in a manner that individuals could not perceive by the Romantic apparatus of sensual perception, but which constituted nonetheless a material change in the world.

Henry Adams began to envision the processes that governed modern history as the dramatic confrontation between disparate modes of institutional and human intelligence. Both were volatile, ambiguous, and subject to different laws. The lifespan of major institutions rumbled for decades and centuries with tectonic ruptures and shifts; humans merely buzzed about in a minor key over their crust. Collective and individual human decisions were converted by institutions into other processes whose consequences often escaped the individual actors or casts. The actors and forces combined, however, to determine history, and Adams perceived that the institutions had gained the upper hand. The rescue of the Paris Exposition from the ruin of the Dreyfus Affair was for Adams not the antithesis of the recent, current, or impending wars; the Exposition was the powerful display of their Clausewitzian, institutional others. Adams had studied the problem in various ways over the course of his career.

An early version of the crisis that would later reappear with the "army" and "everybody else" in the Parisian speculations of 1900 made its first appearance in Adams' early writings of the 1860's. It was often couched there in relation to human institutions such as law and right, which were for Adams (as they were for his

grandfather and great-grandfather), the engines of other modern institutions. For example, Adams' earlier writings had attempted the political analysis of certain U.S. institutions such as slavery and the economic analysis of emergent global market forces. The consequences of the Civil War forced Adams to contend with how the "inalienable" rights of U.S. citizens had been conceived in American history with respect to the opposed institutions of slavery and right. The problem was accelerated in the mid-19<sup>th</sup> century by a rapidly changing nation whose legal power was diminished in proportion to new economic entities, in particular those of "Pennsylvania." Adams depicted how a rational and centralized enterprise of right in the United States was suddenly convulsed when slavery's economic and legal contradictions were exposed in the U.S. Constitution prior to the Civil War:

For nearly half a century it has been growing clearer and clearer every day whence this trial was to come. By an unfortunate necessity which has grown from its growth, the country contained in itself, at its foundation, the seeds of its future troubles. By the Constitution a great political, social and geographical or sectional power within the Government was created; in its nature a monopoly; in its theory contrary and subversive of the whole spirit of Republican institutions. A monarchy, such as that of England, may contain, though not without danger, such monopolies and social distinctions, though its permanence must always depend on a nice and intricate adjustment of their powers, but such is not the case with a Republic. Its existence depends upon the absence of such distinctions, and all monopolies that exercise a direct political influence as such, are contrary to the spirit of the Government and hurtful to its integrity. They must be kept down or they will pervert the whole body politic.

("The Great Secession Winter of 1860-61" 29-30)

'Monopoly' invokes two distinct temporalities in this passage: it is both the ante-bellum institution of slavery and the emergent post-war system of corporate trusts. Adams' use of the term is pointedly ironic: two temporalities, each referring to a distinct economy,



are continuous under a single political system. This conjunction permitted Adams to engage how, in the first case, the legal institution of right conflicted with the agricultural economic institutions of the Southern slaveholding states. The Constitutional guarantee of right to Negro slaves eventually forced a war that destroyed the economic and political power of the slave-holding states over the Federal institutions.

The Civil War did nothing, however, to resolve the new conflict of right as it extended to emergent institutions such as finance and industry. Secession and war had replaced the monopolies of agricultural slavery with new monopolies.<sup>69</sup> It is a sign of Adams' youthful discretion that the new monopolies are never directly mentioned in the passage. The term "monopoly" quietly positions the resurgent industrial North as having gained the "political influence" once held by the agricultural South.<sup>70</sup> Slavery thus prefigured how the new post-bellum economies would continue to besiege the U.S. institution of right. The new institutions appear, suddenly, as a power whose legitimacy (or lack thereof) is less clearly understood. The problem has a cyclical form rather than a teleological one; it also secures the continued failure of right so long as it is conceived in a heroic role as the guarantor of potential human freedom and intelligence.

Rather than stand as a heroic bastion against power, right's increasingly diminutive as the axis of the U.S. Republic in Adams' early works also diminished the possibilities of historical action and thought. In both cases, the diminution rendered human

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<sup>69</sup> Brooks Adams's review of the slaveholding states is both a political history of the Adams family and an analysis of 19<sup>th</sup> century economic institutions. See The Degradation of the Democratic Dogma. 19, 105.

<sup>70</sup> See, for example, Adams' 1870 articles "The New York Gold Conspiracy" and "The Session: 1869-1870." The former describes how the collapse of the dollar following the war forced the Erie Railroad into the hands of speculators. Adams describes the railroads as an 'empire within a republic,' a phrase that he repeats in the latter article. The Great Secession Winter of 1860-61. 157-190, 191-223.

intelligence as an increasingly marginal actor in a dramatic conflict between decadent and ascendant institutions. The decline prompted Adams to consider its consequences for the science of history. The revaluation appeared initially as a critique of the heroic human role as the agents of history. In this respect, Adams shared affinities with the “Progressive historians” that, as Horwitz has noted, “objected that the great man theory of history, while it may fulfill our desire for the dramatic, was far too theatrical and arbitrary” (“The Education and the Salvation of History” 126). While Adams may have criticized the heroic theory, his late style would never abandon the exposition of history as a “dramatic” conflict of forces.

Adams continued to move gradually away from the historical models of Romantic humanism during the post-bellum. He took a teaching position at Harvard in 1871, where he lectured on Anglo-Saxon law in the Department of History. His work continued to develop during this period towards a theory of institutional power. Adams recognized that the new monopolies posed a serious threat to the institutional concepts of right embodied in the U.S. Constitution, but that they also rendered many of the models of 19<sup>th</sup> century historical thinking obsolete. For example, in a 1876 article entitled “Von Holst’s History of the United States,” Adams amplified the problem of right vis-à-vis current theories of the modern nation state. The crisis of right resulted therein not only from an external threat to its power but from an inherent problem: the absence of any a priori theory of the state in the U.S. Constitution. The absence rendered a history of the U.S. Republic difficult, and Adams’ conclusions on the subject are mixed: an optimistic note stresses the flexibility of the U.S. political system and a pessimistic one the “energies” outside its control:

If the historian will only consent to shut his eyes for a moment to the microscopic analysis of personal motives and idiosyncrasies, he cannot but become conscious of a silent pulsation that commands his respect, a steady movement that resembles in its mode of operation the mechanical action of Nature herself. As one stands in the presence of this primitive energy, the continent itself seems to

be the result of agencies not more unlimited in their power, not more sure in their processes, not more complete in their result, than those which have controlled the political system. ("Von Holst's History of the United States." 287)

The political system Adams describes is distinctly different from a natural order: it resembles the "agencies" and "processes" of natural forces. This is Adams' first articulation of the nation's ability to imitate and direct concepts of natural right and absorb them into the great corporate powers that overwhelmed the Constitution. The point introduces, for the first time in Adams' work, the connection between natural and historical processes, and the analysis anticipates the later problem of the dynamo's conversional power.

Adams also turned to economics, law, and philology in the early essays in order to investigate this new power. These writings contributed to the popular discussions of the ascendant monopolies in the decade of the 1870's; Adams himself sided with those who sought to limit their influence. But Adams did so not only as a champion of rights who resented the industrial interests that interfered with the obligations of the Republic to its citizens (and vice-versa), but as a young historian of their new power.<sup>71</sup> Henry Adams' thinking would grow more pessimistic for the prospects of human history as those processes gradually assumed the institutional forms that resulted in the global institutional crises of the late 19<sup>th</sup> and early twentieth centuries. The early trajectory of Adams' study of right in the United States becomes, in short, the path of an eclipse.

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<sup>71</sup> Henry Adams' elaborated several lines of inquiry on the question of right. In addition to the conflict between the slaveholding states and the U.S. Constitution (see also "Von Holst's History of the United States" 271), his "Primitive Rights of Women" essay elaborates his thinking on women's rights in a unique manner (see The Great Secession Winter of 1860-61. 333-360). Adams' review, "Maine's Early History of Institutions" is also relevant.

The middle phase of Adams' historical research and writing at Harvard and afterward was consumed by his monumental nine-volume History of the United States. The tenuous optimism of the final paragraph cited above from "Von Holst's History of the United States" was transformed as Adams began to study the inhuman factors and forces that challenged the right-based model of U.S. history. The History of the United States took its form during the end of Adams' tenure at Harvard and reflects his extensive study of the historians who were his contemporaries and predecessors. History was incapable of explaining the powers that were coalescing in the modern national institutions with respect to other forces. Adams determined, through a combination of archival research and methodological heresies, that a history of the United States would require an entirely different model of history and science.

Adams looked to other historical models while writing the History and ruminated at length on the monumental works written by previous historians such as Gibbon and Motley. Gibbon was of particular import, and Adams would refer extensively to his Decline and Fall of the Roman Empire decades later in The Education of Henry Adams. The later evaluation of Gibbon's work also provided an important retrospective contrast to the History. The narrator of The Education concluded that the methods, problems, and thinking involved in histories such as Gibbon's could not yet be transferred to a history of the United States but that the magnitude of the task was comparable: "Rome was actual; it was England; it was going to be America. Rome could not be fitted into an orderly, middle-class, Bostonian, systematic scheme of evolution. No law of progress applied to it."<sup>72</sup> The narrator proceeds to sit on "the steps of the Church of the Santa Maria di Ara Coeli, curiously wondering that not an inch had been gained by Gibbon - or all the historians since - towards explaining the fall."<sup>73</sup>

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<sup>72</sup> The Education of Henry Adams. 91. The reader should keep in mind the slight against Social Darwinism, invoked by the term "evolution," as it will return in later chapters.

Adams' investigated the rise of the early American institutions in his nine-volume History of the United States of America with an eye toward that decline. Historical process, conceived as a convergence of human and inhuman forces, compelled the work. The study begins where "Von Holst's History of the United States" ended, with geological formations imposing their will upon the energetic westward movement of new populations:

Even after two centuries of struggle the land was still untamed; forest covered every portion, except here and there a strip of cultivated soil; the minerals lay undisturbed in their rocky beds, and more than two thirds of the people clung to the seaboard within fifty miles of tidewater, where alone the wants of civilized life could be supplied. The center of population rested within eighteen miles of Baltimore, north and east of Washington. Except in political arrangement, the interior was little more civilized than in 1750, and was not much easier to penetrate than when La Salle and Hennepin found their way to the Mississippi more than a century before.

A great exception broke this rule. Two wagon roads crossed the Alleghany Mountains in Pennsylvania, - one leading from Philadelphia to Pittsburg; one from the Potomac to the Monongahela; while a third passed through Virginia southwestward to the Holston River and Knoxville in Tennessee, with a branch through the Cumberland Gap in Kentucky.<sup>74</sup>

The passage re-calibrates the historian's scale. The imposing geological forms belittle human agency in the passage, yet there is still a hint of the Romantic landscape painters such as Cole and Church in the work (the pictorial, landscape impulse would later be

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<sup>73</sup> Ibid.

<sup>74</sup> History of the United States of America: Volume One 1.

expanded, or better yet evacuated, in The Education).<sup>75</sup> The style and perspective stand nonetheless in a marked contrast to the territory of Gibbon's Rome, when "In the second century of the Christian Era, the Empire of Rome comprehended the fairest part of the earth, and the most civilized portion of mankind" (Gibbon 1). Where Gibbon's history repeats the "comprehension" of Rome by attempting to grasp ("prehend") it with historical style, Adams' analysis of modern American history admits a more tenuous version of the factors that determined the national origins and prospects. As Levenson has noted, The History extended these observations to the plight of former slaves and native peoples.<sup>76</sup>

Adams had looked increasingly in The History to new and developing sciences in order to support a new style that would accommodate the alternating influence of human and inhuman factors such as rights, institutions, and territory. The sciences of geology and statistics provided new methods for understanding the early United States.<sup>77</sup> Adams' biographer Elizabeth Stevenson noted that during Adams' editorial tenure at The North American Review

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<sup>75</sup> The influence of the geologist Louis Agassiz cannot be underestimated here, nor can Adams' reading of Darwin. Although space limits an elaboration, it is important to note that the link with Agassiz connects Adams with Melville, whose geological sections in Moby Dick (a book that Adams had not apparently read) perform a similar function.

<sup>76</sup> See "The Etiology of Israel Adams" 575. Levenson's essay champions the relevance of Adams' writings vis-à-vis more "recent historiography." I would argue the opposite: that recent historiography cannot accommodate the institutional critique that is developed from the beginning in Adams' works.

<sup>77</sup> The paragraph cited above begins:

According to the census of 1800, the United States of America contained 5,308,483 persons. In the same year the British Islands contained upwards of fifteen millions; the French Republic, more than twenty-seven millions. Nearly one fifth of the American people were negro slaves; the true political population consisted of four and a half million free whites, or less than one million able bodied males, on whose shoulders fell the burden of a continent. ( History of the United States of America: Volume One. 1)

There was a major review of General Sherman's intelligent *Memoirs* as well as a sympathetic coverage of Francis A. Walker's *Statistical Atlas of the United States*, a book which was a by-product of his work as director of the census. His work represented a new kind of intelligence at work in the government, the kind the *North American* was advocating." (122).

Statistics provided techniques by which to study and analyze the accumulation of organic and inorganic materials. Quantification, Adams discerned, was fundamental to the function of the new institutions, as we shall later see.<sup>78</sup> History was faced with the challenge of explaining individual and institutional action in terms of forces that could be calculated, measured, and quantified. The geological evidence that supported Darwin's theories, for example, belittled human enterprises on the vast scale of creation; the enlightened historian was condemned to repeating that discovery in the quantified expression of the relation between human politics and law to its modern institutions.

Adams recognized also that historical science could aspire to the rigor of Natural Science. Institutions such as finance and the industrial or military sciences constituted, in their striations and dynamics, the equivalent of the objects of geology and physics. Those same institutions were also subject to dynamic interactions with human intelligence. The potential of each were lessened and diluted or accelerated in direct relation to each other. The problem was that although the relations *resembled* the alternately glacial or sudden violence of the tectonic plates, the two forms of intelligence

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<sup>78</sup> One of Adams' earliest essays on economics, "The Legal Tender Act" (1870), was in fact co-authored with his friend Francis A. Walker, who had been Chief of the Bureau of Statistics in Washington, D.C. and stirred Adams' interest in demographics (which was then a relatively new science). Walker was also a reformer who, like Adams, sought to explain and curtail the post-war industrial powers. Levenson's essay on Adams also includes an interesting section on his later study of statistics. See "The Etiology of Israel Adams" 589.

were not identical. They obeyed different laws, demonstrated different cycles, and required different methods of analysis.

These differences between natural and historical law reach a fulcrum in the discussion of the United States in The Education of Henry Adams. In that work, Adams's narrator speculates as to whether historians (particularly American historians) are prepared to comprehend the sudden and powers of resemblance and aggregate intelligence that launched the United States into the realm of the major nations. The answer is resoundingly negative. As I noted earlier, the problem was grounded for Adams in the roles played by institutions in the geo-political turmoil of the late 19<sup>th</sup> and early 20<sup>th</sup> century. The United States, like other massive conglomerations of institutional power, would exceed the capacities of right and the human intellect (the problem will assume particular importance in my later discussion of Adams and Hegel). The relation of the human intellect to this new power is like that of Adams' early settlers to the Cumberland Gap: the Gap simply dwarfs them.

Yet it also differs in significant ways. Adams had abandoned the American Romantic imaginative landscape, and with it the hopeful humility of the "American Sublime;" The Education's narrative of descent into Italy by carriage through the Ortler Spitz is as devastating a commentary on American landscape painting and the narrative style as any ever composed. Likewise, the visit to the Hall of Dynamos at the Paris Exposition in The Education stressed the historian's incapacity to comprehend the new power. The dynamo converted mechanical energies into electrical power. It was analogous to the new institutions that converted human intelligence into aggregate forms of American world power. Adams had some meager hope during his earlier reformist years at Harvard of the human ability to guide such institutions; that hope is lost in The Education where historical models offered by thinkers as formidable as Gibbon, Darwin, Hegel, Marx, and others fail to provide historical models for these new forces. As I noted earlier, the crisis held consequences that developed into Adams' late style.



The contrast between Adams and other philosophers of history is significant. Adams did not find anywhere a model that would explain modern state power in its aggregate, institutional form. The style that is closest to his institutional analyses is perhaps the Scienza Nuova of Giambattista Vico, which he would have known indirectly through his study of French historian Jules Michelet. Vico in turn had extended a tradition of juridical thought, which greatly interested Adams, through the empirical revolution initiated by Bacon. In the words of Edmund Wilson:

Vico had read Francis Bacon, and had decided that it ought to be possible to apply to the study of human history methods similar to those proposed by Bacon for the study of the natural world. Later he had read Grotius, who had advocated an historical study of philosophy and theology in terms of the languages and actions of men, with a view to constructing a system of law which would embrace all the different moral systems and thus be universally acceptable. (To the Finland Station 3-4.)

Henry Adams' study of the law, his philological sympathies, and his interest in the relationship between human and natural laws certainly attracted him to the Vichian component in Michelet's work. Although it differs in many respects from Adams, Vico's thought shares a central concern of Adams work: how to stylize the historical intelligence in relation to the study of human institutions and civilizations.

Vico argued that human institutions arise from a vast and complicated poesis. Poesis is a multivalent term in Vico, and, as Edward W. Said has noted, carries several meanings, among them "building."<sup>79</sup> A later passage of La Scienza Nuova renders the term to capture its dynamic:

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<sup>79</sup> "Vico on the Discipline of Bodies and Texts." 83-93. See also Auerbach. "Purpose and Method." 3-24.

Thus all ancient Roman law was a serious poem, represented by the Romans in the forum, and ancient jurisprudence was a severe poetry. Very conveniently to our argument, Justinian in the preface of the Institutes speaks of the fables of the ancient law – antique iuris fabulas. He uses the phrase in derision but he must have taken it from some ancient juriscult who had understood the matters we have been discussing. From these ancient fables, as we here prove, Roman jurisprudence drew its principles. And from the masks called personae which were used in these dramatic fables, so true and severe, derive the first origins of the doctrine de iure personarum, of the law of persons. (390)

A complex series of mimetic inversions frame the passage. The “poem” of the law is “represented” by the Roman citizens, who dramatically embody the law which in turn forms the “poetry” of jurisprudence. The cyclical mimetic action has a dramatic, public form. Poesis reproduces itself across these actions: it is generative. Vico’s term bridges in this way the ethical divide between *poiesis* and *praxis* in Aristotle’s The Nicomachean Ethics: “for production [*poiesis*] has an end other than itself, but action [*praxis*] does not: good action is an end in itself.”<sup>80</sup> Adams, like Michelet, would have been attracted to Vico’s vision of history as a dramatic and cyclical entity that occasionally assumed the anthropomorphic habit of a civilization or nation.

Although there is no direct evidence that Henry Adams read Vico, the contextual evidence suggests an indirect influence. Vico’s name and his works had circulated (in Italian) in the United States since the mid-19<sup>th</sup> century and his influence was apparent in the historians that Adams studied, in particular the French philosopher of history Jules Michelet.<sup>81</sup> The line that runs from Vico to Adams through Michelet follows a series of

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<sup>80</sup> I have cited Aristotle’s passage from Giorgio Agamben’s Means without End (57) so as to retain the original Greek terms.

deviations. Adams' biographer Ernest Samuel argues the imprint of Michelet is strongest in Mont-Saint Michel and Chartres, but a series of less obvious deviations connect Adams and Vico through Michelet.<sup>82</sup> Firstly, Vico and Adams shared an interest in emergent institutions. Adams was very much concerned with the dynamics of institutional growth and sought, as Vico had, to capture their emergence in a historical new style. Secondly, they were both concerned, as Edmund Wilson noted, with the scientific, material, and temporal relations that joined human to natural history. Finally, human history could no longer be studied after Vico in terms of its divine origins, even while religion continued to shape human history. For Vico, who retained his religiosity, history moved in cycles (but only individuals were lifted to salvation);. Adams' final major works, Mont-Saint Michel and The Education, compliment Vico on the role of religion in human history. The former work traces the declining theological "unity" of the Middle Ages and the latter is concerned with modern "multiplicity." The Education of Henry Adams and Mont-Saint Michel and Chartres develop poesis from often disparate forces that randomly converge or diverge, and rarely with continued human (or divine) direction; most importantly, the two works do not stand in linear continuity but in their spiraling simultaneity resemble Vico's cyclical perception of history.

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<sup>81</sup> Wilson's account of Michelet's reading of Vico is fundamental. Other accounts of import are those of Bergin and Fisch, Vico's English translators. Their extensive prefatory notes to The Autobiography of Giambattista Vico trace the influence of his work in the United States. They note that Adams' mentor at Harvard, Charles Eliot Norton, was interested in Vico, and it is possible that Adams came by Vico through his association with Norton at the famed Craigie House discussions of Italy. Bergin and Fisch write however that "it appears that Vico was not read...by such historians as Brooks and Henry Adams" (103). Nonetheless, Adams would have known that Michelet had translated some portions of Vico's work known in English as On the Study Methods of our Time.

The influence of Vico on U.S. historical thought in the early twentieth century is further discussed in relation to Adams by Howard Horwitz. See "*The Education and the Salvation of History*" 128.

<sup>82</sup> See Henry Adams: The Major Phase. 270-271.

Where there are formal similarities, the objects of Adams' attention differ from Vico. Where Vico renders poesis through the study of early human institutions such as family, marriage, and law that guaranteed the proliferation of peoples (Vico's gentes), the late Adams stresses institutions such as governments, corporations, and the militaries that amplify, interrupt, resemble, or minimize the continuity of human life. Institutions and people were not necessarily consonant for Adams, although they each converged in certain specific forms such as populations (and their growth or decline).<sup>83</sup> Modern institutions developed instead as the accumulation of human labor but also exceeded those efforts; the effort replicated, in turn, the chaos, change, and waste of a natural force – what Adams would later describe as “entropy.” The aggregate institutional forces converted human thought into new energies, operating in relations that were not wholly subject to human intervention and whose consequences, cycles, and laws were not wholly understood. History, Adams argued later, was partly governed by those inhuman forces, and its study should develop so as to explain them.

The most important difference between Adams and Vico is that Adams had abandoned the tendency, first introduced by Vico, to study history in terms of an anthropomorphic origin. Adams elaborated his style against the ideals that Vico's humanism reserved for such entities. Where for Vico, the “gentes” directed a subtle Italian nationalism against his Bourbon masters, Adams insists that the anthropomorphic projection of human characteristics onto modern entities as states and populations was a grave error of modern history.

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<sup>83</sup> His brother Brooks, however, erroneously placed the institution of the family in a fundamental role in Adams' work, especially in relation to the role of women in modern society vis-à-vis Adams' Mont Saint-Michel and Chartres. See The Degradation of the Democratic Dogma, 2-4.

Vico's subtle nationalism is transmuted in Adams' non-anthropomorphic approach to contemporary geo-politics and institutions. For example, J.C. Levenson notes that Adams was inspired by the French philosopher who first discovered Vico – Montesquieu – to critique the transformation of the U.S. Republic over the course of the 19<sup>th</sup> century:

Adams seemed to back Montesquieu in the eighteenth century theorist's classical explanation for the failure of geographically extended democracies. It was also Montesquieu's belief, as Hamilton cited it in the Ninth *Federalist*, that the problem of extending popular institutions had been historically solved by the invention of the "confederate republic." The French philosopher adduced the Lycian Confederacy as the 'model' by which to argue his point; the nineteenth century historian, however, found models of ancient Greece less rewarding than cases from the relatively nearer history of Western Europe to which he traced modern institutions (The Mind and Art of Henry Adams 45).

Vico's comparative historical method can be discerned in the divide between modern and ancient states; indeed, Montesquieu carried this directly from Vico to mid-18<sup>th</sup> century French thought.<sup>84</sup> Vico's political philosophy continued its influence among the leading pre- and post-revolutionary European theorists of the 18<sup>th</sup> and early 19<sup>th</sup> centuries and established the traditions of 19<sup>th</sup> century historical thought that Adams later studied. Adams carefully engaged these as the most important political theorists of his age (many of whom were Vico's children), and in doing so opened history to other new sciences in a manner that was not bound to the assumptions that burdened the classical age.

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<sup>84</sup> Bergin and Fisch note the extensive influence of Vico on French thought. They begin with Montesquieu and proceed to Rousseau, Michelet, and Condillac in their Introduction to The Autobiography of Giambattista Vico (72-80).

Where Vico insisted that “humanity created itself,” Adams came to distinguish that institutions were also self-proliferating but obedient to other forces that did not fall within the parameters of sensual human life. Where Levenson correctly recognizes that Montesquieu’s work was both fundamental and anachronistic to modern American thought, Adams rendered his own work anachronistic to its own time and the manner in which America had conceived itself since the classical age.

The challenge posed to Adams by Vico and his progeny was not that of writing a modern history in relation to what Vico would have postulated as the human origins of state formations and specific institutions, but rather to write it in terms of interactions between human and inhuman forces. Adams came to regard the defiant recourse to the primacy of anthropomorphic conceptions of right or the state as examples of the modern historian’s inability to think about emergent new powers; this challenge would also lead to the non-anthropomorphic figures and rhetoric of Adams’ late style. Historically diminished human right and agency in Adams’ earlier work is one possible precedent for understanding the poesis that would later emerge, but only when understood with respect to specific historical processes that Vico or Michelet could not have foreseen.

The 1899-1900 Parisian letters of Henry Adams open the final, non-anthropomorphic phase of Adams’ historical writings. They do not, however, entirely embody or anticipate the anarchic stylistic innovations of his last major works, Mont Saint-Michel and Chartres and The Education of Henry Adams. Adams would no longer place himself between the “Army” and “everybody else” in those works; in the absence of right as the engine of effective republican political and historical life, how will the individual intelligence historically define the forces that govern it? Will it be able to direct or control the aggregate intelligence, such as that of the French Black Chamber and Foreign Office, which supersedes any definition of individual human intelligence? And how could the dynamo’s conversion of energy explain this historical shift? It is

between these two poles – the careless intelligence of the Dreyfus Affair and the conversational power of the new dynamos – that Adams composed the late writings, and in particular The Education of Henry Adams.

The problems cast long shadows across Adams' windows on Lafayette Square when he returned from Paris to his home in Washington, D.C. in 1900. When he departed from Paris in late autumn, 1899, Adams had not anticipated that he would stand before the Siemens dynamo in the Paris Exposition. The Siemens dynamo would complicate his future writings and propel them towards a distinct new style. Adams studied the processes with a heightened acuity as the failures he witnessed in Paris began to crowd outside his Washington, D.C. home.<sup>85</sup>

The style Adams ultimately developed was based upon a dynamic exchange between human intelligence and its aggregate, institutional forms, what his brother Brooks would later call “a summary of a complex of conflicting forces.”<sup>86</sup> Prompted by the dynamo, Adams turned to new sciences that might aid the historian who was confronted with the advent and development of new institutional powers in the early 20<sup>th</sup> century. He studied the statistical models of mathematics and the institutional models of political philosophy, with particular attention to the embodiment of the latter in U.S. maritime power and U.S. diplomacy. These four areas constitute the major expressions of the anti-institutional rhetoric of The Education of Henry Adams, in which he borrowed the term “entropy” from thermodynamics to develop a new historical poesis.

## II. THE QUANTIFICATION OF HISTORY

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<sup>85</sup> These include the battles between organized labor and U.S. industry, U.S. foreign policy, the assassination of President McKinley, and the inauguration of Adams's friend Theodore Roosevelt as U.S. President.

<sup>86</sup> The Degradation of the Democratic Dogma. 97.

Henry Adams began composing The Education of Henry Adams as he was completing Mont-Saint-Michel and Chartres. The two books resulted, according to Adams scholar John Carlos Rowe, from a “mood of reminiscence” that defined the period of 1903-1905 in Adams’ life (1). Rowe’s assessment ignores however the critical period 1890-1900, and in particular when Adams first witnessed a dynamo at the Chicago Exposition of 1893:

One lingered long among the dynamos, for they were new, and gave to history a new phase. Men of science could never understand the ignorance and naiveté of the historian, who, when he came suddenly on a new power, asked naturally what it was; did it pull or did it push? Was it a screw or a thrust? Did it flow or vibrate? Was it a wire or a mathematical line? In addition, a score of such questions to which he expected answers and was astonished to get none. (342)

It is impossible to cite the exact beginnings of The Education of Henry Adams.

Rather, the books resulted from investigations that consumed years of study, and in which earlier problems were often transformed into others by tangent, deviation, and reversal. For example, the basic mechanical questions that Adams posed to the first dynamos in 1893 were later modulated into a specific rhetorical style, drawn not from thermodynamics but from the failure to explain the historical significance of the processes and objects it had exposed or produced. The “education” did not conclude with revelation or progress but with the constant conversion of thought into new forms that emerge from, erase, and reconstitute historical life. Education effectively concealed its discursive beginnings, even if they may be traced to some degree, as I have done in the previous section, across the discontinuous investigations of Adams’ published works and private letters.

The self-effacing discursive strategies of The Education, and in particular its detached and disembodied third person narrative voice, are analogous to thermodynamics with



respect to its dissolution of matter and its theories of energy conversion. As I noted earlier, the dynamo performed a particular function: it converted mechanical force into electrical energy. The dynamo embodied the three areas of physics that had achieved prominence in the previous one hundred years: mechanics, electro-dynamics, and thermodynamics. These sciences fundamentally altered previous conceptions of matter and energy, but their scientific discourse could not historicize itself with respect to contemporary history. The new sciences were limited in historical reach: they could situate themselves within scientific discourse, but not in relation to the effects of their inventions in the secular and historical world.

The Education of Henry Adams does not, however, historicize these sciences. Rather, it criticizes their inability to think of themselves in anything but the anthropomorphic mode. At a basic level, the problem is one of analogy: how did the conversional power of the Second Industrial Revolution in electricity and non-mechanical sources of power (we might usefully recall that Samuel Morse had described the national telegraph system he proposed to the U.S. Congress as the “central nervous system” of the body politic) correspond to historical, human intelligence. The connections were limited, and Adams developed his discursive strategies from their connections and differences, as we shall see, and sometimes from problems that were intimated by thermodynamics.

For example, the various new sub-fields of physics constituted a counter-discourse to the social and historical implications of other emergent sciences. Charles Babbage’s writings on mechanics in the 1830’s, and the writings of Von Helmholtz on thermodynamics and Faraday on electro-dynamics in the 1840’s provided physics with theories and applications that undermined the relations between humans and machines or natural and social laws. Babbage was an optimist with respect to the possible applications of mechanics, and his optimism began with the improvement of human intelligence. Writing after the London Exposition of 1851, Babbage argued:

It is not a bad definition of man to describe him as a tool-making animal. His earliest contrivances to support uncivilized life were tools of the simplest and rudest construction. His latest achievements in the substitution of machinery, not merely for the skill of the human hand, but for the relief of the human intellect, are founded on the use of tools of a still higher order.<sup>87</sup>

Later developments in physics proved less optimistic and would later be described as “degradationist.” Beginning in the late 1830’s and extending through the 1850’s, the writings of Faraday popularized new theories of electricity and magnetism. Thermodynamics - the study of heat energy - also achieved unprecedented development.

Except for some addenda of very recent date, the whole foundation of thermodynamics was laid before the middle of the nineteenth century. The work of Black, Rumford, Hess, Carnot, Mayer, Joule, Clausius, Kelvin and Helmholtz established the basic principles of the theory of energy.<sup>88</sup>

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<sup>87</sup> The Exposition of 1851. Charles Babbage is often cited by technological historians as an important pre-cursor to the mechanization of quantification that resulted in the development of proto-computers in the inter-war period (especially in relation to Alan Turing’s work) and in the post-WWII development of the binary code from the Baconian cipher model. A recent work by Doron Swade entitled The Difference Engine: Charles Babbage and the Quest to Build the First Computer places Babbage in relation to computer science, while Romantic Cyborgs: Authorship and Technology in the American Renaissance by Klaus Benesch occasionally places Babbage in relation to aesthetic theories of the subject in U.S. literature.

<sup>88</sup> Thermodynamics and the Free Energy of Chemical Substances 5. The work from which I cite, by the University of California, Berkeley scientists Lewis and Randall, was written immediately after WWI and remained a classic for decades to follow. The opening chapters of the book partake as well in the great turn towards quantification and the development of specialized scientific languages that occurred in the U.S. during that time, of which I shall say more in the following chapter.

The thermodynamic revolution in physics confirmed its own laws – modern physics was not born from nothing, but from the confused material of certain previous scientific and institutional practices. It was a fact to which Adams was entirely attuned. The First Law of Thermodynamics is exemplary, in that it resulted from observed military-institutional practices:

At the end of the eighteenth century when Count Rumford was observing the boring of cannon in the Munich arsenal, he noticed that the mechanical energy expended was roughly measured by the amount of heat produced. This idea, developed Mayer and by Joule, led to the first determinations of the mechanical equivalent of heat. It was thus found that a certain amount of mechanical energy, of whatever form, always produces the same amount of heat; and therefore the units of heat and work can be so chosen that the amount of heat produced is always equal to the amount of mechanical energy lost. (Thermodynamics 47)

The first major theories of thermodynamics resulted from the observed practices of military and industrial institutions, as Helmholtz had discussed in his wildly popular 1847 summary of the First Law of Thermodynamics (Kelvin's Second Law of Thermodynamics was introduced in 1852). Indeed, as Manuel De Landa has recently shown, it is impossible to separate modern institutions, and especially martial institutions, from scientific conceptual developments.<sup>89</sup> A revitalized physics would expand upon these practical relations. When Henry Adams stood before the Siemens dynamo at the Paris Exposition of 1900, he did not understand it as a symbol of a social or historical model or as confirmation of a natural apocalypse (i.e. the Second Law's suggestion that the sun would eventually expend its energy); rather, Adams summoned the previous discourse of right, recounted in the previous section, and realized that it

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<sup>89</sup> See War in the Age of Intelligent Machines.

could not withstand the symbiotic relation of institutions and science. It was a moment that, as The Education states, “broke his neck.”

Adams thinking rests outside the immediate impact of thermodynamics, electrodynamics, and mechanics on mid-19<sup>th</sup> century European and U.S. culture; the discourse deserves a brief overview to emphasize the point. Thermodynamics was quickly adapted to social and political discourse as well as history. Peter Allan Dale has discussed its path in mid-to-late 19<sup>th</sup> century British philosophy and aesthetics, where he traces it through George Eliot’s novels, the philosophical writings of G.H. Lewes, and later Thomas Hardy; Dale notes that Eliot absorbed:

The shift in scientific paradigm from the pursuit of original organic structures to the tracing of energy’s conversion process (its “differences”) and the parallel shift, to return to Peterfreund’s point, in linguistic paradigms from *enargeia* to *energeia*, work only if one can continue to believe, as she [Eliot] wants so much to do, in some ultimate principle of good underlying the supposed continuum from energy to *energeia*, nature to culture. (In Pursuit of a Scientific Culture 163)

Dale argues that Eliot’s literary rendering of thermodynamics was the precursor to U.S. Pragmatism. Thermodynamics, for Eliot and later William James, offered “the faith in the power of individual genius or energy to transform the human condition” (163). At the opposite end of Pragmatism there lie the “social statics” and “social dynamics” of Comtean positivism (15) – the massive inductive enterprises that flattened exceptions and “differences” into universal scientific schemes.<sup>90</sup>

Thermodynamics had already exerted an influence on historical thought for several decades when Adams turned to it in The Education. We must distinguish, however, between Adams’ late style and the preceding “literary development” of

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<sup>90</sup> The language of “static” and “dynamic” states was first introduced by Faraday’s “Experimental Researches in Electricity.”

thermodynamics. The Education of Henry Adams cannot be situated anywhere along the axes of Dale's history of the diverse reactions of the physicists or artists to Positivist social thought. Most importantly, it cannot be located along the line that Dale uses to link Eliot to Adams' major enemies, the U.S. Pragmatists. Nor can Adams be placed as a belated U.S. version of the Positivists, despite the fact that Adams had earlier attempted to treat historical laws with the rigor of natural science (as the Positivists and others had done). The Education makes no claims to scientific legality; nor can it be reduced to a mere "cultural" or aesthetic object. The rhetorical strategies are discursive and concerned with a general epistemological crisis and not only its mimetic or social effects. It does not seek to "apply" the language of thermodynamics as metaphor of the self, society, or any ethical position such as the "ultimate principle of good underlying the supposed continuum from energy to *energeia*." It is a singular experiment in style: the rhetoric and figures of historical discourse as energy and force.

Discourse for Adams was not then a means to an end, as it was, for example, with the Pragmatists. Adams understood that it was only in rendering the laws of thermodynamics as a popular cultural discourse that its champions had succeeded in making it a major science; but when confronted with the dynamo, he reckoned with another, non-discursive force, twice embodied: first in machines themselves and the power they produced, and second within the new industrial and geo-political institutions that directed that power. Several conversions of "energy" had taken place, moving between the discursive to the non-discursive, and their relations of force differed. How could they be evaluated? Could their forces be measured? Did any existing law suffice to render the problem?

Having studied the major works in thermodynamics and their manifestations at the Columbian and Paris Expositions, Adams returned to his earlier concerns with what prospects thermodynamics offered to historical thought. The thermodynamic and Darwinian evolutionary models of nature challenged the heroic and mimetic modes by

which human intelligence had organized history. These two models constituted, as it were, the poles of the central epistemological conflict of the coming century. The conflict posed the pessimistic “degradationist” physicists against the optimistic Darwinists who proposed evolution as a progression and accumulation that culminated in human life. Adams cites the French astronomer Bernhard Brunhes to summarize the difference:

The preceding remarks give the key to the apparent opposition which exists between the doctrine of Evolution and the principle of Degradation of energy. Physical science presents to us a world which is unceasingly wearing itself out. A philosophy which claims to derive support from biology, paints complacently, on the contrary, a world steadily improving, in which physiological life goes on always growing perfect to the point of reaching full consciousness of itself in man, and where no limit seems imposed on eternal progress. Observe that this second idea, - of indefinite progress, - has furnished much more material than the first, for literary development!”<sup>91</sup>

This is where the majority of Adams’ readers have erred, including Dale: they have lumped Adams together with late 19<sup>th</sup> century doomsayers (that included Henry’s brother, Brooks) who viewed thermodynamics as a new social or historical ‘field theory’ rather than reading Adams’ late “literary development” as an experiment in discursive force.<sup>92</sup> Discourse, and in particular historical discourse, was a force to be

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<sup>91</sup> Cited in Henry Adams. “A Letter to American Teachers of History.” 255. Ms. Lightfoot Lee recounts a similar conflict in Adams’ novel *Democracy* (49).

<sup>92</sup> See Dale, 230. The same may be said for purely social explanations of “narratives of decline,” such as those offered recently by literary critics such as Bruce Robbins. Adams’ pessimism does not belong to the Germanic line that Dale discusses in his work (*In Pursuit of a Scientific Culture* 220), or to the Franco-Anglophone line discussed elsewhere by Hofstadter (*Social Darwinism and American Thought* 78-79). Rather, it belongs to an Italo-Romanic line whose history was outside the Enlightenment that extends from the historian Vico and the theologian Rosmini to Manzoni and Garibaldi;

reckoned with just as institutions, populations, and other aggregate forms of intelligence. Adams' work, while perhaps not the first to discuss the relation of the human and inhuman (Darwin and Nietzsche each set important precedents), it was the first to disregard discourse as purely anthropomorphic and think of it as one force among a "multiplicity" of others. Unlike those who sought to combine the two models of thermodynamics and biology, Adams regarded them as opposed forces ("The Letter" was published in 1910, three years after the first draft of The Education had been privately printed) whose actual institutional effects were to be understood in non-ideological terms as the embodiment or displacement of various energies and powers.

Adams distinguished between thermodynamics and Darwinian biology to the end of his days, and against those who sought to combine the two as a foundation for social science. Adams opposed the quasi-allegorical application of any natural science to history. For example, he had rejected Darwin's influence on U.S. social thought, as well as that of the Hegelian Idealists. But these movements were also often expressed in institutional conflicts (as in the debates over teaching Darwin) or regional movements (as with the German immigrants who brought Hegel to bear upon the resettling of the U.S. West).<sup>93</sup> The Education of Henry Adams proposed that these extant models of history were insufficient. "Entropy" is the term that invites the most confusion with respect to both the erroneous perception of Adams as a historian, Adams' distinction between the thermodynamics and other sciences, and Adams' ultimate renunciation of mathematics as a solution to these historical problems.

The word entropy appeared in thermodynamics through the work of the German physicist Clausius and the Second Law of Thermodynamics. The law was

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it would extend, after Adams (and in a form modified by Adams' writings on Garibaldi) to Pynchon (in particular the parody of Garibaldi in Pynchon's later novel V.)

<sup>93</sup> I will return to the American Hegelians in the following section.

known also as the law of the dissipation or degradation of energy, or the law of the increase of entropy, [that] was developed almost simultaneously with the first law through the fundamental work of Carnot, Clausius, and Kelvin. But it met with a different fate, for it seemed in no recognizable way to accord with existing thought and prejudice. The various laws of conservation had been foreshadowed long before their acceptance into the body of scientific thought. The second law came as a new thing, alien to traditional thought, with far-reaching implications in general cosmology. (Thermodynamics 110)

Lewis and Allen have noted that Entropy was “abhorrent to the philosophy of the times” (110). This was due greatly to the counter-discourse it instigated against the meliorist social applications of Darwinian biology or the technological applications of thermodynamics (as Babbage had hoped). When Henry Adams posed Darwin against “degradationist” theory, he had the cosmological implications of entropy in mind, rather than the whole of thermodynamics. Again, Lewis and Allen provide the most succinct definition of the problem:

if the second law of thermodynamics is spoken of as the law of the dissipation of energy, no loss in energy is meant, but rather a loss in the availability of energy for external purposes. It seems better therefore to speak, not of the dissipation or degradation of energy, but rather to speak of the degradation of the system as a whole.

What Lewis and Allen describe as a cosmology (“the system as a whole”) presented a formidable problem to Adams. The historical hypothesis that resulted could be rendered as follows: could the interaction of human intelligence, the aggregate force of exchange between institutions, technologies, and natural formations (such as coal deposits), be rendered as a form of entropy? The danger, then, is to perceive entropy in Adams as a principle or symbol of organization and method rather than as the interpretation of a “state.” The problem central to Adams’ later work is that of how to



formulate a style capable of rendering historical processes in the manner that thermodynamics or physics (or the dynamo) transformed matter. What began however as a question of developing a field theory of historical energy eventually was converted into a singular rendering of human intelligence and varied other aggregate, non-human (i.e. institutional) forms, or what I have called Adams' late style.

The connotations of "entropy" were not lost on Adams. He borrowed them not only from Clausius and thermodynamics but from a long tradition of scientific thought. Entropy derives from the Greek "trope," which means to "turn," and when combined with the prefix "-en" suggests a "turning into" (this meaning was amplified in 16<sup>th</sup> century liturgical texts to signify "transformation"). Entropy lost this theological significance in the mid-19<sup>th</sup> century with the Second Law of Thermodynamics, but not to Adams, and it remains an implied connection between the multiplicity of The Education and the singularity of Mont Saint-Michel and Chartres.<sup>94</sup> Its figural significance would be elaborated in the later poesis of The Education, as we shall see at various points throughout this study.

"Entropy" also carried other significance with respect to labor. Thermodynamics, in the words of Lewis and Allen, was founded on the principle "that heat and work could be transformed one into the other, and the laws governing such transformation were embedded in the science of thermodynamics" (1). Entropy was a condition of energy (ergon/work); Adams deployed the word with an added significance that comprised the historian's intellectual labor, thus placing entropy in relation to various categories of mind and truth such as aesthetics and epistemology, and adding a discursive significance to his late style.

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<sup>94</sup> This scientific revolution begins with the young French officer Carnot's publication of Reflections on the Motive Power of Fire in 1824. An obscure text, it later justified the results of the British veteran William Sturgeon's invention of the soft-iron electromagnet, and led to the development of electromagnetic field theory, as well as the writings of Hermann Von Helmholtz and Clerk Maxwell.

The word's varied potential offered to Adams an opportunity to elaborate a style that was not bound to mimetic (heroic, social) models of history. Suffice to say that Adams rendered the striations of entropy a poesis of history, not as scientific law, but as a rhetorical (figural) discourse. It was a discourse that could not be quantified, despite Adams' early attempts to render it as such. The mathematical problem of quantification that exposed entropy to figural elaboration in Adams must be considered before we proceed to its poesis of institutions.

The initial attempt to develop a historical equation for entropy resulted not from physics (especially thermodynamics) but the cosmological implications of its mathematics. Mathematics was considered by most scientists as an ideal language that provided the proofs for other natural sciences: it "constitutes the language through which alone we can adequately express the great facts of the natural world..."<sup>95</sup> Later mathematics would seek to prove thermodynamics in certain observable physical phenomena.<sup>96</sup> While composing The Education Adams looked to prominent mathematicians for available models. The late mathematical trend in Adams' thought converged with an earlier one that appeared with the disappointment that followed the reception of his nine-volume History of the United States.<sup>97</sup> Adams studied mathematics in the twenty years between the writing of The History of the United States and The Education, and he focused on the most innovative mathematical theories

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<sup>95</sup> 'Sketch of the Analytical Engine.' 15. I cite from the translation by Ada Lovelace (a collaborator of Babbage) of an article on Babbage by the Italian mathematician Luigi Menabrea.

<sup>96</sup> For a summary of the early 20<sup>th</sup> century quantitative approaches to entropy, see Thermodynamics 113-128.

<sup>97</sup> See in particular the editor's note to the essay "Count Edward de Crillon." The Great Secession Winter of 1860-61. 391. The first pages of the essay are a prefiguration of the problems of historical calculation and quantification that are later elaborated in The Education of Henry Adams.

of his era. The most important problems were those posed by the French mathematician Henri Poincaré.

The equations that compelled Adams resulted from a shift from absolute certainty to probability in modern mathematics. Both in Europe and the United States, the French mathematician Henri Poincaré had initiated what scientists today refer to as the science of complexity, or chaos theory. Anticipating Einstein's later revolutionary work, Poincaré wrote several essays (beginning in the late 1880's) that overturned the absolute spatial and temporal categories that governed modern mathematics since Newton. This is the cosmology to which Lewis and Allen referred: the applications of Poincaré's problems to the physical world offered a new cosmology that was based upon probable rather than certain outcomes. The teleology, determinism, or destiny of the meliorist models of social, human, and physical science were ruined; entropy was a possible condition or state. Poincaré's innovations resulted from his critique of statistics. According to the French mathematician Ivar Ekeland:

At the frontier of knowledge, one must change instruments. For quantitative methods, accurate but limited in scope, we must substitute qualitative methods, which have greater range but less precision. Poincaré was the undisputed master of qualitative methods, which he introduced into mathematics under the name of *analysis situ* – nowadays topology.....Poincaré's criticism – even though he might not have wished to carry it that far – is aimed at the very idea that a quantitative model, accurate as it may be, can be used to predict the future. (35)

Poincaré's discoveries had a great impact on mathematics in the United States.<sup>98</sup> Henry Adams studied these and learned from Poincaré that thermodynamic and

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<sup>98</sup> For more detailed accounts of Poincaré, see Ivar Ekeland, Mathematics and the Unexpected (34-48) and Peter Gallison Einstein's Clocks, Poincaré's Maps. Poincaré influenced a prominent young mathematician in the U.S. named George Birkhoff. Birkhoff sought to quantify a solution to entropy in mathematical theory. Birkhoff's so-called "ergodic" theory had as its object the systemic inter-relations of thermal dynamics. Thermal dynamics were treated by Birkhoff as a series of systemic exchanges

mathematical equations of entropy refused to be quantified; the consequences for Adams' dream of a historical equation for entropy were considerable. He often vacillated between agreement and disagreement with the implications of Poincaré's theories. With respect to Kelvin's theories (which were one of the objects of Poincaré's equations), Adams wrote in 1903:

Already it is like all the rest of our old structure. It explains nothing. Science has given up the whole fabric of cause and effect. Even time-sequence is beginning to be threatened. I should not at all wonder if someone should upset time. As for space, it is upset already. We did that sixty years ago, with electricity. I imagine that in another sixty years, if my x-sequence works out regularly, we must be communicating throughout space, by x-rays, with systems infinitely distant from us, but finitely distant from each other; a mathematical problem to be solved by non-Euclidean methods.<sup>99</sup>

The cosmological implications of Poincaré's work are evident in the passage. The Education of Henry Adams was composed and revised during this period of experiment, and it must be understood in this respect as a discourse on scientific failure. In a letter written after reading on Poincaré in Keyser's Mathematics, Adams wrote

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in which variables and duration determined the exchange of energy between systems in motion, and, above all, the statistical likelihood of their returning to their original state. Birkhoff later attempted to apply his theories to aesthetics (see "A Mathematical Theory of Aesthetics and its Application to Poetry and Music." Rice Institute Pamphlet XIX 189-342.). Several other mathematicians, ideas, and equations are associated with the term "ergodic." Birkhoff and Poincaré are the most important, but I refer the reader also to the "Markov chain," and Maxwell's own work in thermodynamics.

<sup>99</sup> "To Charles Milnes Gaskell." Letters of Henry Adams: 1892-1918. 408-409. This letter is of particular interest because it illustrates Adams point through the example of how the automobile industry altered the nation.

that he was an “enemy” of Poincaré but that “we can do nothing without mathematics.”<sup>100</sup> He then threatened to burn The Education.

As I noted earlier, it would be incorrect to regard Adams’ formulation of “entropy” as a complete system or principle. Thermodynamics and mathematics would eventually account for cross-systemic conversions of energy, but they could not be applied to historical processes that formed institutions or nations in a manner that Adams desired. The dynamo’s conversion of fossil fuel to electrical energy was not the analog – or the metaphor – of historical process. Adams’ inability to translate or convert thermodynamic laws into a historical principle initially frustrated him. But Adams’ failure to quantify entropy had liberated historical narrative from the systemic tyranny of producing either an instrument such as a mathematical equation or “field theory” such as a complete philosophical system. Adams concluded from his failure that history could no longer be regarded as working against a stable, absolute background of time and space, but as a field of energies (historical and natural) in constant interaction, conflict, and flux. No longer bound to quantification (though it still appears in his analysis of the statistical theories of several sciences) or the “deterministic pull of the technological revolution” (Zimmerman 185), Adams emphasized thinking, process, and style over form and system: quality over quantity. Historical discourse could be rendered as a poesis in a unique and singular style.

The discursive strategy was developed in the self-effacing style of The Education. The mathematical language dispersed ironically across The Education confirms this final turn in Adams’ style. The diction of the following passage suggests the technique:

The boy might ignore, as a mere historical puzzle, the question how to deduce George Washington from the sum of all wickedness, but he himself helped to

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<sup>100</sup> “To Margaret Chandler.” Letters of Henry Adams: 1892-1918. 488.

deduce Charles Sumner from the sum of political corruption. (50, emphasis mine)

The mathematical diction in this early passage from the book illuminates the influence of mathematics on the style of the work. Adams ironically situates the apparatus of mathematical science in relation to historical persons and processes: how can one quantify history? The Education thus initiates, from its earliest pages, the insistence on rhetoric. Whenever mathematics, or biology, or even thermodynamics are discussed, they are converted from a general account of scientific invention or biographical events to a rhetorical style of history. The matter of history is never neutral or stable, but dynamic. It is the difference between monologue and polyphony, which The Education occasionally achieves (as in Adams' masterful discussion of British foreign policy during the Civil War), and sometimes simultaneously.

Poincaré's writings (and later Birkhoff's ergodic theory), together with Adams' model of history, and the varied thermodynamic models of entropy (in Maxwell, Clausius, Gibbs) developed from the concepts of energy, motion, and force in the mid to late 19<sup>th</sup> century. Maxwell, Adams, and Poincaré achieved unprecedented elaborations of entropy in physics, history, and mathematics. Unlike Maxwell's innovations, however, the rhetorical achievements of Adams were not evident for decades, when they were reanimated by a later generation. And where Poincaré had the good fortune to be eclipsed by Einstein; Adams was drowned by a cacophony of New England neighbors.

The very plurality of "entropic" problems in late 19<sup>th</sup> and early twentieth century sciences was regarded by Adams as evidence of the "multiplicity" that was the subtitle of The Education. The dynamo had contributed to a fundamental material break with the previous models of thought, the consequences of which refracted across the methods and objects of every science, and which in turn reshaped existing social formations, institutions, and relations between them. The revolution of the dynamo had

affected the production and uses of engines, steel, and other materials and machines; two technologically related engines of “indefinite progress” – the dynamo and the telegraph – had also stimulated the production of a new class of engineers and physicists who revolutionized modern technologies of electrical communication.<sup>101</sup> These were in turn organized into new institutional forms, as engineering schools were created and new techniques developed to train their intellectuals.<sup>102</sup>

The Education of Henry Adams insisted with a distinct and forceful intention upon a singular, rhetorical discourse. As I noted earlier with Babbage, the displacement of the centrality of human intelligence was a central problem of the discourses Adams engaged. To this end, The Education forcefully intervened in the related problem of the displacement of human intellect by modern institutions, as we shall see. Adams would not concede, however, the radical singularity of The Education to the anthropological, social reformist, or rights-based theories of human value. In “A Letter to the Teachers of History” Adams presented a version of the argument in relation to the thermodynamic and evolutionary models of history. He affirmed the “loophole called Mind” against millennial pessimism and progressivist optimism.<sup>103</sup>

The anti-institutional and mock-mathematical rhetoric of The Education were the antagonists of what Adams described in “The Letter” as a historical drift towards

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<sup>101</sup> David Noble’s comments on the common origins of engineering and thermodynamics are important in this respect (see Noble, America by Design: Science, Technology, and the Rise of Corporate Capitalism 26-27). Gallison’s book on Einstein and Poincaré is also fundamental to this question.

<sup>102</sup> The history of these institutions will be explored in Chapter Two of the current study.

<sup>103</sup> See “Letter to the Teachers of History.” Degradation of the Democratic Dogma. 157, 191, 207.

quantification.<sup>104</sup> Adams recognized how statistics would achieve paramount importance in the development of disciplines such as economics, sociology, physics, and other fields in the early twentieth century. This mathematical reform was motivated in part by corporations that increasingly looked to universities for personnel and ideas. Quantification translated well to the research culture of the new corporations and institutions. Adams thus embarked upon the “literary development” of something that was far different from the ‘degradationist’ model of history. He experimented with a style that rested entirely upon the workings of a dramatic, even anarchic, poesis. Where thermodynamic theories of entropy were increasingly subordinated to practical science, The Education of Henry Adams could not be categorized or institutionalized as a historical method. This was perhaps the result that Adams anticipated, the final proof of the impossible equation of entropy in history. A rhetorical style ultimately distinguished The Education of Henry Adams from the quantitative models of his contemporaries: it was a discourse that could not be quantified.

### III. IN THE ABSENCE OF AN ENTROPIC THEORY OF THE NATION

Adams had looked to Vico, Gibbon, and Darwin as well as to the physicists and mathematicians to understand this situation, but he also sought answers in the powerful thinkers of German philosophy. Adams attitude towards the German tradition was similar to his approach to thermodynamics: contentious and diffident, he often criticized their models. But where physics and thermodynamics had given rise to new institutions within the state (telegraphy, standardization of time and measures, etc), it did not produce a theory of the nation-state, where the Germans had.

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<sup>104</sup> *ibid* 207.



The tension between pre-modern, quasi-feudal German culture and the increasingly unified and militarized German state opened certain economic and political questions to which German philosophers, historians, and artists responded with a more systemic approach than that found in other intellectual traditions. Furthermore, advances in German science had realized the dynamo, providing thus a compliment to Adams' inquiries (Werner von Siemens and his family had perfected the dynamo and also the transatlantic system of telegraphy).<sup>105</sup> 19<sup>th</sup> century German thought had been deeply engaged in questions pertinent to a new historical situation, and Adams, while suspicious of their systems, often looked to them for answers because the German state institutions did not confuse politics with scientific rigor, as others had.<sup>106</sup>

Of the many historians and movements Adams' cites and echoes in The Education, the tradition of German Idealism accounts for a substantial influence at the intersection of the modern nations and the intellectual crisis that was upon them. Adams mentions both Hegel and Marx in this respect on several occasions, and Adams' study of German, undertaken during the height of the influence of German Romanticism on American culture, is a formative principle in the book.<sup>107</sup> Adams recognizes in German Idealism the failure to account for the crisis, but it is, like his study of mathematics, a productive failure.<sup>108</sup>

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<sup>105</sup> Siemens 282-284.

<sup>106</sup> Gallison's discussion of the vastly different German and French responses to the standardization of time is exemplary. See Einstein's Clocks, Poincare's Maps 156-159.

<sup>107</sup> Paul Bove` has argued that "Adams, always prone to say that Hegel 'properly understood,' was an important thinker, came to theorize America as an inhumanity, as a product and agent of inhuman intelligence providing, at least the few, new terms for thinking and work." ("Henry Adams' America" 65). It is also possible that Adams also had in mind the St. Louis Hegelians in his attacks on Hegel (see Hofstadter 127-129).

Adams's writings on German Idealism begin with the mechanization of German culture and continue through its prospects for history, philosophy, and art; Adams describes the German prospects as "the mechanical reaction of a sleeping consciousness....." (81).

....but the Germany he loved was the eighteenth century which the Germans were ashamed of, and were destroying as fast as they could. Of the Germany to come, he knew nothing. Military Germany was his abhorrence. What he liked was the simple character; the good-natured sentiment; the musical and metaphysical abstraction; the blundering incapacity of the German for practical affairs. At that time every one looked at Germany as incapable of competing with France, England or America in any sort of organized energy.....Until coal power and railways were created, she was medieval by nature and geography, and this was what Adams, under the teachings of Carlyle and Lowell, liked. (83)

Adams was suspicious of the intense nationalism of a "military Germany" that pervaded much of the 19<sup>th</sup> century German philosophical and scientific writings. The phrase "organized energy" rather than "nation" in the paragraph above is critical to Adams' reformulation of the problems of political and social philosophy into his new poesis. It is, in short, an emphasis on the processes of the new powers rather than the proposition of objects themselves. Adams recognized in the displacement of pre-modern (agrarian) Germany by "coal power and railways" a parallel situation to that of the United States. The problem is initially outlined in a letter to of 1897:

Do you know the kinetic theory of gases? Of course you do, since Clerk Maxwell was an Oxford man, I suppose. Anyway, Germany is and always has been a remarkable apt illustration of Maxwell's conception of 'sorting demons.' By

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<sup>108</sup> Adams notes in his letters that he "disagreed....radically" with Marx, although the book to which he refers is unclear. "To Charles Milnes Gaskell. Washington, 28 April, 1894." Letters of Henry Adams: 1892-1918. 49.

bumping against all its neighbors, and being bumped in turn it gets and gives at last a common motion, which is, and of necessity must be, a vortex or cycle. It can't get anywhere except round a circle and return on itself. It has done so since the time of Varus and his legions. The struggle between the industrial and military impulses was at the bottom of the Reformation....We can now pretty well measure the possible  $x$  which is the quantity we want to eliminate. Another generation will have the figures, and the limit of ultimate concentration will then be calculable, - barring war, which may of course delay, or defeat, further vertical development. The point to study is, however, not primarily the social movement, but the industrial, and I am always wondering at my own ignorance and the European conspiracy of silence on that point.... (Letters. Vol 2. 136)

When The Education returns later to the problem of German philosophy it revisits the scientific and technological questions in 19<sup>th</sup> century German thought. The Hegelian dialectic was paramount among the varied models and examples. The dialectic's attempted motion toward a totality exposed a movement that interested Adams: "Even Hegel, who taught that every notion included its own negation, used the negation only to reach a 'larger synthesis,' till he reached the universal which thinks itself, contradiction and all" (451, emphasis mine). Adams was working explicitly against this in his earlier analysis of unity in Mont-Saint Michel and Chartres; The Education was a later renunciation of the Hegelian presupposition that institutional systems (in the modern case, nations rather than churches) could absorb and unify the all historical processes into a naturalized totality.

Adams had described the "negative" movement of the dialectic and its relation to the German national transformation into an "organized energy" as a "hopeless failure" in an earlier letter.<sup>109</sup> The nation-state's synthesizing role in the Hegelian dialectic is

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<sup>109</sup> "To Elizabeth Cameron." Letters of Henry Adams: 1892-1918. 335.

fundamental to understanding The Education as a later discourse on American state and institutional formations. It is common to find throughout 19<sup>th</sup> century German Natural Science and philosophy an explicit articulation of German nationalism as the naturalized product of the rational progress of history, and it is as common in Hegel as it is among his contemporaries.<sup>110</sup> It emphasized centralization of power as one of the processes that Adams had recognized as fundamental to the new artificial power of the institutions.

Adams effectively refuted the Hegelian dialectic's reliance on nature as a category that guarantees a movement towards a "larger synthesis." The creative transformation of nature in the dialectic implies an opposition and division that results in a rational end. Conversely, the cosmology exposed by thermodynamics had rendered the priority of "right," for example, as a contingency and convention rather than a natural law. The same logic applies to institutions. The state and its institutions were not natural, nor did its laws of right follow from nature: they were too much entangled with the new institutions, which were of human design and also betrayed non-human forces.

Adams thus argued against Hegel that the state, and human history, could be naturalized as a seamless totality. Where Hegel regarded human history as teleological progress toward perfection, Adams composed in a historical style – a poesis – that would not concede either totality or progress to the complexity of human history. Indeed, natural history, and entropy itself, offered the analog by which to overturn the entire Idealist apparatus of a naturalized state and reason as "the sovereign of the world." To add to the refutation – and it is a point on which Adams has little to say – the dialectic implies that human creativity, bridled by reason, was the sole producer of knowledge. Where Hegel subordinated creativity (and the imagination) to reason,

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<sup>110</sup> Alexander Von Humboldt's writings on Natural Science are a perfect example of this habit. See von Humboldt "Reflections on the Enjoyment Presented to Us by Nature." German Essays on Science in the Nineteenth Century. 1-21.

Adams placed a rhetorical poesis at an increasingly higher level in his late style, but it should not be understood there as continuous with the sanctions that the state afforded to the individual.<sup>111</sup> The problem was already evident in Hegel. For example, Hegel had admitted that art was not a product of nature. Poesis can be understood within the critique of Hegel as a style of thinking that was not irrational or subjective, but rather open to the complex, inhuman power of entropy. But where Hegel offered a continuity that moved towards historical synthesis, Adams maintains the divide between singularity and continuity, and, in particular, continuity without consummation, but with the disparate forces that maintained “multiplicity.”

The displacement of right and the subject in The Education diverges from the Hegelian influence on Adams’ nemeses, the U.S. Pragmatists. Where the Pragmatists tempered the consummation of right with the state in a radical emphasis on human individuality, Adams emphasized the evacuation of the anthropomorphic subject from the figures and rhetoric of The Education in order to engage the new, inhuman powers of the state and their aggregate intelligent forms. The critique stands also against the narrative bildung of Hegelian teleology.

But Adams hinted also that the highly developed concepts of aesthetics and temporality in German Idealism might be salvaged. The problem of totality in the dialectic contained within it, in both its negative and creative principles, a key to the encounter between human thought, conventional time, and mechanized production. It is for this reason that Adams invokes Karl Marx in the moment before he enters the “great hall of dynamos” at the Exposition of 1900 (379): Marx offered an erroneous teleology of the industrial age that would be destroyed by the dynamo.

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<sup>111</sup> See Hegel. Introductory Lectures on Aesthetics 30.

Adams' reading of Marx's theory of production is always simultaneous with the understanding of the varied stages of European industrial-military power in Marx's published works. Adams recognized that the Hegelian influence on Marx's theory of history had important consequences for the relations between time, creativity, and technology as well as to the state institutions.<sup>112</sup> Adams does not elaborate this critique, perhaps because many of Marx's works that address the problem of mechanization and temporality were still unpublished.

Nonetheless, Adams' critical engagement of the German Idealists and their Marxist children recognized also how technology and science mingled and lingered in Mittel-

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<sup>112</sup> There exists an important, minor current in Marxist thought that addresses the relation of technology to dialectical materialism. The earliest formulations are those of Marx's Grundrisse, wherein Marx subsumes the temporality of labor into a systemic model of production and technology. A proper understanding of Marx's Grundrisse would not, however, necessarily equate "time" with "motion." The relevance of categories such as "motion" is critical to Adams' understanding of Marx's flirtation with naturalized and evolutionary concepts. The following section exemplifies this point:

To regard society as one single subject is to look at it wrongly, speculatively. With a single subject, production and consumption appear as *moments* of a single act. The important thing to emphasize here is only that, whether production and consumption are viewed as the activity of one or of many individuals they appear in any case as *moments* of one process, in which production is the real point of departure and hence also the predominant *moment*. (Grundrisse 94, italics mine)

Marx has revealed here a temporal dynamic in the static model of production. The "moment" acts at multiple points in the process of production connecting the individual to the collective that emerges from production. The genetic point in space is always troubled by its existence in time, in the "moment" that splits its being into various streams of which there is no guarantee of cohesion. Marx leaves this matter undeveloped, thereby assuming equivalence between natural time and the temporality of labor; the equivalence between nature and history is one that Adams renounced throughout his late works.

Marx's analysis is fundamental to a relevant debate on this subject in later Marxist writings on the role of capitalist technology in the dialectic; Monika Reinfelder's summary of this debate is excellent (9-38), as is Martin Nicolaus' writings on Marx's use of the term "moment" in his Introduction to Grundrisse (Nicolaus 29).

European philosophical, historical, and literary thought in ways that were directly relevant to institutional developments in the United States. German philosophy could not ultimately account for the transformations that resulted from these crises. The reorganization of the modern nation as arbiter of industrial-corporate interests suggested that such fluctuations were vital to the survival of the relations between industry and the state, and German thinkers struggled more profoundly than others with this question.<sup>113</sup>

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<sup>113</sup> War was such a crisis which accelerated change; the same may be said for the writings of Marx and Engels on war (See Chaloner and Henderson ix-xix). The most compelling error that underlies the Grundrisse's introduction of temporal distinctions to the analysis of capital is that it subordinates the political institutions of the nation state to the logic of capitalist production when the system depends upon the availability of capable intellectuals and institutions to direct them. Marx repeatedly notes that the police function of the state is that of the juridical protector of capital and the agent of bourgeois relations of production: although capital functions under the protection of the courts and the police, the state itself is a servant of the returns of capitalist production, in the form of taxes (88). But what becomes of the relation between time and capital when the nation-state determines the flow of production and reins in the forces of industrial labor, as occurs in catastrophic periods, such as war?

Marx's limited comments on this subject (he often deferred to Engels on military matters) recognized the military impetus to production that defined the economies of vast cultural systems from the Roman Empire to the modern nation-state (On the monetary system of the Roman army, see Grundrisse 103. On modern military powers, see Marx's note Grundrisse 109. See also Engels 1-39, and Chaloner and Henderson ix). The Western nation-states were increasingly in conflict with one another on a geo-spatial scale, vying for territories and the creation of new markets in Europe and beyond. Their fluctuating relations and the ascendancy of military institutions are joined in Marx to the latent temporalities of labor and production by the increasingly mechanized forms of capitalist production.

But for Henry Adams Marx's analysis would have fallen neatly within the positivist assumptions of the age; most importantly, it was prone to a determinism that could not account for how the existing means of production and distribution were perfected and accelerated (and sometimes new systems are invented) in periods of crisis. For example, when the capitalist temporalities of production were restored after the peace of 1919, they fortified the relations of the nation-state to the intellectual forces of capital. As we will see in Chapter Three, Woodrow Wilson's creation of the DISR in response to the German model of combined scientific and industrial research was one

19<sup>th</sup> century German thought offered a means to elaborate the links between recent scientific thought and the nation. The link was constituted by how the state absorbed the electro-magnetic and electro-chemical scientific research within the institutions of the Natural Sciences. The German state was the first to admit not only the inorganic energies of history, but present the dynamo as the incarnation of its new power.<sup>114</sup> Adams recognized that a break with the naturalized nation-state of German Idealism was necessary.<sup>115</sup> It was not until the feudal German states had been unified and militarized – and the German research university proved a model of scientific innovation – that the disparate faults of the Hegelian tradition were confirmed to Adams in relation to the historical crisis precipitated by entropy in the new institutions of the 20<sup>th</sup> century.<sup>116</sup>

The problem was not limited to Germany. There was a strong Hegelian movement in the United States during the 19<sup>th</sup> century, of which Adams was certainly aware. The Hegelian movement was successfully transplanted during the great wave of German migration to the United States. William Goetzmann has noted of the Hegelian luminaries in the U.S. that:

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such fortification. It should also be noted for later reference that Hegel was appointed to the University of Berlin in 1818 by the Prussian Minister of Education during the general reformation that resulted in the creation of the German University model of scientific research (at Giessen in 1825).

<sup>114</sup> This point will be elaborated extensively in the following chapter through the Wilson Administration's adoption of the combined German model of industrial and scientific research.

<sup>115</sup> It should be noted that Engels' Condition of the English Working Class in 1844 often refers to innovations in mechanization spurred by thermodynamics.

<sup>116</sup> Adams' most scathing criticism of Hegel and Marx is found in a letter of 1899. See 'Brooks Adams, 5 November, 1899.' Letters of Henry Adams: 1892-1918. 247-48.



Gradually, as the nineteenth century wore on, Hegelianism and German philosophy in general spread from amateur societies such as the St. Louis Society into the colleges and universities. Morris preached its doctrines first at Michigan, then at Johns Hopkins. George Herbert Palmer, as chairman of the philosophy department at Harvard, enthusiastically taught Hegel and made a place for the German-trained idealist Josiah Royce in his department. Howison was virtually the only professional philosopher in California, and John Dewey, trained by Morris, an early Hegelian, never quite abandoned the Swabian's theories as he carried pragmatism and American thought forward into the twentieth century.<sup>117</sup>

The refutation of the majority of Hegel's theory of the nation-state brings into sharp relief the problems posed by any systemic approach to modern institutions in the emergent geo-political meshwork and in particular, in the United States. The critique of absolute forms also resembles Adams' diverse reactions to the "immutable order" overthrown in mathematics by Poincare'.

Adams' 'failure' to produce a historical model based on an equation for entropy did not proceed from the Hegelian dialectic or Poincare's "qualitative" mathematics; if it shared anything at all, it was the commitment to a new materialism, such as that glimpsed in Hegel's historical writings or the work of Poincare` with respect to the technologies that allowed for the standardization of time. We must always recall that Adams' critique of German thought or Poincare` occurred as the Natural Sciences were challenged from within by thermodynamics, mathematics, and history, and from without by new technologies and their institutions. Adams' new style, or poesis, was developed only after tremendous study suggested that other available models could not explain the emergent dynamics of inhuman intelligence and institutions.

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<sup>117</sup> See "Introduction." The American Hegelians. 9.

With respect to Hegel, Adams composed the critique of German Idealism in The Education of Henry Adams during a period of renewed competition between the new German state and the Anglo-American powers in commerce, war, and politics. It is in this period that the dynamo and its scientific problems of quantification, industrialization, and intellectual labor were institutionalized by the Americans, British, and Germans, and Adams studied them closely during the composition of The Education.

#### IV. THE SUBSEQUENCE OF THE NEW POWER

Henry Adams reserved a particularly dynamic position for the United States despite the absence of a “field-theory,” equation, or coherent historical theory of modern state power. The U.S. is conceived in Adams’ later works as the focal point of the new historical processes insofar as the republic partially shaped them into institutional form. The Education of Henry Adams diverges however from Adams’ previous studies of the United States with respect to the new U.S. institutions. For example, institutional history is treated therein less ambiguously than in his early analyses of economics; the later approach is to regard economics in relation to other forces.<sup>118</sup>

R.P. Blackmur has previously discussed this shift in Adams and he argues that Adams’ late style emerged from his study and critique of German history:

The German state was becoming military, a little ahead of and precipitating the militarization of Europe. Where the American polity relied upon an independent popular education and suffered from relaxation, the new European polity identified education with standardization, and standardization with discipline; and discipline was in turn to be the sole mode which the individual participated in the state. The new system had the advantage of energy so great as to be free of

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<sup>118</sup> See “To Worthington Chauncey Ford 26 November, 1898.” Letters of Henry Adams: 1892-1918. 192.

doubt; characteristically, the energy was the state, and was, therefore, its own authority. Adams summed the intention and the method with a principle out of late life: 'All state education is a sort of dynamo machine for polarizing the popular mind; for training and holding its lines of force in the direction supposed to be most effective for state purposes. (*Henry Adams*. 41-42)

The word "authority" invokes both Vico and Adams. "Authority" was defined by Vico "in its original meaning of property." The relation of "authority" to Adams' 'literary development' is twofold. The first relation is that between mind and objects. Intelligence is described by Vico: "Now the mind uses the intellect when, from something it senses, it gathers something which does not fall under the senses; and this is the proper meaning of the Latin verb intelligere."<sup>119</sup> Both Adams and Blackmur suggest similar definitions of intelligence. Blackmur, like Adams, identifies a human inability to understand the new "supersensual" forces of history: "By the end of the century the ordinary man's knowledge amounted to a kind of detailed helplessness before enormous aggregates of supersensual energy" (Henry Adams 24-25).

The second point is inextricable from the first. Nations institutionalized that supersensual energy, each in its own manner. The Hegelian nation-state was realized, for example, in the eventual unification of Prussian states as a highly effective, centralized and autocratic political system. Yet the historian who would apply the German model to the U.S. (as did the American Hegelians) would merely reconstruct the Idealist proposition and its promised teleological totality. Adams followed a different path: he recognized that the state guaranteed an institutional presence to the new, aggregate forces by providing them a representative space. Once authorized, these forces were not always centralized as they were within the Germanic hierarchies of autocratic control. As we shall see in the following chapter, some potential institutional

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<sup>119</sup> Letters 110.

movements drifted and developed until they were necessary or expendable. Such forces were contingent rather than absolute.

The last two decades Henry Adams' life afforded considerable opportunities to study the U.S. state from a proximity he had not known since his early adulthood. The late 19<sup>th</sup> and early 20<sup>th</sup> centuries were a period of immense institutional tumult and reform in the United States. The Republic was in a process of territorial expansion that required the development of new ancillary branches of the nation. Henry Adams understood that military and diplomatic institutions were at the vanguard of this expansion – the suspense of it propels The Education. The first major reform of the State Department was undertaken while his friend John Hay was Secretary of State (1898-1905). U.S. Naval power was reformed by Theodore Roosevelt after the theories of Alfred T. Mahan during the same period. Henry Adams studied the two transformations carefully and found that the new institutions expressed in the aggregate forms of military and diplomatic intelligence the power he had failed to grasp by means of mathematics and political philosophy.

Historian Henry Mattox has described the decade prior to the State Department's reform in the following terms:

Among other factors, it was the last decade before the reforms of the Progressive Era began to have a significant impact on how the diplomatic and consular establishments were staffed. It approached the end of the almost complete amateurism at all levels in the conduct of American foreign policy that had prevailed through the life of the Republic. (The Twilight of Amateur Diplomacy xi)

The "amateur" era described by Mattox was also the era of patronage, spoils, and nepotism, among other things, during which diplomacy was regarded as a "gentleman's" hobby or pursuit (a notion Adams ridiculed in his 1880 novel,

Democracy). Adams greeted the later shift towards specialization with skepticism; the shift was to great extent the preface to The Education.

As I noted earlier, Henry Adams had begun thinking of human institutions in terms of aggregations of force following his return from the Paris Exposition of 1900. He did so partly to criticize the Romantic historians, in particular Thomas Carlyle's and incarnational theories of the "great man" of history. The chapter of The Education of Henry Adams that recounts Henry's service as secretary to his father, who was U.S. Ambassador to England during the Civil War, was written with both the Romantic historians and the 1890's reforms in mind. With respect to the former, Garibaldi appears once again as a parody of the "great man" reduced to an iconic heresy; the latter reforms are treated as mere specialization. The question posed by Adams was not whether to defend the corrupt patrician order but rather how the reforms or their subjects were prepared to anticipate or comprehend emergent historical forces. Rather than base the reforms on sound, sober historical study, "reform elements and later commentators....equated professionalism with a necessarily increased ability to further policy objectives abroad" (Mattox 114). The Education was critical of the reformist tendency because it contributed to the obfuscation of institutional power; Adams situated his friend, Secretary of State John Hay, as a tragic figure consumed by the new institutions and their "objectives."

Adams regarded the U.S. Navy's reform as the more important of the two institutions, however, because U.S. naval reform had also forced diplomatic reform.<sup>120</sup> The U.S. naval reform was initiated during the 1880's and reached its first peak during World War One. As a result, Adams treated it as the most significant institutional reform by

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<sup>120</sup> Mattox also invokes naval reform with respect to the State Department. (2, 187).

virtue of its longevity, its ability to propel other institutional forces, and its incorporation of the technologies that had “broken his back” at the World’s Fairs and Expositions. I will return to naval reform with respect to intelligence reform in the following chapter, but it should be noted here that it will remain a strong undercurrent of the current thesis until its displacement by air power in the final chapter. For now it is critical to note that U.S. naval reform increasingly inflected the U.S. State Department, and the two were engaged in an extensive exchange whose significance, as understood by Adams, was not entirely explained by the will of human actors but by the force exerted by one institutional upon another.

U.S. naval reform had begun in the late 19<sup>th</sup> century. The Naval War College was founded in 1884, and shortly thereafter Alfred Mahan published his first writings on naval history. The Naval War College was however an “institution already the subject of considerable controversy among naval officers. Just what the college was supposed to do, or be, was still very much up in the air when Mahan arrived on the scene (Seager 160). It was to this tenuous institution that Mahan, a bitter veteran of the Navy, was self-exiled.

Alfred Mahan’s Influence of Sea Power on History was first published in 1890. The work argued that American commerce might be extended geo-spatially by the simultaneous modernization of the American Navy and an outward projection of force. The theory of sea power was grounded in “principles” that would apply to both ancient and modern warfare. The principles granted the theories the epistemological weight of empirical science. Mahan was influenced by the natural-scientific theses of many recent historical works that followed Darwin or the innovations of thermodynamics.<sup>121</sup> Mahan

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<sup>121</sup> Those works include Henry Adams’ History of the United States, which he studied closely. Seager discusses the influence of Adams on Mahan at several points. See Alfred Thayer Mahan, 166-167, 439, 567.

was compelled to present his history in scientific terms. His appropriation of the diction of thermodynamics distinguishes Adams' works from his own.

Mahan occasionally and recklessly used the language of thermodynamics to make his case. The influence is clear from the opening pages of the work, where Mahan offers a discourse on the distinctions between steam power and wind power with respect to naval battles, armaments, and strategy. Thermodynamics re-appears in a later discussion of new weaponry: "This [interval] doubtless arises from the fact that an improvement of weapons is due to the energy of one or two men, while changes in tactics have to overcome the inertia of a conservative class..."(8, emphasis mine). Mahan was sensitive to the possibilities of new technologies and how they would be absorbed by the U.S. Navy, but his deployment of thermodynamics as a historical model is weak.<sup>122</sup> Thermodynamics had produced new ship-building materials, more efficient engine designs (as the vertical engine), and Babbage's theory of hydraulics had revised the development of the U.S. Navy's new cannons. Mahan insisted on situating these inventions within a dynamic model that was based on the inter-relations of various economies of force. Innovations in naval power often supported both commerce and "communication." "Communication" has a dual significance in Mahan; it refers both to actual systems of communication between vessels and more broadly defined "stream of supplies and reinforcements" (Mahan 13). The theory of thermodynamic energy is evident in both. The telegraph was the cousin of the dynamo and facilitated the exchange of information; the flow of bodies and materiel constituted a secondary energy or communication of resources that supported the momentum of the warships (though, as his biographer, Seager, has noted, he was oblivious to the possibilities of

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<sup>122</sup> Zimmerman notes, however, that "Mahan was singularly insensitive to the technical innovations that accompanied steam and to new technologies like the submarine." (101).

wireless telegraphy, which was first introduced in 1896).<sup>123</sup> Mahan persisted, however, in relying upon human actors as the primary agents for his theories of naval warfare.

The distinction is evident in the relation of military institutions to the nation. Mahan's writings distinguished clearly between the national government and its "military administration, which he described as a "colony" and an "attribute of the home government" (49). The colonial relation of the state to its military institutions required for its maintenance a new generation of diplomatic and military officials as well as a work force of engineers and skilled manual laborers that could support the industrial production of those institutional reforms.<sup>124</sup> These would have to be kept distinct from the political class in Mahan's non-Clausewitzian schema of military power. The Influence of Sea Power on History occasionally admits to the ambivalence of these two classes with respect to the other, but not with respect to the new institutions or the relations between them; it does not, in effect, extend the models of thermodynamics beyond technological innovation. The centrality of human agents remains unmoved within its schemes.

Theodore Roosevelt advocated for the reform of the U.S. Navy along the material and theoretical lines that Mahan proposed; the building of the Panama Canal was inspired by the analogy that Alfred Mahan had drawn between the Mediterranean and Caribbean Seas.<sup>125</sup> More specifically, Theodore Roosevelt successfully expanded U.S. foreign policy to match Mahan's theory that national commerce must be supported by the projection of naval power along a circuit of coal bases, safe harbors, and conquered

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<sup>123</sup> "Introduction" Xiii.

<sup>124</sup> Mahan stresses the importance of this "reserve" class in relation to British naval dominance (42).

<sup>125</sup> The Influence of Seapower on History. 28-30.



or allied territories. The construction of the Panama Canal was one of the final measures of the Roosevelt administration's diplomatic and imperial efforts in that direction:

Henry Adams observed this transformation - this conversion - from a proximity forbidden to most and he was acutely aware of how American institutions were modified to suit Mahan's designs.<sup>126</sup> The work of Mahan and Adams crossed paths several times during this period; first, when Adams recommended that Mahan's The Influence of Sea Power on History be offered the award he had won in 1892 from Columbia College in the City of New York, and later, in 1899, when he criticized John Hay for sending Mahan as member of a delegation to the First Hague Conference.<sup>127</sup> The reform of the U.S. War Department, partly inspired by Mahan's theories of naval warfare, was of increasing interest to Adams in light of the Spanish-American War and the resulting acceleration of the U.S. economy that was induced by it.<sup>128</sup>

These varied encounters and polemics echo through The Education of Henry Adams. Its very composition was simultaneous with the reforms, and nearly every mention of Roosevelt or Hay in The Education carries with it the stigma of Mahan's designs. But it was institutions, and not men, that compelled Adams' late style. Adams' interest in Mahan's theories is dispersed through the anti-institutional rhetoric of The Education. Adams differed from Mahan in several respects. Firstly, Adams theorized that the new naval institutions were not synonymous with the Republic's original forms; they were

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<sup>126</sup> Evidence of these modifications can be found in President McKinley's plan "to move the colonial administration from Root's War Department to Hay's State Department" prior to the death of Hay (Zimmerman 419).

<sup>127</sup> See The Letters of Henry Adams 1892-1918 44, 232. See also Alfred Thayer Mahan 414.

<sup>128</sup> Adams' comments on the War Department are scattered through his letters, but those of the year 1899 are most important in this context. See Letters of Henry Adams: 1892-1918, 207-240.

instead expressions of a new historical power. This power rendered Mahan's careless use of the language of thermodynamics superfluous; its weak thermodynamics only rendered its discourse malleable to a simple centralization. Mahan's work, though highly influential, had not developed an adequate historical model for that could anticipate the failures of its own designs. In Adams' estimation, the new institutions and their officials proposed by Mahan (and Mahan himself) were in the same historical position and exposed to the same hazards that had unraveled the French officials in the Dreyfus Affair.

Adams studied Mahan's optimistic designs in a pessimistic register. It was not an eschatological pessimism, but a historical one. He despaired of the problem in a 1903 letter:

Thought is really effaced. No one thinks, or knows, or ever did what it is to think, in America, or ever in our time will care to know. The unions are our only thought, except the corporations, and the application of power.<sup>129</sup>

Adams clearly understood that to think was not merely to become absorbed in the aggregate power of the new institutions – thought was to supersede that power. The reform of military and diplomatic institutions close to Adams during this period in his life provide further proof that the task of history was to understand the forces that shaped the institutions and the reforms, how they were manifest in the present, and what portent they held for the future. As a result, the historian could no longer think within the classical institutions of right; the heroic mode whose goal was fulfillment in the liberal nation had been collapsing for over century due to precisely the “application of power” that prevented serious thought. Henry Adams' brother Brooks described the effects of that situation on democratic political processes in The Degradation of the Democratic Dogma, as

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<sup>129</sup> “April 13, 1903.” Letters of Henry Adams: 1892-1918. 403.

an infinite mass of conflicting minds and of conflicting interests which, by the persistent action of such a solvent as the modern or competitive industrial system, becomes resolved into what is, in substance, a vapor, which loses in collective intellectual energy in proportion to the perfection of its expansion.  
(109)

The language of Brooks' estimation is familiar despite the absence of his brother Henry's nuance and style. What it lacks is the estimation of entropy as a historical poesis with respect to particular institutional shifts. Adams' late rhetorical style was not abstract or ethereal, as Brooks's metaphors would suggest, but rather a rigorous materialism insofar as it elaborated entropy in relation to the scientific and institutional forms described above. Henry Adams resolved that a singular intelligence could carefully study such power and stylize the dynamic processes of this new American system as a poesis. Entropy was not a metaphor – an analogical object of the new history – but its dramatic evacuation by a poetic and historical intelligence; hence, the self-effacing style of The Education.

Adams contrasted the historical discourse of “literary development” against the institutional forces that carried his friends and contemporaries into the twentieth century. The Education historically interposes a rhetorical and discursive intelligence that could not be occupied or absorbed by the state. The U.S. “embodied” its decentralized power in new institutions; a poesis of that history would have to present its authority as a disembodied, irreproducible singularity that mimics “supersensual” force. Adams noted in his later essay “The Tendency of History” that “the hostility of the state would be assured toward any system or science that might not strengthen its arm.”<sup>130</sup> This hostility was not human in origin but authorized by supersensual forces; hence the anthropomorphic model of history could not stand in either a positive

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<sup>130</sup> The Great Secession Winter of 1860-61. 420.

register as the record of progress or in a negative register as the account of oppression. It would have to be entirely re-thought with respect to new historical forces and their aggregate forms.

The relation between authority and intelligence in Adams' late style is distinct. The individual intelligence, no longer bound by right to the state, turns from gathering objects for the state's purposes to producing a rhetorical style. Where the anthropomorphic style depended upon an authority and intelligence that connected the individual and the nation, the late style of Henry Adams it could not be embodied in institutions. The crisis produced a new problem: to reproduce history as a rhetorical style that evaded institutional capture and instead investigated the supersensual laws that governed those institutions. Adams' asserted that this intelligence would reside in the radical singularity of the "literary development" of entropy.

The "Shakespearean silence" that concludes The Education of Henry Adams is the silence of the narrator before forces that have suddenly belittled human intelligence, thrown history into disorder, and exposed a new horizon: the embarrassing encounter of the heroic modes of 19<sup>th</sup> century humanism with vast reservoirs of "super-sensual energy" that betrayed an intelligence beyond human control. It is not true that U.S. literary formations did not produce, as did later 20<sup>th</sup> century European formations, a style of history capable of understanding the interaction between human and inhuman processes or the arbitrary conventions upon which human history was based.<sup>131</sup> Henry Adams developed such a discourse, as did Herman Melville. But where the oceanic

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<sup>131</sup> I would not argue, however, that Henry Adams is a proto-post modern or post-structuralist. Recent studies overlook the precedent set by Adams, however, with respect to the problem of the inhuman. See, for example, Manuel De Landa A Thousand years of Non Linear History, 29, 74.

currents and geological strata that impose upon the whale pods and whaling fleets in Moby Dick were concerned with an aggregation of natural, inhuman intelligence, Adams' institutions present an inorganic aggregate that mimics the anthropomorphic human mind. Adams conceived his final works as inhuman forces in human habit. The consequences of that style would not be evident until after the posthumous publication of The Education of Henry Adams in 1918 and another generation, working in another inter-regnum, would elaborate its style against the further institutional centralization of supersensual forces.

The "Shakespearean silence" that concludes The Education of Henry Adams is the studied quiet of a rigorously alert intellect. The reckless strategies of the French military and anti-Dreyfusards were the noisy evidence of how a failed state intelligence in the Dreyfus affair coursed through the dynamic arteries of the new historical entities. "Right" had been consumed into the material flow of its energy, and human intelligence converged with its aggregate, "supersensual" force. These convergent lines initiated the 'literary development' of Adams's late style in relation to its dynamic institutional other. The Education of Henry Adams developed at the expense of those categories - romantic heroism, human agency, the subject as defined by right - that were guaranteed by previous historical models. The anatomy of their defeat, Adams insisted, was the mortuary science of style. A stylized intelligence was not a negation of human agency or a frustrated exercise in power, but rather an atmospheric disturbance in the cloistered rooms of the dead.

## 2. THE DOUBLE SCIENCE

### V. THE ZIMMERMANN TELEGRAM

Henry Adams was still alive, yet dead to most Americans, for the majority of World War One. His late letters reveal that he carefully studied his late world from that obscure vantage. In his letters he comments at length upon the geo-political situations that troubled the Wilson Administration, including U.S.-German and U.S.-Mexican relations. He also read, as late as February, 1918, the writings of Woodrow Wilson.<sup>132</sup> Adams perceived that the United States still lacked coherent strategies in military and diplomatic foreign policy despite significant local reforms in those institutions. As Walter Lippmann noted in 1943, “the nation had no foreign policy to guide it during the historic half century in which the United States has waged three wars” (U.S. Foreign Policy 39).

When read against the WWI era, The Education of Henry Adams offered a critical study of institutional power from the first Roosevelt Administration to Wilson’s last. Its relevance to that scene would not go unnoticed. Adams’ style would be resumed following the war by several important U.S. writers, as we shall see in later chapters. The institutions that concerned them most were military. Following Adams’ lead, T.S. Eliot, William Faulkner, and others would extend Adams’ critique of U.S. foreign policy and U.S. naval reform recounted in the previous chapter to the new institution of military intelligence. While Henry Adams did not directly discuss its emergence, his

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<sup>132</sup> See “To Charles Milnes Gaskell.” Letters of Henry Adams: 1892-1918. 648.

writings offered a style for thinking about the varied powers that shaped an emergent U.S. internationalism. While this experimental, historical strain of writing about U.S. military institutions emerged in U.S. letters in the post-war period, another, more practical strain also appeared. It consisted of a model of U.S. military intelligence that was extracted from genteel literary debates of the late 19<sup>th</sup> and early 20<sup>th</sup> centuries and consisted of the hermeneutic strategies of literary study, and philology in particular, that were adapted and transformed by the U.S. state during the First World War.

Woodrow Wilson had drifted along, and sometimes behind, Theodore Roosevelt on the reformist issues that partly defined the 1912 election. Both candidates had moved toward a Hamiltonian/Federalist model of centralized government to limit the commercial institutions. After defeating Roosevelt, Wilson had proposed a series of institutional reforms that were devised to settle long-standing debates over government regulation and deregulation of major industries and trusts. Wilson's position was that a strong federal state, bolstered by the Federal Reserve Act, could increase government regulation of industry, reinforce the Executive branch, and also stimulate a paradoxical centrifugal economic movement. The paradox rested upon Wilson's conviction that a strong, centralized state would allow a Jeffersonian model of free enterprise, market competition, and individual prosperity to proliferate.<sup>133</sup> Wilson published this plan in 1913 as The New Freedom: A Call for the Emancipation of the Generous Energies of a People.<sup>134</sup>

Wilson proposed his plans during a period of tremendous agitation over the possibilities of institutional reform. The Presidential election of 1912 was marked, as the late historian James Chace has noted, by four candidates (Debs, Roosevelt, Taft, and

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<sup>133</sup> James Chace's recent assessment of Wilson's first term offers a fragmented overview of Wilson's often confused proposals and reforms. See 1912 (7, 65-66, 243).

<sup>134</sup> Wilson, Woodrow. The New Freedom: A Call for the Emancipation of the Generous Energies of a People. Englewood Cliffs, N.J.: Prentice-Hall, Inc. 1961.

Wilson) that proposed four different but inter-related platforms on possible institutional and economic reforms. In the words of Chace: “all four men struggled to balance democratic values with emerging twentieth century institutions and technologies (8).” As noted in the previous chapter, The Education of Henry Adams, printed in 1918, was marked by its pessimism regarding the ability of both former and current U.S. politicians to formulate coherent strategies with respect to that “struggle” (Chace’s word carries perhaps too strong a Social Darwinist trace).

Woodrow Wilson’s Hamiltonian tendencies towards the use of executive power in the interest of greater centralization and regulation eventually cleared the way for a second wave of institutional reforms. This second wave was prompted by the First World War and was unlike the first wave in that it was not directed solely at finance, regulation, and industry. Rather, Wilson further increased executive power through existing military institutions that extended beyond the U.S. Department of the Army to international law (and, most famously, with the non-martial League of Nations) and domestic law (with the infamous Sedition Act). The reforms begun by Wilson in the U.S. military would extend over the next four decades and often include many of the same actors.

As I noted in the previous chapter, the first Roosevelt administration had proposed, following Alfred Mahan’s theories, a thorough reform of the U.S. Navy. Theodore Roosevelt, who rose from Secretary of the Navy to Vice President in the late 19<sup>th</sup> century (and later to President) initiated the naval reforms that culminated with the massive fleets and naval treaties of the post-WWI era. Theodore Roosevelt appointed William Taft as Secretary of War during his second term, and Taft in turn appointed Henry Stimson to Secretary of War during Taft’s own Presidency (1908-1912). Stimson would return to office two decades later, first as Secretary of State to Herbert Hoover and Secretary of War to Franklin Delano Roosevelt. It was Stimson who, as we shall later see, disbanded the U.S. intelligence created by Woodrow Wilson in the late 1920’s.



Stimson would later reverse his position under President Franklin Delano Roosevelt. Stimson would preside over the massive institutional reforms that shifted cryptology from a marginal, post-philological science to a mechanized institutional apparatus during the 1930's, a process that began in earnest during the second Wilson Administration and culminated when the varied institutional models proposed during the administrations of Theodore Roosevelt and Woodrow Wilson later achieved their first coherent form during the 1930's and 1940's during the administrations of Franklin Delano Roosevelt. FDR had been Woodrow Wilson's Assistant Secretary of the Navy, and his later military and diplomatic reforms of the WWII era (which included the militarized United Nations) were in themselves a refinement of those previous reforms.

These genealogical continuities were not merely generational or patrilineal; they resulted from a ferment of combined technological innovation, political contest, and institutional reforms. The ferment was given a concrete institutional form by the Wilson Administration when the United States entered the First World War. The First World War accelerated existing reformist discourse, and its accelerated centralization permitted pre-war philological discourses and amateur literary debate on the subject of cryptology to be absorbed into the centralized, wartime institutions of military intelligence. A specific series of events created the possibility that a significant area of modern literary study would find an institutional form in the wartime U.S. state. Their genealogy is constituted by both human actors and the gravitational pull of institutional power.

The institutions that emerged from that situated in the post-war period might not have taken their particular form if the United States had not maintained tense neutrality during the war's first three years. Woodrow Wilson had opposed U.S. intervention from the moment in the summer of 1914 that war raged between England, France, Russia, and Italy on the one side and Germany, Turkey, and the Austria-Hungary on the other. Neutrality permitted the Wilson administration to execute its widespread

domestic economic reforms. These reforms were consistently undermined by a powerful cadre of pro-war interventionists who were familiar with the American political machine. The interventionists included former President Theodore Roosevelt and the industrialist J.P. Morgan Jr. The British military was in dire need of materiel, and Morgan Jr. represented the British in the negotiation of contracts for the war effort; those contracts allowed U.S. economic institutions to prosper while their major economic rivals and partners slaughtered one another in a terrible expenditure of lives and resources on a global scale. The majority of U.S. citizens, appalled by that waste, supported Wilson's abstention from the conflict.

Professor Erich Muentzer of Cornell University shared the opinion of many American citizens who wished that the United States maintain its neutrality in World War One. The large German-American community in the United States regarded the American financial relief and material aid to England as a betrayal of the promised neutrality. American aid to England exploited the economic ambiguity of war, allowing it to intervene and profit indirectly from the conflict; it also damaged the German cause without violating military or political neutrality. In July of 1915, Professor Muentzer went to Washington D.C. and detonated a bomb in the Senate reception room; the next day, he shot J.P. Morgan Jr. Professor Muentzer's acts were intended to cripple the interventionist wing of U.S. foreign policy and public opinion; they were also, as Henry Adams noted in his letters, indirect expressions of the Kaiser's own foreign diplomacy.<sup>135</sup>

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<sup>135</sup> Henry Adams studied German foreign policy towards the United States and its meddling in U.S. national affairs. His late writings coincide with a period of German immigration to the U.S. Adams noted in 1902 that "The Kaiser wants to organize and use the German vote, in order to control our government." "To Elizabeth Cameron." Letters of Henry Adams: 1892-1918. Adams' letters also stood against much of the Anglo-Saxon and Germanic pseudo-scientific race mythology of its era (see also "To Frederick Bliss Luquiens," 592).

The briefcase of Dr. Heinrich Albert was stolen by an American secret service agent on a New York subway later that same month. Dr. Albert was a German diplomat and head of Germany's American propaganda campaign. The contents of the briefcase were published in serial form in *The New York World* in mid-August. The documents confirmed suspicions that German leaders were conspiring to keep America out of the war. The documents certified Professor Muentner's attack against Congress and J.P. Morgan Jr. as examples of German manipulation of American anti-war sentiment, if not of organized conspiracy.<sup>136</sup>

The public furor over Professor Muentner's attacks and Dr. Albert's briefcase was quickly overshadowed by international events. German diplomats and immigrants preached neutrality to the United States while the German Navy provoked America by sending the Lusitania to rust in the depths off the Irish coast. The Kaiser forced confrontations with the United States in the Caribbean and Central American regions, where Germany maneuvered for Mexican oil (which accounted then for one fourth of the world's supply) and for access to Mexican ports as civil war erupted in that nation. As I noted in the previous chapter, Theodore Roosevelt had followed Alfred Mahan's theory that the Caribbean Sea should be to the United States what the Mediterranean Sea had been to Rome: a secure and unified reserve for its uncontested naval power. Roosevelt's naval reform provided that security, and it remained a basic policy for the subsequent Taft and Wilson administrations. Wilson occupied Haiti in the late summer of 1915 and sent the U.S. Navy to prevent German capture of the eastern coastal ports in Mexico. The ambiguous American neutrality that was concentrated entirely in President Woodrow Wilson's moral pose began to bend as the President was forced to assert American military dominance in the Caribbean Sea.

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<sup>136</sup> The Nation published an article on subject of Dr. Albert's briefcase in its August 19<sup>th</sup>, 1915 issue. The article condemned both the New York World's suggestive journalism and Dr. Albert's lack of discretion in the affair. The article cited the example of Henry Adams' father, Charles Francis Adams, as a model for correct diplomatic behavior during wartime. See "The German Exposures." The Nation. August 19, 1915. 219.

Woodrow Wilson's biography is the story of an unpredictable intellect. Henry Adams summarized the matter in a 1913 letter: "What Woodrow Wilson is, no one knows, but I would keep as far as possible out of his way" (Letters 609). Wilson's institutional reforms and pseudo-interventions in the Caribbean Sea during 1915-1918 ranked high among the contradictions of a long and puzzling academic and political career. As James Chace has noted, Wilson was divided between Hamiltonian Federalism and Jeffersonian principles of individualism and small government. The policies and oratory of his second, wartime Administration embodied their contradiction: Wilson was a Jeffersonian individualist and a centralizing, Executive force, and his Administration subordinated the Hamiltonian reform of human institutions to his divine decree. His foreign policy was often confused by these contrasting tendencies.

Wilson was the son of a Presbyterian minister and shared deeply the conviction that he was one of God's elect. Illiterate until the age of eleven, Wilson was nonetheless steeped in the traditions of evangelical oratory and rhetoric at a young age; he used these skills to advance his study of law at Princeton and the University of Virginia. Wilson worked as a lawyer in Georgia for a brief time, but returned to academia in the late 1880's when his legal practice failed.

The failed lawyer excelled however in graduate study in political science at Johns Hopkins University. He soon became a migrant and excited academic. His academic career followed in the footsteps of his beloved uncle who was censured for teaching Darwin at the Columbia, South Carolina Theological Seminary. Wilson's first major work, issued in 1892, was The State: Elements of Historical and Practical Politics, A Sketch of Institutional History and Administration. The work was a study of the anthropological origins of modern institutions and their evolution in modern history. Other historical works followed, and Wilson's penchant for dispute won him rapid ascension from Professor to President of Princeton University, where his wide-ranging

reforms for curricula, new laboratories, and graduate student life earned him many enemies. With bridges burning behind him, he fixed his sights on the Governorship of New Jersey.

Wilson won the governorship after betraying the anti-Reformist Democratic Party bosses who had sponsored his candidacy. The Bosses had wanted to diminish the Party's Reformist drift, but Wilson, propelled by the turning tide of the national political discourse, turned on his sponsors and smashed the Bosses' corrupt electoral machines; he was elected to the governorship in 1910 on a platform of labor-backed reforms. Wilson ran for the Presidency after a limited governorship, setting his missionary zeal against the anti-Reformist Republican domination of the country (they had occupied the White House for sixteen consecutive years) with the conviction that he alone could reform the nation as he had restructured Princeton University and destroyed the Big Party machine in New Jersey. His major rival in the race was Theodore Roosevelt, the candidate of the Progressive Party. Roosevelt's Progressive Party was a coalition of immigrants, "social workers, schoolteachers, and successful-looking businessmen" (Chace 161). While based in widely different geographic and demographic constituencies, both the Democrats and Progressives proposed similar reform platforms.

Dr. Woodrow Wilson was elected to the White House in 1912 - less than two years after his stormy departure from Princeton. He had won the White House with the support of the most powerful Reformists of the national political scene (among them William Jennings Bryan), and with his brilliant oratory and clever political manipulation of the caucus system. He promised domestic reform and pacified his Reformist constituency with promises to regulate the rising monopolies and corporate interests. His policies directed new federal regulations with the hope that they would ameliorate the national social ills. Wilson's early months as President were thus defined by these institutional and social reforms.

The new President had been in office for less than a year when World War One exploded. Wilson found his Administration trapped between the pacifists and Reformers on one side, and the interventionists and Republicans on the other. He resisted both sides and publicly addressed the warring nations as his father had approached the pulpit, convinced that by the blessed sonority of his voice he could soothe the distant strife. Wilson's Reformist fervor, however, did not translate to international diplomacy and his high moral claims failed to calm the agonists. He went to the brink of war with Germany several times but always retracted. Wilson's unpredictable strategies unsettled the international milieu, where he was perceived as an opportunist. Try as he might to reason with his domestic and foreign enemies, he failed. Professor Muentner's attack against the Congress and the contents of the Albert briefcase only exacerbated the President's increasingly difficult and ambivalent neutrality in 1915.

A stalemate appeared as 1916 settled into the habits of trench warfare and politics. The Germans corrected their foreign policy errors and the U-Boats suspended their attacks in the Atlantic Ocean after sinking the Sussex in April 1916. The Kaiser sensed that American indignity would subside - and it did. If 1915 was a terrible year for the German-U.S. relations, 1916 was a year of restless isolation. Interventionists and pacifists continued their debate and President Wilson played his diplomatic hand. The Germans, however, had devised a secret plan that would neutralize the expected American intervention.

The German plan was directed at the heart of Wilson's confused foreign policy in the Western Hemisphere. Germany sent a telegram to the Mexican government of Venustiano Carranza by Foreign Minister Arthur Zimmerman. The offer was enciphered in the German diplomatic code. The Germans, who were poised to resume unrestricted submarine warfare in the Atlantic Ocean (and thus assure U.S. military

intervention) promised to Mexico the southwestern United States if it were to join forces with the Turkish, German, and Austro-Hungarian alliance. They furthermore encouraged Mexico to join with Japan in attacking the United States, thus diverting U.S. forces from Europe.<sup>137</sup>

On the outbreak of the war, however, the British sent their ships to cut the German transatlantic telegraph cables that cut across the Azores, Africa, and South America. Germany was prevented in this manner from unmediated communication with its emissaries in the Western hemisphere. Once this immense circuit was destroyed the Germans were forced to communicate by way of their powerful wireless telegraph stations, which ran through London and could not be protected from British eavesdropping.

The newly formed British cryptological office known as the Admiralty's Intelligence Division (Section 25) decoded the telegram containing the German proposal to Mexico.<sup>138</sup> The British immediately realized that it would help sway American intervention to their ailing efforts. There were, however, legal and logistical questions to resolve before the telegram could be revealed to the public. The British did not want the Germans to know that they had cracked the German wireless codes, and premature publication of the German plan might expose the British code-breaking success. In the meantime, the Kaiser had resumed unrestricted submarine warfare. The United States resisted the provocation and remained neutral, forcing the British to reveal the Zimmerman telegram to the United States.

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<sup>137</sup> Simon Singh offers an excellent account of Zimmerman's diplomatic plans. The Code Book 107-108.

<sup>138</sup> Modern British cryptology emerged during World War One. See The Puzzle Palace 481-83.

The decrypted telegram was forwarded to President Wilson with the stipulation that, for reasons of international law, the message would have to be decoded a second time on American soil at the American Embassy in London. This would create the impression that the Americans had capable intelligence officers who had intercepted and decoded the message in America; it would also protect the British cryptologists in Room 40, who did not want to betray their skill to the Central Powers. Wilson, ever the righteous Calvinist, consented to the telegram's lawful exposition.

The revelation of the infamous "Zimmerman telegram" spurred interventionist and nationalist sentiment in the United States. The threat of a Mexican invasion from the south swayed the Midwestern and Western states out of their Reformist or pacifist routines. Indignant populists now turned their attention to the international scene.

Bolstered by the opportunity to settle long-standing tensions with Germany with respect to German intervention in Mexican national affairs, President Wilson resolved to enter the fray.<sup>139</sup> He had been quietly preparing for military-institutional reform with his typical missionary zeal since at least 1915.<sup>140</sup> He recognized that the military and economic institutions of the United States were unprepared for the type of war it finally embarked upon. The lack of readiness was manifest in two connected areas. First, the nation was institutionally unprepared to produce the materiel for mechanized war. Wilson's Populist anti-trust policies and international idealism had weakened support among the industrialists. The industrialists would in turn have to overcome the antiquated U.S. military infrastructure, which was of the late 19<sup>th</sup> century, and together reform the industrial base which was alienated by the Reformist mood of the nation. "There existed no administrative mechanism, either within or without the government,

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<sup>139</sup> See, for example, Woodrow Wilson and the Mexican Revolution: 1913-1916 78-79. See also Revolution on the Border: The United States and Mexico, 1910-1920 (26) and American Invulnerable (158-168).

<sup>140</sup> 1912 249.



adequate to the task of mobilizing the country's industrial and scientific resources for war" (Noble 148).

The second point ran parallel to the first. The United States lacked modern military intelligence institutions. The Zimmerman telegram's elaborate revelation created the impression that the United States appeared to have a formidable intelligence infrastructure.<sup>141</sup> The ruse was undermined by the fact that a lack of material preparation only compounded the woeful state of U.S. military intelligence. Inadequate U.S. intelligence institutions and their communications technologies and languages crippled naval communications, diplomatic correspondence, and every area of surveillance, strategy, and tactics. Illusions of a capable intelligence agency were quickly destroyed upon sober review: the War Department of the United States did not have the code breaking capabilities of the British or the French (and later, the Germans). Despite its shortcomings, the United States had bluffed its way with considerable British assistance into the strange new world of modern military intelligence.

The potentially fatal weakness of U.S. intelligence spanned both U.S. military and diplomatic intelligence.<sup>142</sup> The United States Department of War was still using the

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<sup>141</sup> One of the more well-informed accounts of the geo-political context of this incident was written by Barbara Tuchman in a work entitled The Zimmerman Telegram. See also Singh 107-114. The memoirs of Admiral Hall, the British Naval commander who oversaw the decryption, have never been published for security reasons. The retraction of Hall's memoirs is one of the first such incidents in the history of 20<sup>th</sup>-century military intelligence, in which certain works were censored by the emergent modern security states; the same would later occur to the U.S. cryptologists Herbert Yardley and William Friedman, as well as the famed British mathematician Alan Turing.

<sup>142</sup> Evidence of this deficit extends from the McKinley administration. Zimmerman notes that Elihu Root recognized the threat posed by a lack of modern intelligence abilities in the Phillipines during the Spanish-American War (Zimmerman 404, 408). The U.S. Government often used the same code books for excessive periods of time. Robert Sater's Telegraphic Code to Ensure Secrecy had been compiled in 1870, adopted by the War Department in 1885, and was in its fifth edition in 1906.

intelligence systems of the post-Civil War era at the outbreak of hostilities in 1914. To aggravate this deficit, a chivalric attitude governed the American military, which looked upon military intelligence as a dishonest game; this attitude would vanish in the following decades, but not before President Hoover's Secretary of War Henry Stimson dismantled the American Black Chamber in 1929, as we shall later see.

In the meantime, however, the imminent war propelled President Woodrow Wilson and several key military figures to transform the U.S. military intelligence institutions. They shifted their reformist tendencies to execute the necessary transformation of U.S. intelligence. The code-breaking superiority of the European Black Chambers convinced the U.S. War Department and Woodrow Wilson to a complete reformation of American intelligence.

Henry Adams died on March 27<sup>th</sup>, 1918. Adams had argued that The Education of Henry Adams was a relic of another age – that, as he gazed across the contemporary world, he had become a “saurian” like the Civil War politicians he had mocked in the book. The comparison was prompted by how new forces had rendered historical foresight a matter of probability rather than certainty. Appropriately, Henry Adams had not anticipated two consequences his final work would have. The first was that a series of U.S. writers would develop a rhetorical style from where Adams had ceased (that style is the subject of later chapters). Second, Adams could not anticipate that early 20<sup>th</sup> century U.S. naval power would be accelerated during World War One as a result of its collaboration with the reform of U.S. military intelligence. Theodore Roosevelt's Secretary of War, Henry Stimson, would return to play a crucial role in those developments in the area of signals intelligence nearly twenty years later (as would Wilson's Assistant Secretary of the Navy, Franklin Delano Roosevelt, with respect to human intelligence). In the meantime, the institutional reform begun in the State Department during Adams' lifetime would find the stimulus for an unprecedented transformation in the genteel world of literary matters.

## VI. THE STATE AS A WORK OF LITERATURE

Frederick and Rosa Friedman fled Bucharest, Romania and later Kishinev, Moldavia, during a wave of anti-semitic violence in the early 1890's. The Friedmans eventually settled in what was then Pittsburg, Pennsylvania. Their son William was an excellent student, proficient in electrical engineering, who graduated with honors from high school. William attended first the Michigan Agricultural College and later Cornell University, where he studied genetics on academic scholarships. He remained at Cornell after graduating in the spring of 1915 where he continued to study and also lectured in the graduate school.

In the summer of 1915 Friedman accepted an offer to work in the private laboratories on the Geneva, Illinois estate of Colonel George Fabyan. The title 'Colonel' was honorary rather than military; Fabyan was the heir to a cotton empire. Fabyan invested his riches in a new estate and hired the young architect Frank Lloyd Wright to design its central building. The estate was given the idyllic name "Riverbank" and opened in 1905.

The Riverbank laboratories conducted experiments in acoustics, genetics, chemistry, and cryptology. The genetics research of the Riverbank Laboratories was committed to contemporary debates in social reform. Those debates were informed, as Peter Allan Dale has noted, by anti-reformist theories of "degenerative" genetics and eugenics, two terms that linked the social sciences to ideas borrowed from Darwin and thermodynamic models of declining energy.<sup>143</sup> Where Dale has traced the movement in British literature, U.S. social historians provide a parallel to Dale's theories vis-à-vis U.S. Social Darwinism in the twentieth century's early decades.<sup>144</sup>

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<sup>143</sup> See Dale, 220-30.

<sup>144</sup> See Richard Hofstadter. Social Darwinism in American Thought 161-167.

Eugenics constituted together with Spencerian social Darwinism, phrenology and other pseudo- or popular sciences, a backlash against Progressive and Reformist politics in the United States. The conflict between them was particularly strong in the Midwest, where Chicago was a center of the social welfare and Reform movement (for example, when Theodore Roosevelt was nominated in 1912 as Presidential candidate of the Progressive Party Convention in Chicago, Jane Addams presided as the Convention Chair).

The Riverbank genetic research extended also to the social implications of the Bacon-Shakespeare debate. The debate's contention was whether the aristocrat Francis Bacon had authored Shakespeare's plays. The Baconists, as they were called, argued in the affirmative, and the Shakespeareans in the negative. The Riverbank cryptology research was described over forty years later by William and Elizebeth Friedman as "anti-Shakespeareana": the work of proving that Shakespeare's plays were written by Francis Bacon.<sup>145</sup> The Baconist cryptological research was connected to the Riverbank genetics department. The Baconists stood against Jane Addams' social work (which included recitals of Shakespeare at Hull House) because genetics favored aristocracy and descent as models of political (and therefore cultural) prestige. Riverbank's cryptology thus tended toward the Republican Party's side of the debate against the Progressives.

The work of the Riverbank Laboratories was ambiguous and suitable to a variety of applications, not the least of which was the desired political prestige of Colonel Fabyan. The ambivalence blurred the line between social reform and reaction: "Certainly in America the roles of the liberal and the conservative have been so often intermingled, and in some ways reversed, that clear traditions have never taken form." (Hofstadter 8).

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<sup>145</sup> The Friedmans' book on Shakespeare recounts the history of these projects in great detail and concludes that the work of Gallup, Fabyan, and Owen did not prove that Shakespeare's plays were authored by Bacon.

The political malleability of the Riverbank research eventually permitted the Laboratory to later volunteer its cryptological services to the Democratic Wilson Administration in the months prior to U.S. entry in the First World War.

The Riverbank research was dedicated to more provincial ends upon William Friedman's arrival there in 1915, where it intervened in regional debates on education reform. Riverbank cryptology challenged the platform in American education that rested upon the understanding of Shakespeare as an author of vulgar social lineage. As I noted in the introductory essay, the Riverbank methods were first introduced by the Shakespeare-Bacon debate that had begun in the late 1880's with the publication of Ignatius Donnelly's The Great Cryptogram. The anti-reformist reforms of Riverbank followed Donnelly in opposing the "sacralization" of Shakespeare as a model of liberal education:

It is hardly coincidental that in this atmosphere there was a blossoming of books and articles maintaining that Shakespeare's plays were the product of another writer. The loftier Shakespeare's position became, the more untenable it was that a man of his low social standing and dubious education - whom the American teacher and author Delia Bacon dismissed as 'a stupid, ignorant, illiterate, third-rate play-actor'- could have risen to the heights of his drama, which must have been the creation of someone better trained, better born, more nobly situated: Sir Francis Bacon, Sir Walter Raleigh, Edmund Spenser, the Earls of Oxford, or Rutland, or Derby, anyone more fit to play the new role assigned to the former bard of Avon.<sup>146</sup>

The Baconian debate was indirectly sustained by Populist U.S. political discussions. As I noted earlier, Donnelly was nominated to campaign for the Vice-Presidency by the

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<sup>146</sup> Highbrow/Lowbrow : The Emergence of Cultural Hierarchy in America 74-75. It should be noted that Shakespeare was often performed by the residents of Jane Addams' Hull House in Chicago to encourage their socialization.

Populist Party in 1900. Alfred Kazin cited Ignatius Donnelly's political origins in the agrarian Populist movement in On Native Grounds (1942). Donnelly belonged, according to Kazin, to the "seeming demagoguery of Populism [that] anticipated the Know-Nothing native fascists of our own time, for Populism was essentially a groundswell of protest, an amorphous rebellion that caught all the confusions and hatreds of the time" (21). Kazin rather confusedly cites the Populists as the precursor of future anti-modernist liberalism. The Populist connection does not however explain the later, elitist and aristocratic connotations of the Riverbank work, but it does explain the later affinity, during the 1930's and 1940's, between the Agrarian New Critics and the Chicago area cryptologists that I will review in Chapter Five.

Agrarian Populism also does not account for the technophilic innovation of the Riverbank cryptologists. The references to Christopher Marlowe, Edmund Spenser and several other major Elizabethan figures in the passage cited above refer to the theories of Dr. Orville Ward Owen, a physician and amateur cryptologist whose analyses of Bacon provided arguments and methods that emerged as the successors to Donnelly's. Owen was also the first modern American cryptologist to automate his research using the "Owen Wheel," a machine invented to anthologize and view all of the available Elizabethan texts and manuscripts in facsimile form.<sup>147</sup> The Riverbank researchers used Owen's machines to study photographically enlarged Elizabethan texts. William Friedman, who had been hired as a geneticist to "help increase the harvest of his [Fabyan's] farming enterprise," was transferred genetics research to the Riverbank cryptology department for his photographic expertise. Friedman's initial role was to

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<sup>147</sup> William and Elizabeth Friedman 65-67. It is not clear whether the Fabyan Estate owned this device, but Friedman's initial work as a photographer suggests that they did use a similar technique in order to identify the two typefaces - roman and italic - that constituted the basis of the bilateral cipher in Bacon's writings on the subject. Friedman also mentions a machine in his NSA lectures that served a similar purpose and was invented by Fabyan. See also The Codebreakers 879.

photographically enlarge the Elizabethan texts for the department's cryptographers to decode, but he quickly became the department's top cryptologist.<sup>148</sup>

The object of Riverbank's philological endeavors was a series of bilateral ciphers invented by Sir Francis Bacon. The bilateral cipher used the interchangeable type of 16<sup>th</sup> century printing presses to conceal an alternate text beneath a typographical surface. The cipher was bilateral because it alternated between two typefaces. These were organized in groups of five letters. The particular combination of typeface specific to each five-letter group could in turn be "deciphered" to correspond to a single letter of the English alphabet; for example, AAAAA could stand for the letter **a**, AAAAB for the letter **b**, and so forth. Once the letters were divided into groups of five, a secondary text could be revealed when readers assigned the appropriate letters of the cipher to the groups of combined A and B typefaces. For example, David Kahn has noted that

the cover text "Do not go till I come" would represent the hidden message "fly," which is AABAB ABABA BABBA, by setting the D and the O in roman [type], the N in italic [type], the O in roman again, the T in italic, and so on, like this:

AA BAB AB ABAB A BBA-  
Do *not* go till I come

The cover-text says exactly the opposite of the hidden message ["fly"]; it is, of course, entirely independent of it, and this is what Bacon means when he refers to writing "omnia per omnia," or anything by anything.

(The Codebreakers 883)

The Riverbank cryptologists studied the arrangement of typefaces in the Shakespeare Folio editions to confirm Bacon's authorship. They applied the bilateral cipher solution and others in order to decipher hidden signatures and texts that would betray another author. The Riverbank cryptologists thus developed a non-historical model of

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<sup>148</sup> See also Kippenhahn 39-41.

interpretation; unlike the philologists, who pursued the historically inscribed significance of language, the Riverbank cryptologists culled the exegesis of the text from the settings of letters and words rather than from historical evidence. The results proved arbitrary, but the Riverbank cryptology department had engaged in this typographic phrenology for one decade and Fabyan was too stubborn to concede defeat, let alone error.

Fabyan's cryptology project thus sustained and extended the techniques introduced by Donnelly with The Great Cryptogram. Prior to Friedman's arrival, the Riverbank Bacon research was directed by Elizabeth Wells Gallup, whose book The Bilateral Cipher of Sir Francis Bacon Discovered in his Works and Deciphered by Elizabeth Wells Gallup was printed in three editions, each successively enlarged in 1899, 1900, and 1901 respectively.<sup>149</sup> Gallup's work derived from her mentor Dr. Orville Ward Owen. Friedman described Gallup:

Elizabeth Wells Gallup was a well-educated woman. She was born in Paris, N.Y., in 1848; she went to school in New York, to the State Normal College in Michigan, to the Sorbonne in the other Paris, and to the University of Marburg. She taught in Michigan for twenty years or so, and became Principal of a High School. She had always been interested in literature, and particularly in Bacon; she was attracted to Dr. Owen's theory, and with her sister Kate Wells she was persuaded to join his work.<sup>150</sup>

The Riverbank work was conducted under Gallup's direction in order to lend a scientific credibility to Fabyan's political aspirations during the pre-war era. The

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<sup>149</sup> William and Elizabeth Friedman 188.

<sup>150</sup> This passage, quoted from the Friedman's book on Shakespeare (in which he does not indicate a source), exists in a typed manuscript form signed by Gallup in the New York Public Library's Bacon Cipher collection. She may have written it herself. Kahn provides a more extensive biography in The Codebreakers 885-887.



laboratory itself consisted of six or seven researchers who combined their literary-cryptographic research with an educational platform established by Fabyan.<sup>151</sup> Fabyan published dozens of didactic pamphlets during this period on the scientific and literary merits of the Riverbank work. These pamphlets included “exercises” in decryption for the readers and advertised the foundation of a Bacon society at Riverbank. Should the Riverbank work against the ‘commoner’ William Shakespeare disprove the social reformists, it would also restore Lord Bacon’s “double science” of ciphers to intellectual eminence. It would also allow the Riverbank discoveries to attain philological prestige.<sup>152</sup>

Friedman’s hiring in 1915 accelerated another reform at Riverbank. Friedman, who was disinterested in Fabyan’s political schemes, began to focus on refining the science of cryptology. He focused on the structures of language and studied recurring patterns of words and typeset in order to discern Bacon’s cipher system in Elizabethan typography by means that were not bound to the photographic enlargement and analysis of poorly documented examples of Elizabethan typeface. William Friedman developed a disciplined, well-funded, and highly organized approach to cryptological exegesis that transformed the Riverbank techniques and research with a revolutionary zeal. His work

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<sup>151</sup> An undated sheet of Riverbank letterhead stationary in the Bacon Cipher Collection contains seven names: B.E. Eisenhour (Dean), R.G. Scott, C.J. O’Connor, E.W. Gallup, W.F. Friedman, A.M. Henderson, K.E. Wells.

It is widely thought that Elizabeth Wells Gallup was the director of the program; the function of this “Dean” Eisenhour is a mystery. The letterhead does not list Elizebeth Smith, who arrived at Riverbank in 1916.

<sup>152</sup> Rosenheim has described the project in the following terms: “Ciphred readings of Shakespeare aim to disrupt the authority of canons, the construction of authors, and the relation between authors and the works they produce – in part by mimicking the protocol of the literary history they resist.” Rosenheim errs when he reads these works as subversive, for the work of the Riverbank Laboratories was not motivated by the language of “resistance” that permeates Rosenheim’s account, and if it mimicked any literary history it was that of philology.

emphasized technological and statistical analysis of the Elizabethan texts under scrutiny. His methods formalized the anti-philological exegetical impetus of the Riverbank research and provided the foundations for his post-WWI work which, as we shall see, permanently abandoned the philologist's commitment to study language as a dynamic, historical entity, thus separating cryptology from late 19<sup>th</sup> century methods of literary interpretation.

William Friedman's reforms coincided with the movement of the United States towards entry into World War One. Sensing political opportunity, Colonel Fabyan offered the services of his cryptologists to the U.S. State Department in the year prior to the United States' precipitous entry in the First World War. The decryption of the Zimmerman telegram in early 1917 reversed Wilson's neutrality and American public opinion, but it also made the government sensitive to the reforms of its intelligence operations and institutions. The United States military was unprepared to fight a major war in several respects, but none was more glaring than the lack of any organized or modern cryptologic personnel that could assist in the vital task of providing intelligence from the enciphered telegraphic messages of the Central Powers.

The Riverbank cryptologists were in an excellent position and well-prepared to intervene. They had already translated the methods of their literary research into a crude pedagogy that communicated the philological, educational, and technological innovations of their voluminous research. William Friedman later wrote the following on the transformation of the Riverbank work from literary-philological register to a branch of the United States' primitive security apparatus:

It is difficult to believe, but I assure you that it was true, there was at the moment in neither of these departments [Justice or State], nor in the Army or Navy, any organizations or technical groups whatever, either for interpreting enemy communications or for studying them, let alone solving such communications. There had been, it is true, since the autumn of 1916, a very small group of self-

trained cryptanalysts, sponsored and supported by a private citizen named Colonel George Fabyan, who operated the Riverbank Laboratories at Geneva, Illinois. I served as a leader of the group, in addition to other duties as a geneticist at the laboratories. Riverbank, through George Fabyan, had initiated and established an unofficial, or at most, quasi-official relationship with the authorities in Washington, so that it received from time to time copies of cryptographic messages obtained by various and entirely surreptitious means from telegraph and cable offices in Washington and elsewhere in the United States.

The majority of the messages sent to Riverbank for solution were those of the Mexican government. Riverbank was successful in solving all or nearly all the Mexican cryptograms it was given, usually returning the solutions to Washington very promptly. The great majority of them were of the Vigenere type but using mixed sequences with relatively long key phrases. Riverbank was also successful with certain other cryptograms concerned with the war in Europe, but I cannot deal with them now because there just isn't time. Soon after the United States declared war on Germany, Colonel Fabyan established a school for training at Riverbank, and he invited the services to send him Army and Navy officers to learn something about cryptology in formal courses established for the purpose. Each course lasted six weeks, full time. (Friedman 142)

There is archival evidence in the Bacon Cipher Collection to corroborate this claim that the Riverbank Laboratory was working for the United States government.<sup>153</sup> Elizabeth

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<sup>153</sup> The publications, notes, and assorted correspondence and research of cryptology project sponsored by Fabyan's estate now reside in what is called the "Bacon Cipher Collection" in the Special Collections of the New York Public Library, one of three major American libraries that, after World War One, began to collect and archive collections of cryptographic publications. The other repositories are the Fabyan Collection at The Library of Congress (donated circa 1928) and the Charles Mendelsohn Collection at University of Pennsylvania (most likely donated in the 1930's; Mendelsohn

Gallup, who had studied in Germany, was responsible for preparing the laboratory for the interception and decryption of German communications during the first weeks of the war. This work included a list of German military terms that Gallup compiled in a document signed April 28, 1917. Gallup's list consists of German military terms that she herself compiled and signed, and the slip is dated three weeks after the United States' formal declaration of war.<sup>154</sup>

As I noted in the previous section, the United States military intelligence operations had sustained obsolete 19<sup>th</sup> century techniques. The first Military Intelligence Division (M.I.D.) had only been instituted in 1889 (the peak year of Donnelly's Great Cryptogram debate) and run jointly by the Departments of State, War, and the Navy.<sup>155</sup> Both the U.S. Army and U.S. Navy had however ignored its importance on an institutional scale, yet a small group pursued its development during the same years that the Riverbank Estate pursued the Baconist argument. Lieutenant Ralph Van Deman was assigned to M.I.D. in 1897 and had served to direct intelligence operations in the Philippines during the Spanish-American War. Following the war, President Theodore Roosevelt signed a bill that instituted military intelligence under the direction of a "general staff" system borrowed from the French model (in which the *Bureau du Chiffre* served diplomatic policy and military strategy). Van Deman drifted between versions of

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died in 1940). A smaller repository may be found at Kent State University. The National Security's Agency's archives and Museum of Cryptology were developed after WWII. The Bacon Cipher Collection sheds a great deal of light on the development of 20<sup>th</sup> century cryptology from its origins in mid-to-late 19<sup>th</sup> century literary scholarship and philology.

<sup>154</sup> Cf. the New York Public Library's Bacon Cipher collection. This document is in reality a slip of paper folded amongst the Laboratory's correspondence. It was misplaced in a folder containing a crudely drawn submarine that was sent to the laboratory by an amateur cryptographer and steganographer.

<sup>155</sup> See The Reader of Gentleman's Mail 17.

the system until 1915, when he was assigned to work in intelligence for the Washington office of the General Staff. The office was disbanded and Van Deman set adrift.<sup>156</sup>

Van Deman soon found other military officers who shared his vision of military intelligence reform. A conference was organized by the U.S. Army in 1911 on the subject of ciphers and codes. Its location was Fort Leavenworth, Kansas. Both Captain Parker Hitt and Lieutenant Joseph Mauborgne participated in the conference. Hitt's 1916 book was the first major history of cryptology ever published in the United States, while Mauborgne, who was also a consummate cryptologist, was dedicated to institutional reform as well as scientific reform. Ralph De Man joined with Joseph Mauborgne in March, 1917 to evaluate an offer from the Riverbank Estate. In the words of David Kahn, Mauborgne left Riverbank "impressed, [and he ] urged that the government 'take immediate advantage of Col. Fabyan's offer to decipher captured messages'" (The Reader of Gentleman's Mail 23). Within weeks, the Navy, State, and Justice Departments sent officers to train at Riverbank, where they studied the Baconist techniques.

Colonel Fabyan hired new employees to support the cryptological war effort and soon tripled the cryptological staff. One of the new hires was Elizebeth Smith.<sup>157</sup> Smith was born in Indiana and had studied in Ohio and Michigan, where she graduated with a major in English and a learned understanding of German, Latin, and Greek. She and

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<sup>156</sup> Kahn provides a concise history of this reform in The Reader of Gentleman's Mail 18.

<sup>157</sup> The variant spelling of her first name is attributed to a family dislike of nicknames and abbreviations. Little is known of Elizebeth Smith Friedman's early career and its relation to her husband's work. There is reason to think that her influence was both substantial and formative. Despite her aversion to publicity and publication, she briefly became a celebrity in the trials of the rum-runners in the 1920's. Her later career as a cryptologist certainly had a wider influence than her husband: she eventually worked for the War Department, Coast Guard, and after World War Two as a specialist in Communications Security systems for the International Monetary Fund (see also her obituary in The New York Times, November 3, 1980).

William Friedman quickly fell in love, and Elizebeth Smith married William Friedman in May, 1917. The marriage was consecrated at the very moment in which the Riverbank work was shifted away from provincial debates of educational reform and towards the international war effort, thus launching the careers of the two most important cryptologists in 20<sup>th</sup> century American history.

The Riverbank anti-philologists were joined by a cluster of literary intellectuals during the war. This second group consisted of volunteers drawn primarily from the Departments of Latin and English at the University of Chicago but also included professors of Spanish, German, and Chemistry from the University of Pennsylvania, Yale University, and a teacher from the Brooklyn Public School system. The group was organized under the direction of a State Department clerk from Indiana named Herbert Yardley. Yardley, an Indiana native, was affiliated with the Chicago English Department by default: he had taken correspondence courses to earn a degree in English from that institution immediately prior to U.S. entry into the war.<sup>158</sup> Yardley's group was named MI-8 (Military Intelligence-8) and set to work as the State Department's cipher bureau during the war. Intelligence historian David Kahn has noted:

The first to arrive, to take charge of the instruction subsection for training A.E.F. cryptanalysts, was Dr. John Manly, a 52-year old philologist.....a longtime hobbyist in cryptology, he was to become Yardley's chief assistant and one of his best cryptanalysts. Manly brought with him a bevy of Ph.D.'s clanking with Phi Beta Kappa keys, mostly from the University of Chicago: David H. Stevens, 32, an instructor in English, later director of the division for the humanities of the Rockefeller Foundation; Thomas A. Knott, 37, associate professor of English and later general editor of Webster's dictionaries, including the colossal 1934 Second New International Unabridged; Charles H. Beeson, 47, associate professor of

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<sup>158</sup> See The Reader of Gentleman's Mail 8.

Latin, later president of the Medieval Academy of America, who had gotten his doctorate at Munich and knew German well enough to write scholarly works in it; and Frederick Bliss Luquiens, 41, professor of Spanish at Yale University, general editor of the Macmillan Spanish Series, and author of *An Introduction to Old French Phonology and Morphology*.” (The Codebreakers 352)

The Elizabethan experts, Latinists, and linguists of MI-8 were institutional intellectuals, and as such the indirect object of the Riverbank Baconist arguments. Dr. John Matthews Manly in particular was a consummate philologist. Prior to joining MI-8, Manly was the Chair of the English Department of the University of Chicago and one of the nation’s leading scholars of Elizabethan literatures. Although the Riverbank work was opposed to his writings on Shakespeare, Manly had visited Riverbank prior to the war at the request of both Colonel Fabyan and a University librarian who assisted Fabyan’s enterprise. Manly expressed his concerns about the scientific validity of the application of the Bacon Cipher to Shakespeare’s plays, but nonetheless assisted Fabyan in obtaining books on 16<sup>th</sup> century typefaces and printing techniques from England. Dr. Manly and the Riverbank Baconists, and in particular the Friedmans, also shared common interests in the techniques pertinent to cryptological exegesis. In short, they were united by the formal aspects of cryptology – the application of hermeneutic models to empirical evidence – rather than any socio-political reformist end to which the method might be applied.

The Riverbank and MI-8 codebreakers worked however in different areas during the war. Many of the MI-8 recruits were trained at Riverbank, but Fabyan’s estate ceased to be central to wartime intelligence operations by the summer of 1917. William Friedman was later sent to work in Europe in the U.S. Army Signal Corps while Manly and the Chicago group worked for the State Department (and also the Army) in Washington,

D.C. for MI-8, where Manly was Yardley's chief assistant. He briefly directed MI-8 when Yardley visited England and France at war's end.<sup>159</sup>

The pre-war competition between Riverbank Baconists and MI-8 Shakespeareans dissolved during the war and accelerated the institutional reform of U.S. cryptology. The combined work of the military officials (De Man and Mauborgne), philologists (i.e. John Matthews Manly), and Baconists (i.e. the Friedmans) transposed the reformist fervor of Midwestern social and literary debate to the emergent techniques of U.S. cryptology during the First World War. U.S. cryptology soon adopted the French model of collective labor, technological proficiency, and exegetical prowess which had dominated European cryptology since 1870.<sup>160</sup>

The Riverbank Baconists and the Black Chamber Elizabethans of MI-8 (and in particular the consequential contest between Yardley and Friedman) converged in the accelerated reform. The two groups combined to gradually modernize U.S. military cryptology in accordance with advances in communications technologies, the refining of their pedagogical and hermeneutic techniques, and national/military bureaucratic reforms prompted by the Wilson Administration during WWI. U.S. intelligence reform would follow along these lines during the post-war era, and with significant returns to its literary beginnings, but not before William and Elizebeth Friedman had refined its anti-philological interpretive technique.

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<sup>159</sup> It is unclear how many of the Riverbank and Chicago group worked as code breakers in Europe during the war. Elizabeth Gallup and Elizebeth Friedman did not, but Manly's colleague at the University of Chicago, Edith Rickert, (who later co-edited several works with him, including the canonical varorium edition of Chaucer's poems) worked with Manly in MI-8. See The Reader of Gentleman's Mail 39, 43.

<sup>160</sup> For a description of the French wartime design, see The Codebreakers 304-306.



## VII. THE QUANTIFICATION OF LANGUAGE

World War One had transformed the European intelligence services. France had been the dominant European force in cryptology since 1870, with a particular strength in cryptanalysis, or the breaking of codes and ciphers. The British historian Simon Singh has described the French success that followed defeat in 1870 as follows:

It was in this climate that Auguste Kerckhoffs wrote his treatise *La Cryptographie militaire*. Although Kerckhoffs was Dutch, he spent most of his life in France, and his writings provided an exceptional guide to the principles of cryptanalysis. By the time the First World War had begun, three decades later, the French military had implemented Kerckhoffs' ideas on an industrial scale. While lone geniuses like Painvin sought to break new ciphers, teams of experts, each with specially developed skills for tackling a particular cipher, concentrated on day-to-day decipherments. Time was of the essence, and conveyor-belt cryptanalysis could provide intelligence quickly and efficiently. (The Code Book 105-106)

The French also developed during World War One the technique that would later be known as "traffic analysis": the use of direction finding antennae to determine the source of an encrypted signal. Traffic analysis allowed the French to infer troop movements from the transmitting positions of wireless radio signals before the enemy communications had been deciphered.

The French Black Chamber's collaborative cryptanalysis and technological proficiency would provide the model for later European and American intelligence practices. British code breakers rushed at the beginning of the war to reform their intelligence system, and with a success that had not been evident since Charles Babbage had

invented a system to break the renowned French Vigenere cipher in the 1850's.<sup>161</sup> Germany delayed, as did the United States, in reconstructing its intelligence techniques.<sup>162</sup> Their delay would prove beneficial, as the U.S. and Germany would emerge in World War Two among the most powerful military intelligence forces in the world.

American intelligence had long been out of contact with the European methods in military cryptology.<sup>163</sup> Prior to the First World War the United States still operated according to a 19<sup>th</sup> century system of military intelligence. Not only were the ciphers of the Civil War still used for military communications, but in some cases (as in diplomacy) the ciphers and instruments invented by Thomas Jefferson were still used, including the Jefferson cipher wheel (a device whose origins dated to Italian ciphers of the fifteenth century). Furthermore, the same diplomatic code was used, with slight variations, from 1876 until 1916.<sup>164</sup> Early WWI U.S. Intelligence lagged behind other reforms that had swept through U.S. government institutions since the turn of the century.

As I noted earlier, the Riverbank and MI-8 cryptologists had developed in isolation from the archaic intelligence community of the United States military prior to the First World War. The two groups entered that archaic system with the objective and even iconoclastic attitudes reserved for those who arrive belatedly to collapsing institutions

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<sup>161</sup> Singh, 66.

<sup>162</sup> As Singh has noted, Germany lacked a cryptological agency from 1914-1916. The Code Book 106-107.

<sup>163</sup> The exception to this rule had taken place during the latter half of the nineteenth century with the development of the commercial codes for the first transatlantic telegraph.

<sup>164</sup> See The Reader of Gentleman's Mail 12.

and their decayed intellectual and professional practices; the two groups proceeded to abandon many of the methods of intelligence gathering, decipherment, and communication that had been regarded as functional before the war.

Their interventions were both effective and innovative. Both MI-8 and the U.S. Army Signals Corps departed from their wartime collaboration with the French cryptologists with a renewed commitment to a collaborative model of intelligence and an experimental approach to new technologies. William and Elizebeth Friedman would improve upon the French model in three areas. First, they invented (together with John Manly) a new jargon for the emergent science. Second, they revisited the statistical approach to cryptology that had been invented by Arab scholars during the 9<sup>th</sup> and 10<sup>th</sup> centuries.<sup>165</sup> And finally, they worked during the post-war period at the public margins of military-institutional life. They experimented with technologies and interpretive techniques, published articles on literary and military history, and pursued post-philological literary debate in a manner that Herbert Yardley, constricted by military secrecy, could not.

Under the Friedmans' direction, U.S. cryptology turned from philology to mathematics and linguistics to strengthen its scientific ambitions. The two disciplines offered means to productively abandon the philological methods of the Bacon cipher debate. William Friedman came to understand that "cryptology is usually and properly considered a branch of mathematics," but to this he added, "Francis Bacon considered it also a branch of grammar and what today we call linguistics" (Friedman 21). The gradual turn from philology to mathematics would bring U.S. cryptology into contact with emergent technologies that could accelerate the analysis of language. The technological acceleration of the science required the development of new hermeneutic methods for the decryption of codes, and it was in this area that the Friedmans devised a behavioral

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<sup>165</sup> See The Code Book 16-20.

model of cryptology whose anthropomorphic rhetoric would determine the institutional future of U.S. cryptology.

William Friedman's application of statistical formulae and frequency tables to the analysis of enciphered texts proved the decisive split between a new mathematical model and the previous, primarily historical (philological) approaches to cryptology. Friedman had already summarized his knowledge of modern military intelligence practices in Solving German Codes in World War I, a study he composed in 1919 while still a First Lieutenant of the Military Intelligence Division of the U.S. Army Signal Corps. The study summarized various systems for the encipherment and decipherment of military communications, as well as their means of transmission, the geographic dispersal of communications stations, the useful duration of varied codes, and their capability with respect to various armed forces (aviation, ground, naval, etc). Germany had by war's end emerged as one of the most advanced military-intelligence powers, and Friedman's comprehensive analyses of German signals traffic were the precursors to his revolutionary reform of U.S. intelligence methods.

The reforms began upon the Friedman's short-lived return to Riverbank in the immediate post-war period. Friedman's Solving German Codes in World War I distinguished more rigorously between ciphers (which "deal with the individual letters of the message") and codes, which deal with "letters, words, phrases, and even entire sentences" (6). Friedman introduced a statistical application at the level of a cipher's individual units. The strongest ciphers, Friedman noted, developed a tendency towards the suppression of certain natural patterns of recurrence. For example, the Baconian bilateral cipher betrays one such recurrence. In the sequence BAABA AABBB AABAA BAAAA AABAA the pattern that constitutes the letter "e" (the most common recurrence in the English language) is manifest twice in the example as AABAA. A cryptologist analyzing a text could statistically anticipate the appearance of certain letters in a given language and, conversely, the means of their suppression. The

statistical anticipation began with a frequency distribution chart of letters for the particular language being decrypted.

A variant of the statistical technique was echoed in the work of Manly and MI-8 during the war; in a letter deposited in the Manly Papers at the University of Chicago, Manly's University and MI-8 colleague David Stevens notes that during World War One "mathematical steps to solution [were] more essential than letter placements."<sup>166</sup> Friedman (who worked in the Army Signal Corps) and MI-8 did not work together during WWI, but certain messages that were not decoded by Friedman and others in the theater of war were sent to MI-8 in Washington, D.C., and it is possible that some correspondence or duplication of effort occurred, resulting in similar methodological conclusions.

William Friedman's post-war effort advanced the statistical possibilities of the science. Historian David Kahn notes that Friedman

treated a frequency distribution as an entity, as a curve whose several points were causally related, not just as a collection of individual letters that happen to stand in a certain order for noncausal (historical) reasons, and to this curve he applied statistical concepts. (The Codebreakers 376)

The turn away from philology began, according to Kahn, with the turn away from "noncausal" explanations of language. Mathematical causes such as patterns of frequency forced this decisive split between the philological past and the mathematical future of the science. Friedman's fundamental statistical innovation treated the enciphered text as a closed system that functioned according to certain behavioral regularities. The closed system isolated patterns of recurrence in the language; it also eliminated historical ambiguities of meaning. Precision determined the efficacy of the

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<sup>166</sup> David H. Stevens. "Notes to Photographs of MI-8." Cited from the Manly Papers, University of Chicago.

new method, and quantification had the manifold benefit of accelerating the decryption of coded messages and decreasing their semantic ambiguity. It quickened interpretation.

Friedman extended the statistical probability that governed the recurrence of certain individual ciphers to letters and word groupings. These were designated as separate 'entities' which took form as the statistically probable appearance of terms (often military or diplomatic jargon) in a given language. Cryptologists and their students could thus learn to seek recurrent patterns in terminology as well as letters. A language could be treated as a distinct entity, with predictable patterns of behavior that varied according to the cryptographic system in which it was composed. Although Friedman had not invented statistical analysis, he was the first US cryptologist to regard its statistical patterns in anthropomorphic terms by ascribing to it a behavioral language. The behavior was reinforced by the new jargon, which rendered cryptology in quasi-taxonomical terms, and offered a more precise "anatomy" of the science.

Friedman's work along the statistical trajectory produced three fundamental revisions of cryptology. First, the science would depart from the humanistic concerns of previous cryptological models such as philology and archeology. Second, the statistical analysis of language produced an institutional model of the science. And finally, the revisions would permit Friedman, with Manly's assistance, to develop a specialized jargon for the new science as well as new training methods.

The methods of linguistic quantification developed by Friedman and MI-8 had as previous models the 19<sup>th</sup> century imperial archeologists and mathematicians. Referring to a work entitled Discoveries in the Ruins of Nineveh and Babylon by the British archeologist Austen H. Layard, the 19<sup>th</sup> century mathematician George Boole had written in 1854 that:

In a given language, or family of languages, the same sounds, and successions of sounds, and, if it be a written language, the same characters and successions of sounds recur with determinate frequency. The key to the rude Ogham inscriptions, found in various parts of Ireland, and in which no distinct words could at first be traced, was, by a strict application of the principle, recovered. The same method, it is understood, has been applied to the deciphering of the cuneiform records recently disintombed from the ruins of Nineveh by the enterprise of Mr. Layard.<sup>167</sup>

Statistical methods had assisted in the decipherment of a massive archive of ancient writings in the 19<sup>th</sup> century, of which the Rosetta Stone was the most famous. These discoveries and techniques, which, as John Irwin has shown, greatly influenced American literary thought. Popular and scientific interest in the subject faded however into the margins of pseudo- or para-scientific hobby by the late 19<sup>th</sup> century, appearing only occasionally in literary works or in the archeological background. William Friedman's post-WWI recovery of those methods was not however achieved in the interest of reconstructing human culture, as it had been for the archeologists who first engaged statistical theory or the novelists of the American Renaissance who engaged ciphers and codes; Friedman reformed cryptology in order to reinforce the communications capabilities of U.S. military-intelligence institutions. He refined the anthropomorphic behavioral mode of statistics to become their mathematical shadow.

Friedman achieved that surrogate form by a synthesis of various methods. Cryptology had wandered among sciences and pseudo-sciences for nearly one century in the United States, where it was marked by the stigmata it had earned in the blasphemous corners of medieval sorcery. It was a history that favored a gothic expression in literature, as in Poe. Friedman recognized however that Francis Bacon had brought it

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<sup>167</sup> "An Investigation of the Laws of Thought," 25. The Ogham texts were deciphered by a mathematician named Charles Graves, in 1848.

during the late Renaissance into the fold of empirical thought, and pursued the rational, Baconian model of cryptology. The rationalist Baconian approach was first applied to military-intelligence by Vigenere, who rendered it in the late 18<sup>th</sup> century to the military employ of the revolutionary Napoleonic state.

The U.S. military-intelligence institutions were unlike the Napoleonic predecessors in that the U.S. did not send archeologists and anthropologists with its military expeditions. In purging cryptology of literary ciphers and historical concerns - and introducing statistics - Friedman had partly exorcised the anthropological history of the 19<sup>th</sup> century code-breakers. He thus built the architecture of future U.S. intelligence institutions from the ruins of the human sciences.

But the human sciences were diminished only from the actual application of cryptology, and significant traces remained. For example, the literary heritage of cryptology was maintained over several decades by the common problems of semantics and history that threatened the respective “closed systems” proposed by cryptologists, linguists, and literary theorists. These shared problems appeared in a more aggressive and interconnected form after the linguist Saussure. A quantified and more linguistically attuned cryptology had sought to displace philological ambiguity. To do so, it isolated language on a statistical curve. The resulting precision had partially overcome, perhaps unknowingly, the problem of ambiguity that was central in the split between language and the sign in the Human Sciences of the 19<sup>th</sup> century:

The sign is isolated within the closed system in accordance with the general scientific movement away from ambiguity (in particular in speech), in which Language is no longer to the same extent that sign – more or less distant, similar, and arbitrary – for which the *Logique de Port Royal* proposed as an immediate and evident model the portrait of a man, or a map. It has acquired a vibratory nature, which has separated it from the visible sign and made it approximate to the note in music. And it was for this very reason that Saussure



had to by-pass this moment in the history of the spoken word, which was a major event in the whole of nineteenth century philology, in order to restore, beyond its historical forms, the dimension of language in general, and to reopen, after such neglect, the old problem of the sign...<sup>168</sup>

The modular similarities between Saussurean linguistics and Friedman's statistical understanding of linguistic patterns constitute a critical link in modern cryptology. Both Friedman and Saussure approached the sign as constituted by closed patterns of relation that determined the structure of a language (or encrypted system). They both rejected philology's historicist tendencies and its emphasis on the historico-evolutionary conceptions of the sign. The stabilizing of the sign would appear as a critical link between cryptology, modern linguistics, and Anglo-American literary thought in the post-WWI years. These connections appeared through I.A. Richards and C.K. Ogden's critique of Saussure. The critique galvanized the American New Criticism but also stirred the cryptographers' interest in the New Critics (and vice-versa), which lasted through the 1930's. This link provides a continuation of the historical relationship between American literary and cryptological thought in the 1920's and 1930's, as we shall see in Chapter Five.<sup>169</sup> But cryptology would never completely overcome the "vibratory" nature of the sign and its varied, ambiguous properties.

The engagement with linguistics, the behavioral model of statistics, the departure from philology - these constituted the contours of the emergent, scientific form of U.S. cryptology. But the most significant shift occurred in the manner by which the Friedmans, Manly, and Yardley envisioned the future institutional form, reinforced by a proven, empirical method, taken by cryptology. In this respect, cryptology drifted

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<sup>168</sup> The Order of Things 286.

<sup>169</sup> I will address these connections between cryptology, Saussurean linguistics and the New Criticism in Chapter Five, where the problem of ambiguity achieves an unprecedented elaboration in Anglo-American aesthetics, and always in relation to the sign, and not "Language."

towards the organizational reforms that were sweeping other sciences such as economics, engineering, psychology, and linguistics. The subsequent development of cryptology could no longer be understood as a purely hermeneutic question with political ends (as was the Riverbank work) but as a new aggregation of statistical models, the production of specialists engaged in supervised, collective work, and, when necessary, the practical applications of the mechanical arts within the confines of emergent state institutions.

Friedman's introduction of statistics to U.S. military cryptology enabled U.S. military and diplomatic institutions to intercept and decode ever-increasing quantities of intercepted communications in a timely manner. Quantification effectively reduced the volume of decoding that was necessary. Where in the past cryptologists lost valuable time as they fell behind the flow of information, the statistical revolution permitted cryptology a discriminatory power offered by a wider temporal window. Cryptologists were able to anticipate certain patterns of behavior and discriminate between the most difficult codes (which now assumed the highest priority) and lesser codes (such as low-level diplomatic codes, or meteorological codes) that could be deciphered with more or less urgency depending on their tactical value. The political, military and scientific exigencies of wartime communication were effectively consolidated by cryptology into a single, hierarchical system that would later be integrated into the renowned "vertical" orders of communication that propelled post-WWII American intelligence. The architecture of later U.S. military-institutions emerged from the form assumed by statistical method in the immediate post-WWI years. With the empirically proven quantification of cryptology, Friedman had transformed the ciphers of Sir Francis Bacon into an institutional entity that was determined and rendered productive by the accelerated temporality of its behavior. It only required a physical form - a human institution - in order to proliferate. That form was achieved temporarily by Herbert Yardley's Black Chamber during the 1920's, as we shall see, but it should be noted now that Friedman developed his advanced statistical methods outside the major

institutional and bureaucratic systems, as an amateur corresponding with kindred souls such as John Manly.

As I noted earlier, the acceleration of cryptological methods of interpretation (or *cryptanalysis*) permitted institutional structures to emerge from cryptology. Unlike literary study, which was not bound to temporal exigency, William Friedman's treatment of encoded texts as closed systems with recurring behavioral patterns solved the problem of time that plagued the cryptologists: the accelerated selection and interpretation of messages permitted the new U.S. cryptologists to decode a text before its military or intelligence value had expired (sending that message across bureaucratic channels was another matter). It also offered the opportunity to professionalize the jargon of the reformed science.

Friedman and Manly dedicated themselves, during this same period in the early 1920's, to perfecting a cryptological pedagogy. The Friedmans inaugurated their new pedagogy with the abandonment of the word 'decipher.' The term had been used at the time to mean "both authorized and unauthorized reduction of a cryptogram to plaintext." Friedman replaced it with the neologism "cryptanalysis" (The Codebreakers 384). The consequences for the displaced verb "decipher" are considerable for the new science. "Decipher" carried with it too many historical ambiguities. It invoked, in the popular imagination, the efforts of both archeologists and linguists who suffered to understand the Rosetta Stone in the previous century. The term 'decipher' itself invoked the vague usage of both "decipher" and "code" in modern literary diction, where the terms continue to denote a vague function of literary exegesis. Where "decipher" is often most aligned in popular and literary culture with the action of bringing forth a historically determined or inflected meaning from a text, it was abandoned in cryptology as something historically obsolete because it signified only the individual units of "cipher" systems which had been displaced by advanced modern code systems. "Decipher" also invoked non-mathematical synonyms such as "code" and "decode"

that were aligned with traditional, philologically derived forms of exegesis in popular and literary culture. Furthermore, “ciphers” suggested zero-sums in mathematics and non-identities in popular usage.<sup>170</sup>

The terms “cipher,” “code,” and “decipher” could not sustain the mathematical precision of meaning required of the new science. The distinction between ciphers (mathematical entities) and “decipher” proved more than a grammatical difference between nouns and verbs: it distinguished between precision and historical ambiguity. In Friedman’s revision “decipher” was abandoned precisely due to its etymological ambiguities and historical connotations as a verb; what cryptologists meant by ‘decipher’ was not the equivalent of bringing forth meaning in another language (as in a translation) or to expose it without ambiguity (as in a transposition). To “cryptanalyze” was to eliminate ambiguity from the act of interpretation. Friedman, with Manly’s assistance, began to compile an entire dictionary of “cryptanalysis” that would be introduced into the major dictionaries of the English language.<sup>171</sup>

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<sup>170</sup> Manuel DeLanda offers a different description of the shift when he writes that “ciphers replaced codes” in this period (*War in the Age of Intelligent Machines* 208). Delanda’s phrasing plays on the ambiguity of the term “cipher,” which invokes the anonymity of the entities at work in cryptology. The actual history of the terminology is in fact the opposite of De Landa’s.

<sup>171</sup> In a letter dated April 1, 1924, John M. Manly replied to Friedman that “the proper course would no doubt be to bring this to the attention of the dictionary makers. I could easily do so for the new dictionary which is now under preparation by the Century company, and I have no doubt the publishers of the new International and the Standard would be glad to use the definitions when they bring out new editions of their own books. Perhaps the best thing to do now would be to draw up a full set of terms and definitions and prepare carbon copies to be sent to each of these dictionaries.”

John Manly returned to the University of Chicago after the war but maintained a brisk correspondence with the Friedmans for the next two decades. Manly and other MI-5 professors were designated as members of the Military Intelligence Officer Reserves and continued, in a semi-official capacity, to consult with the Military Intelligence services on how to develop their new techniques. Manly also helped

Friedman composed a compendium of dozens of neologisms and definitions of cryptological terms that were revised for precision. Among these he included

CRYPTOLOGY, n. The branch of knowledge that treats of secret communication; it includes the history, theory and practice, methods, and devices of communicating intelligence secretly, and of translating such intelligence when in its secret form. Cryptological, a; cryptologically, adv.

Cryptology was now conceived by Friedman in both practice and theory as a “branch of knowledge” defined by its mathematical, linguistic, and technological distinctions. It was, following Lord Bacon, an empirical science whose methods depended upon consistent methods of observation and repetition as well as an epistemological scheme founded upon a mathematical understanding of the behavior of language.

Friedman first presented his revolutionary ideas on frequency analysis and quantification discussed earlier in this section in a 1920 Riverbank pamphlet. To these he and Manly later added the new terminology. Friedman understood however that the technologies had not yet been produced that would accelerate the statistical evaluation of encoded messages or remove human error from such analysis. Riverbank could not provide such resources.

Friedman left Riverbank and was nominated chief cryptanalyst for the War Department in 1921. William and Elizebeth Friedman spent the following decade working between Washington D.C. and various research facilities. The quantification of language was slowly absorbed in the centrifuge of a general consolidation:

The military became a true institutional entrepreneur, financing basic research, supervising production methods, aiding in the dissemination of technology and in general institutionalizing the war-forged bonds between military needs and

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Friedman to recruit intelligent students from the University of Chicago in the coming years.

scientific solutions. In particular, the Army Signal Corps provided an impetus toward the miniaturization of logical circuitry, a drive to squeeze electronic components into every nook and cranny of the war machine” (War in the Age of Intelligent Machines 150).

The geographic center of cryptological innovation thus shifted during the post-war period. It moved from its center in the Midwest to the mid-Atlantic area during the war and from there extended to the Northeast. Friedman studied cryptology and tested technologies in Fort Monmouth, New Jersey, in a state that provided technological infrastructure, as it had been one of the centers of the Second Industrial Revolution and where advances in thermodynamic engineering had accelerated American naval power and weaponry (Sandy Hook firing range was closed after WWI, but the Monmouth County area persisted as a research center for private corporations and military institutions). Elizabeth Friedman would later work with the local Coast Guard stations (as would William) to break the sophisticated codes of the rum runners during Prohibition, thus constituting the first important link between the civilian cryptologists and U.S. naval power. Yardley’s Black Chamber was also moved in the post-war years to a secret nearby location in Manhattan.

This geographic displacement (from the Midwest, and later from Washington) was, after Friedman’s quantifications, the second step in the centralizing reforms of American intelligence institutions. In assuming an institutional form, modern U.S. cryptology was also assuming the supersensual properties of a historical force (Henry Adams would have called these, respectively, the “habit” and “behavior” of U.S. institutions). The Chicago and Riverbank cryptologists provided an energetic and increasingly professionalized institutional resource for the nation during and after the war, yet they had become abstract – they had been extracted from their beginnings in the social reform movements of the Midwest. The science was concentrated in competing, small-scale formations over the following decade and split primarily

between Yardley's Black Chamber in New York, which was concerned primarily with diplomatic communications, and the work of the Friedmans for the U.S. military. The institutional form of U.S. cryptology would thereafter be divided between the traces of literary humanism it had retained in that transition and the technological, inhuman drift of institutional power.

### **VIII. THE HERMETIC STYLE**

The Riverbank laboratories and MI-8 had produced a cluster of intellectuals that would continue to alter the aims, methods, and institutions of American intelligence in the period between the two world wars. With the Friedmans, the reform of U.S. cryptology began to gather the force that would bring its later post-WWII institutional form. The cryptologists remained however during the inter-war period as occasional functionaries of an emergent state intelligence system who were useful only in certain, local situations (as when Elizebeth Friedman achieved fame breaking the codes of the rum-runners during the middle of the Prohibition era). The Friedmans' work was not yet central to diplomatic or military strategy, nor had it achieved a coherent institutional form. It oscillated between occasional police actions and the literary debates from which it had emerged.

Dr. John Manly returned to the University of Chicago and remained the Friedmans' most important interlocutor. Manly's former boss at MI-8, Herbert Yardley, continued his work as a cryptanalyst for the State Department, and the Friedmans and Manly maintained a troubled correspondence with him, to which we shall return in chapter five. The purgatorial correspondence between these four major figures in U.S. cryptological history took place in a period when popular literary interest in the modern culture of hermeticism proliferated.

Shawn Rosenheim has described the U.S. Romantic interest in ciphers as an example of a “cryptographic imagination.” Rosenheim’s work continued the precedent set by John Irwin, who argued in American Hieroglyphics that U.S. Romanticism was deeply influenced by the decipherment of the Rosetta Stone by Champollion. What both Rosenheim and Irwin did not address, however, was the relationship of the hermetic interests of United States Romanticism to state institutions, whether in their resident nation, or France, respectively. What arguments did the popular literature make with respect to the combined cryptological and institutional potential of the U.S. state? It was Henry Adams, and not Poe or Hawthorne, who addressed the matter most clearly in the 19<sup>th</sup> century.

Henry Adams’ Democracy (1880) used a specific cipher language, that of the commercial telegraph code, to offer a “cryptology,” as it were, of the emergent U.S. state institutions. Democracy was published a full generation after the American Renaissance had introduced ciphers and hieroglyphs into U.S. literary language, and nearly a decade prior to the publication of Donnelly’s The Great Cryptogram, which opens the second Baconist wave of U.S. literary-cryptological writing. Adams’ novel is significant because it appears in this inter-regnum as a precursor to the later, anti-institutional style that would influence so much post-WWI U.S. fiction with respect to American military-intelligence.

Henry Adams left his position as assistant professor of history at Harvard in 1876 and moved to Washington, D.C. He was forty-two years old. He had already written several important articles and held the position of editor at the renowned North American Review. He had yet to write those works, beginning with the encyclopedic History of the United States, that sharpened the trajectory of the later entropic style, nor encountered the institutions or composed the works that culminated with The Education of Henry Adams. The institutional critique for which he would be remembered by 20<sup>th</sup> century readers, and in particular the authors who will be the focus



of following chapters in the present study, had not yet matured when the nation's capital became Adams' primary residence.

The period between 1876 and 1889 is regarded as a transitional phase between the early and mature epochs of Adams' work. Adams' writing during this interregnum is restless and experiments with different forms. These include two novels, a biography, and a series of sketches that would culminate with the nine volumes of the History of the United States. The epoch would end with the suicide of his wife and the voluntary retraction of his second novel, Esther, from circulation and Adams' own withdrawal from public life.

Adams first novel, the anonymously published Democracy, was the most famous and successful work produced by Adams during that time. Democracy elaborates the problems of right and institutional history presented in Adams' earlier works, but it is also a deviation insofar as it engaged an artificial language - that of commercial telegraphy - for the first and only time in Adams' career. The deviation is significant in two ways. In the first place the novel's experiment with artificial languages anticipated the increasing connection between the new institutions of the U.S. government and their revolutionary development of artificial languages and technologies to augment them. Secondly, that same proliferation of institutions and languages prompted a variety of responses from U.S. literary figures, several of whom would adapt Adams' style in a forceful historical response to that proliferation. The intersection of institutions, artificial languages, and the novel renders Democracy unique with respect to Adams' late writings and the discursive possibilities they offered to modern U.S. literature.

The protagonist of Democracy is a young widow, Mrs. Madeleine Lightfoot Lee, who has moved from New York City to Washington, D.C. Mrs. Madeleine Lightfoot Lee is the prototype of the late 19<sup>th</sup> century social Reformist: she reads Darwin and Spencer,

adheres to a code of ethics whose aim is the “public good,” and is fascinated by the U.S. republican government, in particular the American Senate. She is accepted and courted by a diverse group of male suitors and senators upon her arrival in Washington, D.C. Her acceptance by the city’s men is offset by her rejection by the city’s women, including the new President’s wife. With the partial exception of her sister Sybil, she is relatively isolated from anything but superficial social interaction and its ritual decorum. This very isolation grants to her a unique position from which to observe the workings of U.S. institutional power.

The novel’s central intrigue concerns Mrs. Lightfoot Lee’s relations with two of her suitors. The first, an Illinois Senator named Ratcliffe, is a corrupt and domineering man who fears that his designs for political glory and the conquest of Mrs. Lightfoot Lee will be interrupted by his guarded political secrets. The second is a young Virginian named Carrington who was an acquaintance of Mrs. Lightfoot Lee’s late husband. Carrington discovers Senator Ratcliffe’s secrets. Carrington objects to the hidden, corrupt foundation of Ratcliffe’s career and his plans to advance it by obtaining Mrs. Lightfoot Lee’s hand in marriage with the end of achieving the Presidency. Mrs. Lightfoot Lee must ultimately choose between the unethical power offered her by Ratcliffe and a virtuous civic life – alone or by Carrington’s side.

Mrs. Lightfoot Lee must then negotiate the personal machinery of political power as a romantic contest. The contest is laced with artful ruminations on the relation between commerce and politics in the post-bellum institutions of government. These ruminations are refracted through the romantic contest and anticipate the currents of Adams’ later historical thought. ‘Power’ is foremost among these ideas. Mrs. Lightfoot Lee is presented as the observer and victim of a series of brutal political machinations. She witnesses corruption, jealousy, ignorance, and pride in their most dynamic forms and gradually comes to regard the workings of late 19<sup>th</sup> century American government as a series of dark and selfish maneuvers. The result of these maneuvers is not the

“public good” but the personal interest of politicians who cynically manipulate the institutions of government to private gain. Their manipulation of power always exceeds their ability to control it. The problem is ultimately embodied in the figure of Senator Ratcliffe, who becomes Secretary of State and proposes to marry Mrs. Lee in order to expedite his Presidential ambitions. One maneuver, however, is kept from Mrs. Lightfoot Lee until the end of the novel.

The final maneuver takes the form of a revelation. Carrington withholds a fact that would destroy both Ratcliffe’s career and his relationship with Mrs. Lightfoot Lee. Eager to dispose of his romantic competitor and bureaucratic subordinate, Ratcliffe sends off Carrington to a post in Mexico. Carrington deposits a letter for Mrs. Lightfoot Lee before he leaves with her sister Sybil. The letter is to be opened and read only by Mrs. Lightfoot Lee and only when she is at the brink of falling victim to Ratcliffe’s advances. Sybil gives the letter to Mrs. Lightfoot Lee and she reads it at the culmination of the romantic and political crisis that has developed around her and consumed all Washington’s interest:

Just eight years ago, the great ‘Inter-Oceanic Steamship Company,’ wished to extend its service round the world, and, in order to do so, it applied to Congress for a heavy subsidy. The management of this affair was put into the hands of Mr. Baker, and all his private letters to the President of the Company, in press copies, as well as the President’s replies, came into my possession. Baker’s letters were, of course, written in a sort of cipher, several kinds of which he was in the habit of using. He left among his papers a key to this cipher, but Mrs. Baker could have explained it without that help. (170)

Carrington’s letter accounts for Ratcliffe’s most egregious corruption, in which he accepted a bribe of one hundred thousand dollars. The bribe motivated a change in his vote on the Senate Committee charged with granting subsidy to the ‘Inter-Oceanic Mail Steamship Company.’ The revelation of Ratcliffe’s crime constitutes a betrayal of Mrs.

Lightfoot Lee's profound and learned civic sensibility; she subsequently rejects his marriage proposal.

Mr. Baker's "cipher" is the only moment in all of Adams' writings that explicitly connects an institution of the U.S. Republic (the Senate) to a technological language (the commercial telegraph code). The cipher itself was most likely a simple telegraphic cipher, such as those that could be adapted to the Morse code and widely published in the 19<sup>th</sup> century Commercial Telegraphic Codes. The passage is historically accurate, despite its lack of detail, insofar as "ciphers" dominated commercial transactions during the nascent American global economy of the late 19<sup>th</sup> century.

The passage is singular insofar as it anticipates Mahan's theories, discussed in the previous chapter, of the import of communications to emergent U.S. naval power. The maritime highways had begun to interweave in the late 19<sup>th</sup> century with the landlocked system of railroads that had been the first arteries of telegraphy; the U.S. railroad system was effectively extended to the sea. The U.S. economic infrastructure favored the centralized corporate hierarchies (such as those of what Adams called "Pennsylvania"). The cipher combines state power with terrestrial and maritime commerce; it is the secret language of the institutional forces that Adams regarded as the greatest threat to individual right. They were of consequence to the more heterogeneous market forces of small business and the individual entrepreneur, scientist, or skilled craft worker, as well, as they absorbed them and converted them into large-scale institutions.<sup>172</sup> It was the same process that would absorb the Riverbank Baconists into the U.S. military state during WWI.

The passage is, however, too dense with irony and the culminating artistic force of the novel to be reduced to a mere fact. The passage intercedes in the relation between

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<sup>172</sup> See Manuel Delanda. A Thousand Years of Nonlinear History 32.

commercial trans-oceanic capital and democratic government in a manner that history could not: it simultaneously deciphers the American political system as it deciphers Baker's letters. The cipher's effect is ironic, for it turns those institutions of national power against Ratcliffe – the man who is consistently portrayed as their master – and destroys him in the very moment that he attempts to wield that power. And it does so by using the novel's ability to absorb one of the artificial languages of that unwieldy power.

The encounter between the modern novel and the growing industry of communication, the nexus of which is government and commerce, was the pretext for Adams' later anti-institutional style and the radical singularity of "entropy." Where Adams' approach to history was anarchic and his style open to significant heterogeneity, the cipher in Democracy forms a closed hermeneutic circuit. The circuit connects the corrupt Senators, secret languages, and the commercial and political institutions. The circuit captures Ratcliffe and Baker as cynical manipulators of national economic power; even Carrington's letter to Mrs. Lightfoot Lee, which is a counter-communication to the enciphered communications of the Inter-Oceanic Steamship Company, works against him in that he is removed to work in a government post in Mexico at the service of the U.S. expansion before he can reveal the truth. Mrs. Lightfoot Lee is the only character capable of action in the work; she breaks the closed circuit, opens the novel to history, and embodies Adams' early historical thought in a novelistic style.

Consequently, Mrs. Lightfoot Lee must negotiate the political scandal that results from the cipher's revelations, and she is intellectually capable of confronting the task. The novel presents her as versed in political theory and philosophy. Initially she is a dedicated reformist – the purpose of her move to Washington is that of intervening and contributing to public affairs. Her study of the system complete (she spends countless hours listening to the Senate), she begins to comprehend the forces at work. Her demeanor is transformed when the enciphered letter exposes the concentrated,

ambiguous power arrayed before her and against her – the same power that sent her other suitor, Carrington, to work in Mexico for the expansionist U.S. government.

Mrs. Lightfoot Lee's notions of civic and social reform are rendered helpless before this new power. She is not, however, despondent before the cipher's revelation. The novel effectively abandons the use of Mrs. Lee's character as a symbol for either a utilitarian or Social Darwinist course of political action. Will and agency replace the reformist or determinist premise of the "public good." She ceases to think of the greater good and negotiates the situation as an individual. Her intelligence neutralizes the men who represent political power. Her departure from Washington, D.C. is an intelligent disengagement and it anticipates the dramatic evacuation of heroic history in The Education of Henry Adams.

Mrs. Lightfoot Lee, who negotiates the dynamics of the national politic and overcomes the machinations of two suitors, is perhaps closest to Hester Prynne in Nathaniel Hawthorne's The Scarlet Letter. Adams' novel shared with Hawthorne's the "decipherment" of a poetic device that can be positioned in the text itself so as to simultaneously exemplify the ambiguities of language and the national politic. But where Hawthorne's novel is labyrinthine in its historical language of symbols, Adams' novel is a thinly veiled allegory of the present. Democracy is nonetheless chares with Melville, Hawthorne, and Poe the mid-19<sup>th</sup> century incorporation of ciphers into the language of the U.S. novel. It is distinct insofar as it anticipates Adams' later poesis of the emergent political institutions of the U.S. state.

Adams' cipher's unique and poetic deployment must be read in light of the relation between institutions in citizens outlined in the previous chapter. Its exposition is a rhetorical prelude to Adams' later historical poesis of the new U.S. institutions and the development of a singular, entropic style. The "cipher" passage does not detach Mrs. Lightfoot Lee or Adams from their milieu; by virtue of its polemic, its care, its irony, or

its style, Democracy is not a disinterested novel. The cipher's closed circuit and the novel's previous ruminations on the tumultuous relations between institutions and individuals are dynamic and engaged in a contest between institutional orthodoxy and socio-historical heterodoxy, roughly divided along a thin line that separates an individual language from the formal diction of the state.

Adams' later historical writings would renew this tension between aggregate and individual power, but their later poesis would be constituted by the encounter between a more highly stylized, anarchic individual intelligence whose social-reformist ethic was subdued. He would not assign a gender-specific social position to the agents, or non-agents, of his work, and the artful rendering of the cipher, would not re-appear in his writings. The precedent set by Mrs. Lightfoot Lee is nonetheless strong in Adams' later works. Adams was, like her, also a proponent of Reform. And like her he abandoned his hopes for systemic social change in the interest of specific and singular interventions.

Henry Adams's most important historical writings that followed Democracy extended the novel's historically contingent engagement with the institutions of the U.S. state. Both the novel and the following studies were critical of the utilitarian methods of both Reformism and the era's Social Darwinist tendencies. Those critical tendencies were accelerated by the emergence of a new institutional intelligence precipitated first by the convergence of thermodynamics and naval reform that appeared nearly twenty years after Democracy was published. There was however a critical difference when Adams returned to the study of that problem first posed by the cipher in Democracy: a new generation of professional bureaucrats, diplomats, and politicians replaced Ratcliffe and Carrington in Washington, D.C. but entities such as the 'Inter-Oceanic Mail Steamship Company' remained. The new institutions had outlived their human inventors.

Henry Adams' deployment of ciphers diverged from the "hieroglyphic" or "imaginative" aesthetics discussed by Irwin and Rosenheim respectively. Democracy

rendered ciphers at the nexus between U.S. state institutions and commercial-corporate interests. The juxtaposition is a realist one, based upon the interaction of current institutions, their material practices, and historical potential. Adams transposed the previous gothic style to a melodramatic and satirical realism; Adams' mystery was not gothic but historical and bureaucratic, and concerned with the power, language, and historical significance of new institutions.

Adam's approach to such institutions was defined, as I noted earlier, by anthropomorphic rhetorical strategies, a disembodied historical intelligence, and a radical anti-institutionalism. That style would only come to maturity, as we shall see in later chapters, with the influence of The Education of Henry Adams (1918) on Eliot's early post-WWI poetry, William Faulkner's novels through the end of WWII, and finally the prose of Thomas Pynchon.

The disembodied, arcane style of The Education of Henry Adams resonated during the height of what Kenneth Burke described as the "hermetic style" in modern poetry. The hermetic style was roughly synonymous with symbolism, a style that Adams later followed in French circles. Kenneth Burke used the phrase in his discussion of the Tetragrammaton that: "we find the unutterability of the Secret stressed - the 'hermetic' styles of post-war poetry being our nearest aesthetic variant of this....".<sup>173</sup> Both Eliot and Faulkner had subscribed in their youth to the "hermetic style" in modern poetry, and the relationship between a newly modernized U.S. cryptology and my later discussion of Adams' followers must be understood as being modulated by both Adams' historical realism and the hermetic style. It was by way of the hermetic style that cryptology, now the language of modern institutions (rather than ancient civilizations), would eventually return to the modern U.S. novel during the inter-war period.

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<sup>173</sup> The Philosophy of Literary Form 57.



The hermetic style flourished already in the twilight of 19<sup>th</sup> century symbolism during the early years of WWI.<sup>174</sup> The poem that best summarizes that style in U.S. poetry is H.D.'s "Hermes of the Ways." The poem was first published in her 1916 book Sea Garden. Despite its publication on the eve of the United States' entrance into the First World War, "Hermes of the Ways" is not a war poem in the style of the WWI poetry of Sassoon or Owen. It is a poem that nonetheless captures a particular fascination with secrecy that was essential to the relationship of the emergent sciences of cryptology and military intelligence.

H.D.'s poem withdraws its subject and creates the impression that its language and action were flowing in reverse, like an outgoing tide. The poem claims "I know him," to which the reader replies "Who?" "Hermes?" How can one know him? And who is he? And where? The reader is never told. The attempt to assign a fixed identity to the poem's subject results in indeterminacy. Rather than expose language to identification, "Hermes of the Ways" recedes rhetorically from its subject. The poem does not open itself to interpretation; it performs the opposite. It conceals the conventional conduits of meaning (identities, narrators, transformative actions) - but it does not preclude interpretation. The strategy challenges the reader to understand a poetic intelligence

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<sup>174</sup> There are two recognized branches of the hermetic style in modern poetry. The first, and most well-known, is the internationalist style, exemplified by Ezra Pound; the second is the provincial style, whose best American exponent was William Carlos Williams. While H.D.'s work generally belongs to the former, the early date of this poem might divide it between the two. H.D., Pound, and Williams attended the University of Pennsylvania together.

that is hidden in recessive rather than progressive configurations of space and language.<sup>175</sup>

That intelligence occupies a limit between 'the land and the sea...where sea-grass tangles with shore grass.'<sup>176</sup> It is a rhetorically and geographically indeterminate space where the sky joins the land and the sea as the "triple-path ways." "Hermes of the Ways" engages a specific mythical figure - Hermes - in order to render occult the relationship between language and space. The poem's occult spatial motion is not merely decadent; it is rendered by H.D.'s superb technique as a dramatic confrontation between a poetic intelligence and the earthly, satanic limits between human and natural worlds. H.D.'s interest in hermeticism would develop into the anagrammatically entitled "Hermetic Definitions" and her later major poetic works of the inter-war period, yet it is clear already with her early poems that she had successfully transposed Continental modern poetry to an American idiom.<sup>177</sup>

During this same period, the hermetic style proliferated in both U.S. mass culture and in international modernist literary practice during the inter-war period. Prompted by the Italian futurists like Marinetti and the vestigial traces of fin-de-siecle European Symbolism, Mercury, nee` Hermes, was restored in modern literature as a figure of speed in modernity: the speed of communication, of electricity and technics.<sup>178</sup> There

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<sup>175</sup> Decades later, "spatial form" would achieve apotheosis in the writings of Joseph Frank as one of the canonical categories of modernist poetic categories. I will say more of Frank's work in later chapters.

<sup>176</sup> H.D. Collected Poems: 1912-1944. 37

<sup>177</sup> Susan Gubar offers a concise overview of hermeticism in H.D.'s poems in "The Echoing Spell of H.D.'s *Trilogy*."

<sup>178</sup> The figure took a distinct form in European fascist states. If one enters the central post office built by Benito Mussolini in Siena, Italy, one will find a fresco depicting a pantheon of Roman gods on the ceiling. Smaller angels flutter about these gods carrying

are many examples of the pre- and post-WWI American fascination with Hermes/Mercury, the multiform and polyvalent central figure of the poem. Hermes/Mercury resonates across the period following World War One: H.L. Mencken's magazine "American Mercury," the "Mercury dimes" once minted by the U.S. Treasury, Orson Welle's "Mercury Theater," and so forth. It is a pervasive figure, spanning popular culture (literature, architecture), consumer culture (product names, slogans), and high modern art. As we shall see in Chapter Six, one of the more compelling examples of this usage was William Faulkner's juxtaposition of the protagonist, Donald Mahon, with the Roman god Mercury in Faulkner's first novel, Soldier's Pay.

The rhetorical figuration of Hermes/Mercury in high modern literature is distinguished from its simultaneous objectification in commercial culture by the force of its style and the historical discourses elaborated from it by later novelists. The hermetic style also reveals, despite its claim to secrecy, a fascination with the tremendous historical changes prompted by new technologies and their languages. The rhetorical strategies that recede with H.D.'s "Hermes of the Ways" invoke in their trail the disembodied voices of radio and wireless telegraphy, the commercial and military wars fought on their frequencies, and the first transmissions of the energetic drama that was beginning to unfold in the 'smooth space' of the modern sky. H.D.'s poem captures the mood, if not the objects, of that dark new world. With its particular conception of space, its disembodied poetic intelligence, and the occult mission of its design, H.D.'s poem stands as the most compelling and well-wrought example of the hermetic style in WWI American verse.

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the media of modern communication: a telephone, a radio, and a telegraph. Such figures, when understood in their proper national contexts, should give pause to any emancipatory attitude regarding the role of technology in the current work. By contrast to Mussolini's state-sponsored technophilia, however, a young generation of Italian poets, such as Montale and Ungaretti, were also known as "hermeticists," but they did not partake in fascism as did other contemporary Italian or American writers.

The poem also sounds an intelligence that would take more defined forms in the U.S. institutional spaces of the mid-twentieth century. The “hermetic style” constituted, in a limited sense, a field of aesthetic and cultural forces that spanned a resurgent interest in “occult” systems and themes, persisted in modern letters, and in particular in modern poetry. The Irish poet W.B. Yeats held a lifelong interest in occult subjects, and Eliot’s famous “Tarot” section of “The Wasteland” remains the high-water mark. The hermetic style of modern poetry even had its contemporary historians, such as the French Professor Denis Saurat. Saurat traced this movement in a 1930 book written while teaching at King’s College, London, from the Renaissance works such as the Hermes Trismegistus through 19<sup>th</sup> century Orientalism, cabbalism, and Blavatsky’s mysticism. Saurat argued that the “occult tradition” of modern poetry emerged with Milton and Spenser, and that its metaphysics continued since the late 19<sup>th</sup> century through the anthropological interest in non-Christian religions.<sup>179</sup>

The Shakespeare-Bacon debate belonged also to the hermetic style. In simple terms, it sought to replace a commoner (Shakespeare) with a hierophant (Bacon). It summoned systems of Oriental knowledge (such as ciphers) and sought to transpose them to a modern milieu. And it did so by constructing elaborate and incorrect hermeneutic systems that resembled the occult theological systems common to the hermetic style.

The connections between U.S. cryptology and the hermetic style were sustained. William Friedman, for example, was an avid reader of 19<sup>th</sup> century poetry that founded the hermetic style. He read Verlaine in the pre-war period, and remained a scholar of Poe’s work his entire life. His interest in Verlaine was the premise of his first letter from

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<sup>179</sup> Literature and the Occult Tradition: Studies in Philosophical Poetry. A more recent and more informed study of the “hermetic style” in modern letters is David Meakin’s Hermetic Fictions: Alchemy and Irony in the Novel.

Riverbank to John Manly.<sup>180</sup> Manly and the Friedmans followed this interest to later U.S. literary criticism. They sustained an interest and correspondence with the New Critics, who had inherited the hermetic interests of Poe, Baudelaire, Yeats, and Eliot. Indeed, it is difficult to separate the emergence of twentieth century U.S. military-intelligence reform from the hermetic style's proliferate manifestations in modernist literary culture and mass culture. We must instead distinguish however between the hermetic style of high modern poetry (which was internationalist), the hermetic designs of military-intelligence (which assumed a specific institutional form), and the emergence of a discursive historical style that, after Henry Adams, turned the hermetic style and military intelligence against one another, yet belonged to the novelist rather than to the poet or cryptologist.

Nonetheless, the modern poet, trained in philology or with a careful eye and ear, was well-equipped to pursue cryptology. John Slatin has noted how Marianne Moore copied "George Adam Smith's analysis of Isaiah 17:12-13" into a page of her "reading diary," and later returned to it to develop the rhythmic and syllabic strategies of her poems.<sup>181</sup> The passage replicates the careful reading and counting strategies of the cryptologists:

In ver. 12 we have thirteen heavy M-sounds, besides two heavy B's, to five N's, five H's, and four sibilants But in ver. 13 the sibilants predominate; and before the sharp rebuke of the Lord the great, booming sound of ver. 12 scatters out into a long *yish-sha`oon*.<sup>182</sup>

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<sup>180</sup> John Manly was also interested in the continental modern poets of the 19<sup>th</sup> century. Friedman's first letter to Manly following the war, dated June 30, 1920, Friedman returns "B. Applegate's book 'Paul Verlaine. His absinthe tinted songs.' Chicago, 1916" to John Manly from Riverbank. (Manly Archive).

<sup>181</sup> See "Marianne Moore" 224.

<sup>182</sup> Ibid.

The mathematical repetition and the grammatical and typographical pattern are also the basic tools of the cryptologist; the exception is that the poet works from the form to the musical effect (as novelists such as Faulkner, and later Pynchon, would move from the rhetorical figure to the historical discourse). The poet or philologist was not only a careful reader, but a systematic one, and it was for this reason that literary scholars, linguists, poets, and other writers were preferred for the work during WWI. The Yale English Department contributed several “code-clerks” to Yardley’s MI-8 during World War One, including the scholar Chauncey Tinker and the young poet Stephen Vincent Benet.<sup>183</sup> Benet worked under Herbert Yardley at MI-8 along with the writer James Thurber, whom Benet later described as “an expert at solving difficult and improbable messages.”<sup>184</sup>

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<sup>183</sup> Chauncey Tinker was a prominent scholar of Old and Middle English at Yale, and his late essays on modern literature discuss many writers who were important to his young protégé, Stephen Vincent Benet (in particular William Morris. Tinker did not write on cryptology, but his essay on the diaries of Samuel Pepys makes note of the fact that Pepys had been a clerk in the Naval Office, and that his clerical skill amplified his journals. See “The Great Diarist” 18.

There are several biographical discussions of Benet’s work for MI-8. See, for example, his brother William Rose Benet’s essay “My Brother Steve” (viii) and Charles Fenton’s biography Stephen Vincent Benet 73-75. See also David Kahn The Reader of Gentleman’s Mail (30). Stephen Vincent Benet was not known as a poet in the hermetic style, though his early interest in occult themes, decadent imagery, and mythological subjects certainly carries the mark of its influence. See, for example, the reference to Hermes Trismegistus as “God the triple-headed fire” in the poem “Hands” (1931) and the later short story “By the Waters of Babylon.”

<sup>184</sup> Benet’s quote is cited from Grauer’s Remember Laughter: A Life of James Thurber (15). Thurber completed his cipher training and was eventually sent to Paris to work as a code clerk during the Armistice. Thurber does not mention his cryptological work in his letters until after the war, when he is stationed in Paris. Burton Bernstein’s biography of Thurber offers an amusing account of Thurber’s work in Paris, and includes references to specific codes and political figures, including Woodrow Wilson’s confidante, Colonel House. See Thurber 78-81.

Modern poetry was one of several conduits for the transfer of cryptology to the modern novel. Another conduit was the popular writing on cryptology, which translated the hermetic style into prose. Post-WWI U.S. cryptology was increasingly divided between popular writings on the subject and the increasingly mathematical methods of the science. The Friedmans continued the latter, while several other important historical works of the period contributed to the former as a circle was consolidated around Manly and the Friedmans that included Herbert Yardley, Walter Arensberg, and other writers.<sup>185</sup> The split between historical-popular perception of cryptology and its actual scientific development is encapsulated by the differences between Herbert Yardley and Walter Arensberg.

Walter Arensberg was a vanguard patron of U.S. modern art collectors. He was a friend and competitor of the New York lawyer John Quinn, who counted Yeats, Joyce, Eliot, Pound, Conrad, and Ford Maddox Ford amongst his friends and clients, and Quinn's collection of modern art contained several pieces purchased from the famous Arensberg collection of modern art:<sup>186</sup>

In the winter of 1922 John Quinn heard that Walter Arensberg had suffered serious losses and was giving up his New York apartment and moving to California, while some part of his collection was to be sold privately by Charles Sheeler. Quinn knew Arensberg as 'one of the few men here with money and courage to buy modern art.'<sup>187</sup>

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<sup>185</sup> William Friedman and John Manly both published important historical essays on the subject of literary cryptology. The most important of these is William Friedman's essay on Edgar Allan Poe, which is discussed in Chapter Five of the present study.

<sup>186</sup> The Arensberg collection is housed in the Philadelphia Museum of Art.

<sup>187</sup> The Man from New York: John Quinn and his Friends 557. The Quinn-Arensberg connection constitutes one of the first links between the reception of modernist art in the U.S. and U.S. cryptology.

Arensberg was not only a collector of modern art but an amateur poet in the hermetic style. He later became an amateur cryptologist who published several books on the subject and corresponded at length with John M. Manly and William Friedman.

Walter Arensberg's 1921 study The Cryptography of Dante is a forgotten example of the literary interest in cryptology that followed the war. Arensberg's book on Dante marks the first comprehensive attempt in the English language at a historical narrative of the cryptographic tradition in literary studies. The first chapter summarizes the cryptographic tradition from Biblical exegesis to the writings of Rabelais and George Herbert and argues that the Western literary tradition's hermeneutic tendencies overlap with those of cryptology. Arensberg cites prominent German works of cryptology to present a fairly exhaustive overview of the problems faced by Dante scholars on the subject of Dante's ciphers. Arensberg's study is most important in this respect: it emphasizes the dominance of the European tradition in cryptology during the 19th century. This geo-political referent is overshadowed however by Arensberg's own excessive literary aspirations.

Arensberg's study is notable because it was not written by an Elizabethan scholar or a philologist but by a poet.<sup>188</sup> Arensberg's previous writings fall clearly within the horizons of early modernist literary aesthetics that emerged from the decadent Symbolist movements of the 19<sup>th</sup> century. The "hermetic style" of late Symbolist art was carried over to the ambitions of many literary works of the WWI era. Walter Arensberg's wartime collection of poems entitled Idols, published by Houghton-Mifflin in 1916, falls within this design.

Idols includes a section of poetry entitled "Statues" whose verses are clearly inspired by the poetry of Baudelaire and Rilke (especially of Rilke's years with the sculptor Rodin)

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<sup>188</sup> Arensberg did however also publish a monograph on Shakespeare, in 1929.



and yet another section entitled “For the Sake of Peace” which is dedicated to and inspired by the outbreak of World War One. One poem of this section, entitled “Crystals,” borrows directly from Poe’s style; the poem ends: “Through the emptiness of sky/If I call no glad I spy/Will you care, O hidden One?”<sup>189</sup>

Idols closed with Arensberg’s translations of Dante and Mallarmé and it sounds, in a derivative and sentimental voice, one of the earliest links between the hermetic interests of both literary modernism and cryptology during the First World War. Arensberg’s early poems and his later cryptological studies of Dante and Shakespeare sustained the related lines of hermetic literature and the philological model of early U.S. cryptology. The latter was poetic and indirect, the former historically explicit and exegetical. Arensberg’s studies of cryptology in Dante (and later in Shakespeare) were perhaps the most public and consistent, if not correct, literary-cryptological works of the 1920’s. They failed however to stir the international interest that the earlier Bacon-Shakespeare debate had provoked.

After a decade of minor, often errant speculation within the popular hermetic style, Arensberg’s works were upstaged by Herbert Yardley’s scandalous 1931 memoir The American Black Chamber. Yardley’s scandalous book stirred public interest in the history of cryptology. Where Arensberg’s works attempted in hermeneutics and literary history, Yardley’s book was written as a historical expose`. As such it was inextricable from recent geo-political maneuvers and domestic institutional reform. Yardley’s book described the reform of the American Black Chamber (MI-8) during WWI through its dissolution by Herbert Hoover’s Secretary of State Henry Stimpson in 1929.

The American Black Chamber was significant for a second reason. It introduced a large U.S. readership to the new, increasingly professional world of U.S. intelligence

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<sup>189</sup> Idols 39.

practices. It was the only book of its era that indirectly documented the presence of current or former literary humanists working in U.S. military intelligence during World War I. Yardley's book was careful not to directly reveal the many important figures in the American Black Chamber. Only John Manly, the prolific Elizabethan scholar who was Chair of the Department of English at the University of Chicago and former President of the Modern Language Association (1920) was mentioned by name.<sup>190</sup> Manly's contributions to the Chamber are not revealed in any detail in Yardley's book, but it is most likely that it was Manly who worked on the "undecipherable" cipher contained in a cryptogram written by German spies and received by the Cipher Bureau in this period: the cryptogram is based on two lines of poetry – one from Keats and the other from Milton – and is embedded not in the words but in the scansion marks made by the writer/spy, several of which contain two marks for one syllable words; Yardley refers to it as a "hieroglyph" (84). To this extent, Yardley's book continued the hermetic trajectory of Arensberg's historical studies, but within new bureaucratic confines.

Yardley did not mention his major rival in U.S. cryptology, William Friedman (although there may be several allusions).<sup>191</sup> The three men – Manly, Friedman, and Yardley – corresponded through the 1920's. In their personal correspondence Manly and Friedman increasingly regarded Yardley as a charlatan, a fact that was confirmed upon the publication of The American Black Chamber. Nonetheless, upon the dissolution of the Black Chamber in 1929 Manly helped Yardley's former employees find work

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<sup>190</sup> Manly is held in extremely high regard as a cryptologist by Yardley and is mentioned twice in the book (38 and 263). Manly did not return the complements. Nonetheless, Yardley maintained contact with Manly after Manly returned to his duties at the University following the war and consulted him with cryptographic problems. Manly was an expert of Elizabethan English and published numerous works on Shakespeare and other Elizabethans from 1895 until his death in 1940.

<sup>191</sup> Yardley refers at one point to an intelligence course for State Department Officials that was offered at the outbreak of the war. The only course of its kind was that offered by the Riverbank Laboratories. See Yardley 41.

elsewhere in private industry. Despite the fact that he followed William Friedman's U.S. Army course on cryptology in Washington, D.C. in 1929, Yardley was excommunicated from the group thereafter due to the indiscretions of The American Black Chamber and relegated to the status of "outsider" that had previously been reserved for Arensberg in the group.<sup>192</sup> As we shall see in Chapter Five, the split proved momentous, as it further shifted the emphasis of U.S. cryptology towards research in new machinic methods of transmission, reception, and interpretation.

The American Black Chamber belonged to the hermetic style insofar as it is an evasive work; it hides names and it provokes rhetorically only to withdraw its characters and aims. The work's hermeticism was not only an authorial trick but the result of state intervention. Henry Stimpson, who had served as Secretary of War in the Taft administration (and would serve again later in the same position for FDR) was outraged when, upon being appointed Secretary of State by Herbert Hoover, he learned that Yardley's office was decoding the confidential correspondence of other nations. The U.S. state response was also hermetic: the Hoover Administration invoked secrecy as a defensive legal option even while claiming opposition to Yardley's hermetic pursuits. The American Black Chamber prompted the U.S. Senate to pass a bill on May 10<sup>th</sup>, 1933.<sup>193</sup> The New York Times, citing Yardley's precedent, published a brief article entitled "Code Bill Passed by Puzzled Senate" which reproduced the text of the bill as well as Yardley's reaction to the heavy fines that it imposed on violators.<sup>194</sup> Yardley was not charged, but an unpublished book-length manuscript derived from his knowledge of Japanese naval codes was impounded by the U.S. Justice Department earlier that

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<sup>192</sup> For details of Friedman's course, see The Reader of Gentleman's Mail 95.

<sup>193</sup> James Bamford provides a thorough account of the bill in The Puzzle Palace (44).

<sup>194</sup> May 11, 1933. The New York Times dedicated several articles to Herbert Yardley's scandal, the government response, and reviews of Yardley's books and films based on his screenplays during the 1930's.

same year.<sup>195</sup> The American Black Chamber nonetheless prompted “Japanese denouncement of the naval treaties” that caused it also to withdraw from the League of Nations in 1933.<sup>196</sup>

The removal of Yardley’s book from commercial circulation defines an important shift in the relationship between the republic and its emergent cryptological institutions. Yardley’s work had its intended hermetic effect; the United States had begun to treat cryptology as a valuable secret.

The works of Yardley and Arensberg mark the varied and often discontinuous relations that joined the hermetic style to cryptology during the 1920’s. They provide, in several ways, the models that all later historians of the subject would follow. These early works were nonetheless bound to the specific debates of their era. For example, Arensberg’s early poems are inextricably indebted to American pacifism during the war (which may have been pro-German pacifism). Yardley was prone to uttering scathing attacks against Woodrow Wilson and writing provocations such as “I have always regretted that I was not employed by a government, such as the Soviet Government, that understood and practiced espionage in the same ruthless and intelligent manner.”<sup>197</sup> Yardley’s book was the high-water mark of public interest in cryptology between the two wars. Together, Arensberg and Yardley contributed to the popular understanding of cryptology that would facilitate the massive U.S. institutional expenditures on

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<sup>195</sup> See The Puzzle Palace, 43.

<sup>196</sup> Fletcher Pratt. Secret and Urgent: The Story of Codes and Ciphers. Garden City, N.Y.: Blue Ribbon Books, 1942: 249. Chapters XIV and XV of Yardley’s book detail the breaking of the Japanese codes.

<sup>197</sup> The American Black Chamber, 247. The antagonism of this statement is amplified by the fact that the United States did not officially recognize the legitimacy of the Soviet Union until 1933.

military intelligence prior, during, and after WWII. They carried the cryptological tradition that began with American popular journalism (in Poe), commercial codes used in the transatlantic telegraph cables, and the writings of Ignatius T. Donnelly, Orville Owen, and Alexander Thayer on the debate over the authorship of Shakespeare's works (which, as I noted, led to the Riverbank Estate) into an era of concentrated U.S. institutional power.<sup>198</sup> In short, Yardley and Arensberg had effectively educated the public and the United States government, respectively, in the relations between cryptology and the hermetic style.

The popular writings of Arensberg (and later Yardley) also concealed the expert work taking place in U.S. military institutions. John Manly and the Friedmans followed and even participated in the public cryptological debates. Their occasional interventions, such as Manly's writings on the Roger Bacon "Voynich Manuscript," were intended to dispel misconceptions about cryptology. But they also dedicated their time instead to developing the increasingly mathematical methods of the science. William Friedman was hired in January, 1921 to become head of the U.S. Army Signal Corps's Code and Cipher Section. He remained there until 1930, when, following Henry Stimson's closure of Yardley's New York Offices, the U.S. military began to rely more heavily upon the cryptological skill of both the Friedmans. The Hoover Administration subsequently transferred all U.S. cryptological research to Friedman in 1930 (Friedman was appointed director of the newly formed Signals Intelligence Service in that year).<sup>199</sup> The

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<sup>198</sup> Thayer was U.S. ambassador to Trieste (then under Austria) during the late 19<sup>th</sup> century. His multi-volume Life of Beethoven appeared posthumously in the United States in 1920. See Van Wyck Brooks' New England Indian Summer 167.

<sup>199</sup> "The American Black Chamber was headed by Herbert Yardley until 1929, when it was temporarily disbanded. But this dissolution provided the government with an opportunity to consolidate the science and its own governmental cipher activities, which had been inefficiently distributed among the Black Chamber, Friedman's Signal Corps, and the Army Adjutant General. By 1930, William Friedman was named head of the new Signals Intelligence Service (SIS)" (Rosenheim 145).

U.S. government had finally sided with Friedman's discretion against Yardley's showmanship. John Manly assisted in the move, albeit indirectly: as a reserve intelligence officer, he had petitioned since the end of WWI for the reform of U.S. intelligence (and even sponsored Yardley) through a sustained varied correspondence with key military figures on the subject, and always as the champion of both William and Elizebeth Friedman. Manly did not participate in the actual reform of U.S. military institutions. He remained at the University of Chicago until he retired in 1930, corresponding extensively with the Friedmans on matters of cryptology.

The popular literary understanding of cryptology was divided from its institutional reform in the inter-regnum between the two World Wars. It leaked the hermetic style slowly into prose, where it would appear with great force in the 1930's. It is a subject I shall return in chapters five and six of the present study. Cryptology developed from the same divide as an institutional form of the hermetic style; it was first strengthened by its historical cousin, U.S. naval power, which had first initiated U.S. military-institutional reform in the early years of the twentieth century.

## **IX. THE CENTRALIZATION OF THE REFORMS**

Following WWI, the discussion between U.S. cryptologists and military officials resulted in a gradual reorganization of U.S. military intelligence systems. The Department of War and Department of State shaped cryptology into an institutional form. The forms assumed by cryptology as both a science and institutional entity resulted from the reform, and in particular naval reform, during the first two decades of the twentieth century. Those trajectories must first be recounted in order to understand the situation that granted Yardley's Black Chamber a privileged position with respect to the U.S. geo-political power, and later a similar primacy to military intelligence systems in domestic law-enforcement through the U.S. Coast Guard.

Both modern U.S. naval power and post-WWI U.S. cryptology had their institutional beginnings in the era of political Reformism and Populism. The tremendous international success of Alfred Mahan's theories prompted an immediate debate in the U.S. Congress. The debate was sponsored by Henry Cabot Lodge and Theodore Roosevelt. Their reforms were implemented, beginning in the mid-1890's, to secure increased naval funding.<sup>200</sup> The debate spanned over two decades of Congressional discussions and it was accelerated during the Wilson Administration's preparation for entry during World War One (the Naval Act was passed in 1916).<sup>201</sup> The revelation of the Zimmermann telegram in the following months provided a similar yet belated impetus for military-intelligence reform, which proved as lengthy and unpredictable a process as had the reform of the U.S. Navy.

The institutional course of U.S. military intelligence was initially set by President Wilson, who was intellectually predisposed to the reform of U.S. institutions and also held an amateur interest in ciphers and codes.<sup>202</sup> Wilson was also an amateur literary scholar. While still a professor in the early 1890's, he was involved in the thickest of institutional battles between genteel literary scholars who were interested in literature as a socializing force and philologists who looked to literature as the raw material of a new science of language. Professor Woodrow Wilson responded to these currents when he wrote of the debate between science and art that:

It is thus that it has become "scientific" to set forth the manner in which man's nature submits to man's circumstances; scientific to disclose morbid moods, and the conditions which produce them; scientific to regard man, not as the centre or source of power, but as the subject to power, a register of external forces instead

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<sup>200</sup> See America Invulnerable 127-130.

<sup>201</sup> See America Invulnerable. 142-143.

<sup>202</sup> Friedman notes that Ellen Wilson began the practice of encoding her husband Woodrow's plaintext messages after a security leak in 1914. See Friedman 14.

of an originative soul, and character as a product of man's circumstances rather than a sign of man's mastery over circumstance. It is thus that it has become "scientific" to analyze language as itself a commanding element in man's life. (86)

Wilson's Emersonian insistence on the primacy of direct experience and the value of "spirit" over thought and method insisted that literature should edify Americans rather than teach them to analyze. Wilson's argument that the moral edification of direct experience was fundamental to literary study echoes the incipient pragmatism of its era in a conservative note. The object was of course to recover the humanizing effect of literature from the steel grip of scientific analysis and method. Wilson's article was written in 1893, three years after his return to Princeton University and the same year that Henry Adams first witnessed the dynamo.

Wilson's position changed dramatically in the years that followed.<sup>203</sup> He did not renounce the civil possibilities of literary education, but rather embraced their reform according to scientific means. Wilson had been educated during the period of Germany's greatest influence on the American academy, and he earned his Ph.D. from Johns Hopkins University. Johns Hopkins University was a prime example of the influence of 19<sup>th</sup> century German thought on American schools.<sup>204</sup> Wilson's historical

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<sup>203</sup> Wilson was adept at reversing his positions, a fact that is made abundantly clear when he turned his back on the Democratic Bosses who earned him the party nomination for the gubernatorial candidacy of New Jersey in 1910. See, for example, Chapter Three of Alexander George and Juliette George. Woodrow Wilson and Colonel House: A Personality Study. This is an interesting study of the President's career, purportedly undertaken as a "psychoanalytic" history of the former President. While its application of psychoanalysis is limited, the book's value lies in the fact that it was co-written by a fellow of the Rand Corporation, Alexander George, a former Director of the Social Science Department of the Rand Corporation. See also Christopher Lasch's chapter on Colonel House in The New Radicalism in America 1889-1963.



writings on the history of institutions were first composed there, and he carried their lessons to the reform of the U.S. state when he began his career as President. Wilson would have agreed that “the state was conceived...to be an indispensable instrument of the new reconstruction” (Noble 121).

Woodrow Wilson and his administrators had recognized that the transformative energies of reformism could be harnessed in two registers. The first was international and competitive; the second domestic and institutional. Wilson had closely followed the international competition, and had foreseen that German scientific innovation, spurred by the effective German University research system, would produce industrial and military institutions that threatened a possible post-WWI American geo-political order. Wilson countered this with a domestic program. He created the National Research Council (NRC), which was officially launched in September of 1916 to involve the U.S. government more directly in the development of industries and technologies to compete with German innovation.

The NRC brought under its aegis the pre-existing Naval Consulting Board (NCB) and the Council of National Defense (CND). Historian David Noble notes that

The Naval Consulting Board became the CND’s board of inventions, and the National Research Council was charged with the organization of research....Other tasks [of the NRD] included the development of range-finders for naval gunnery, communications apparatus, and gas masks. (153)

Noble notes further that the NRC also had a propaganda function, as it publicized its recruitment of scientist and engineers in the war effort. This effort was orchestrated in

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<sup>204</sup> Richard Hofstadter repeatedly cites the importance of Johns Hopkins to the Social Darwinists and their progeny, particularly among the eugenicists. See Social Darwinism in American Thought, 21, 174. The importance of Johns Hopkins as a site of the cooperation between industry and academia is cited throughout David Noble’s America by Design: Science, Technology, and the Rise of Corporate Capitalism.

1917 by “General George Squier, chief signal officer of the Navy, an electrical engineer from Johns Hopkins” (153).

The NRC was reorganized for civilian research in the post-war era that was founded upon a corporate model of collective research. It was the same model that the cryptologists had worked under during the war. The cryptologists – whether those from Riverbank or MI-8 – were predisposed to the rigors of collective, intellectual labor by prior experience; in fact, the new cryptology demanded a collective model of labor for the varied stages of encryption, decryption, and translation into military and diplomatic strategy.

The NRC sponsored a scientific-industrial infrastructure that could support the new military intelligence. The institution was designed to improve upon innovative German connections between industries and universities and combine them with American advances in industrial and electrical power. The new scientific institutions were thus centralized and the cryptologists profited from the advances in technology sponsored by the NRC by way of the Army Signals Corps and other rudimentary communications and intelligence sections of the Department of the Army.

The NRC centralization provided a consistent paradox to pre-war American expansionist policy. I have argued in the previous and current chapters that the United States removed itself from relative economic and political isolation during the 19<sup>th</sup> century with a dramatic reformation of its naval power. The U.S. Navy was reconstructed, after the designs of naval historian Alfred T. Mahan, with the political skill and assistance of figures such as Henry Cabot Lodge and Theodore Roosevelt. The transformation had been slow and costly, but it resulted for the first time in what historians Chace and Carr have described as “the growth of strategic considerations as a dominant strain of foreign policy” (*America Invulnerable* 153). It would stand to reason that the tremendous reform of U.S. naval power that reached its first peak in WWI

would have been accompanied by a concomitant amplification of its intelligence and communications capability. It was not. The extroversion and projection of force was doubled merely by dependence on material innovation and technological surprise; military intelligence was marginal in those strategic and industrial concerns.

The situation gradually changed after WWI. Military intelligence capability was increasingly regarded as central to both U.S. foreign policy and the reform of U.S. military institutions. The United States slowly absorbed the collaborative work of the literary cryptologists; the absorption reversed, or at best slackened, the territorial model of American power. The reformation of American intelligence also created a counter-motion to the territorial expansion of American imperialism. For Wilson, the war presented an opportunity to draw upon a young generation of intellectuals who could redesign the American system. This reorganization contrasted the previous sixteen years of imperialist Republican administrative policies.

The renewed emphasis on intelligence in the post-WWI years was centripetal rather than centrifugal, as the naval reform had been. Intelligence reform relied upon the careful and timely work of intellectuals, concentrated in groups removed from the public eye, in new and arcane institutions that provided information to be used by military institutions, such as the Navy or the State Department, to the strategic ends of foreign policy rather than empire.

U.S. naval power and cryptology converged first at the level of international diplomacy. During the 1920's, Yardley had broken the Japanese codes, thus granting the United States advance intelligence of Japanese bargaining tactics at the major Naval treaties that regulated vessel tonnage, armament quotas, and naval material production. When Secretary of State Henry Stimson closed Yardley's office in 1929, Stimson deprived United States diplomacy of powerful intelligence information in the long international competition with Japan over the extension of U.S. influence in the Pacific Ocean. The

U.S. Navy was twice-damaged damaged by the closure of Yardley's office: it could no longer monitor Japanese naval communications, and it was threatened by an arms race that was precipitated by Japan's withdrawal from the major naval treaties, as well as the League of Nations, following Yardley and Stimson's intelligence blunders.<sup>205</sup>

Yardley's failure shifted cryptology in military intelligence to the Friedmans. William returned to work with Elizebeth Friedman at Riverbank following WWI. The Friedmans soon departed for Washington, D.C., where in 1921 William was placed in charge of the U.S. Army Signal Corps's Code and Cipher Section. Elizebeth worked as an assistant to her husband until she was transferred in 1923 to the Office of Naval Communications of the U.S. Navy.

The U.S. Navy had competed with the U.S. Army for control over military intelligence operations since the end of WWI.<sup>206</sup> Elizebeth Friedman arrived in the U.S. Navy at a critical time, during which the need for naval cryptology was extended to the U.S. Coast Guard law enforcement operations during Prohibition. After several years working for the Navy, Elizebeth Friedman was hired by the U.S. Coast Guard in 1927 to crack the codes used by Prohibition era rum-runners. The rum runners used sophisticated codes to coordinate the transport of illegal shipments of alcohol into the United States along its coasts. While her husband William languished in Herbert Yardley's shadow, Elizebeth Friedman became the most famous code breaker in the United States. The need for cryptological expertise grew so great in the late 1920's and early 1930's that Elizebeth's husband, William, was later briefly loaned to the Coast Guard by the U.S. Army to assist in certain operations.<sup>207</sup>

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<sup>205</sup> For an account of U.S.-Japanese Naval Treaties, see America Invulnerable 189-204.

<sup>206</sup> The reader should consult James Bamford's account of this competition in The Puzzle Palace (54).

<sup>207</sup> See The Codebreakers 806.

The success of Elizebeth Friedman in the Coast Guard proved the value of a scientific and institutional model of cryptology to the United States military; Coast Guard funding for a cryptanalytic section was dramatically increased in 1931.<sup>208</sup> Elizebeth Friedman's Coast Guard work ended in a series of highly publicized and successful trials against the rum-runners in 1933. As David Kahn noted:

Mrs. Elizebeth Friedman, a cryptanalyst for the Coast Guard, was about to testify [in a New Orleans courtroom] to her solutions of coded messages of the Consolidated Exporters Company, Prohibition's largest and most powerful bootlegging ring - messages that at last connected the ringleaders to the actual operations of the rumrunning vessels. (The Codebreakers 802)

Elizebeth Friedman's success achieved the balanced integration of the hermetic, centripetal model of cryptology with the extroverted U.S. Naval power. Augmented, unwittingly, by Yardley's New York Black Chamber, U.S. naval power extended its reach in foreign diplomacy in domestic law-enforcement. The convergence was sustained, as I noted, by the Friedmans, who had crafted their hermetic science into a force that could be incorporated into the vectors of U.S. naval power first theorized by Alfred Mahan.

The cryptological model of military intelligence developed by the Friedmans, Manly, and Yardley is the early institutional form of a centripetal model of the U.S. The model would culminate in the hermetic institutional intelligence networks of the post-WWII era rather than the centrifugal, imperial model of the McKinley-Roosevelt administrations. Woodrow Wilson was the first to recognize that the two opposed models - of extroverted military force and introverted military intelligence - could be granted simultaneous institutions. The opinion expressed by contemporary historian Warren Zimmerman that "the Great War was not a diversion from 1898 but an

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<sup>208</sup> See The Codebreakers 808.

extension of it," fails to account for this fundamental and mutually beneficial contradiction. There is in fact little continuity between the development of naval-military power during the Theodore Roosevelt administration and the military-intelligence revolution inaugurated by Wilson beyond certain material events such as wireless telegraphy. Their relationship is best described as a convergence.

Naval warfare and cryptology both harnessed the new electrical and technological powers afforded to them by the Second Industrial Revolution. These powers required new scientific methods and new intellectuals – in short, a model of intelligence for which the nation later provided permanent institutions. The centrifugal model of naval force had already achieved effective prominence with the Spanish-American War; the centripetal model of American intelligence would not find a permanent home in the state until thirty years had passed since the end of WWI.

The occasional and increasingly sustained collaboration between U.S. naval power and cryptology was largely an inter-institutional matter. A model of state or military intelligence based on cryptology still harbored enemies within the state itself. Herbert Hoover's Secretary of State, Henry Stimson, had initially opposed the Black Chamber, but even Stimson would later become a benefactor of military intelligence as Secretary of War under Franklin D. Roosevelt.<sup>209</sup>

The political and scientific value of a reformed American intelligence apparatus was developed cautiously during the 1920's and 1930's and often overshadowed by significant deviations. The success of Elizebeth Friedman's work against the rum-runners in that period was belittled, for example, by political tangents such as the Yardley-Stimson scandal and rivalries between military and diplomatic institutions (i.e. Yardley's diplomatic Black Chamber and the Friedmans' work for the Department of

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<sup>209</sup> The Puzzle Palace 62.

the Army). There was also the stigma of occultism to overcome, as cryptology had never been absolved of its medieval, satanic connotations. Those connotations were only amplified by the charlatan's aura. Cryptology had, since the Donnelly's writings on the Shakespeare-Bacon problem, been marked by a shameful subjectivity, and the perception was amplified by Walter Arensberg's publications or frauds such as the Voynich Manuscript. It came to a scandalous resolution with Herbert Yardley's book. The Department of the Army was aware of these stigmata, and it had struggled since WWI to overcome them over the course of fierce intra-institutional battles over the military value of cryptology. The Zimmermann telegram had convinced many of the need for reform, but the Department of the Army did not fully commit its funding and institutions to the Friedmans' work until after the Yardley scandal had subsided and Elizebeth Friedman had launched its rival, the U.S. Navy, into public prestige and cryptological success.

The Friedmans ascended gradually to institutional prominence from the small group of amateur literary cryptanalysts that emerged in the United States during and after WWI. The post-WWI group consisted of literary amateurs and humanists who out of a common set of problems in their shared interpretative traditions had transformed an arcane science into a modern, bureaucratic force. The modernizing of cryptology that began in Manly's English literature classrooms and the Riverbank farmhouse laboratory was later moved from the Midwest to the center of national power on the eastern seaboard and to a later, productive juxtaposition with U.S. naval power.

In a 1916 letter, Henry Adams had written that "The huge polypus waiting to pop over us is what we call the Middle West, which corresponds to your middle class. It has a stomach but no nerve centre, - no brains."<sup>210</sup> Where Henry Adams had wondered if U.S. intellectuals could quantify and harness the powers of a new century, the cryptologists

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<sup>210</sup> The Letters of Henry Adams: 1892-1918. 640.

had quantified language, if not history, and rendered it a forceful and concealed discourse within U.S. geo-political and military institutions. The “brains” of U.S. military intelligence were not the “nerve centre” of the Progressive-Reform movement to which Adams referred in this sentence; they were, instead, the remains of philology extracted from that provincial locale and integrated in the dynamo of U.S. state power. The centripetal drift of modern U.S. cryptology was furthermore sustained along varied military and political trajectories by the circumstantial influence of the hermetic style, which remained a potent cultural force. Secrecy became a priority as the U.S. gradually removed military cryptological and technological materials from circulation, as did other Western nations (particularly Germany) during this period, and withdrawing even cryptology from the public milieu of the hermetic style.<sup>211</sup> The Friedmans eventually sat alone in the nerve centre they had become, without yet a major institution, assembling the fragments of literary ciphers into this new science for the frequently renamed and growing bureaucracy of the Signals Intelligence Service.<sup>212</sup> The streamlined, analytical energy was absorbed into a wider institutional discourse of reform, policy, and technocracy. Where Henry Adams had offered a new intelligence as the anarchic, discursive force of historical style, Friedman conceived cryptology as the smooth space of a new institutional orthodoxy.

The Friedmans were not the prototypes of a new class of intelligence officials; nor were they the disillusioned Reformers who, like Adams’ Mrs. Lightfoot Lee, retreat in an intelligent manner from the institutions that have belittled her person. The Friedmans were instead the Edenic pair that slowly designed, over the course of several decades, a distinct model of military-intelligence, crafted from literary debate and social history,

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<sup>211</sup> This would culminate after WWII in the removal of Friedmans’ works from circulation and the suppression of Alan Turing’s work and life in England (See Rosenheim 168).

<sup>212</sup> The S.I.S. was repeatedly renamed during the 1930’s. See The Puzzle Palace 64.



into the new institutions of the post-WWII U.S. Security state. They were the first and last of their kind. The methods and processes they harnessed resulted in the massive American intelligence apparatus of the post-WWII era, when the United States would officially absorb the hermetic style of U.S. cryptology and give to it an institutional form. This was only after the Friedmans had proved their skill in two world wars, domestic criminal surveillance operations, and other areas of institutional intelligence construction and reform. The apotheosis took place when President Truman recognized that the National Security Act of 1947 had only initiated a longer process of reform, to which he added the National Security Agency in 1952 as the crown jewel in a constellation of new U.S. intelligence institutions. The National Security Agency was finally acknowledged to the U.S. public in 1958, one year after a young writer named Thomas Pynchon returned to his studies at Cornell University after a two-year tour in the U.S. Navy.

### 3. THE SLAYER OF ARGUS: FIGURES OF A NEW INTELLIGENCE AND THOMAS PYNCHON'S "ENTROPY"

#### X. Prosopopoeia

Thomas Pynchon began his baccalaureate studies at Cornell University in the fall of 1953. Matthew Winston noted in a biographical essay that Thomas Pynchon was initially enrolled in Engineering Physics, but left the University during his sophomore year. He spent the following two years in the U.S. Navy.<sup>213</sup> It is probable, judging from his early fiction, that he was assigned to maintain or operate military communications equipment.<sup>214</sup> He returned to Cornell in 1957, changed his major to English, and studied with a renowned faculty that included M.H. Abrams, Arthur Mizener, and Vladimir Nabokov.<sup>215</sup>

Cornell University during the 1950's was one of the eminent Cold War institutions, with an array of specialized programs that supported the U.S. endeavor. Its Department of Modern languages and Linguistics had been carried over from World War Two, when it had trained "intelligence officers in German and Japanese as well as other appropriate

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<sup>213</sup> See "The Quest for Pynchon" 257-58.

<sup>214</sup> The dialogue spoken by characters throughout the early fiction resonates with a technical familiarity. Rizzo's speech in "The Small Rain" (42) is emblematic. Pynchon describes sources from the Signal Corps in his introductory essay to Slow Learner.

<sup>215</sup> David Cowart corroborated Winston's biographical essay (and also refuted parts) in his book Thomas Pynchon: The Art of Allusion (3).

languages" (Sander Gilman 1035). In addition to linguists and analysts, it also trained engineers. Cornell graduates often went to work in what President Eisenhower would later describe as "the military-industrial complex;" following a post-graduation hiatus, Pynchon worked for the Boeing Company from 1960-1962.

Pynchon's affiliation with Cornell, the U.S. military, and the "military-industrial complex" was not merely formative. Rather, Pynchon began to compose his short fiction during his final years at Cornell time in a manner that subsumed experience to careful study. The regimen included works of philosophy, science, history, and, above all, literature.

Pynchon's early writings restlessly engaged intellectual discussions that were prevalent during his years of undergraduate study and military service. Philosophical Existentialism, expounded through the writings of Jean-Paul Sartre, had a profound effect on U.S. intellectual life. Sartre's influence on U.S. letters motivated the revival of disparate authors. For example, Sartre's writings on U.S. literature and on William Faulkner contributed to the resurgence of the latter.<sup>216</sup> Sartre's writings on Existentialism also found a receptive audience that was engaged in the Princeton scholar Walter Kaufmann's salvage of Friedrich Nietzsche, in an Existential register, from the shameful wreck of German National Socialism.<sup>217</sup> Pynchon would often refer to the Existential vogue in his early stories and novels, and he also most probably read

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<sup>216</sup> See "Time in Faulkner: *The Sound and the Fury*." William Faulkner: Three Decades of Criticism. 225-32.

<sup>217</sup> The resurrection of Nietzsche took place within the Existentialist vogue that, through Jean-Paul Sartre, redirected the attention of modern philosophy to one of Nietzsche's most important heirs, Martin Heidegger. It was during this period in the late 1950's that European philosophical debates shaped the trajectory of much later literary and historical thought in the United States. On one axis, Heidegger's critique of Western metaphysics stimulated the post-structuralist works of Jacques Derrida, Michel Foucault, and others; on another axis Heidegger inspired Leo Strauss, whose writings would later offer a basis for neo-conservative thought in the United States.

Nietzsche in that context as one of the few modern thinkers who wrote seriously about music, in particular, the opera.<sup>218</sup>

Pynchon's interest in Existentialism developed also as an interest in modern French literature and the arts. One can find in Pynchon echoes of the carnality of Anais Nin, the narrative experiments of Alain Robbe-Grillet, the humanism of Camus, and the experimental drama of Beckett. Pynchon was also concerned with other U.S. writers who were engaged in the vibrant French literary scene of the post-WWII era, and there is evidence of the matter in his choice of a quote from Henry Miller, the American expatriate par-excellence, as the epigram for his early short story, "Entropy." Pynchon's later reference to the Marquis De Sade in that same story, as well as his documented interest in French surrealism, suggest his careful study of contemporary Francophone artistic developments and intellectual debate in an international register.<sup>219</sup>

The young writer studied through an exceptional period in U.S. literary history, during which several important works appeared beginning in the late 1940's. These included major works of literary history such as Erich Auerbach's Mimesis (1953) and Northrop Frye's The Anatomy of Criticism: Four Essays (1957).<sup>220</sup> Edmund Wilson's To the Finland Station (originally published in 1940, and reprinted in 1953), with its canonical

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<sup>218</sup> See Yves Marie Leonet "Waking from the Apollonian Dream: Correspondences between *The Birth of Tragedy* and Gravity's Rainbow."

<sup>219</sup> Michael Vella published several articles on this subject in Pynchon Notes. See for example "Pynchon, V., and the Surrealists" and "Surrealism, Postmodernism, and Roger, Mexico."

<sup>220</sup> Erich Auerbach's role in Cold War cultural politics is important, the import of which has been discussed in many works. Auerbach participated in 1950 in the newly organized Christian Gauss series of lectures at Princeton University, which were organized by R.P. Blackmur through the Rockefeller Foundation. See, for example, Lawrence Schwartz 128-131.

accounts of Vico and Michelet, would have furthermore colored Pynchon's reading of Henry Adams.<sup>221</sup> To these eminent writings there must be added eccentric works such as William and Elizebeth Friedman's The Shakespearean Ciphers Examined (1957) and Kenneth Ellis' The Post Office in the Eighteenth Century (1958). The former may have provided Pynchon with a link between modern literary thought and contemporary intelligence institutions, while the latter would have provided the historical material for much of The Crying of Lot 49, which, as Pynchon has noted, was primarily composed during this early period and only published later (in 1966).<sup>222</sup> Scientific theory and experiment also captured his interest. Several innovative scientific works appeared during the 1940's and 1950's. These included the studies of cybernetics by Claude Shannon, Norbert Wiener, and others that appeared beginning roughly from the end of WWII. Norbert Wiener's Cybernetics appeared in the same year (1948) that the transistor was invented at Bell Telephone Labs by John Bardeen and Walter Brattain. In that same year, Richard Feynman improved on the classical theories of electrodynamics in several important experiments. Pynchon was only entering high school in 1948, yet his early fiction attests to a sustained attention to scientific theory in ways that amplified his rendering of literary-theoretical works, as we shall later see.

Pynchon's primary interests were however dedicated to twentieth century U.S. literary history. Henry Adams and William Faulkner seemingly exerted the most extraordinary influence on Pynchon's mind during this period, with T.S. Eliot running a close third. Pynchon had the fortune to study Adams during a revival: several major biographies of Adams' life appeared during the 1950's, and an important essay by Harvey Gross

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<sup>221</sup> Pynchon discussed the influence of Wilson's book in his introductory essay to Slow Learner (18). There was also during this time a resurgence of interest in Vico. See Vico, Metaphor, and the Origin of Language (38).

<sup>222</sup> *ibid* 22.

entitled “*Gerontion* and the Meaning of History” appeared in 1957 connecting Adams and Eliot.<sup>223</sup> Furthermore, the Faulkner revival led by critics such as Irving Howe, Robert Penn Warren, Cleanth Brooks, and others drew attention to the experiments taking place in the modern U.S. novel during the interwar period.

Henry Adams was however the most important figure. Adams offered a rigorous and eclectic style that deviated from how U.S. writers had engaged both modern rhetorical traditions as well as American history. The Education of Henry Adams achieved an unprecedented rhetorical sophistication with its destruction of the anthropomorphic theories of history inspired by 19<sup>th</sup> century Romanticism. In examples that included his analysis Garibaldi in The Education, Adams demonstrated that as a rhetorical mode Romanticism was central to 19<sup>th</sup> century historicism (Pynchon would later extend the analysis of Garibaldi in a parodic form with respect to Latin-American revolutionary struggle in his 1961 novel, V.). Adams’ deposing of Romantic historicism was developed, as I have shown in Chapter One, along several lines of inquiry: how do aggregations of historical force – peoples, economies, institutions – express their inhuman power in rhetoric? How does human intelligence gather in modern state formations? What would the role of humanism be when history was governed by these aggregate, inhuman forces?

Faulkner’s novels engaged similar problems in a different register. As we shall see in later chapters, Adams’ influence on Faulkner was formative. Faulkner developed distinct rhetorical strategies to engage problems that Adams had raised with respect to U.S. history and he did so by re-situating Adams’ pessimism within the institutions of the U.S. South. As Jean-Paul Sartre noted:

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<sup>223</sup> I will discuss Gross’ essay in greater detail in Chapter Four.

Faulkner's despair seems to me to be anterior to his metaphysics...We live in a time of incredible revolutions, and Faulkner uses his extraordinary art to describe a world dying of age, with us gasping and choking in it (232).

Pynchon would most likely have understood Sartre's unapologetic acknowledgement of Faulkner's pessimism against other, more optimistic and celebratory arguments about Faulkner current in 1950's U.S. literary studies. He would have read Faulkner through Henry Adams, as it were, understanding that Faulkner had re-invented Adams and translated him to another historical and geographic order. Pynchon would follow Faulkner's precedent by elaborating new genealogies and developing characters, themes, and institutions as Faulkner had over a series of novels - yet he would not share Faulkner's pessimism.

Pynchon's Faulknerian genealogies would later permit an intensive study of modern literary history in relation to the emergent U.S. military, scientific institutions, and geopolitical order of the 1950's. It has been argued, for example, that William Faulkner's revival in the late 1940's extended through the 1950's because

The cultural Cold War was very much part of an expansive American foreign policy in the postwar period. On the ideological front, American art and literature would have to serve important and new symbolic functions. (Schwartz 50)

But the obsessive historical rigor that Pynchon inherited from Henry Adams made difficult the relationship of Pynchon's fiction to the dominant literary movements of the 1950's or their context within U.S. Cold War culture. Pynchon's debt to the contentious, eccentric Henry Adams and his commitment to the pessimistic William Faulkner (as opposed to Faulkner the Southern moralist and fabulist) prevented Pynchon's assimilation "into the new conservative liberalism of postwar America" (Schwartz 28). Rather, Pynchon must be understood in relation to a lineage that precedes the Cold War

in U.S. letters, and extends from Henry Adams back to Michelet and Vico in Europe. It is a lineage that is concerned, above all, with the role of language with respect to emergent institutions.

As I noted earlier, three institutions would prove fundamental to Pynchon's new literary style. The first was the U.S. Navy. His subsequent writings feature long sections on military bureaucracy, military history, and the sailor's life; many of his major characters are often from military backgrounds: Meatball Mulligan of the early fiction is a sailor, as is Benny Profane in the novel V., Flange in the short story "Low-lands" (1960) was once a communications officer in the Navy, and the disgruntled neo-Garibaldian revolutionaries of V. and The Crying of Lot 49 are their paramilitary cousins. The second is the University. Rumpled intellectuals and students wander Pynchon's backstreets: Professor Emory Bortz and his three graduate students in The Crying of Lot 49 are perhaps the best example. The third and final group consists of engineers and the corporations that employ them. There is Stanley Koteks who is an engineer for the Yoyodyne Corporation in the 1960's (The Crying of Lot 49) and Kurt Mondaugen, who works for an earlier incarnation of Yoyodyne, in V. (a connection that reappears in Gravity's Rainbow). These characters and institutions paralleled William Faulkner's Yoknapatawpha County and its families. As in Faulkner, the same characters appeared across several works and in differing forms and stages of historical development. But Pynchon amplified the Faulknerian genealogical mode with the style of Henry Adams, which regarded institutions as aggregations of historical force that expressed themselves (or could be discussed) as anthropomorphic in function. To borrow a phrase from the recent 9/11 Commission Report, "some of the most important characters are institutions" in Pynchon's fiction (71). They are not merely personified versions of inanimate force; they are subsumed to a discursive, genealogical apparatus.

I have presented two specific arguments in the preceding chapters. The first argument was that Henry Adams developed across his writings an anti-institutional, non-



anthropomorphic style of history. The style culminated in The Education of Henry Adams with a stylized historical discourse that forcefully displaced human actors; the evacuation of Garibaldi was, for Adams, the exposition of combined stylistic forces, the very exposition of which was also a transmutation of historical style. I argued furthermore in Chapter Two that the emergent U.S. intelligence institutions were set on a new course during World War One. The missionary zeal of the Friedmans, the austere patricianship of John Matthews Manly, and Herbert Yardley's showmanship had convinced the U.S. to incorporate a new, centripetal model of intelligence analysis that would bolster its centrifugal projection of naval (and later aerial) military force. Most importantly, however, the new model of military intelligence had transferred the capacity, inherited from literary philology, to rhetorically endow institutions and their methods with human properties (as in Friedman's attribution of behavioral properties to a statistical linguistic curve). The post-WWI U.S. cryptologists transferred from literary humanism a hermeneutics to what would come to be known later as "Signals Intelligence." Pynchon would have recognized during the discussion over the new intelligence institutions in the 1950's and 1960's that they had absorbed and cultivated the anthropomorphic rhetoric that Adams had engaged with his literary-historical style. The most important of all the new institutions was the National Security Agency, which was founded (with the Friedmans' assistance) in 1952 following the tremendous institutional reorganization mandated by President Truman in the National Security Act of 1947.

This was the institutional terrain of Pynchon's early fictional discourse. It was like Faulkner's Yoknapatawpha in that it was constituted by violent and often absurd historical events. But Thomas Pynchon elaborated new rhetorical strategies in relation to U.S. institutions who were the mature form of often rudimentary aggregations that appeared in Faulkner's writings. Nonetheless, he would treat institutions and technologies much as Faulkner had treated families and individuals: as dynamic historical entities. Pynchon would thus dramatize the inhuman historical forces in a

manner that Faulkner had not, or had reverted to misanthropy, nostalgia, and racism to displace. Pynchon's strategy was entirely unique with respect to the relationships between three institutions: the humanities, the corporations, and the military.

Rather than attempt to classify Pynchon's works in a generic context, the following chapters will attempt to explain how Pynchon's writings suggested a singular counter-discourse to established modes of thinking about secular history and the role of literature within those schemes. They do so by varied means which include elaborations of Henry Adams' forceful historical style, the institutional history of the United States, the changing roles of scientists and humanists with respect to those institutions, and how, after Vico, rhetoric maintained a unique connection to epistemology. My insistence upon Vico follows both Pynchon's reading of Wilson's To the Finland Station as well as the suggestion made by Pynchon scholar Edward Mendelson, who once invoked James Joyce's "plundering" the more fantastic elements of Giambattista Vico's historical writings for artistic purposes. The implication of Mendelson's analogy was that Joyce's novel Ulysses related to its contemporary world in ways that may also apply to Pynchon's work:

...he [Joyce] acknowledged that his book focuses on its own structure, and that an understanding of the world outside *Ulysses* is of little use in understanding the world within it. No other major work of art is at the same time so extreme in its factuality and yet so tenuous in its relation to its historical setting. (11)

I will argue that Pynchon's novels are less hesitant in their relationship to modern U.S. history and literature "outside" his works than what Mendelson describes in Joyce. This is partly due to the fact that Pynchon first began to write when Adams, Auerbach, Vico, Frye, Nietzsche, and other major thinkers were appearing or reappearing on the U.S. scene and, more importantly, to the manner in how, after careful study, Pynchon absorbed them into the rhetorical discourses of his fiction. Even when Pynchon's fiction ventures, after Vico, into fantastic historiographies, the human footprints of that

discourse – its figures, its dramatic dialogue, its objects, its institutions – can be tracked through the problems I have outlined in previous chapters. The most outrageous polemic and comedy retains in Pynchon also a persistent historical argument, and it is for this reason that they are slightly less “tenuous” – yet no less artful – than Joyce’s Ulysses. This is not to say, however, that Pynchon was a realist who used the novel to establish a new totality; rather, he composed a *poesis* that rendered the hermetic undercurrents and secretive forces of history as well as the magnetizing presence of its phenomena. The processes and the phenomena are not however identical, and their disjunction accounts for the strong “fabulous” or “surreal” element in Pynchon’s style.

What Edward Mendelson describes as the “encyclopedic” qualities of Pynchon’s later novels had rather humble beginnings in the short story. Pynchon’s first short story, “Entropy,” may have remained a strange aberration had it not situated, or even confused, the irreducible properties of human intelligence with those of the new U.S. institutions and their anthropomorphic power. The story asks: if this new anthropomorphic, institutional power can replicate human life, then how can human thought respond? Pynchon’s initial proposal is to craft a figural discourse and counter-intelligence to engage that new historical power:

Downstairs, Meatball Mulligan’s lease-breaking party was moving into its 40<sup>th</sup> hour. On the kitchen floor, amid a litter of empty champagne fifths, were Sandor Rojas and three friends, playing spit on the ocean and staying awake on Heidseck and benzedrine pills. In the living room Duke, Vincent, Krinkles and Paco sat crouched over a 15-inch speaker, which had been bolted into the top of a wastepaper basket, listening to 27 watts’ worth of The Heroes Gate at Kiev. They all wore horn-rimmed glasses and rapt expressions, and smoked funny-looking cigarettes, which contained not, as you might expect, tobacco, but an adulterated form of cannabis sativa. This group was the Duke di Angelis quartet. They recorded for a label called Tambu and had to their credit one 10” LP entitled Songs of Outer Space. From time to time one of them would flick the ashes from

his cigarette into the speaker cone to watch them dance around. Meatball himself was sleeping over by the window, holding an empty magnum to his chest as if it were a teddy bear. Several government girls, who worked for people like the State Department and NSA had passed out on couches, chairs and in one case the bathroom sink. (277)

This paragraph, the first of the tale, introduces the *mis-en-scene* of Thomas Pynchon's early short story "Entropy." In its most ambitious elaboration its stylistic juxtapositions will extend from the first paragraph like a fugue.<sup>224</sup> The fugue will depend however on the keynote struck by the first paragraph. This overture, elaborated over the dramatic trajectory of the ensuing fugue, announces Thomas Pynchon's early style.

But the source of the paragraph's narration - who or what organizes the menagerie - is a mystery. Like the turntable that plays the finale of Mussorgsky's "Heroes Gate at Kiev," the tableau vivant seems a recording - a stereotype - whose narrator is a reticent host. The absence of a readily identifiable prime mover is not, however, the absence of an organizing intelligence. The still-life is narrated with three distinct languages and each can be distinguished from the others despite the intentionally confused order of their appearance.

The first language is taxonomical. The overture introduces the somnambulant caricatures and their mid-century Existential malaise. The caricatures are observed here and classified like packs of varied pups (a "litter," "crouched," a "teddy bear"). Lawlessness, infantilism, waste, and exhaustion provide the scant external signs of their young lives. Bohemians and stereotyped government employees are decorated with disaffected, familiar cliché. Their menagerie will later contain military personnel, aging intellectuals, and immigrants. The taxonomy orders the guests zoologically by granting

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<sup>224</sup> The fugal structure of the story has been noted in other sources. See Freese, 412 (esp. footnote).

privilege to the sense of sight. This objective intelligence obstructs any sympathetic identification between the reader and the paragraph's decadent, comic atavism.

The calculating taxonomy of sight is doubled by a second organizing force that is less an intelligence than a sentience. The second sentience (from sentire {to hear/feel}) modulates the sonic, sensuous qualities of the prose. The sonority of its movement is amplified by the assonance and bass notes of the first sentence. These transform the room into a sonic chamber in which narrative conventions – dialogue, a narrator, an event – are musically displaced. Punctuation and syntax beat a lazy meter to the atonal and baritone motifs that dissipate in the smoldering ashes of its languid rhythm. The solipsism of its effect is heightened to the point that the music, like the narrator, vanishes in later pages as the Duke de Angelis quartet performs a ghostly, silent rehearsal within the closed rhythms of their rapt senses.

The alternation between sight and sound disorients by synaesthesia. The two senses organize the tired bodies into an aggregate; sight renders the creatures as crude objects, and sound projects them as a lowly music that conveys the scene's primal animism. The story will later develop as a fugal "counterpoint" from this dynamic atmosphere; the term "counterpoint" appears several times later in the story to modulate the story's varied musical terms, diction, and phrasings. The dissonant combinations will later cut across the varied layers of the story's space: exterior and interior, labor and leisure, music and language, dialogue and monologue.

This contrapuntal tension remains however a primordial confusion in the first paragraph. The party suggests a parody of the cave into which Vico's first men scattered at the sound of thunder (it is raining outside in the story), and the scene's combined objectivity and sensuality form a modern Vichian tableau from which a modern intelligence struggles to emerge from a savage Lucretian world. In Vico, the animal sounds of those savage tribes gave birth over centuries and millennia to the

peoples, institutions, and nations of the human world. In Pynchon, however, a new institution appears suddenly at the Masque, without warning.

A third intelligence emerges from the party's confusion: "Several government girls, who worked for people like the State Department and NSA had passed out on couches, chairs and in one case the bathroom sink." The narration does not offer that the girls "worked for institutions like the State Department and NSA;" to do so would be mere simile. Nor does it write that they "worked for the State Department and NSA;" to do so would be realism. Rather, it insists that the institutions are "people."

The final sentence presents the first significant figuration (in this case, prosopopeia) in Thomas Pynchon's oeuvre. The figure is the term people.<sup>225</sup> The term is located in a syntactic ambiguity so that it may be read as a) endowing the institutions with the conventional qualities of a collective "public" or b) describing each institution as a human individual. The fact that the chosen institutions - the State Department and National Security Agency (NSA) - are those of American intelligence and diplomacy is of particular import.

The personified institutions interpret, design, and shape the language of the political and historical world. Their functions imply an institutional intelligence that engages the human world of language and history; they communicate. Communication implies a communion, or joining, of the inhuman, inorganic actuality of the institutions and human language with its attendant historical connotations and techniques. The "people" combines these functions and properties as a twice-anthropomorphic

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<sup>225</sup> The metonymy of the government girls is distinct from the figure of the "people." This separation will be discussed later in relation to a problem of labor in Pynchon's work. The "government girls," one of whom will play a minor role in the story, suggest a secondary concern with how to represent the labor in the new institutions.

intelligence: firstly, it is the anthropomorphic intelligence imposed upon the figure and secondly, it is the anthropomorphic intelligence projected by the institutions.

The figure is distinct in that its form is collective rather than individuated. The public institutions are not incarnated in some dashing spy or secret agent – all spies are in fact its surrogates.<sup>226</sup> As I noted in Chapter One, Henry Adams had already suggested a similar, anthropomorphic figure in Democracy and later in his writings on the Dreyfus Affair. Following Henry Adams, Pynchon would recast “people like the State Department and NSA” in a non-anthropomorphic silhouette over the course of following works; the institutions will later be rendered historically as a discursive energy that has assumed a human form. With this early rhetorical gesture, Pynchon captured the populist beginnings of the modern U.S. institutional reform (in diplomacy and intelligence) noted in the previous chapter, and made them the occasion for his hermetic prose style.

At a distance of forty years since the appearance of The Education of Henry Adams (1918), “people like the State Department and NSA” had embodied the inhuman intelligence anticipated by Adams. Now Pynchon, confronted with a new limit in modern U.S. thought, encountered this institutional cousin of modern literary rhetoric. The encounter refused the expected literary conventions (i.e. the expected appearance of a spy) and forced new discursive trajectories. The figural overture was Pynchon’s first, youthful attempt at a figural rendering of the post-WWII U.S. state. The discourse will later move from the institutional “people” towards an entropic, non-anthropomorphic design. The design will be elaborated as the promised fugue.

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<sup>226</sup> A character in one of Pynchon’s stories from this same period resentfully notes in another short story from this early period, “spying....[was] becoming less an individual than a group enterprise” (“Under the Rose” 107).

The institutions that have interrupted Meatball's lease-breaking party have imposed a troublesome historical situation upon the guests. The story's overture ends with an awkward silence, and two questions - "how have the institutions assumed a human form?" and "what discourse is strong enough to engage it?" The Vichian overture and its strange, figural guest await a reply.

## XI. The Figural Discourse of History

The scene's Vichian tableau and its prosopopeia invoke three problems. The first is that of renewing, with irreverent authority, the sort of historical intelligence that will permit the narration to respond to the new guest. The second is that of adapting the authority to a specific historical and intellectual milieu, that of the new institutions of post-WWII U.S. power. The third is the unique figural form of that authority. It was an ambitious proposal for the young Pynchon to conceive.

The response to all three questions is rhetorical; more precisely, the narration develops its discourse from the interaction between its rhetorical figures. The resulting discourse invokes the multi-millennial history of what Erich Auerbach called "figural thinking." Auerbach's writings on figuration constituted a late yet important fragment of that eminent debate. The debate began in classical Greece (Plato, Aristotle) and was elaborated through pagan Rome (Lucretius, Longinus), medieval Christianity (St. Augustine), modern history (Vico), and romanticism (Rousseau).<sup>227</sup> It extended to the modern literary humanism of the twentieth century that culminates with the writings of Erich Auerbach (in particular his magnum opus Mimesis and its predecessor, the essay "Figura") and found its most contemporary elaborations in the writings of U.S. literary

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<sup>227</sup> Vico's English translators have noted the influence of Vico on Rousseau, in particular "the primacy...of figurative language or language proper" (Bergin and Fisch 73).



scholars such as Paul De Man and Edward W. Said.<sup>228</sup> Thomas Pynchon's short story "Entropy" elaborated both the classical and modern discourses of figural thinking in a new historical context. It developed a historical poesis from figures which specifically embodied recent U.S. institutions.

These combined problems - of figural prose style and the power of the new institutions - constitute the story's electro-magnetic historical field. The tension is sustained, as I noted earlier, by Henry Adams' studies of the aggregate intelligence of modern U.S. state institutions. The return to Adams allowed Pynchon to develop a counter-mimetic response to the institutions and also to elaborate figural thinking. Pynchon's early figurations fluctuate between these two distinct poles - the one classical, mimetic, and humanist, the other modern, misanthropic, and American.

The story's title sounds a keynote flexible enough to accommodate the proposed figural discourse. American literary scholars have long understood the term "entropy" as a metaphor in the works of Henry Adams; this tendency has often allowed them to dismiss Adams' work as "pseudo-scientific" and derivative of the scientific ideas and movements of his age at the expense of his literary achievement (the same is true with the response to Pynchon).<sup>229</sup> "Entropy" is not, however, a metaphor in the works of

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<sup>228</sup> See also Erich Auerbach. Mimesis. 73, 195. Terry Cochran's essay on Edward Said also outlines Said's reading of "figura" ("The Matter of Language" 81).

<sup>229</sup> For the metaphoric understanding of Adams' entropy, see Freese, 169. Anne Mangel's pioneering article on Pynchon's metaphoric use of the term argues that: "Pynchon is deliberately applying this scientific metaphor [of entropy] to conditions in society." ("Maxwell's Demon, Entropy, Information." Mindful Pleasures: Essays on Thomas Pynchon 93. Mangel discusses the metaphoric function of the term in Pynchon's novella The Crying of Lot 49. It is a novella replete with the explicit relations between scientific thought and the rise of the modern corporate economic structures of economy and government, which are reduced in the essay to "conditions in society." Pynchon's use of science "as metaphor" is treated elsewhere in dozens of writings that

Henry Adams, nor does it belong, despite the term's root, to the family of tropes. Erich Auerbach described the distinction between tropes and figures in his summary of Quintilian:

trope is the more restricted concept, referring to the use of words and phrases in a sense other than literal; figure, on the other hand, is a form of discourse which deviates from the normal and obvious usage. The aim of figure is not, as in all tropes, to substitute words for other words; figures can be used from words used in their proper meaning and order. Basically all discourse is a forming, a figure, but the word is employed only for formations that are particularly developed in a poetic or rhetorical sense. (25-26)

Insofar as it constitutes a "discourse," and that discourse is a style of history, Adams' 'entropy' is understood hereafter in relation to the figures of Pynchon's story as the figural elaboration of a historical discourse: a poesis. Pynchon elaborates the story's title, "Entropy," in a counter-mimetic, musical style against the sudden anthropomorphized, institutional "people." Its rhetorical mode is apostrophic in that it addresses an inanimate object that has taken a human form. The anthropomorphic figuration, or *prosopopeia*, that concludes the first paragraph of Thomas Pynchon's short story "Entropy" must however be qualified in relation to Adams' late style, Auerbach's discussions of the history of figural thinking, and the overlooked relevance of the writings on figuration by the Roman scholar Longinus to both Auerbach and Adams.

I noted in Chapter One how Henry Adams developed his late style from the eclipse of the institution of right. Adams theorized that the institutional guarantor of human intelligence - the law and its assemblage of rights - was increasingly absorbed and belittled by the new corporate, military, and national institutions of the late-19<sup>th</sup> and

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establish Pynchon as either an optimist or pessimist regarding the aesthetic uses of science. See also David Cowart The Art of Allusion and Freese (414).

early 20<sup>th</sup> century. Those institutions did not merely repress the rights of the individual – they followed a new logic insofar as they “resembled” human intelligence in an aggregate form.

Critics often mistake the admission of “inhuman” intelligence into historical thought as a petty misanthropy in the writings of Henry Adams. Such readings are the source of the many accusations of abstraction, elitism, and error that have plagued the misunderstanding of his work. The Education of Henry Adams is chief among the works in question, for it immediately announced its project against the anthropomorphic conceptualization of history: its “object of study is the garment, not the figure” (The Education xviii). The “garment” should be understood in rhetorical or stylistic terms, or as a “habit.” “Habit” summons a sequence of ideas – habitus, rhetorical space, inanimate matter – that are the dynamic rhetorical materiality of The Education. In its proper elaboration Adams’ entropy summons profound questions that confront the secular historian: what is mimesis? How does it inflect historical habit? What other forces act upon that habit? And are these new forces effectively converted by the labor of human thought? The “habit” of Adams’ historical style is the historical life of the world confronted with the sudden concentration of inanimate forces into its own intelligent form. In the natural world, those are electro-dynamic or chemical; in the world of human history, they are institutions or other aggregate forms (i.e. the Malthusian populations). The “garments” of inherited intellectual habit ultimately cover the errors of human thought; the narrator of The Education dismantles those habits and exposes their silhouettes to the new historical processes, effectively evacuating mimesis as the singular foundation of human history, yet retaining the human figure in more dynamic forms.

The non-anthropomorphic technique was one of the unresolved innovations of Adams’ late style. It posed several questions to Pynchon’s early style. Was entropy an anti-mimetic form of rhetorical figuration, or a non-figural form of historical thought?

Rather than occupying a form, as classical and modern definitions would define “figura,” Adams’ entropy evacuates form. “Entropy” is in this sense not a spatial conceptualization of style but a temporal (historical) one. For example, Adams’ first important essay, on Captain Smith, effectively ruined the myth of Pocahontas for American readers by exposing how Smith distorted and invented the history that made him (and her) famous. The figurative technique continues through one of the later works. As I noted earlier, the heroic personae of the Italian revolutionary Giuseppe Garibaldi are evacuated of agency, legend, and presence in The Education of Henry Adams. What remains in both the early and late examples from Adams’ work is a stylizing intelligence that labors over the historical record and empties it of anthropomorphic detritus to expose a “habit.”

In the case of Garibaldi in particular, entropy was not so much the classical imitation (mimesis) of a presence but a reversal of the historical process (the ‘education’) that constitutes such a presence. Garibaldi is not composed by Adams so as to occupy a form – a “figuration” – but his familiar form is evacuated or disrobed, as it were, of its historical garment (a significant gesture, given the fame of Garibaldi’s clothing). The Education disfigures Garibaldi and in doing so it modulates an implication from the classical theories of figuration: the paradox of an embodied intelligence. The paradox is consistent with Adams’ critique of the romantic and heroic popular icon of Garibaldi which is evacuated and absorbed by the institutions (clerical, monarchical) that Garibaldi had opposed. Entropy is a consistent poesis of that paradox extended through Adams’ historical style; its movements are also distinct from the analogical objects of metaphor (for example, Adams never once refers to Garibaldi, as others often did, as a “lion”).

Pynchon’s “Entropy” modulates Adams’ non-anthropomorphic style in a new manner. The title of Pynchon’s story, the mathematical juxtapositions of its epigrams, and the

contrapuntal music of its prose all invoke the 'entropic' style of Henry Adams.<sup>230</sup> These are rendered dramatically as one of the principle attributes of figuration: personification, or prosopopeia.<sup>231</sup> Pynchon's style does not merely evacuate mimesis of obsolete historical "habit," but reconfigures it as a dramatic encounter between the human mind (embodied in varied characters) and institutional "people like the State Department and NSA." "Entropy" thus situates the prosopopeia of the new institutions against the unique non-figural, entropic style of Henry Adams. The juxtaposition of styles provokes a figural discourse. Pynchon does not merely repeat Adams' disembodied style, but rather reconfigures it with respect to the embodied figures of a new intelligence. This reconfiguration of historical discourse as a dramatic process is the first attempt at "figural thinking" in Pynchon's work.

As I noted earlier, Thomas Pynchon's early fiction echoes both Erich Auerbach's Mimesis and Northrop Frye's Anatomy of Literary Criticism. While Pynchon's figural technique borrows from Auerbach, the rendering of history as a dramatic process carries with it the imprint of Frye's discussion of Longinus. The story's configurations resemble Longinus' treatise On the Sublime, which is generally attributed to Cassius

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<sup>230</sup> The title is followed by the first counterpoint of the story. The opening paragraph is preceded by an epigraph from Henry Miller's Tropic of Cancer which foreshadows, in its youthful manner, the melodrama of the story's later development. The citation from Miller also condenses both the scientific and poetic connotations of the story's title, "Entropy," as if the young Pynchon, having searched for a trace of Henry Adams' influence in modern fiction, heard in Miller a singular echo of Adams' style. Joseph Slade has written insightfully on these relations, even while arguing that "entropy" is a "metaphor" ("Entropy" and other Calamities," 77)

The epigraph rests against the story's title as the first juxtaposition of the story. The story follows as the temporal dissolution of the opening juxtaposition between the title and epigram. It does so without any apparent narrative source other than the motion that emanates from that juxtaposition, and only if the reader allows that the malaise of the ensuing mis-en-scene can be attributed the progressive quality of an action.

<sup>231</sup> Auerbach 26.

Longinus, a Roman scholar during the final years of pagan Roman antiquity. The date of On the Sublime is unknown; Longinus lived in the 3<sup>rd</sup> century A.D., but modern scholars suspect the work was written in the 1<sup>st</sup> century A.D.

On the Sublime is an important work in several respects. It continues the typology of figures made famous by Aristotle in the Poetics. Longinus derived from Hellenic discussions and reinforced Aristotelian notions of written and textual mimesis against the Platonic ascription of mimesis to the voice. The Aristotelian discussion of written mimesis – of intellect, of action, of character – was expanded by Longinus however to allow for phrasings that contained multiple figurations as well as new possibilities for the imitation of other written works. The difference between Aristotle and Longinus is, as Northrop Frye famously noted, the difference between “two views” of “the aesthetic and creative, the Aristotelian and Longinian, the view of literature as product and the view of literature as process.”<sup>232</sup>

One of the more original aspects of On the Sublime is its hermetic definition of figuration. Longinus noted that “A figure is generally thought to be best when the fact that it is a figure is concealed” (164). The remark resonates with those of the earlier Quintillian, but Longinus does not attribute pre-Christian formulations of figura to the “concealment” (as Auerbach does). Concealment has a more ample consequence which demands that human interpretation extraction the figure. The Longinian hermeneutic act that conceals or exposes also prefigures the secular world of writing and history in pagan Hellenic and Roman cultures; this hermetic quality was elaborated extensively in Vico’s later poesis of antiquity.

Auerbach noted in Mimesis the importance of concealment in the writings of Quintillian with respect to theological revelation. Auerbach understood Quintillian, the

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<sup>232</sup> The Anatomy of Literary Criticism 66. See also 326.

Roman schoolteacher and orator of the 1<sup>st</sup> century A.D., as a prelude to the eschatological centrality of the figura in later Christian thought (Mimesis 27). But Auerbach jumped instead from Quintillian to Tertullian, effectively passing over the distinct non-theological hermetic definition of figura in Longinus where ‘concealment’ achieved a renewed complexity that Auerbach did not admit into his discussion. Henry Adams, who did not make any reference to Longinus in his extensive allusions to Roman antiquity, omitted the problem as well. Yet both Adams’ technique of “entropic evacuation” and the simultaneous multiplicity of figurations that conclude Auerbach’s Mimesis resonate with the possibilities suggested by Longinus with respect to both concealment and the imitation of other writings.<sup>233</sup> It was Northrop Frye’s exposition of Longinus, however, that most likely provided the occasion for Pynchon to musically develop new rhetorical figurations. These appeared in relation to Henry Adams’ suggested poesis, which was itself not Aristotelian.

Pynchon’s first rhetorical innovations were, as I noted earlier, simultaneous with a renewed interest in the work of Henry Adams and the apotheosis of Erich Auerbach as the humanist par excellence of the Cold War. Yet the juxtaposition of Adams’ ‘entropic’ evacuations of the human form with Auerbach’s “figural thinking” is not consonant with either set of terms. With respect to Adams, “entropy” carried with it the historical weight of a long scientific discourse in thermodynamics as well as Henry Adams’ attempt to transpose that discourse to modern history. Pynchon modulated Henry Adams’ forceful evacuation of anthropomorphic rhetoric; now, the institutions themselves would assume the anthropomorphic habit. “Entropy” was immediately contemporary to Pynchon’s story, crafted from the materiality of a present language

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<sup>233</sup> The absence of Longinus from either Adams or Auerbach might be explained historically, as due to the fact that literary hermeticism was associated with the decadent forms of European symbolism in Henry Adams’ later years, or that it took an even more sinister turn in the occult, mystical tendencies of fascism that coincided with Auerbach’s greatest works.

and new scientific fields such as Information Theory, cybernetics, and computing. Like Adams, however, Pynchon adapted new scientific terms to historical discourse, transforming them as he did so.

Figuration was recurrent in literary discourse, and Pynchon also deviated in a significant manner from Auerbach's writings on that subject. Figuration would lose the theological significance (but not entirely) that it carried over to secular humanism in Auerbach. Where man had prefigured Christ in Roman rhetoric (and the relation had prefigured secular humanism in Auerbach), now Pynchon would cast humanity as a prefiguration of an aggregate, institutional intelligence. These figures within figures constitute Pynchon's dramatic Longinian modulation and renewal of poesis as figuration.

## **XII. The Second Figure: Henry Adams and Thomas Pynchon**

"Entropy" opens with a series of minor prophecies. The first is the cymbal crash that ended the "Heroe's Gate at Kiev," which prefigures the character Aubade's later breaking of Callisto's window and which was in turn prefigured by Meatball's breaking of the apartment lease. These prefigurations constitute a formal pattern of supercessions. The taxonomical and poetic sentience of the first paragraph is succeeded by the institutional anthropomorph, which is succeeded in turn by the musical discourse of the story's fugue. Each carries with it the echo of the prior. These varied, minor figurations enact the anticipatory component of figural thought described in Auerbach's "figura" essay. Their musical modulations will conclude in the final scene as 'history' (the outside, the public, entropy) enters the building through the window Aubade has broken with the echo of Mussorgsky's final cymbal crash ringing behind it.

The propositional pattern of these prefigurations resembles to some degree the Hegelian dialectic that troubled Henry Adams. The literary and scientific languages of



the mis-en-scene encounter an antithetical form in the anthropomorphic national institutions. Rather than allow the new intelligence to absorb the overture into a synthetic and mimetic totality, the story absorbs “people like the State Department and NSA” into a Longinian “process”: a figural discourse of history. The figural discourse develops as the fugue (literally, a ‘flight’). The fugue begins with a second figure that concludes the overture and emerges from within the phrase “people like the State Department and NSA.”

The conjunctive “and” (not “or”) of “people like the State Department and NSA” connects the two institutions. It forms what in classical rhetoric was defined as hendiadys, or a conjunction that joins two loosely related nouns. The connection, in Pynchon’s figure, has a temporal architecture that traverses the early twentieth century modernization and reform of the State Department and reaches the post-WWII reform of U.S. intelligence and the post-WWII U.S. security state. This secondary figure is the ethereal “arc” of the story’s historical trajectory. The arc’s historical beginnings are concurrent with Pynchon’s study of Adams’ analyses of the new aggregate intelligence of the U.S. state in the early twentieth century and extend to the present.<sup>234</sup>

The “arc” is the most common, most productive, and most elaborate figure in Pynchon’s writings. The arc of ‘Entropy’ is the early draft of a figure found throughout Pynchon’s later novels; it will appear as the yo-yo’s and geometric forms of the “V-structure” in V., the parabolic “bridge” quest of Oedipa Maas in The Crying of Lot 49, and the trajectory of the V-2 missile in Gravity’s Rainbow.<sup>235</sup> In “Entropy” the arc takes

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<sup>234</sup> The relation of the State Department to the U.S. Navy (a group of sailors later crash Meatball’s party) is of particular import to Pynchon’s works because the Navy supports the geo-political directives of the U.S. nation-state in later works such as V., where he elaborates Henry Adams’ reading of Mahan’s naval theories outlined in the first chapter of this study.

its early, weak form by traversing the spatial properties of the institutions and their prosopopeia with the musical style of figural thinking.

The historical arc that spans the “State Department” to the “NSA” is, after Longinus, a figure within a figure. It absorbs the institutional prosopopeia into a historical poesis with the first notes of the promised fugue. The arc takes varied forms in the story’s later contrapuntal movements. It is a repeated motion between spaces and also the parabolic movement of history into the present. The arc doubles (in the Longinian sense of imitation) as the dynamic influence of Henry Adams’ work on the writings of Thomas Pynchon. The story elaborates this complex of styles and ideas first in relation to the new institutions, and then later in relation to Henry Adams.

The arc’s institutional trajectory is specific. It begins with the modernization of the State Department under Theodore Roosevelt. Roosevelt transformed the institution from the 19<sup>th</sup> century system of patronage and nepotism into a more rigorously monitored system of specialized intellectuals. Henry Adams lived and worked in Washington, D.C. during the Roosevelt administration. He was particularly close to the Executive administrations of McKinley and Roosevelt in the years 1896-1908; the State Department was reformed during this period from the archaic system into a professionalized institution that was repopulated with a new diplomatic class. This reform coincided with the writing of The Education.<sup>236</sup> As I argued at the end of Chapter One, the modernization of the U.S. State Department modulated how Adams conceived the relationship of the United States to the new institutional arrangements of power in the historical world.

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<sup>235</sup> Pynchon himself has noted that “Entropy” and The Crying of Lot 49 are related (Slow Learner 1).

<sup>236</sup> See Warren Zimmerman. First Great Triumph. 421-422. See also The Letters of Henry Adams: 1892-1918. 190-191.

Adams' critique of the State Department was however consonant with a broader national-historical crisis: the inability of American intellectuals to comprehend a new historical situation that was radically different from the 19<sup>th</sup> century historical formations that preceded it. Adams tested the old models of history against the term to judge whether human intelligence could comprehend, as Gibbon had tried, the inanimate, historical forces of the human empire. The term "entropy," redefined as the exchange and transformation of 'supersensual' energy into sensual or intelligible material and historical form, functioned in Adams as a corrective to the human rhetoric applied by Romantic historians to the new institutions. Adams used the term to expose the anthropomorphic expression as a major obstruction to historical thought.<sup>237</sup> His polemical application of the scientific term 'entropy' to historical thought proposed a radically singular style of intelligence, a new poesis of human history and institutions, against that crisis. What was valuable to Pynchon about Adams' style was the rhetorical style and care with which Adams estimated aggregate intelligence of institutional powers.

Pynchon revived Adams' poesis during an institutional crisis that posed new problems to U.S. history. The National Security Act of 1947 prompted an immense reorganization of the U.S. state. The War Department was converted into the Department of Defense, which came to include dozens of new cryptological agencies. The National Security Agency (NSA) emerged as the most important intelligence institution when it superseded the previous Armed Forces Security Agency (AFSA) that was mandated by the 1947 NSA act. Its secret mandate was signed by President Truman in 1952 and its actual, institutional residence established in Fort Meade, Maryland in 1957 – the same year in which Pynchon's story is set.

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<sup>237</sup> I discuss George Kennan in greater detail in Chapter Seven.

The National Security Agency was the largest of the U.S. intelligence agencies and, as James Bamford has noted, it comprised a civilian and military labor force larger than “the rest of the intelligence community put together” (Puzzle Palace 18). Bamford notes further that the NSA was not acknowledged publicly by the U.S. government until 1958 and was acknowledged only within the government in 1957.<sup>238</sup> Its revelation had been preceded by numerous international crises, rumors, and a prolonged contest over the U.S. collection of aerial intelligence from Soviet territory during the early years of the Cold War; the government’s 1958 admission was later followed by a series of scandalous defections that compromised it and public laws meant to shield it.<sup>239</sup>

The National Security Agency emerged from the revolutionary cryptological reforms of the Friedmans, Yardley, and Manly reviewed in chapter two of this study. William Friedman was charged, following World War Two, with developing the NSA’s cryptologic and technological capacities, as well as maintaining the working relationship it had established with England during World War Two.<sup>240</sup> As I noted earlier, the Friedmans’ amateur study of the Bacon-Shakespeare debate was published while Pynchon was a student at Cornell University, and its institutional and literary significance would not have been lost on him given the notoriety they had garnered since the 1930’s as celebrity code breakers. Furthermore, Pynchon’s tour in the U.S. Navy appears to have brought him limited experience with Signals Intelligence, one of the NSA’s areas of expertise.

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<sup>238</sup> The Puzzle Palace 356 and The Codebreakers 675.

<sup>239</sup> The Puzzle Palace 164, 173, 181. The most important scandal concerned the defection of two NSA mathematicians, William Marton and Bernon Mitchell, to the Soviet Union in 1960. One of the earliest historical accounts of that defection within the broader context of NSA history was written by Sanche de Gramont in 1962 (The Secret War 170-172).

<sup>240</sup> The Puzzle Palace 399.

The State Department also harbored, since Herbert Yardley's MI-8, a cryptological department. Together, the two forms of institutional intelligence (one diplomatic, the other technological) facilitate communication between other aggregations of historical force. In a political register, they facilitate inter-human communication, while in a technological register they make possible "machines talking to machines" (The Codebreakers 718), and whose communications are the object of the NSA's interceptions and cryptological interpretations. They also make possible the exchange of what Henry Adams described as "supersensual energy;" that is to say, the powerful secret languages of historical force by which aggregate entities communicate with each other.

We must distinguish however between the two institutions invoked in the story and how each stands in relation to or embodies "entropy." The NSA is unlike the more publicly and politically defined State Department in that it is twice removed from the centralized political power of the nation; it is a primarily civilian branch of the Department of Defense and charged with interpreting communications and delivering those interpretations to the military. Where the NSA interprets communications for military use, the State Department produces and enacts the geo-political plans of the nation. The State Department is defined by its public execution of national strategy, where the NSA is shrouded in hermeneutic secrecy. The two institutions are connected by an immense bureaucratic circuit; these connections are not elaborated in "Entropy."

The basic communicative functions of the two institutions are pertinent to the manner in which "entropy" modulates the story's figures. Pynchon situates the institutions in relation to the use of the term "entropy" in both Henry Adams and Information Theory. The story's title carries both the 19<sup>th</sup> and 20<sup>th</sup> century definitions of the word. Insofar as the story invokes Henry Adams, the story is most preoccupied with the transformation of thermodynamics in Adams' historical poesis. Pynchon correctly notes that Adams' unique elaboration of the term continued to trouble the other sciences. Henry Adams'

multivalent use of the term “entropy” continued to inflect the scientific debates in the 1950’s, and as Peter Freese notes:

Once these parallels [between information and nature] were established, the difficulties of application which Henry Adams had attempted to overcome by treating vital and social energies as equivalents of thermal and kinetic energies became greatly reduced, and the challenge to utilize a centrally important scientific insight as a socially relevant notion grew considerably. (197)

Pynchon’s use of the term is distinct from the “socially relevant notion” of entropy in several important ways. The relationship between Information Theory and the NSA is distinct. David Kahn has described the relationship between Information Theory as central to the statistical model of cryptology:

IT [Information Theory] deals with the mathematical laws that govern systems designed to communicate information. Originating in transmission problems of telephony and telegraphy, it has grown to embrace virtually all information-processing devices, from standard communications systems to electronic computers and servomechanisms, and even the nerve networks of animals and men. (The Codebreakers 743)

Kahn summarizes the relevance of Information Theory to cryptology through the writings of Claude Shannon, who wrote on both subjects early in his career.<sup>241</sup> As we shall later see, one of Pynchon’s characters, Saul, will paraphrase from Shannon’s work at great length during the ensuing fugue. It is important to note with respect to the term “entropy” that the term functions in two distinct registers in the story: the one is ascribed to Adams’ historical writings, the other to the aggregate intelligence of “people like the State Department and NSA.” Where Information Theory defines “entropy” on “the basis of ergodic processes and their statistical properties” (Freese, 189), Pynchon

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<sup>241</sup> See The Codebreakers 743-746.

uses the term poetically to juxtapose new figures within yet another figure - the arc of a renewed poesis.

Following Adams, Pynchon's use of the term is historical (temporal). Its temporality is mortal and secular; decades later, Pynchon noted that "When I think of the property [of entropy] nowadays, it is more and more in connection with time, that human one-way time we're all stuck with locally here and which terminates, it is said, in death." (Slow Learner 14). The implied pessimism is however reversed in Pynchon's story. "Entropy" locates the exchange between inhuman historical forces and human intelligence as one of the dynamic properties of a new figural style. In its most elaborate and skillful figurations human thought reanimates historical language and exposes a difficult new historical truth; for example, as in the transformation of institutional "people" into the rhetorical "arc" of discourse. The discourse is concerned with the hermetic properties of "supersensual force" in that the prosopopeia, or anthropomorphic figure, is amplified by the hermetic properties of the respective institutions. The institutions are effectively "concealed" by their own hermetic functions and by the mystery they present to a renewed historical poesis. The matter will be developed in the story's later fugal discourse.

The figural discourse of "Entropy" effectively extended Henry Adams' entropic historical ruminations to the post-WWII reform of U.S. intelligence institutions. The institutions had achieved something that Adams had not thought possible, even when Adams suggests it: institutions could resemble human life and thought. The anthropomorph that closes the first paragraph of "Entropy" is crafted, in part, from the latent anthropomorphic characteristics that William Friedman had imposed upon cryptology in the post-WWI era. The figural discourse absorbs that rhetoric and its resident intelligence institutions into a poesis of new figures that supersede the new inhuman forces and reclaim them within the horizon of historical human thought.

The second figure – the arc – is the historical trajectory of that reversal. It musically modulates *poesis* so as to repeatedly traverse its figures (such as the partially concealed forms of the new U.S.) and infuse them with a new historical life (this is the early form of the “anima” that will be central to Pynchon’s first novel, *V.*). Rather than evacuate or dismantle the conventional figures of modern state power, as Henry Adams had, “Entropy” occupies them with the ephemeral music of figural thinking. The hermetic figuration of the arc within the arc constitutes the proper figural discourse of “Entropy” and Pynchon’s stunning, musical proposition for a renewed historical *poesis*.

The exchange between the animate and inanimate along a historical “arc” will assume, as I have already noted, a greater import in Pynchon’s first major work, the historical novel *V.* The figures of “Entropy” had yet to be developed in this early story into the adequate potential of the later works. The proposal is ambitious, if only partially effective. The proposal produces both the stunning figurations of the first paragraph as well as a dramatic effect that is fundamental to the polemic, comedy, and rigor of Pynchon’s mature style.

### **XIII. The Dramatic Fugue**

The story now responds to the overture with the promised fugue. The bohemian party stirs as the revelers awake to confront the strange new guest. A dreadful possibility now pervades the *mis-en-scene*: is our secretive host connected in some way to this new anthropomorphic intelligence that mimics human life? “Entropy” develops in the apostrophic mode as a reply to that question: it is a dialogue with itself. The apostrophic mode is marked by a dramatic (dialogue, narration, allusions) that address some object or figure; in the case of “Entropy,” the objects are the inanimate institutions that have imposed their human form upon historical discourse.



The sudden appearance of “people like the State Department and NSA” sets in motion a series of cinematic and musical alternations that consume the first five paragraphs of the story. The narration cuts to the exterior (Washington, D.C.) and to the apartment above Meatball’s party before the final cymbal crash of “The Hero’s Gate at Kiev” awakens Meatball’s guests from their stupor. The interplay of the opening sequences – its epigrammatic movement, its music, its combination of scientific and poetic language – admit the new anthropomorphic intelligence to the party, yet the literary intelligence of the earlier musical lines turns from this strange new figure. The missing host now conducts a fugue – not from the “nation-state” as an idealized, Hegelian synthesis but from the monumental inertia of its specific institutional forms.

The fugue develops from these proposals, juxtapositions, and actions as a series of dramatic conversations. Three new characters appear and offer a brief respite from the prosopopeia’s understated historical entrance. The two main speakers, Saul and Callisto, fulfill the conventional expectation of a narrator, a messenger, an explanation, or event, while Callisto’s lover Aubade will reserve her interventions until the end of the story. The conversations between these characters respond to the opening figurations with an evasive, indirect style. The indirect style enacts its evasions with arcs of music, dramatic dialogue, and the climactic eruptions of poetic energy it emits from the contrapuntal movements of its discourse.

Saul is a sardonic young prophet who appears on Meatball’s fire escape; Callisto is an aging disciple of Henry Adams who lives above Meatball. Both characters are also melodramatic types. Saul is a refugee from a disintegrating marriage who is thought at first by the other guests to be a thief before Meatball let him in from the fire escape. The familial conversation that develops between Meatball and Saul combines scientific abstraction with domestic detail. It echoes the story’s epigram as it recounts the disintegrating relations between Saul and the wife he has estranged. Both are

characterized by a melodramatic existentialism that engages the relationship of human thought and scientific theory and techniques.

Saul's dialogue borrows from mid 20th-century Information Theory to summarize his plight.<sup>242</sup> He uses words such as "noise" and "ambiguity" to summarize the scientific model; of these, "redundancy" invokes Claude Shannon's writings most effectively.<sup>243</sup> Saul fusses over the possibilities of computers that behave like humans, and vice-versa. He ultimately concedes that the ambiguity of language renders communication imperfect, thus refuting the possibility of the perfect automated intelligence advocated by his estranged wife Miriam. Saul dramatically embodies a model of intelligence that clings to the imperfect and historical style of human communication against the statistical models of "people like the State Department and NSA." As Saul speaks the Duke de Angelis quartet plays music on the turntable and conducts a ghostly accompaniment on invisible instruments; they parody the automatons he describes.

The melodramatic and speculative dialogue of Saul and Meatball finds its counterpoint in the solitude of Callisto's apartment which is directly above that of Meatball. Callisto is a fifty-two year old American and former expatriate. Now repatriated, he and his lover Aubade live in a "hermetically sealed" apartment. Callisto's ruminations on Henry Adams from the confines of that apartment betray a problematic similar to that of Saul's theories of communication. The ruminations provide the necessary historical counterpoint to Saul's more contemporary speculations.

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<sup>242</sup> Pynchon scholars (and Pynchon himself cites Wiener's book in his introductory essay to Slow Learner) cite the following sources for this theory: Stanford Gilman. Information Theory (1953) and Claude E. Shannon and Warren Weaver The Mathematical Theory of Communication (1949). Norbert Wiener. The Human use of Human Beings: Cybernetics and Society (1950). See also Anne Mangel. "Maxwell's Demon, Entropy, Information." Mindful Pleasures. 87-100.

<sup>243</sup> See The Codebreakers 745.

Callisto has sealed himself from the world just as Adams had decades before in his Washington, D.C. home. Callisto dictates his autobiography to Aubade in the third person style of The Education of Henry Adams. Callisto ironically adopts the style of The Education in an attempt to apply the historical entropy to an analysis of the present social world. In Callisto's summary, the universe moves incessantly towards an evening of its energy in which all of its power is distributed equally and then exhausted; the effects of that evening are manifest in the decadent, parallel orders of natural history and human culture. Callisto's dread with respect to the statistical probability of a catastrophic "heat-death" is the pessimistic counterpoint to Saul's naïve, human optimism.

The juxtaposed apartments of Callisto and Meatball simulate the contrapuntal forces of the story's characters and dialogue. Callisto hopelessly enacts a defense against "entropy" within the apartment space. He and Aubade live in a greenhouse designed to protect them from the inevitable "heat-death" of the universe. The "hothouse" of Callisto and Aubade's residence refers to Adams actual house on Lafayette Square, which contained a similar room.<sup>244</sup> The monastic and spartan living conditions of Callisto and Aubade's residence contrast the lively, crowded space of Meatball's apartment. The same may be said for their respective hermetically tranquil and tempestuously carnal renditions of entropy; for Saul downstairs in Meatball's party, entropy shapes the small-scale human interaction with technological "circuits" of language, while for Callisto it shapes macro-cosmic interaction between historical and natural environment. Their combination invokes the new, interdisciplinary form taken by the second law of thermodynamics in scientific thought of the 1950's, but it also dramatically extends the story's opening configurations and renews the primal

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<sup>244</sup> Adams' biographers Elizabeth Stevenson discusses the greenhouse that was built in his residence (Henry Adams: A Biography 205).

question: how can figural discourse proceed from the necessary confusion that results from a new historical age?

The story replies to this question with the combined figural discourse and dramatic fugue. The cumulative effect is that of a polyphonic intelligence taking form within a historical process. The polyphony moves in temporal alternations between the stabilized and regular thinking of Callisto's hermetically sealed apartment and the chaos and noise of Meatball's party. The rhythmic, almost binary alternations between the two rooms and the thoughtful dialogue between Meatball, Saul, Callisto and Aubade form, as it were, a dramatic counter-intelligence that responds in an elusive (fugal) manner to the monumental opening figuration of "people like the State Department and NSA." The characters are evasive insofar that they indirectly address the anthropomorphic workings of that new collective sentience that troubles them; rather than directly engaging that new and indeterminate mimetic power of the state, the characters elaborate certain related details - automation, language, music, catastrophe, etc. - in a dramatic effort to grasp a historical process constituted along a figural "arc."

The fugue is thus the rhetorical and discursive response to "people like the State Department and NSA." Its contrapuntal form extends the historical arc that opened the story. The arc is traversed with models of poetic thought, musical history, two entire fields of scientific thought (thermodynamics and Information Theory), and finally the history of certain recent national institutions. The arc constitutes itself by the willful reconfiguration of other writings and their figural movement across a narrative space. The alternation between Meatball's party and Callisto's apartment, the movement between exterior and interior, the movement of intellect between human bodies and institutions - these are the pendulous motions of a polyphonic intelligence and its emergent poesis. The rooms seem deceptively small; Pynchon's narrator is actually an

obscure sentience peering into a diorama so large that it houses not only a handful of drunken revelers, but several of the largest U.S. institutions.

The dramatic juxtapositions of “Entropy” are later inverted. The figural arc collapses upon itself in the story’s apocalyptic conclusion when Aubade gives admittance to the “heat-death” by smashing Callisto’s window and when Meatball restores order in the party despite Saul’s admonitions that all communication is doomed to failure. The inversions suggest that the proposed exchange between the figural discourse and the historical present is unstable at this early point. The polyphony is dissonant rather than harmonious. Figures partially concealed within figures scrape against one another and their friction illuminates a hermetic but tentative exchange between human narration and its figural objects. The authoritative thunderclap that sent Vico’s first tribes scattering to shelter has now shocked modern literary convention across a spectrum of polyphonic and stylized noise. The sound is that of human narration and aggregate institutions in a dramatic battle to control human intelligence and its figures. The anthropomorphic stranger that has entered the Masque is not a guest but a thief who has usurped the host’s position. Like Henry Adams, Pynchon focused on its habit - the animated mis-en-scene - and added to that style a tentative figure - the arc - Adams had not conveyed.

#### **XIV. Counter-Mimetic Literary Style**

Despite its tremendous ambition, the figural discourse of ‘Entropy’ was premature in several ways. For example, the configurations of historical poesis cannot appear from within the story’s first paragraph until the reader has read the story in its entirety or understood its relation to Henry Adams. The story assumes too broad a familiarity with too great a range of subjects; furthermore, the immediacy of thermodynamics and Information Theory seem alien to Pynchon’s twenty-first century readers. The story’s poesis can be discerned only after the two distinct deployments of entropy (those of

Henry Adams and that of Information Theory) have been carefully reconstructed. The venture's youthful academic tone is superseded only by its author's stubborn insistence on unique and musical figurations.

Poesis remained both under- developed and over-developed at this early point in Pynchon's career, but its trajectory as a dramatic contest between rhetorical human intention and the intelligent, historical expression of institutional power has been set. Pynchon's following works would elaborate upon the trajectories set by the figural arc of "Entropy," and I will attempt to trace these variations in later chapters. But here it is necessary to investigate how Pynchon's story engaged modern literary technique.

The profoundly secular character of Vichian *poesis* demanded that human institutions be understood as having human origins. Edward W. Said has famously argued after Vico that, like the founding of an institution, a literary beginning is an irreducible human act.<sup>245</sup> Beginnings select certain inherited forms to initiate their rhetoric.<sup>246</sup> As such they are necessarily historical, yet their causes or lines of descent are not always obvious as the human mind extends its style and composes the page. Like a clever prey, it erases its own tracks.

Modern writing thus tends to efface its historical relationship to other institutions. Fredric Jameson noted a similar tendency in Lukacs' seminal Theory of the Novel. Lukacs depicts how, in Jameson's words:

The institutions of the modern world, within which the characters live out their dramas, end up as something merely *given*, as the result of the accidental origin of the work in a particular national situation, at a particular moment of historical

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<sup>245</sup> Beginnings 3-11.

<sup>246</sup> "Selection" is consonant, in this sense, with its use by Wordsworth in the Preface to the Lyrical Ballads.

development. The village, the city-state, is a whole world in itself [in the epic]: but the superhighway, the modern university, the American army, or the great industrial city – all these things constitute unrealizable, foreign bodies within the work of art.<sup>247</sup>

As I noted in chapter one, it was Henry Adams who first realized a coherent discursive style with respect to human individuals and inhuman institutional force within the context of an accelerated modernity. Adams rendered them both as involved in a process of exchange, in which populations, industries, and other aggregate forms accrued rudimentary, almost statistical behavior whose historical influence was manifest by degrees of force. Although Adams did not produce a formula to quantify their intelligence or power, he developed a distinct rhetorical style that is most evident in the late historical writings. That style, conceived as an evacuating rhetorical force, played the human individual and inhuman institution like fantastic musical instruments charged in an atmosphere of thunderous historical change. With respect to Jameson's reading of Lukacs, one might say that Adams was the first modern U.S. writer to conduct that "given" institutional atmosphere into a stylistic force and capture its dramatic motion, if only indirectly.

"Entropy" begins as a stylistic intervention confused by (and with) the anthropomorphic form of new institutions. They occupy a shared discursive and architectural space in a given historical time. And the historical thought and scientific invention that occupy that space encounter similar difficulties when explaining its contingency and ambiguity. "Entropy" renders that historical confusion as a figural discourse with respect to literary style and "people like the State Department and NSA." In situating literary style in relation to a historical situation and its institutions, the figural arc absorbs the possible courses available to the classical trajectory of

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<sup>247</sup> Marxism and Form 167.

rhetoric. It does not merely reduce history to aesthetics; it transforms aesthetics into a discursive style. The suddenly confused historical situation encountered in “Entropy” thus remains intentional and within the bounds of human history and action. The story’s dramatic fugue thus engages the half-formed, institutional entity whose mimetic power with a discourse. The discourse provokes the author to either forge the new figures of a secular, human intelligence or risk being absorbed by its mimetic double.

As such, the story does not look backward, as did The Education of Henry Adams (or as did Faulkner’s later works), over a ruined humanism in modern thought. Pynchon’s poesis renews the humanist figural style yet it demands that literary thought – mimesis, language, hermeneutics – contend more seriously with the aggregate intelligence and force of the new institutions. The contention leads to a distinction – a selection – that separates the figural discourse from human mimesis (*prosopopeia* and its anthropomorphic power). The result is the anti-mimetic, polyphonic intelligence of Pynchon’s figural style:

with the discrediting of mimetic representation a work enters a realm of gentile history, to use Vico’s phrase for secular history, where extraordinary possibilities of variety and diversity are open to it but where it will not be referred back docilely to an idea that stands above it or explains it. (Beginnings 11-12)

“Entropy” thus devises a radically new and singular literary beginning. It does not merely “refer back” to entropy as it modulates Henry Adams; it actively confuses the new historical situation from what persists of the old in the present. The confusion inaugurates an intention, or beginning, whose future remains unresolved after it is poetically announced from the actual historical languages of its time. Edward Mendelson’s description of Pynchon’s later novel Gravity’s Rainbow applies, in a reduced manner, to “Entropy” as well; that is, the story “redefines that culture’s sense of what it means to be human” (“Gravity’s Encyclopedia 178), if only insofar as the human is inextricably linked, by historical contingency, to the aggregate, inhuman



power of human institutions. The figural arc is stretched into a musical, narrative that extends from the initial *prosopopeia*, crosses the fugue at intervals, and ultimately traverses the story with its discursive lines, like the bars that connect the notes on a musical scale (these lines will assume a distinct genealogical character in Pynchon's later works). The moving lines constitute the figural arc's discursive momentum as it elaborates modern literary convention in relation to a new institutional situation. They are its lines of force.

"Entropy" modulated a specific literary form, the short story. Pynchon's selection of the short story for the complex figurations and discourses of "Entropy" was important in several respects. The form was historically consonant with the historical period recounted in previous chapters during which the varied intelligence and diplomatic institutions began to converge. In commercial terms, the early 20<sup>th</sup> century is the short story's golden age in American print and simultaneous with the growing separation between "information" and literary language (a phenomenon that was also important in the early life cycle of modern intelligence institutions).

The American short story achieved its mature form in the early twentieth century. The polished worlds of Henry James, the revolutionary originality of Stephen Crane, and the popular tales of O. Henry are perhaps the most famous examples, but dozens of other authors might be added to that list.<sup>248</sup> The short story stands at a remove from the literary-historical narratives of the major twentieth century American forms of poetry and the novel despite periods of intermittent commercial success, which it occasionally

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<sup>248</sup> Poe and Hawthorne are the progenitors of the modern form in U.S. fiction. There is a second, later cluster in the history of the short-story that is worthy of mention insofar as it pertains to the development of the form in the twentieth century. In "The All-Star Literary Vaudeville" Edmund Wilson identified the mutual influences of Sherwood Anderson, Gertrude Stein, and Ernest Hemingway on one another insofar as they have a common style and interest in "the vocabulary and rhythm of ordinary American speech." However distinct, they constitute a "special branch" whose genealogy he traces to Mark Twain (234).

enjoys. Pynchon develops the marginal historical position of the form in “Entropy” in a historically meaningful manner. The form’s selection raises problems that will inflect the discussion of Pynchon’s novels in the chapters that follow.

Pynchon’s early style is also usefully engaged, after Edward W. Said, as modulating the historical period which opened the modern novel to “the critique of the traditional theory of mimetic representation” (*Beginnings* 137). “Entropy” reconfigures its chosen form, the short story, in relation to the philosophical implications proposed to explain modern prose after this turning away from mimesis. The figural innovations and historical displacements which propel its *poesis* are strongest again with respect to the Hungarian literary theorist Georg Lukacs, whose early writings on the novel offer particular insight into Pynchon’s restless early work.

Lukacs’ early study The Theory of the Novel contains one of the more compelling arguments for the relation of the short story’s form to the major literary modes in a pre-materialist aesthetic manner. Lukacs noted the modern short story was a microcosm of the novel in which:

The immediate, flowing power of such lyricism is bound to increase in proportion with the significance of the life-segment selected; the balance of the work is that between the positing subject and the object he singles out and elevates. In the short story, the narrative form which pin-points the strangeness and ambiguity of life, such lyricism must entirely conceal itself behind the hard outlines of the event; here, lyricism is still pure selection; the utter arbitrariness of chance, which may bring happiness or destruction but whose workings are always without reason, can only be balanced by clear, uncommented, purely objected description.<sup>249</sup>

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<sup>249</sup> The Theory of the Novel 51. It should be kept in mind that Lukacs’ observations on the short story were composed from the historical fulcrum between the short story and

The “life segment selected” exposes a subject-object relationship that is a fundamental dynamic of modern prose. The Theory of the Novel studied this fundamental phenomenological problem across a typology of literary forms. The relationship is tense as the selective, ironic consciousness imposes its will “behind the hard outlines of the event” and is in turn marked by that process. The process is suggested in the most perfectly realized expressions as “balanced by clear, uncommented, purely object description.” Lukacs’ typology tends towards realism (a style that would interest him in his later, Marxist writings), but the success of realism as the preferred style of the modern short story is not fully elaborated; perhaps this is exemplary of the limits of the form, or as Edward W. Said once noted (with Lukacs in mind), it is the difficult ambiguity of realism.<sup>250</sup>

The short story’s focus on the subject-object exchange betrays a particular relationship to the modern subject’s emergence in modern literature. Lukacs traces the consciousness of that subject in Hegelian fashion through a typology of literary forms. These are multiplied by the complexity of that subject’s “inner life” and its relation to the external world. But mimesis - the “clear, uncommented, purely object description” - is rendered difficult by the heightened tension between an increasingly complex external world and the corresponding amplitude of the subject’s inner life. As opposed to the modern novel, the short story is a less comprehensive expression of the modern consciousness by virtue of its emphasis on the “fragment” against the novelistic totality. It might be considered less as a microcosm of the novel’s potential totality than as a burst of prose in which its subject-object phenomenology is condensed. The individual consciousness would be displaced in Lukacs’ later writings by the historic agency of the working class. It is possible to see, even in The Theory of the Novel, how

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the popular print media in the early twentieth century and that Lukacs was attempting to comprehend a relatively recent literary phenomenon.

<sup>250</sup> See Beginnings 143.

the modern subject's relationship to the world could develop into the historical agency of a social class in Lukacs' later, Marxist writings, or how terms such as "irony" would later be modulated into "alienation."

The implied Hegelian connotations of "totality" vis-à-vis the "life segment" hold serious problems for anyone who would pursue the relationship of Pynchon's work to Lukacs' later writings on the novel. The problem is particularly evident with respect to how Pynchon uses rhetoric to dramatize the forces at work in a particular milieu and render them discursive rather than to represent them. Pynchon's writings stand in sharp relief against the mimetic and philosophical implications of Lukacs' work and from the intellectual traditions that informed it.<sup>251</sup> The distrust of Hegelian historical models that Pynchon inherited from Henry Adams remains prominent.

Pynchon's early rhetoric traverses the objects it claims to represent, and the language itself, with lines of force. Those lines constitute the discursive momentum of the story's figural arc, and most often appear in musical form as sound waves emitted from the page. Their temporal force renders a totalized depiction of characters and their "life-segment" impossible. The strategy is announced in the first paragraph, where the Naturalism of Mussorgsky's "The Heroes Gate at Kiev" becomes decadent and estranged. "Entropy" abandons the selective conventions that privilege the realistic description of circumstantial evidence ("horn-rimmed glasses") and the objective social "life-segment" by capturing the momentous energy of historical process in discursive, dynamic figures rather than as an object fixed by mimetic convention. The house of cards collapses quickly. The experiential possibilities of a subjective romanticism are banished as the sensual power of the opening paragraph is absorbed by the mimetic

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<sup>251</sup> One might productively follow, for example, the influence of Max Weber that Fredric Jameson noted in The Theory of the Novel with respect to Edward Mendelson's argument that Pynchon's Gravity's Rainbow uses Max Weber's ideas to render its social milieu. See Marxism and Form (172), and "Gravity's Encyclopedia" (168), respectively.

power of “people like the State Department and NSA.” Fragmentary and limitless sensuality is rendered suspicious and ineffective. The collapsed Romanticist/Bohemian subjectivity and the failed objectivity of Realism/Naturalism present a quandary: to what style can the story turn? Likewise, nihilistic evacuation of the narrative identity, of narrative convention, of dramatic resolution, and the political optimism of the modern subject are displaced by the sudden demands of a new historical situation.

The story’s narrator is absorbed in that process and vanishes as the initial, conventional forms of intelligence are overwhelmed. Pynchon’s “Entropy” evacuates the ironic consciousness of modern fiction, much as Adams had dismantled Giuseppe Garibaldi in The Education. The counter-mimetic style does not however substitute a new human subject for the displaced modern consciousness. The complex figurations of the writing are never resolved or embodied in a socially determined subjectivity or agency. The displacement does not motivate a replacement of it by some new mimetic agent - hence the uncertainty of the story’s narration: will it appear? If so, what is it? It is unsure of who, or what, will reply.

The resulting anonymity resonates with techniques inherited and modulated from Henry Adams’ style, which favors discourse as process rather than as an objectifying force. The matter extends conversely to the historical agency of the individual author. Henry Adams’ withdrawal from public life, which is recast in the character Callisto in “Entropy,” is the allegory of that removal. Adams’ letter to his brother Brooks on the first drafts of his The Law of Civilization and Decay articulates the complaint: “I believe silence now to be the only sensible form of expression. I have deliberately and systematically effaced myself, even in my own history.” Style is a counter-mimetic substitute for the self; style evacuates subjectivity and converts entropic historical energies into discourse. Intelligence, history, and poesis begin for Adams with the evacuation of the modern institutional guarantors of subject and right and extend to the

rigors of a reclusive intellect. Henry Adams concludes to his brother: "Every omission improves."<sup>252</sup>

Thomas Pynchon's partial replication of Adams' cloistered style cannot be understood as the quietistic repetition of a privileged, elite social position. It offers a renewed figural discourse, organized into a historical *poesis*, as a dramatic, discursive substitute for the modern subject. The reclusive paradox abandoned the conventional identities and positions of modern subjectivity offered by Lukacs with respect to modern literary thought; it is perhaps only correct, then, that the most recent study of Pynchon's writings in relation to American political life does not mention Adams even once.<sup>253</sup> When read along the figural-discursive lines, Pynchon and Adams do not conform to certain reified categories of literary criticism. Those lines would in turn become a genealogical silhouette.

"Entropy" transformed that subject's absence into a figural discourse. It can be discerned only as the echoes of a musical and historical temporality. Pynchon's figural thinking thus elaborated movements and processes rather than the mimetic objects of history. The style established new literary trajectories and genealogies at the expense of others, but not without asserting the singularity of human, poetic thought.<sup>254</sup> But the

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<sup>252</sup> "To Brooks Adams. Washington, 5 June, 1895." Letters of Henry Adams: 1892-1918. 70-71.

<sup>253</sup> See Cyrus K. Pattel. Negative Liberties: Morrison, Pynchon, and the Problem of Liberal Ideology.

<sup>254</sup> The counter-phenomenal style of the story nearly echoes what Eugenio Donato has described, after Derrida, as the "elaboration of a cryptic code whose function is to displace and to translate, by *misreading* it, every sign which tries to penetrate it or to read the name that it hides" (The Script of Decadence 111). The problem, however, is that to assign an ego to the cryptic institutions that concern Pynchon is to extend the anthropomorphic rhetoric which he, after Adams, ceaselessly interrogates, reconfigures, and dismantles. Donato's renderings of the "hermetic" and the 'crypt' are perhaps

inhuman, institutional intelligence lingers in the musical fugue that follows “Entropy’s” opening scene. The matter is addressed more effectively in Pynchon’s later works, where human speech is replaced by automatons who speak machinic languages (V.) and narration resembles the encounter with new and hieratic technologies of communication (The Crying of Lot 49). “Entropy” captures instead the atmospheric electrical charge that accompanies the anthropomorph’s institutional appearance – it dramatically introduces a tension that will be sustained across Pynchon’s later works.

The story disengaged itself from the teleological narrative of dialectic, synthesis, and totality that underscores modern thought and is implied throughout Lukacs’ analysis.<sup>255</sup> The absence of such categories indicates that Pynchon was even at this early stage avoiding the style of the social realism or the naturalistic novel that had been so influential in recent U.S. fiction. And it reaffirmed, after Adams, Poincaré, and even Claude Shannon and Norbert Wiener, that historical events were only statistically probable rather than teleologically guaranteed. The figural arc of “Entropy” offers a literary beginning that is unavailable to other conventional or inherited rhetorical habits or historical systems.<sup>256</sup> The philosophical implications of realism are wholly

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better suited to amplify Shawn Rosenheim’s writings on cryptology, which rely upon psychoanalytic and semiotic models of literary exegesis in a manner that the current study precludes.

<sup>255</sup> Lukacs’ later Marxist literary criticism posits the proletariat as the only historical agent capable of achieving a new totality. The possible critique of this aggregate form notwithstanding, it should also be noted that Pynchon playfully dismantles Marxist models of class agency in later works (Benny the bulb in Gravity’s Rainbow is the most famous example).

<sup>256</sup> It might be argued that Pynchon’s emphasis on the “new” thus betrayed a consummate bourgeois modernist sensibility. Fredric Jameson has recently argued that the fundamental problem of innovation is central to modernist writing and to the very notion of “modernity” (A Singular Modernity 94). Such an argument is only possible when operating within the assumption that the social field is a totality. While aspects of Pynchon’s work can be explained in relation to post-WWII U.S. modernity, as Jameson

reconfigured, and the story's emphasis of sound, rather than sight, further stresses the separation, as though the story's invisible narrator were swift Hermes slaying the many-eyed Argus.

Pynchon's "Entropy" seems to repeat a familiar tension between 20<sup>th</sup> century modern Anglophone literatures and their continental European precedents in 19<sup>th</sup> century realism. Fredric Jameson has distinctly summarized the relationship between modernist innovation and realism in a recent study:

Modernism is an aesthetic category and realism is an epistemological one; the truth claim of the latter is irreconcilable with the formal dynamic of the former. The attempt to combine the two into a single master narrative must therefore necessarily fail, yet its failure produces the more productive problem which is that of the model of innovation which underwrites both....<sup>257</sup>

It must be decided, then, if Pynchon's literary initiation constitutes a serious challenge to Jameson's order or if it is merely another "innovation" with divided aesthetic and epistemological claims. The formal experiment with the short story, the renovation of

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has done in Postmodernism, or the Cultural Logic of Late Capitalism, Jameson's systemic and deductive approach cannot account for the ways in which certain rigorously attentive literary works occasionally offer exceptional interventions that displace the order Jameson describes. While Jameson often dismisses humanism and figural language in a wholesale manner, his writings have repeatedly failed to explain how literary masterworks are anything but ideological expressions of a particular and totalized mode of production (A Singular Modernity 49, 34 respectively). Furthermore – and it is a problem reminiscent of Adams' rejection of Hegel and Marx recounted in Chapter One – it is unclear how inhuman entities endowed with certain kinds of autonomous intelligence could be resolved in a totality that insists upon the historical agency of a certain social class. As I noted earlier, Jameson effectively addressed the manner by which Lukacs' Theory of the Novel treats social institutions (Marxism and Form 166-68), but always with the later redemption that follows Lukacs' conversion to historical materialism in mind.

<sup>257</sup> A Singular Modernity 124.



classical figuration, and their combination in a quasi-essayistic discourse on history suggest realignments that do not fit the schemes of either realism or modernism. Furthermore, Pynchon inverts the order of national representation: the intelligence institutions are subordinated to the hermetic and figural literary proposition. The epistemological claims of rhetoric supersede the Romantic aesthetic of right, yet without openly pledging allegiance to either realism or modernism.

It is not a question that can be resolved before reviewing the later novels. I will stand by the thesis that Pynchon's "Entropy" offers an epistemological argument that displaces that of realism. It will be elaborated in later works from the philosophical detritus of previous modernist writers such as Eliot and Faulkner who, like Pynchon, attempted an institutional poesis. The point is not to establish whether Pynchon is or is not a "modernist" or an "innovator," but rather that his writings provide an epistemological discourse that had been only hinted at in his predecessors and offered belatedly, from their slight remove, when the full institutional force of modernism had been fulfilled in post-WWII U.S. society.

"Entropy" sounds the keynote of Pynchon's career. Immature, revolutionary intentions are strikingly absent from the story despite the tremendous ambition of its style. The story amplifies the historical actualities of contemporary U.S. history - its institutions, its arts, its sciences, its styles - by individual figurations and a longer, musical poesis. Its amplitude results from the counter-mimesis that opens a cryptic historical process and its institutions to the eccentric scrutiny of literary thought without reducing itself, however, to an identical similarity with any previous style.

Pynchon's choice of the short story for such ambitious projects is both comical and shocking. How could a short story, based on such a complex interplay of figures, pretend to such an elaborate future? The attempt is almost hubris. And yet the new discourse proposed by the story is unprecedented. Its arc is possible because it, like

Auerbach's "figura," is bound to an incomplete future whose being remains concealed. The narration as yet has no names for the massive transformations that are partially captured by its poetic figures. They have no precedent in the social organization of the world or in its myriad modes of production, nor can the new or old definitions of "entropy" capture their significance. Only the situation's poetic figurations succeed in suggesting that attempt, the fulfillment of whose promise would consume decades.

The tremendous ambitions of "Entropy" fail, perhaps, to clearly articulate the significance of the changes it invokes; conversely it captures the very indeterminacy of the new historical situation. The narration recoils in shock when, confronted with the prospect of "people like the State Department and NSA," it is faced with some formidable new sentience that is not entirely of its own making. The story conducts an artful flight – a fugue- from that shocking confrontation. The result is an unprecedented confusion of human and inhuman intelligence. The style creates a dramatic, almost allegorical scene that extends the subject-object relationship through the institutional figures. They nearly assume the proportions of the giants that wander Goya's landscapes. The figural style dramatizes the tensions between human and inhuman historical processes and it is counter-mimetic insofar as it approaches language as a dynamic force that cannot be affixed to an object or internalized as a consciousness, but rather enacted by a figural discourse, or *poesis*.

The story's language is not always clearly situated with respect to the dramatic music of its figurations. For example, the term "ambiguity" is one whose use in "Entropy" attempts a concrete poetic expression that is not consonant with the fused configurations that 'populate' the story's figural arc. As noted earlier, ambiguity marked for Georg Lukacs the tension between the subjective and objective modes in late German Romanticism and modern European realism; the same term was also developed later with a different meaning in the Anglophone world as a keyword and instrument of formalist literary criticism (as in Empson's famous study). It is however

unclear whether “Entropy” displaces “ambiguity” from its modernist habit with Saul’s discourse on cybernetics, if the ambiguity is a detachment of the ironic modern subject from the source of the narration, or if ambiguity is valued abstractly in the story as an aesthetic strategy. The multiple connotations of ‘ambiguity’ lag behind Pynchon’s story, suggesting a polemical undercurrent that will emerge with greater dramatic force in later works. The polemical potential is lost however in the story’s counter-mimetic style and its divided and interwoven figurations of human and inhuman force or with respect to how Pynchon reconfigures and redefines the classical discourse of Auerbach’s *figura* and Henry Adams’ modern anti-institutional style of U.S. history during the initial encounter with the story’s institutional anthropomorph.

The discursive ambition of “Entropy” often exceeds its figural style. It proposes, in its youthful yet daring way, that an entire history of literary technique was caught unprepared for the new historical situation configured in its discourse. The story’s first paragraph submits in this manner an entire modern order of the short story to a stylistic re-composition. This spectacular achievement, which nearly raises the short story to the heights of the historical novel, is subdued by the trepidation of the narration and its weak development of certain terms, such ambiguity, or its confused use of modernist and musical counterpoint. Furthermore, the vestigial traces of inherited formal elements in “Entropy” do not entirely explain the new intelligence institutions or their anthropomorphic expression. The narration must retreat before that which it has been revealed by its figuration; and true to the root of the new intelligence (*ligere*), it finds itself gathered together with forms that it must select and gather into its workings. The hand that performs the selections remains hidden.

It is a precarious moment. The appearance of “people like the State Department and NSA” has forced a crisis of several options formerly available to human literary intelligence. The mimetic foundations and techniques of modern fiction are confused in the configurations of this crisis. How can the modern artist labor in a situation where

once certain aesthetic, scientific, and political techniques are no longer exclusive to human thought? "Entropy" ultimately positions the short story as an intermediate form whose historical indeterminacy provides the formal complement to the crisis of the new intelligence. Rather than separating or dividing the human from the inhuman intelligence, the story joins them in a tenuous configuration. The story goes so far as to suggest that the national intelligence institutions are ventriloquizing the human intellect. The story attempts a fugue - a flight - as its reply. The opening shock of "people like the State department and NSA" in Pynchon's short story "Entropy" was perhaps an informed accident, but to discard it as coincidence is to ignore the story's unprecedented discourse of figurations. "Entropy" raised the question of how to situate American literary thought in relation to the new intelligence institutions, how the relation was sustained, and whether it was only one minor component of the modern and hermetic strains of the literary mind or one of its central currents. To retreat from those questions back into conventional mimesis would be to abandon modern human history to institutional imposters.

Readers who are familiar with modern American literature might summon dozens of examples that, despite important differences, elaborate in a similarly thoughtful manner the relations between space and time, readers and characters, history and narrative, the national and the literary, or science and art. Faulkner's Absalom, Absalom! is a representative novel, while William Carlos Williams' Paterson may be said to do the same for the American long poem. Among short stories, the highly developed relations between psychology and narration in Charlotte Perkins Gilman's "The Yellow Wallpaper" are perhaps closest to Pynchon's inventive narration. Unlike "Entropy," however, "The Yellow Wallpaper" concludes by embodying ambiguity in the narrator's social position. Pynchon's narrator never makes any such appearance. There is no ambiguity in the story that might, as in Gilman's story, activate a retroactive series of associations that organize the narrative into a phenomenal social order or its motives. Meatball's lease-breaking and Aubade's breaking of the window are never explained,

no secondary identities are revealed, nor do the positions of the subject or narrator appear in the social sphere as prior to the narrative.

Pynchon's style has been understood in a negative register according to what Harold Bloom has described as "the age of plastics and paranoia."<sup>258</sup> Bloom's choice of objects is significant, as it ignores Pynchon's willful and inventive encounter with new human institutions. The story "Entropy" poses serious problems to Harold Bloom's argument that Pynchon is an eschatologist of that decadent "age." This is not to say that Pynchon is an unredeemed optimist; rather, that the original elements of his mature style are discernible in "Entropy" as the process and interaction of secular history and what Henry Adams called "supersensual" forces. The process sustains a figural masquerade that constitutes Pynchon's first, unique stylistic intention.

The foray is simultaneous with that moment in which the U.S. state began to institutionalize the exchange between human and inhuman life.<sup>259</sup> The evasive figural, poesis initiates a distinct historical encounter and contest with that exchange. Pynchon situates human intelligence to render intelligible how the nation has transformed its aggregate intelligence into a human form (prosopopeia). It exhumes poesis from the mortuary of classical figuration: if it does not, human history will itself be occupied and cast, statuesque, as a monument to its own failure. It was Henry Adams' greatest critic, T.S. Eliot, who proposed such a shocking pantheon. Eliot is cast in Pynchon's first novel, V., as the first true architect of the monumental prosopopeia that Pynchon's

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<sup>258</sup> See "Introduction." Modern Critical Views: Thomas Pynchon. 1.

<sup>259</sup> This problem has recently been elaborated in a more contemporary register by Manuel Delanda in his reading of Deleuze and the "machinic phylum." See "Introduction." War in the Age of Intelligent Machines.

mature style dynamically transforms into Vichian poesis. To paraphrase an earlier quote from Northrop Frye, Pynchon would become Longinus to Eliot's Aristotle.

#### 4. ALLEGORIES OF THE INANIMATE: PYNCHON'S V.

##### XV. The Renewal of Energy

Thomas Stearns Eliot departed from Harvard University in mid-1914 with a pre-doctoral fellowship to study philosophy in Germany. He briefly visited again Paris, the city of his enamored Laforgue, and from there continued to the University of Marburg. Marburg had joined in the Prussian military excitement; the archduke Ferdinand of Austria had been assassinated in Sarajevo on June 28<sup>th</sup>, only weeks before Eliot's arrival in Germany. "Three weeks after the war," Hugh Kenner wrote, "Eliot had made his way to England, where he proposed to redeem some of the wreckage of the academic year" (Invisible Poet 76).

Eliot was quick to make the acquaintance of other poets when he began study at Oxford, in particular that of a slightly older American man from Idaho named Ezra Pound. It was Pound, whom he met in September of 1914, who championed Eliot's amateur poetry and introduced him to British literary society. Eliot, the "possum," traveled meekly however among the British intelligentsia. He preferred to converse on economics and philosophy rather than poetry. His discretion only attracted admirers. In the spring of 1915 the young poet fell in love with Vivien Haigh-Wood, a young writer and socialite, and they were married after a brief courtship. Eliot returned in the summer to the United States to face his family's disappointment with his marriage; his young wife did not accompany him for fear of the German submarines. Vivien

remained in England where she began to work as an assistant for her husband's mentor and friend, the philosopher Bertrand Russell.<sup>260</sup>

Eliot's family pressured him to engage the appropriate social conventions pertinent to marriage. He resisted and returned to England without the monetary support that his father had until then provided for him. The Eliots' marriage would suffer from the financial crisis set upon Eliot by his disaffiliation from the family and by the economic disaster of the war. Desperate for money, Eliot accepted a teaching position at a boy's grammar school in High Wycombe.

Meager salaries, strenuous work, and long commutes guaranteed for the Eliots a life of financial destitution. T.S. Eliot borrowed money from Bertrand Russell and the young couple eventually relocated into Russell's home. The Eliots lived with him "in a state of dependency" for the rest of the year; he provided them with rooms, monies, and counsel for their troubled marriage.<sup>261</sup> The couple moved out of Russell's home in December, 1915.

Eliot in the meantime completed his doctoral thesis for Harvard University. Advised by Russell not to risk the submarine routes for the defense of his Ph.D. thesis, Eliot sent it by mail to Harvard in late March. While teaching at Highgate Junior School he began lecturing on French literature at Oxford University and writing literary journalism. He composed few new poems during this irresolute time while Russell continued to support the Eliots.<sup>262</sup> Eliot quit his position at Highgate in December, 1916, and

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<sup>260</sup> Russell's work exerted a profound influence on Eliot's early thought. For a summary, see R. Shusterman "Eliot as Philosopher." 37-40.

<sup>261</sup> For the details of the Eliots' marriage in this period see T.S. Eliot: A Memoir. 40-85, and Carole Seymour-Jones. Painted Shadow. 110-130.

<sup>262</sup> Painted Shadow. 165.



dedicated himself entirely to writing. The United States entered the war only three months later.

T.S. Eliot's literary fortunes turned during this period. He had succeeded with the assistance of Ezra Pound to publish his first collection of poems, Prufrock and other Observations (June, 1917). In March, 1917, he began work as a bank clerk in the Colonial and Foreign Department of Lloyd's Bank in London, a position he would hold for nine years. He composed poetry and wrote literary reviews in the evenings. Fortified by diverse yet meager incomes from the bank and various writing and editing jobs, the literary and financial prospects of the Eliots brightened, if only briefly.

The United States announced mandatory military conscription in July of 1918. The conscription required that all able-bodied American male citizens of draft age present themselves to local military review boards for medical examination. The call to arms applied to U.S. citizens living abroad. T.S. Eliot nervously anticipated that he would be sent to die in the trenches of France. He wrote to his mother in June that "One can hardly think or talk - only wait."<sup>263</sup>

T.S. Eliot presented himself to military medical review in London on August 12<sup>th</sup>, 1918. He was deemed fit for "limited service" due to a hernia and his conscription was deferred.<sup>264</sup> Eliot seized the deferral to set about obtaining commission as an officer in the U.S. Army's Translator's Corps. He soon expanded the search to obtain a position as either an officer in the Intelligence Department of the U.S. Navy or in the U.S. Army Intelligence service. He wrote in the fall of 1918 that "The Intelligence Department [of the Army] needs men who know Europe and England well." T.S. Eliot was not

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<sup>263</sup> "To his Mother." The Letters of T.S. Eliot, Volume One 233.

<sup>264</sup> "To Henry Eliot." The Letters of T.S. Eliot, Volume One 241.

unprepared: he had most likely become familiar with basic cryptography at Lloyd's, as the bank used sophisticated encryption methods to communicate with its varied domestic and foreign offices. Sir Alfred Ewing, director of British Naval Education (and later chief of Room 40, the British Black Chamber during WWI), had studied code construction at Lloyd's in the early months of the war.<sup>265</sup> Furthermore, an appointment in military intelligence would alleviate his financial situation so that "I think I shall have more leisure for serious work and freedom from anxiety in the Army than out of it" (Letters 244).

Eliot corresponded with U.S. intelligence officials, but he lacked "American testimonials" for the commissions and he set about to obtain these.<sup>266</sup> He received dozens of letters from sources as diverse as the renegade poet Ezra Pound and Harvard President Charles William Eliot. In October, 1918 he took a leave from his post at Lloyd's Bank and began studying languages, among them Danish and Spanish, as further preparation for his work as either a military translator or an intelligence officer.

The Eliots' biographer Carole Seymour-Jones notes of this period the fall of 1918 that:

By September Eliot had eighteen letters of recommendation. He was waiting for a post in Army Intelligence when the U.S. Navy Intelligence suddenly offered to make him a Chief Yeoman with the promise of a commission in a few months. ...The promised post never materialized. (Painted Shadow 224)

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<sup>265</sup> See The Codebreakers 266.

<sup>266</sup> Eliot's account of his contact with "Major Turner of the Intelligence Service" appears in two letters. "To Robert Ross" and "To his Father." The Letters of T.S. Eliot 243-44.

The young poet's letters correct Seymour-Jones' account.<sup>267</sup> T.S. Eliot had left his position at Lloyd's in October and prepared for nearly three weeks to begin his services as an Intelligence Officer. Eliot was enthusiastic for a post in Navy Intelligence, but he decided that he could no longer afford to wait and returned to his post at the bank. By then the war was nearly over and his hopes for an Intelligence Commission had been ruined in the bureaucratic chaos of the U.S. War Department. The post eventually materialized, but only at war's end.

The Armistice was announced on November 11, 1918. Eliot received the news with disappointment; the failed attempt at a Naval Intelligence commission, combined with relentless and stressful work, had exhausted him. Hugh Kenner noted that "When the United States Navy tendered him a medical rejection in 1918 he had for some years been working fifteen hours a day" (77). Eliot's original, deferred orders to present himself to arms as a mere Private pointlessly arrived two weeks later. History had failed T.S. Eliot; his health soon followed.<sup>268</sup> Vivien Eliot referred to the ordeal as a "disaster."<sup>269</sup>

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<sup>267</sup> The most important available document regarding Eliot's Navy position is contained in the Letters. See "To his Father." The Letters of T.S. Eliot: Volume One 246-248.

<sup>268</sup> The story of Eliot's attempts to enlist as an Intelligence Officer in the U.S. Army and Navy has been only a footnote in the biographies of Eliot's work. Seymour Jones' account is the most recent and detailed. Hugh Kenner – one of the foremost authorities on literary modernism – only mentions it in passing and is incorrect in certain details (the Navy had not rejected him on medical grounds – it had accepted him). Friends of Eliot also mention the episode in passing in their memoirs. Robert Sencourt notes the United States' Intelligence Service's "refusal" to commission Eliot (65); Sencourt's account draws upon a secondary source, B.L. Reid The Man from New York: John Quinn and his Friends (1968). Eliot's personal letters remain the most consistent source on this matter.

<sup>269</sup> The Letters of T.S. Eliot (Vol. I). 258.

T.S. Eliot was forced to convalesce during the months that followed the Armistice. The convalescence opened a distinct new phase of literary work. It is during this period, in the spring of 1919, that the recent "disaster" of his aborted Intelligence career, the ruin of the war, and the peace of Versailles persuaded Eliot to reconsider the historical assumptions of his literary work. The young poet rejected the arguments that had informed his earlier "Prufrock" poems and formulated strategies for a new literary-historical style.

Philosophy changed Eliot's course. The first new poems appeared in the spring of 1919 with the publication of "Burbank with a Baedeker: Bleistein with a Cigar" and "Sweeney Erect." The mnemonic sequences of the previous imagistic poetry were revised; the dramatic persona of the earlier Prufrock poems appears now as "the Bergsonian self [that] is torn from the context of the past" (Gray 93). Most Eliot scholars contend that the poet "abandoned Bergsonian categories of memory and duration because they could not stand against history and external time" (Gish 6). Richard Shusterman locates the shift from Bergson in the influence of Eliot's friend, Bertrand Russell's work, which endorsed:

A rigorous empiricism which insists that sense perception is the foundational source for language and knowledge, that science is superior to philosophical reasoning for getting at the truth, and that empirical facts should be preferred to speculation and interpretation. ("Eliot as Philosopher" 37)

Eliot's new poems of 1919 suggested that poetry could stand against the diabolical force of history. Charles Altieri has argued, for example, that this philosophical turn followed Kant in that it proposed that modern poetry could "serve as a distinctive mode of thinking" as well as introduce new, often divided discourses of agency and subjectivity into modern poetics.<sup>270</sup> According to Altieri and others, Eliot's post-war poetry

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<sup>270</sup> See "Eliot's Impact...." 194-95.

displaced Bergsonian subjectivity with an empirical and objective scientism. The turn introduced new intellectual influences, as Eliot turned also to the anthropologist James Frazer and the philosophers George Santayana and Julian Benda.<sup>271</sup> Following these writers, Eliot forged a new poetics so that modern poetry might sustain, as Frazer had, “certain fixed relations....which are not relative to the observer” (Gray 129).

The shift in Eliot’s thought was simultaneous also with his increasingly European cultural and political conservatism. Eliot dramatized the political situation of his new, objective style with American characters that were adrift in networks of global institutional decay. Their dramatic appearance in 1919 is not explained by the insights of the anti-Bergsonian reading of Eliot’s poetry; rather, the critique of America was antagonized by the institutions that governed the post-war world (and in particular their military and economic policies). Eliot’s critique of Americans and their institutions was informed by diverse post-war institutional processes, but it was not until he read a newly published book by Henry Adams that Eliot organized the critique into the coherent historical arguments that justified his poetry. Eliot wrote to his mother in early May of 1919 that “I am writing now about a cousin of ours, who has written a very interesting book which you would like to read: The Education of Henry Adams” (Letters 290).

The writing to which Eliot refers in the letter was a review of Adams’ book. The review, entitled “The Skeptical Patrician,” appeared in the British journal Athenaeum on May 23, 1919. The review initiates the programmatic redefinition of Eliot’s new style. It is the first salvo of three, to which there would be added in the coming months the poem

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<sup>271</sup> See Gray, 90-94. Gray’s reading of Santayana’s writings on Lucretius in Three Philosophical Poets is of particular import. Eliot had been Santayana’s student at Harvard, and Gray’s account offers a point through which to engage both Eliot and Pynchon’s work through the classical origins of modern “figural” thinking invoked in the previous chapter and current chapters (see also Gay, 218).

“Gerontion” and the highly influential essay “Tradition and the Individual Talent.” These three writings – a historical review, a poem, and a critical literary treatise – would form the core historical discourse of Eliot’s new style.

“The Skeptical Patrician” begins with a genealogy. Eliot recounts the history of the Adams family in America within the context of New England letters. The essay then affirms the New England tradition that favors the “sensuous” over Henry Adams’ “supersensuous” historical style. The polemic clearly demonstrates the influence of Russell’s empiricism by favoring experience over theory as the grounds of knowledge. Eliot’s position is that Henry Adams is the aberration rather than the rule, and he characterizes Adams as an abstract, misanthropic force that paralyzes other, storied New England genealogies that continue through the present. Those include the Pragmatists with whom Eliot had studied at Harvard.

Eliot’s preference for the “sensual” over the “supersensual” is dramatically embodied in the opposed figures of Henry James and Henry Adams. Eliot repeatedly stresses the “unsensuous” character of Adams; Adams’ learning lacks the “sensuous” dimension of his friend Henry James. Eliot juxtaposes two passages of prose from Adams and James in the review; the contrast reinforces Eliot’s argument that Adams represents the “American mind” that is impersonal, and “dissolvent.” Henry James is in contrast redeemed by sensibility rather than intellect: “it is the sensuous contributor to the intelligence that makes the difference.”<sup>272</sup>

But there was also evident in Eliot’s response what Hugh Kenner noted as an “affinity” (112). Eliot’s reading of The Education of Henry Adams amplified his recent, disastrous experience with the military and political institutions of the United States. Adams’ rendering of the new modern institutions as aggregations of impersonal force

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<sup>272</sup> “The Skeptical Patrician” 361-362.

illuminated Eliot's radical individualism in a manner that other historians and philosophers had not. Eliot noted that Henry Adams may have been an aberration in the New England tradition, but he also exemplified a new historical intelligence: "The really impressive interest is in the mind of the author, and in the American mind, or that fragment of it, which he represents."

Eliot's diverse reactions to The Education of Henry Adams are evident in his new historical style. Literary history would appear in Eliot's writings as a decaying institution which the modern poets were charged to reform. If modern history was constituted by waves of energy and lines of force, then a new, objective poetry would have to withstand their electric charges.<sup>273</sup> To that end, Eliot returned to the poem "Gerontion," which he had begun to write during his convalescence, in order to recover the "sensuous" against Adams' rendering of the new institutional powers.<sup>274</sup> "Gerontion" dramatized the encounter between a "sensuous" mind and a "wilderness of mirrors" (The Hall of Mirrors at Versailles). The encounter invoked Eliot's ongoing perception of his devastating experience with wartime bureaucracy, and which compelled him to read The Education as an original, if "unsensuous," rendering of those institutions that were currently (and, according to Eliot, erroneously) reshaping the world in their image.

"The Skeptical Patrician" was not proscriptive with respect to "Gerontion"; each is a distinct enactment of Eliot's new style. "Gerontion" renders its "affinity" with Henry Adams in a manner the review did not. Eliot scholars have offered differing

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<sup>273</sup> Ian F.A. Bell's recent article on how Eliot (and Pound) engaged thermodynamics sheds considerable light on this matter in Eliot's poetry. See "The Real and the Ethereal: Modernist Energies in Eliot and Pound."

<sup>274</sup> See "To Mary Hutchinson." The Letters of T.S. Eliot, Vol. One. 326. "Gerontion" was sent in September, 1919, to Eliot's agent in New York, and would later be published in Poems (1920).

perspectives on the connections. For example, Piers Gay describes “Gerontion” in a language that could also describe The Education of Henry Adams:

Certainly, in the case of “Gerontion,” we have a poetic language which is skeptical of its own sources. On one level, indeed, the poem is a disintegration of the achievements of Eliot’s earlier works. That is, although it seems to be a reformulation of the dramatic monologue, “Gerontion” is clearly not that. Simply put, there is no dramatic *persona*. Rather, we are reading the meditation of a soul contemplating its own disintegration.... (211)

There is not however, a single mention of Adams in Gay’s study of Eliot. Gay’s study proceeds to cite the “Christian tradition” for its influence on the poem (though his later conversion to the Church of England would represent another sort of institutional strain in his thought). Eliot scholars have in general avoided any extensive elaboration of the connection between Adams and Eliot. Those who have done so have often misread Adams or placed him in a false antagonism in relation to Eliot. Eliot scholar Nancy Gish has argued in her reading of “Gerontion” that:

The passage containing them [images of destruction] has also been compared to Henry Adams’ view of history as irrational force. Eliot’s own writing does little to justify this view; his prose of 1919-1923, for example, consistently presents history not simply as the turbulent movement of force but as the record of both change and permanence....Eliot did not accept Henry Adams’ view that ‘chaos was the law of nature; order was the dream of man.’ (Time in the Poetry of T.S. Eliot 42-45)

Gish is correct insofar as Eliot divides his new poetry between both “change and permanence.” But Gish’s reading repeats the error many readers of Henry Adams make when they emphasize the term ‘chaos’ in the quote above rather than the word ‘law’: it



was Adams' rendering of thermodynamic *law* as literary style that repulsed Eliot.<sup>275</sup> The laws of chaos could be studied, Adams had argued, not according to the empirical or "sensual" means available, but according to mathematical models of probability. Eliot was divided over how Adams rendered human history, after Poincaré, in a manner that was contingent rather than absolute. How could a new modern poetry withstand the ferocity of chance? Could it pose a counter-institution to those institutional entities that unleashed what Charles Altieri described as the "terrors of modernity" on the modern consciousness ("Eliot's Impact" 193)?

The methods proposed by Henry Adams were unacceptable to Eliot; they endowed inhuman, historical entities (such as institutions) with too much creative power. Yet Eliot conceded that Adams had exposed a principle that had to be engaged. Eliot's "affinity" with Adams permitted him to concede the point insofar as Eliot recognized that historical force was manifest as a devastating and unpredictable modern institutional power. Eliot was forced, in short, to recast his earlier positions on subjectivity and human agency in relation to that force. The occasional critic has noted the passive voicing in Eliot's new style. Hugh Kenner, for example, contended that "the

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<sup>275</sup> There exist several lines of argument on the subject of Adams-Eliot during this period. The first is concerned with the "influence" of Adams; Gregory S. Jay argues that although Eliot misreads Adams, he also relies on him heavily during the composition of "Gerontion." (T.S. Eliot and the Poetics of Literary History 22-23, 29-30). A. David Moody discusses Eliot's version of Adams in a more critical register, with a discussion of anti-semitism in both "Gerontion" and "Burbank..." (Thomas Stearns Eliot: Poet 60-72). This later criticism expands upon remarks on both Adams and anti-semitism in earlier scholars such as Matthiessen, Kenner, and others.

A second line of inquiry concerns the figuration of the "self" in the poem. The "personae" of the poem" is duly noted in Hugh Kenner's seminal study, but expanded later according to more contemporary critical categories of "social construction." Ronald Bush casts the figure of Adams according to the reading that Eliot's poetic personae are expressions of Eliot's philosophical belief (drawn from his doctoral thesis on Bradley) that "any self is an artificial construct" (44). Bush reads Eliot's Burbank of the contemporary "Burbank with a Baedeker, Bleistein with a Cigar" in this context as an "Adams-like compatriot [who] succumbs to the New Englander's inability to understand the beauty or the evil of the old world." (T.S. Eliot 25).

poem ["Gerontion"] formed itself" (Kenner 125); and more recently Robin Grove noted that Eliot's dramatic authorial style "didn't choose; if anything, he was chosen" (162).

Eliot's multivalent reaction to Adams went unnoticed for decades, due, in part, to the manner in which Eliot's poetry was studied in non-autobiographical or ahistorical terms.<sup>276</sup> The U.S. literary historian F.O. Matthiessen first noted Eliot's complex response to Henry Adams.<sup>277</sup> The argument was developed later by Harvey Gross, who elaborated the relationship between The Education of Henry Adams and Eliot's post-war writings in significant detail. Gross' 1957 article "*Gerontion* and the Meaning of History" and his later 1971 book The Contrived Corridor followed Gross understands Eliot's poetry of 1919 as that written by a "philosopher of history: not because he gives a systemic account of historical processes, but because he gives hints about the meaning and value of the past...." (The Contrived Corridor 34).

Gross' commentary on "Gerontion" in the later book-length study is both textually specific and philosophically engaged with Eliot's poem. He notes that Eliot borrowed several images from The Education of Henry Adams, among them references to vegetation. Gross further argued that the poem must be understood in relation to both Adams as well as Eliot's Harvard professor George Santayana's reading of Lucretius.<sup>278</sup>

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<sup>276</sup> Most recently, James Logenbach invoked the relationship in passing. See "Mature Poets Steal: Eliot's Allusive Practice" 180.

<sup>277</sup> Matthiessen originally noted the Eliot-Adams connection in his 1947 book, The Achievement of T.S. Eliot, a fact that Harvey Gross duly notes in his 1957 article. Matthiessen's book is unusual in his oeuvre in that it stresses the *formal* genius of Eliot's poetry against its understanding as a "social document;" the work is however also a powerful study of Eliot's technique *in* a specific historical milieu. Gross later developed Matthiessen's connections along the line established by his historicist heirs, in particular Frank Kermode's 1971 book The Sense of an Ending. Gross' account of modern literary historicism invokes Erich Auerbach as well as Nietzsche and Adams (see chapter one of The Contrived Corridor, footnote 2).

But Gross' most insightful readings develop historical arguments introduced in his earlier essay. The character of "Gerontion," Gross wrote, "is the protesting, apologetic voice of individual man in the grip of historical process" ("Gerontion" 301). Eliot is repulsed by Adams' account of modern historical rupture "yet he regards it with an almost Hegelian awe" ("Gerontion" 304). That awe is defiantly expressed by Eliot so that "Gerontion's personal annihilation in the whirlwind of history is a cause for remote hope. The death agonies of an old civilization may be the birth trauma of a new age" (The Contrived Corridor 40). According to Gross, "Gerontion" dramatically contradicts The Education of Henry Adams with the argument that a sensuous order of poetic thought could overcome the rupture of the dynamo.

"Gerontion" is explicitly dramatic in its style, and indebted, as Kenner noted, to the "verse drama" of the late Elizabethans (135). To that end, both "The Skeptical Patrician" and "Gerontion" dramatically defy Adams' argument that knowledge or art could not withstand the withering force of tremendous historical change. "Gerontion" finally asserts "sensuous" human poetry as the decadent Gerontion's "house" is succeeded by a new order of poetic-historical thought – that is to say, by Eliot's poetry and his literary criticism. In this respect, "Gerontion" is a counter-dramatization of Adams' "supersensual" style. The poem insists that the highest form of sensuous thought – poetry- must stand, in a monumental, rather than heroic form, against "supersensual" historical force. "Gerontion" is not only "the meditation of a soul contemplating its own disintegration" – it stages a new poetry that could reassemble history into a durable objective form.

Eliot would formalize his theory of monumental poetry (and poetic tradition as a monumental institution) in the third major work composed after he had read The Education. The dramatic historical argument that runs through "The Skeptical

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<sup>278</sup> The borrowed vegetative imagery was noted also by Matthiessen in his earlier book. The Santayana-Lucretius connection is noted also by Piers Gay.

Patrician" and "Gerontion" is developed during the same year (1919) in the important and highly influential essay "Tradition and the Individual Talent." In this essay Eliot's new style takes the programmatic and didactic form that altered modern literary criticism in a manner similar to how his poetry recast the tradition of English poetry: as a sensuous and historical intervention against Henry Adams' narrative of "supersensual" historical rupture. With it, Eliot reunited post-WWI poetry with the past in "the expression of historical coherence" (Gay 206).

"The Tradition and the Individual Talent" was published only four months after the review of The Education. The essay continues the style and technique of the earlier review. The diction of traditional continuation ('genealogy') and chemistry ('dissolvent') are transferred to the new essay to propose a new, monumental theory of art. Eliot writes that "the existing monuments form an ideal order among themselves, which is modified by the introduction of the new (the really new) work of art among them" (38). The "order" is architectural in design, but Eliot also uses the diction of chemistry in the essay to reanimate the possibilities of the "sensuous" against the dying historical order of entropy that Adams had described. The continuity of poetry is the continuity, Eliot argues, of the chemical processes of human life. The "tradition" floats as a buoyant city on a miasmatic sea. The rafts on which the buildings drift are repositioned with the admittance of a "new (really new) work of art among them."

The chemical analogy is repeated throughout the essay in a manner that lends to the exchange between poetic monuments and the fluidity of historical life the rhetorical authority of science. The tension between inanimate, historical forces and organic life is accorded this generative distinction, which is the most Eliot would concede to Adams at any point. Where Eliot admits that history was chaos, he also argues, contra Adams, that the most perfect poetic creations of the human mind could refashion the historical forces that Adams had insisted were beyond its control. Their chemistry is not merely a blind, inhuman process, but the alchemy of intelligent, discerning life. Human

intelligence is for Eliot not a “dissolvent” but a chemical reaction that produces a new, concrete object when it engages history and language with intention. “Tradition and the Individual Talent” proposed that poetry could fashion historical entropy into a durable, even beautiful, form.

“The Skeptical Patrician,” “Gerontion,” and “Tradition and the Individual Talent” formed a polemical triumvirate against Henry Adams. The review, poem, and essay constitute in their entirety both a calm refutation and a careful elaboration of Adams’ style. Their similarities are more obvious than their differences, and the former have been ignored by the conventional tendency to largely separate Eliot’s poetry from the essays. Eliot scholars often present “Gerontion” as the nexus between the earlier “Prufrock” poems and the later achievement of “The Wasteland.”<sup>279</sup> But “Gerontion” is not so much a nexus as it is a rupture with Eliot’s early style (and not only its Bergsonian influence). It also begins a formal reply to Henry Adams that would continue in later works as the poem intervenes in the divide between sensuous and “supersensual” history first hinted in “The Skeptical Patrician.”

Eliot’s reaction against Henry Adams catalyzed the history of English poetry and criticism; its influence is legend. The review of The Education of Henry Adams motivated a turn - the first in Eliot’s work - towards a more rigorous, historical rhetoric. “Tradition and the Individual Talent” is Eliot’s most forceful summation of that transformation. Eliot affirmed that the highest forms of human intelligence - and poetry in particular - could subdue supersensual historical forces with their permanent, sensual design. The counter-institutional design of Eliot’s “tradition” would influence an entire generation of literary critics in the United States. As we shall see in the

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<sup>279</sup> A. David Moody offers the argument that “Eliot thought of “Gerontion” as a possible prelude to The Waste Land, and certainly this persona of 1919, the successor to Prufrock, is nearly related to Tiresias, his successor.” (Thomas Stearns Eliot: Poet 53). Hugh Kenner has argued that Gerontion is one of the “metamorphoses” of Prufrock.

following chapter, they would continue Eliot's antagonism, which was a sensuous corruption of Henry Adams' style, in relation to the military-institutional form of cryptology discussed in previous chapters. They would argue that modern style (and Eliot's poetry) could achieve an institutional form that the U.S. Department of War and the Hall of Versailles could not with "the renewal of energy gained from starting a new sentence [that] is continually obtained....without the effect of repose given by letting a sentence stop."<sup>280</sup>

## **XVI. The "V-structure"**

There was lacking in Thomas Pynchon's short story "Entropy" a proper historical discourse that would amplify the discursive potential of its figural arc. An unwritten question looms over the work: could modern literary rhetoric elaborate the new historical situation and its institutions in a manner that other rhetorical traditions could not? The story's figural rhetoric however avoided how modernist literary style had engaged the prior manifestations of the present. Saul's discourse on ambiguity was the only trace of that problem, which Pynchon had rendered by juxtaposing two variant forms of ambiguity: one from cybernetics, the other from Anglophone literary criticism.<sup>281</sup>

Pynchon's first major novel, V. (1962) returned to the period implied by the conjunctive "State Department and NSA": 1898-1957. V. dramatizes an entire spectrum of modern literary and geo-political phenomena, as if it were invoking figures from the ether and incarnating them as characters on a historical stage. In doing so, it amplified the contingent matter, latent in the short story "Entropy," of how modern literary-historical

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<sup>280</sup> 7 Types of Ambiguity 52.

<sup>281</sup> The source was most likely William Empson's famous study, 7 Types of Ambiguity.

rhetoric might relate to the post-WWII U.S. world of human life. V. dramatized those relations by characterizing the historical discourses of two major U.S. literary figures, T.S. Eliot and Henry Adams. The novel crafts T.S. Eliot's poetic, counter-dramatization of Henry Adams into a figural discourse of history.

Pynchon's first writings appeared during the early twilight of the great modern writers, when Eliot, Yeats, Faulkner, Stein, and Joyce were sustained not by fresh, new writings but by a proliferating canon of literary criticism and pedagogy. The dominant U.S. literary figures of that period were William Faulkner and T.S. Eliot. Where Faulkner's influence is only slightly apparent in V., that of Eliot was paramount. Pynchon studied him carefully, so much so that V. is scarred with the riot of that encounter.

The school of Anglo-American modernism inaugurated to great extent by Eliot shaped modern literary thought in the United States through Pynchon's formative years.<sup>282</sup> The historicist works were of particular import to Pynchon; both the previously cited article by Harvey Gross and Hugh Kenner's influential study of Eliot were published (1957 and 1959, respectively) during Pynchon's undergraduate years at Cornell and during the renewed estimation of Henry Adams' work noted in the previous chapter.

V. returned to Eliot's encounter with Adams and staged it as a historical drama that extended to the present (and in particular the Suez crisis of the 1956). The entire work is an experiment: can Eliot's "tradition" and Adams' "entropy" sustain the pressures of a new historical order? What is at stake in V. is how their respective strategies of mimesis and rhetoric could adapt to a new, post-WWII geo-political scene and its forms of institutional intelligence. V. is not, like Adams, a "dissolvent" work; nor does it affirm

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<sup>282</sup> Numerous Pynchon scholars have written on the relation of Pynchon's works to modernist literary practices. In particular, J. Kerry Grant's A Companion to V. lists dozens of references contained in the novel to Yeats, Eliot, Conrad, and others. See also the last page of William T. Lahmon's "Pentecost, Promiscuity, and Pynchon's V.: From the Scaffold to the Impulsive."

the “sensuous” in Eliot’s poetry. Rather, the work elaborates the reconfigured the institutional discourse introduced in “Entropy” as an ascendant force. In doing so, it also dramatized historical continuation and thus introduced the problem of genealogy into Pynchon’s figural style.

As I noted earlier, Eliot had placed Adams at the margins of New England genealogy. Eliot thus implied that modernism (and his poetry) would continue the “sensuous” - against Adams - in a new historical phase. Pynchon recognized that Eliot’s argument was rhetorical: it positioned Eliot as a metonymical substitute for “New England.” Pynchon’s V. situated Eliot’s technique in relation to how Adams anticipated the American future: would it be human or inhuman, or some combination of both? The novel historicizes Eliot’s genealogy as an organizing principle of modern poetics and places it along the figural discourse of the “arc.” As we shall see in later chapters, Pynchon’s work would continue that of Faulkner, rather than Adams or Eliot, with respect to the discursive possibilities of genealogy. Pynchon, the belated antagonist, entered the fray however with a dramatic figural gesture.<sup>283</sup>

V.’s figural discourse is ontological: can rhetoric engage history as a process of becoming in the manner that Adams had engaged the dynamo, or Eliot the metropolis? How did the positive, filiative model of poetic history proposed by T.S. Eliot and the negative, affiliative historical style of entropy proposed by Adams persist in the present, like tectonic plates shifting the mountains above in anticipation of some global event? Could rhetoric continue the counter-institutional dramatizations begun by Adams and continued in Eliot? In keeping with the counter-mimetic, rhetorical

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<sup>283</sup> Pynchon’s alignment of himself with the Eliot and Adams is not unfounded. V. situates Eliot’s genealogical order of literary-historical thought where it intersects with Pynchon himself, whose family was among the first New England colonists; furthermore, his ancestors are mentioned in Hawthorne’s House of Seven Gables (Hawthorne was a distant cousin of both Adams and Eliot). Edward Mendelson has written of the influence of Adams’ work on Pynchon’s V. See “Pynchon’s Gravity” 17.



innovations of “Entropy,” V. would attempt to shape poesis as a historical process rather than an object. The figural arc would proliferate as sound waves that swept the valleys and oceanic canyons of that modern terrain from which the new institutions had sprung. Pynchon designated the “inanimate” as its phenomenal surface and the “V-structure” as its musical arc.

The term “inanimate” is drawn in all likelihood from Henry Adams’ “Letter to American Teachers of History.”<sup>284</sup> The “inanimate” in V. is a deadening historical process that suffuses the historical period 1898-1956. It motivates the first collapse of European colonial power in the late 19<sup>th</sup> century and the simultaneous yet subdued emergence of a new American system that continued to the present. The inanimate deploys T.S. Eliot and Henry Adams as substitutes for this geo-political swing from the U.K. to the U.S. The first is, after T. S. Eliot, theological: an incarnation of the inanimate in the character called “V.” during the period 1898-1945. The second is, after Henry Adams, institutional: the embodiment of the inanimate during the immediate, post-WWII era in a new aggregate form: the Yoyodyne Corporation. The former is aligned with Henry Adams’s America; the latter with Eliot’s Europe. They are, however, never synonymous, but conflicting processes shaped from a singular historical crisis, as we shall see.

V. renders the inanimate as an objectifying historical process. The language used to describe that process, in particular the term “fetish,” is specific to modernity, and the novel includes both the objectifying process and its attendant discourse in order to

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<sup>284</sup> Henry Adams uses the term “inanimate” in his summary of thermodynamic theory, where it resonates against the “animate” which is associated throughout the study with the waste of energy in the “higher forms of life.” The “inanimate,” material forms of life are associated throughout with stasis, but while they lack the dynamism of vital forms, they also have the advantage of conserving energy more effectively. Henry Adams. “A Letter to American Teachers of History” 141.

historicize the inanimate as a process. The novel begins in the recent past (the mid-1950's) so as to announce the more fully defined fetish properties of the inanimate that attempt to close the novel's historical arc. The novel offers an expanding compendium of "fetishized" objects. They take their most sophisticated form in the electro-mechanical imitations of life (such as the character V) and the new class of professionals (plastic surgeons, dentists) that attend to them, as in the following scene describing the artist Fergus Mixolydian, whose:

other amusement was watching TV. He'd devised an ingenious sleep-switch, receiving its signal from two electrodes placed on the inner-skin of his forearm. When Fergus dropped below a certain level of awareness, the skin resistance increased over a preset value to operate the switch. Fergus thus became an extension of the TV set. (52)

These characterizations dramatize the modern theories of commodity production over the length of the novel, forming, as it were, a psychic economy of the inanimate through specific historical phenomena. The exchange between inanimate matter and human life is rendered most incisively (and comically) by the novel's protagonist, the young American sailor Benny Profane: "inanimate objects and he could not live in peace."<sup>285</sup> The objects that antagonize Benny belong to the arc that begins the Second Industrial Revolution, spans the general trend towards automation, and arrives to him with the newly accelerated post-WWII socio-economic world of 1950's American consumerism; Benny is at war with the latest ships, gardening tools, automobiles, and a host of hygienic devices and products.

The conflict is staged as the style of the work. The prose repeatedly portrays Benny in vague or simply bad style (i.e. "It was an uncomfortable afternoon"). The "bad style" distinguishes Benny from the novel's other characters; he is perpetually at the stylistic

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<sup>285</sup> V. 31.

margins where the language of historical life is deadened by the accumulating force of the inanimate. Benny's story - its products, its "bad style" - is shaped however by how he is unable to comprehend human interaction with the inanimate. The problem is exposed in a flashback to Benny's first summer job in the Catskill Mountains, where he ponders a Brazilian Zionist colleague's obsession with a machine gun:

Love for an object, this was something new to him. When he found out not long after this that the same thing was with Rachel and her MG, he had his first intelligence that something had been going on under the rose, maybe for longer and with more people than he would care to think about. (16)

Benny's consistent suspicion of the inanimate is expressed in this and dozens of other passages as a contentious revaluation of the fetish properties of the modern object. His rudimentary recognition of the power of inanimate objects - 'his first intelligence' - is amplified in the passage above by the phrase "under the rose." The phrase refers to Pynchon's previously published short story of the same title (as we shall see, the same story is rewritten in relation to both Adams and Eliot in the later chapters of V.). The Catskills "flashback" performs an ironic double function: it includes literary language in the category of the inanimate, whereby literary work (the short story's transformation in the novel) is also subject to the revisionist, objectifying power of the inanimate, which is often equated in the novel with a decadent historical life and language.

The permutations of those forms engage both the historical materialist and psychoanalytic theories of the fetish. Benny is most often placed with respect to them as a quasi-scientific observer (much like the taxonomical sentience of the earlier story "Entropy"). For example, during the Catskills scene noted above, Benny shares a summer romance with a woman named Rachel. He later watches her as she masturbates with the gear shift of her automobile; he does not intervene or betray his presence. In an earlier section, a vicious sailor named Ploy has his teeth removed by the Navy but the surgery only makes him more belligerent. Benny observes the awkward

cannibal with detached amusement when Ploy sharpens his hated dentures and carouses the Norfolk waterfront biting the sailors and assorted locals. In these examples and others Benny witnesses the disfiguration, surgical enhancement, and the mechanical alienation of human bodies and the eroticizing of oral fixations and other sublimated sexual fetishes.

Pynchon's first novel would perhaps have been a merely misanthropic book of comic observations on the destruction of organic bodies or the proliferation of modern fetish discourses if not for its rendering of a singular poetic figure. But for the "V-structure," Benny's "first intelligence" would appear neutralized and incapable of historical elaboration before the fetish evidence.<sup>286</sup> The "V-structure" is introduced as Benny, fresh from his Navy discharge, looks down the Norfolk waterfront:

Underfoot, now and again, came vibration in the sidewalk from an SP streetlights away, beating out a Hey Rube with his night stick; overhead, turning everyone's face green and ugly, shone mercury-vapor lamps, receding in an asymmetric V to the east where it's dark and there are no more bars.( V. 2)

The sentence seizes the moving subject in a 180 degree view of the scene. This half-circle is two dimensional ("overhead" and "underfoot"); its dimensions are separated by the semi-colon that divides the horizontal from the vertical perspectives of the mis-en-scene.<sup>287</sup> The figure repeats the modern poetic style of projecting literary rhetoric in spatial terms: it traps motion into stasis and permits a final ambiguity of the "bars" that shimmer semantically in relation to the police patrol. This ambiguity is the dynamic core of the rhetorical figure which is divided between an internal, linguistic being and an external geo-political entity. Benny is positioned in the V-structure at the apex of a

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<sup>286</sup> The phrase "V-Structure" is taken from V. 239. The word "structure" will resonate throughout the later discussion of the influence of modern linguistics on V.

<sup>287</sup> The phrasing of the figure as "horizontal and vertical" is repeated, in those precise terms, in another figuration of the V-structure in Chapter Three (V. 62).

linguistic and geo-political vector that extends from the V's fulcrum in the Norfolk mercury lamps at one end and extends by U.S. naval power across the Atlantic Ocean at the other.

The figure captures, at its farthest end, the institutional trajectory that Henry Adams developed in his late style. As I noted in chapter one of this study, Adams developed that style by carefully evacuating the anthropomorphic rhetoric from Alfred Mahan's historical theories of naval power and re-thinking the institutional power of the state (and states) as a series of forceful relations. Adams witnessed the institutional and technological axes of U.S. naval power intersect and accelerate during World War One. I noted furthermore in the second chapter that U.S. cryptology had competed and collaborated with U.S. naval power in the 1920's and 1930's, and the two institutions and their respective sciences had grown exponentially as a result. U.S. naval power was however beginning to wane in the 1950's as aviation and rocketry displaced it, and cryptology was amplified by cybernetics and shifted to new ends in rocket telemetry and satellite communications. Benny is thus situated within the varied and shifting institutional genealogies that constitute the V-structure. He is the unwitting witness to the twilight of a naval institutional network that once summoned an entire encyclopedia of modern objects into its apparatus. Benny is a belittled human figure, caught in these fluid historical vectors, as entire fleets pass him along the V-structure's lines (as we shall see, Pynchon's next major historical novel, Gravity's Rainbow, completes the genealogy of a decadent U.S. naval power as it begins a new "arc" from ascendant aviation and spatial power during World War Two). I shall return to these intersecting institutional histories in later sections of the study, but it must be stressed here that the V-structure *configures* Eliot's objective, linguistic style and Adams' study of "supersensual" institutional power. The figure will catalyze the later dramatic development of Adams contra Eliot as the figural discourse of history in the novel (Benny's dramatic resemblance to Gerontion remains unspoken yet obvious).

The aesthetic and geo-political poles that constitute the V-structure are repeated in dozens of variations throughout the novel; at times the figure is a triangle, at others a compass, and at others it dramatically positions characters in relation to one another. The figure's triangular geographic projection will be repeated as the novel alternates between New York and Egypt, New York and Florence, New York and South Africa, and so forth. But the figure is highly amorphous; the character Stencil later notes, "V. might be no more a she than a sailing vessel or a nation" (240). The V-structure is repeatedly disturbed by its inability to contain so many meanings, many of which are subject to reconfiguration by the human intellect, the inanimate, commodity exchanges, or other historical processes and institutions.

For example, the interlocking propositions projecting from the V-structure at its fulcrum in Benny on the Norfolk street invoke the massive concentration of American naval power that extends from the eastern seaboard of the United States (Norfolk) to post-war Europe and Africa at its ends. These same inverse points (or the open end) of the V-structure also develop later into the character V's relations to fascist Europe, Africa, and the British Empire. The V-structure's axial form vis-a-vis these varied histories is alternately static and active; it is a "less than" and "more than" mathematical sign whose ambiguity flashes into certainty (or vice-versa) according to the pressures that the inanimate or human thought exert upon the contingent possibilities of historical life.

The novel's figural discourse thus situates the V-structure and the inanimate in dynamic opposition and interaction. The V-structure forms a geo-linguistic figure - a sharpened arc - from which the novel's historical discourse proceeds from the figure's dynamic centripetal and centrifugal tensions. Two distinct trajectories define its form. The first is the micro-phenomenal, linguistic order of the V-structure and its vital sensuality. The second order is macro-phenomenal: the arc traverses the worldly

institutions that project their power over land and sea (or in later novels, space). The tension between the V-structure and the inanimate is an alternation between these two poles, each of which has a corresponding narrative trajectory in the novel that sustains the tension between micro- and macro-phenomena. The first is the quest, led by Herbert Stencil, for the character V. Its characters are caught, like Eliot's "Gerontion," in the ebb and flow of relentless, supersensual historical forces of 1898-1956 (the 'life' of the character V roughly spans this period). These characters extend across a younger generation that includes Benny Profane, Stencil's son, Sydney, and the Maltese Paola Maijstral. But how could the V-structure's dramatic rhetorical forms "represent" the historical processes of the "inanimate" when Pynchon's earlier "Entropy" had suggested that mimesis had been so seriously saturated by the objectifying impositions of modern institutions?

The question announces the figural discourse that would be dramatized by a secondary dramatic dialogue. This dialogue is staged between T.S. Eliot and Henry Adams. The V-structure reconfigures Adams' "supersensual" geo-political and institutional designs in relation to the formal style of modern poetry advocated by T.S. Eliot. Their encounter is rendered as a contest between human intelligence and the inanimate, just as Freud and Marx had competed over the consciousness of the industrial age and its classes. They are the striated agonists of Pynchon's first mature poesis.

## **XVII. Reprise: T.S. Eliot vs. Henry Adams**

Benny is the initial focus of the dramatic figural tension that will develop into a counter-dramatization of Eliot's reading of Henry Adams. Benny is like one of Vico's "first men," a terrified, Lucretian animist who is threatened by the objects of a new intelligence. His character is continually associated with the "Street" and "road work." The association places human intelligence in relation to the spatial and topographic vectors that partly constitute the V-structure. Benny's terror invokes T.S. Eliot's

consistent preoccupation with modern streets, characters, and sidewalk situations.<sup>288</sup>

The geo-linguistic “V-structure” of the inanimate is figured, after Eliot, as the “street of the 20<sup>th</sup> century” (V. 347).<sup>289</sup>

The topographic, signifying power of the V-structure is contrasted to the problem of thermodynamics in Henry Adams. The scientific model of entropy demonstrated that the conversion of energy from one form to another necessarily resulted in the loss of energy (i.e. Benny expends labor to build the streets). Adams had attempted to translate this model from the natural world to the world of human history, and he failed. The failure was, as I noted in Chapter One of the present study, the dynamic core of Adams’ historical and poetic innovations. The failure liberated his style from the strictures of objectification and materialism; it permitted Adams to transform the entropic waste of energy into a historical intelligence rather than an empirically verifiable formula. Who, after all, could quantify the historical world? Where “Entropy” developed Henry Adams as a local thunderstorm, V. extended Adams as a global hurricane: a discursive heat-engine that evacuated history in its path.

Benny’s character is always situated in relation to characters who dramatically enact the styles and worlds of Adams and Eliot. At his first day of work as a night watch in a research laboratory he is presented with a nutshell account of modern physics by his boss. The account distinguishes the scientific world of the 1950’s from that of Henry Adams:

In the nineteenth century, with Newtonian physics pretty well assimilated and a lot of work in thermodynamics going on, man was looked on more as a heat-

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<sup>288</sup> Benny’s road work has perhaps as its immediate historical referent in the Eisenhower Administration’s National Highway Project.

<sup>289</sup> There is an interesting passage in Edmund Wilson’s Axel’s Castle that argues for something similar in T.S. Eliot: “But it is from the conversational-ironic, rather than from the serious-aesthetic tradition of Symbolism that Mr. Eliot derives” (110).



engine, about 40 per cent efficient. Now in the twentieth century, with nuclear and sub-atomic physics a going thing, man had become something which absorbs X-rays, gamma-rays, and neutrons. Such at least was Oley Bergomask's notion of progress. It was the subject of his welcome-aboard lecture on Profane's first day of employment.... (302-303)

Conversely, T.S. Eliot's model of literary history is dramatized in the monologue of Eigenvalue, the plastic surgeon, when he meets with the young Herbert Stencil:

Perhaps history this century, thought Eigenvalue, is rippled with gathers in its fabric such that if we are situated, as Stencil seemed to be, at the bottom of a fold, it's impossible to determine warp, woof, or pattern anywhere else. By virtue, however, of existing in one gather it is assumed there are others, compartmented off into sinuous cycles each of which come to assume greater importance than the weave itself and destroy any continuity. Thus it is that we are charmed by the funny-looking automobiles of the 30's....We produce and attend musical comedies about them and are conned into a false memory, a phony nostalgia about what they were. We are accordingly lost to any sense of a continuous tradition. Perhaps if we lived on a crest, things would be different. We could at least see. (161-162)

Eigenvalue's speech is suffused with the Eliotic language of "tradition" that is suspicious, even hostile, towards Bergsonian concepts of memory and history. Where Oley Bergomask speaks from Adams' side of the supersensual divide, Eigenvalue thinks from Eliot's side. Where Eigenvalue is one of the architects of the early 20<sup>th</sup> century totalitarian form of the inanimate (he installs inorganic components in human bodies), Bergomask conducts experiments in the mechanics of force and their effects of both organic and synthetic objects. The minor characters of the novel continually enact variations of the dramatic dialogue between human intelligence and the inanimate as modulations of the "sensuous" and "supersensuous" that separated Eliot from Adams.

The scope of the exchange is comprehensive. It spans the micro-phenomena of atoms, signs, words, and tropes and the macro-phenomena of streets, cities, shipping lanes, nations, languages, and civilizations. These are the divides across which Eliot and Adams hurl the titanic stone of the world.

Pynchon animates the V-structure with a dramatic style.<sup>290</sup> The dramatic form is appropriate to both the classical aspirations of the figural discourse and its modern actors. V. extends the theatrical techniques of Eliot's poetry and drama, in particular the "verse drama" of "Gerontion" (Kenner 135). The line between the poetry and drama was blurred in Eliot; as Edmund Wilson noted, Eliot's dramatic technique:

...is the essentially dramatic character of his imagination. We may be puzzled by his continual preoccupation with the possibilities of modern poetic drama – that is to say, of modern drama in verse. Why, we wonder, should he worry about drama in verse – why, after Ibsen, Hauptmann, Shaw and Chekhov, should he be dissatisfied with plays in prose? We may put it down to an academic assumption that English drama ended when the blank verse of the Elizabethan s ran into the sands, until it occurs to us that Eliot himself is really a dramatic poet. Mr. Prufrock and Sweeney are characters as none of the personages of Pound, Valery, or Yeats is – they have become part of our modern mythology. And most of the best of Eliot's poems are based on unexpected dramatic contrasts: "The Wasteland," especially, I am sure, owes a large part of its power to its dramatic quality.....<sup>291</sup>

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<sup>290</sup> The mock Jacobean centerpiece of Pynchon's next major work after V., The Crying of Lot 49, performs a similar function in that book, albeit to a different effect.

<sup>291</sup> Axel's Castle. 128-129.

Now Pynchon blurs the line between “verse drama” and the historical novel. Treating Eliot’s thought as a cohesive whole, the novel responds to Eliot’s work with its own counter-dramatizations of history. The V-structure consistently reenacts Eliot’s post-WWI writings. The beginning figure of the Norfolk street as a “V” opening outwards (much as Pynchon’s later Gravity’s Rainbow begins with a “knotting into”) draws out two fundamental concepts from Eliot’s early essays; the first is the distinction between ‘abstract’ and ‘concrete’ language (later elaborated by John Crowe Ransom) and the second is the concept of ‘tradition’ (which, as we saw in Eigenvalue’s monologue, is fundamental to the crisis of V.).<sup>292</sup>

The distinction between the abstract and the concrete first appeared in Eliot’s essay “The Perfect Critic.” The essay attributes the prevalence of an abstract style and the misuse of a “scientific vocabulary” to 19<sup>th</sup> century German philosophical writing (Eliot names Hegel as the culprit) and the “many fields of knowledge in which the same words are used with different meanings.”<sup>293</sup> Eliot argues that the intelligent critic must overcome the perils of an abstract or “philosophical” diction. Imprecision, ambiguity, and carelessness may obstruct the critic who should “return to the work of art with improved perception and intensified, because more conscious, enjoyment.”<sup>294</sup>

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<sup>292</sup> See John Crowe Ransom. The World’s Body (1938) and T.S. Eliot. “Tradition and the Individual Talent” in Selected Prose of T.S. Eliot.

<sup>293</sup> Ibid 54. Eliot recasts the problem as “the same phrases with totally different meanings” in his lecture “American Literature and Language” (To Criticize the Critic and Other Writings 48).

For a discussion of the philosophical context of Eliot’s anti-Hegelianism, see Shusterman 32-36.

<sup>294</sup> “The Perfect Critic.” 56. The use of psychoanalytic terms in this resonates with the writings of I.A. Richards and his influence on the American New Critics over the following decades, a subject I will resume in the following chapter.

The opposition between the creative and the philosophical would suggest that science, for Eliot, is on the side of the abstract; this is not however the case, for Eliot argues that the concrete forms of intelligence and expression required of scientists exceed those of “men of letters.” The resulting misunderstanding of science by “men of letters” (the target is possibly Adams) is that there are few critics true to the task of reconciling the concrete values of art and science in a coherent style: “it is to be expected that the critic and the creative artist should frequently be the same person.”<sup>295</sup>

Abstract language is for Eliot the child of a historical rupture. Eliot describes the rupture as the “dissociation of sensibility” that took place long before the dynamo, in the English poetry written after the 17<sup>th</sup> century. Its result is the absence of an “objective correlative” for poetic thought. The work of the critic, in overcoming this divide, must re-connect the present to the moment before its rupture: it must restore the sensual objects of thought before the mind.

Eliot’s post-WWI essays on the Metaphysical Poets and Hamlet offered this discourse which continues that which had begun with his response to Henry Adams. In the former essay, Eliot argues that a “dissociation of sensibility” results from the “telescoping of images and multiplied associations” that characterize such metaphysical techniques as the poetic conceit. The “dissociation of sensibility” is exemplified in the negative example of Hamlet as the lack of an “objective correlative” that can contain the excesses of Hamlet’s thought and emotion. The ‘tradition’ is ruptured by the ensuing absence of a vessel such as an objective correlative, which is displaced by Shakespearean eccentricity. The problem posed by Eliot to the moderns is the poetic project of transforming “the material together again in a new unity.”

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<sup>295</sup> Ibid 58.

As I noted earlier, it was Eliot's famous essay "Tradition and Individual Talent" that advocated the monumental form of that unity. The essays that followed it are to a great extent elaborations of the "sensual" proposals of "Tradition and the Individual Talent." But the "Tradition" essay also other generative tensions, among them the relation of archeology to poetics, the poet's historical "sense," and the analogy of "depersonalization" as a catalytic chemical reaction. Eliot thus devised a forceful new rhetorical discourse that would reconstitute modern poetry in relation to the 'tradition' of European letters. Its renewed, monumental form would ensure that the mature poet's skill would not succumb to history, but master it.

But the relation of the poet to history was tenuous. The poet who wished to engage and extend the tradition must think historically, and, in doing so, disappear to some extent into history. Eliot insisted that the poet must never completely vanish; rather, the poetry should cast his work in the pantheon of a renewed tradition. The historical "sense" required tremendous thought and a balanced erudition, but it was dangerous because it could nonetheless overwhelm the poet. The counterweight to such a risk was the sensuous experience of language whose end is the concrete reorganization of history, language, and time: the dramatic renewal of the "Tradition."

Eliot achieved such a balance with respect to his own examples of the 17<sup>th</sup> century "dissociation of sensibility" and the rupture of poetic sensibility that ensued. Eliot combined drama and poetry to restore that lost sensibility to literary language. Kenneth Burke's writings on verse drama demonstrate how Elizabethan dramatic technique was integral to the critics that followed in Eliot's path:

In *The World's Body*, John Crowe Ransom treats associationism as *dramatic*, citing Shakespeare as an example, in contrast with Donne. That is: Donne continues *one* conceit throughout a poem, whereas Shakespeare leaps about from one image to another, using each to deliver a quick blow and then shifting to fresh images, with none maintained over a long duration, or rationally exploited. It is a very

acute and suggestive distinction-though I should want to interpret it differently. Shakespeare, I should say, had the rational intrigue, or business of his plot, as the basis of his consistency. This *permitted* him great shiftiness of imagery, as he tried to convey the quality of the action by views from various angles. Also, I will agree that, in a plot of this sort, the attempt to carry one conceit throughout would be more of an encumbrance than a help. Since the plot itself provided the groundwork of consistency, the explicit riding of one image would attain the effect by excess, which would be tiresome.

Later lyricists (of the non-Donne sort) adopted the Shakespearean associationism while dropping its proper corrective: a plot of pronounced intrigue, or business.<sup>296</sup>

The historical arguments of Eliot's essays should not be understood, then, as the diverse "plots" of Shakespearean eccentricity. Rather, they are rational conceits, composed in an empirically sensitive diction, and extended into historical space as monuments of modern poetry. The "tradition" is a sensuous poetic conceit, and all history a poem. The differences between Eliot's conceits and Shakespeare's "association" are fundamental to the dramatic technique of Pynchon's V.

"Associationism" offered a precedent for the V-structure's signifying force. The V-structure often resembles what Burke describes as the fluctuation between a single conceit (as in Donne) and the "associationist" tendency in Shakespeare that proceed by narrative accumulation rather than the formal arrangements of conceit. But the V-structure develops both the dramatic associations of the "supremely dangerous Shakespeare" (Kenner 13) and the "late Elizabethan" style that was advocated by Eliot – it counter-dramatizes Eliot's own dramatic style. The V-structure absorbs the sensuous properties of language into the novel's figural discourse, which in turn engages

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<sup>296</sup> The Philosophy of Literary Form 31-32.

“supersensual” force; the V-structure is in turn animated by the alternation between them. The dynamic movement of language, rendered historical and alive by figural discourse, now moves between the porous borders of both human intelligence and the inanimate. The historical movement towards the inanimate (decay, death) is reversed from “the bottom of a fold” to situate “association” as an engine of the novel’s dramatic style.

The staging of that style consumes entire chapters of V. For example, the concrete language of the V-structure is enacted explicitly in the theatrical sections of the work. When V appears at the murder/suicide of Melanie in Chapter 14 of the novel: “The conception depended on Su Feng continuing her dance while impaled, all movement restricted to one point in space, an elevated point, a focus, a climax.”<sup>297</sup> Melanie’s transfixion repeats the beginning V-structure that impales Benny on the Norfolk street. The two scenes suggest a historical continuation that runs from pre-WWI continental symbolism through the post-WWI export of those practices to the English language (both Adams and Eliot were interested in Symbolism) to the present – another of the novel’s many “arcs.” The American popular theater is portrayed by contrast in earlier sections of the book as a provincial innocent against the decadent sophistication of late-19<sup>th</sup> century French symbolist costume drama.<sup>298</sup>

Eliot’s dramatic and poetic ideas are enacted over the many theatrical actions of the novel. Pynchon’s novel treated Eliot’s work with tremendous attention to detail as well as to subterfuge, contrast, and parody. But it is only when Henry Adams – whose

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<sup>297</sup> V. 446. The example of Su Feng/Melanie combines the Symbolist aesthetic of the French costume drama with Eliot’s famous essay on the “unity” of European culture in a continuous, if ironic, counterpoint to Eliot’s essays; the counterpoint will culminate with the geo-political figuration of the V-structure, as we shall later see.

<sup>298</sup> The specific examples here refer to when Benny first arrives in New York and repeats scenes from Bernstein’s “West Side Story” and the many allusions to Vaudeville in Chapter Three of the novel.

Shakespearean eccentricity was fundamental – is summoned to torment Eliot on this stage that the figural discourse of the work achieves one of its most elaborate configurations.

V. distinguishes between Eliot's dramatic style and that of Adams, which Adams' biographer Elizabeth Stevenson described as "the figures and actions of the present...in an interior dialogue in which the present was only one part of the scene."<sup>299</sup> Adams' haunting of Eliot ironically repeats Eliot's claim that Hamlet has no external object to contain his thought: he was always and only thinking. The varied embodiments of this haunting extend to the allusions, associations, and actors of the novel, where characters acting out Henry Adams and T.S. Eliot raise their monologues to a symphonic roar.

Pynchon organized V., like 'Entropy,'" around four main characters. In the former work, only three of the characters are human: the naïve American Benny Profane; the medieval and modern Maltese Paola Maijstral; the fascist Continental that is the elusive and robotic V, nee` Victoria Wren, who was once a lover of the British diplomat Sydney Stencil; and finally Sydney's desperate son, Herbert Stencil. Two characters – Paola's father, Fausto, and Herbert Stencil – are the most emphatic impersonations of the Adams-Eliot divide.

Henry Adams is transposed to Herbert Stencil in the third chapter of V. The chapter is subtitled "In which Stencil, a quick-change artist, does eight *impersonations*" [emphasis mine]. Stencil assumes various incarnations as an Egyptian mountebank, French waiter, and other figures so that he imagines himself as a spectator to the espionage and intrigue occurring in Egypt in 1898 where faux-Egyptologists, diplomats, and travelers engage in a spectacle of double-agents and murder. The younger Stencil thus

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<sup>299</sup> Henry Adams 283.



reconstructs his father's prehistory and the appearance of V (here the young Victoria) through this prismatic vaudeville of shifting perspectives.

The chapter is a considerable revision of Pynchon's earlier short story "Under the Rose." It is revised in the novel so as to align the both Stencil and the narration of Stencil with Henry Adams. The chapter introduces the third-person rhetoric of The Education of Henry Adams with the language of Eliot's "depersonalization:"

Herbert Stencil, like small children at a certain stage and Henry Adams in *The Education*, as well as assorted autocrats since time out of mind, always referred to himself in the third person. This helped "Stencil" appear as only one among a repertoire of identities. "Forcible dislocation of personality" was what he called the general technique, which is not exactly the same as "seeing the other fellow's point of view"; for it involved, say, clothes that Stencil wouldn't be caught dead in, eating foods that would have made Stencil gag, living in unfamiliar digs, frequenting bars of cafes of a non-Stencilian character; all this for weeks on end; and why? To keep Stencil in his place: that is, in the third person.<sup>300</sup>

The paragraph contains one of the few direct invocations of Adams in all Pynchon's works.<sup>301</sup> Adams and Stencil resemble one another. Herbert Stencil is the son of a diplomat, Sidney Stencil, who was also an agent of the British Foreign Office; the father-son relation echoes Adams' diplomatic work for his father in England during the U.S. Civil War. Stencil is introduced in a variety of disguises that allow him, in the year 1898 (the same year that marks the rise of American global power for Adams), to imaginatively recreate his father's role in the working of European colonial politics and

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<sup>300</sup> V. 58.

<sup>301</sup> The reference follows an allusion to James Frasier's The Golden Bough (a text whose anthropological relevance to T.S. Eliot is fundamental).

war in northern Africa.<sup>302</sup> Stencil's "simple-minded, literal pursuit" of his father is developed so as to suggest that history is not shaped entirely by human actors; it is constituted by the workings of unknown and impersonal forces that Stencil, like Adams, strives to understand.

The relation of Herbert Stencil to the V-structure is amplified by dramatic juxtaposition. Herbert Stencil's quest for the explanation of his father's death is defined by its relentless search for "closure." By contrast, the V-structure is an "open" figure; it unleashes history, and (British) civilization collapses under its pressure. The pivotal event in that collapse is the Suez Crisis of the mid-1950's, which I will shortly discuss. At some level, then, Herbert is always in an indirect opposition to the V-structure; his quest is a pursuit of V, whom he believes to hold the secret of the elder Stencil's last days following the First World War. The recovery of that event suspends history at the peak of British imperial power, which the young Stencil continually and imaginatively revisits. That closure, which is the aim of the inanimate, is presented by the historical energy of the V-structure. The inanimate, like V and the younger Stencil, seeks to close the V-structure to history; the novel's figural discourse of history refuses such closure.

The situation extends a secondary historical problem that is pertinent to the Adams-Eliot divide. Eliot had composed his essays on poetic history and the 17<sup>th</sup> century "dissociation of sensibility" only after having read Henry Adams' writings on the late 19<sup>th</sup> century crisis of the modern historical consciousness. The impersonal forces (the inanimate) collapsed the modern narrative consciousness in the late 19<sup>th</sup> century and prompted Eliot to seek an origin for the crisis, which he located in the late Elizabethan era.

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<sup>302</sup> The year 1898 resurfaces in the fifth chapter when Benny and Stencil's paths converge in New York. Herbert Stencil sends a note "by a vagrant in an old Army campaign hat, circa 1898" (V. 131). The date is important to both Adams and Stencil.

The young Herbert Stencils' quest to locate V and obtain an explanation for his father's death enacts a different historical rupture than that which Eliot described in his essays. The rupture enacts the crisis of the late 19<sup>th</sup> century novel which motivated the "recognition that the dynastic principles of traditional narrative now seemed somehow inappropriate."<sup>303</sup> That historical crisis in modern thought, whose luminaries include Hardy, Conrad, Freud, and Flaubert, is enacted by the haunting echo of Henry Adams in Stencil's rhetorical "distance" from his father. The younger Stencil plays out the solitary, ironic enactment of his own father's exile from the British Empire. Eliot's attempt to reanimate the British tradition is thus constituted, through Stencil, as a desperate ignorance of the supersensual forces that undermine the attempt to separate language from history. The recurring, dramatic exchange between human intelligence (anima) and the inanimate that was already figured in the apostrophic style of Pynchon's earlier "Entropy" is reconfigured in V. as the apostrophic mode of Stencil's rhetoric. Stencil's rhetorical distance from his father performs the "rupture" of the modern novel; it is an allegory of the inanimate, sustained ironically by the dynamic openness of the V-structure.

These varied genealogies of literary-historical rupture culminate when novel's main characters – Benny, Stencil, V, and Paola – converge in Paola's country of origin, the island of Malta. It is on Malta that V. stages T.S. Eliot and Henry Adams in a final encounter.

The source texts for the Maltese mis-en-scene of V. are Henry Adams' chapter on "The Virgin and the Dynamo" in The Education of Henry Adams and his study of the 12<sup>th</sup> century, Mont Saint Michel and Chartres. The Maltese scenes begin as a long flashback, composed in the missive form, as a letter from Paola's father, Fausto. The young

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<sup>303</sup> Beginnings 138. The great artist cited in Said's example is Thomas Hardy, and the novel is Jude the Obscure.

Herbert Stencil, now a member of Benny and Paola's circle in New York, is allowed to read the letter.

Fausto's letter recounts his life and Paola's childhood on Malta between 1937 and 1944. Fausto writes that he and his two friends were to become the "generation of '37" that would create a new school of modern Anglo-Maltese poetry. The young poets read T.S. Eliot; Fausto's missive to his daughter is built around dozens of allusions to Eliot's work. When the war begins, however, Fausto and his group realize that "Shakespeare and Eliot ruined us all."<sup>304</sup> Fausto then recounts his transformation into Fausto II, who is increasingly "nonhuman" and associated with the inanimate rock of the island.

Fausto II connects the Virgin Mary, after Adams, with both Paola's mother and the island. He recounts how his own mother had told him before the war of a man named Stencil (the elder Sydney) saved his pregnant mother from suicide. The island is situated as both the inanimate rock and the vital, supersensual force of the V-structure.

The anthropomorphic rendering of the island and Fausto's increasing "inanimate-ness" converge when Fausto leaves the priesthood upon discovering that his lover, Elena, is pregnant. Elena's pregnancy coincides with the arrival of the "Bad Priest." The "Bad Priest" is V in disguise. V was once Victoria Wren, the confidante and lover of spies, diplomats, and personalities of the emergent fascist European order (V is at one point rumored to be a cohort of Gabrielle D'Annunzio, the poet laureate of fascist Italy). V embodies by these *associations* the inanimate's tendency towards political and historical realization as a linguistic stasis. That stasis incorporates the monumental tendency of the modern poets to the ends of a fascist political order. The incorporation invokes the political filiations of the major modern poets such as Pound, Yeats, Eliot, and others

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<sup>304</sup> V, 328.

whose historical and aesthetic designs resurfaced in the machinations of the fascist nation-states.<sup>305</sup>

V's appearance on Malta prior to and during WWII interrupts the vestigial historico-symbolic process of the Middle Ages on the island. The chaotic symbolic systems of southern Europe, despised by both the elder Stencil and V., are subjected on Malta during the war to the mechanization of organic life. Fausto's letter once describes V as "the machine that is more complex than people." Malta is reconfigured as a single entity composed of both animate and inanimate forces (Fausto calls it a "Womb of rock"). The tension permits the V-structure to sustain a number of figural combinations as Malta is ravaged by both the temporal flux of history and the spatializing force of the inanimate. Malta is caught between the medieval world of Adams and the modern world of Eliot; it is strafed, bombed, and occupied by the same mechanized military forces and ancillary symbolic systems embodied in V. It follows Pynchon's earlier "people like the State Department and NSA" as an impossible configuration of historical entities and makes possible Pynchon's new interest in figural genealogies.

Fausto III begins a fourth transformation in response to those connections. Alienated from his daughter and her mother, resentful of the mysterious "Bad Priest," he joins the corps of civilians that repairs the RAF airstrips on the island and eventually to firing an anti-aircraft battery at German and Italian bombers. Fausto's various incarnations of himself grant his missive to Paola a dramatic character - like Stencil, he impersonates himself and others, even the rock of the island. The culmination of those impersonations occurs when Fausto connects Eliot's 'tradition' to both V and the inanimate:

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<sup>305</sup> The problem of fascism in modernist poetry is skillfully addressed by F.O. Matthiessen in The Achievement of T.S. Eliot. 139-145. See also Peter Dale Scott "The Social Critic and his Discontents."

I know of machines that are more complex than people. If this is apostasy, hekk ikun. To have humanism we must first be convinced of our humanity. As we move further into decadence this becomes more difficult.

More and more alien to himself, Fausto II began to detect signs of lovely inanimateness in the world around him.<sup>306</sup>

R.P. Blackmur once noted that the term “incarnation” had a specific function in Eliot’s work: it denoted always “the incarnation of religion in a people.”<sup>307</sup> The character V is the secular, fascist working of Eliot’s term: the incarnation of a mechanized and autocratic political state in V. The fascist state corresponds, in Pynchon’s reading of Eliot’s objective style, to the institutional incarnation of the inanimate. V and the fascist state are possible historical forms of T.S. Eliot’s model of literary history – but Fausto’s letter also suggests that they are not synonymous or comprehensive. Fausto’s ambivalence about the inanimate and his committed resistance to the fascists suggests an important distinction between the literary modernism of Eliot and those political formations it gravitated towards. V. brings T.S. Eliot to an impasse where the modern poets and literary debate are partially “incarnated” in the catastrophic fascism of WWII, though not its equivalent.

Fausto’s polemic is achieved by the V-structures dramatic and discursive flexibility. Eliot’s “Sermons from the Rock” and “Ash Wednesday” poems (as well as his writings on Christian civilization) are dramatically enacted by Fausto, the lapsed priest, and V, the “Bad Priest.” The enactment stretches the V-structure to accommodate the varied

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<sup>306</sup> Ibid 345. Hekk ikun is translated later in V. as “so be it” (499), thus returning the novel’s figural discourse, which culminates on Malta, to an ontological status. The term “alien” suggests another series of associations that include the earlier discussion of the fetish.

<sup>307</sup> “In the Hope of Straightening Things Out.” T.S. Eliot: A Collection of Critical Essays 147.

associations of Eliot's divided secular humanism, which both supported and criticized fascism (even when his colleagues, such as Pound, adopted a more rigid stance in its favor). The same dramatic narrative which compresses such varied significance into a singular figure also projects it outwards, into history, where it is tormented by supersensual force in historical time.

Fausto and Malta are the fluctuating site of these pivotal configurations. They stand at the edge of the transition between the pre-WWII world of Eliot and Adams and Benny, Paola, and the younger Stencil's post-WWII era. The transition is appropriately described in terms of architectural devastation. Fausto recounts a massive air raid at the end of the missive. Paola's mother is killed in the attack, and he finds Paola and other children playing in the ruins of a building. The "Bad Priest" is pinned in the wreckage. The children strip the body of its clothes and find that it is composed of varied synthetic parts – a wig, a prosthetic leg, a glass eye. Fausto Maijstral delivers the Extreme Unction to the Bad Priest (the priest's death echoes that which occurs in Eliot's 1935 play *Murder in the Cathedral*). But V, like Fausto, survives in a broken form.

Fausto's letter dramatically allegorizes the V-structure's convergence in Malta into a figural discourse of history. These are reincarnated as Fausto's T.S. Eliot and Herbert Stencil's Henry Adams. Stencil's ghostly presence mediates the reading of Fausto's missive. Stencil's presence is a silent intervention, so that the reader occupies Stencil's position, if only for one chapter, at the first culmination of the novel's varied associations. The effect is that of a dramatic impersonation: the reader, who now inhabits through Stencil the varied trajectories of the missive, is absorbed into the novel's temporal arc. It is implied throughout that Stencil's Adams vis-à-vis Fausto's Eliot is in the position of T.S. Eliot gazing over Henry Adams's shoulder and trying to reorganize the chaos of history; what he sees is Fausto's Eliot doing the same.

Stencil's impersonations dramatically emphasize the exchange between human intention and the impersonal, historical force of language. Eliot, as I have noted, conceded that the human must always win in this exchange for the tradition to survive. Eliot's proposed "depersonalization" was thus only a limited sacrifice to the monumental order of poetic thought.<sup>308</sup> The technique is amplified here in another register Eliot's "de-personalization" is rendered as a form, or better yet, a precursor, of the inanimate.

But the novel does not seek to recover a lost 'sensuality' (as in Eliot) or to re-establish the dynastic genealogy of the novel: it reconfigures history to begin a new *poesis* in the present. Modern history is thus conceived as an ironic juxtaposition of Eliot and Adams. The conflict is not resolved in the geo-political world, but rather in the dramatic continuation of figural discourse in a genealogical style: V. ultimately survives in both Fausto Maijstral and Herbert Stencil, for it is V. who is the young Stencil's mother and also Fausto Maijstral's father.<sup>309</sup>

### **XVIII. The alembic V-structure**

The alternating sensual and supersensual significance of the V-structure betrays two distinct ontological modes. The first is the inanimate, which is aligned with the sensuous and T.S. Eliot in the novel's drama. The second is an "anima" – a soul, spirit, and supersensual force – that is aligned with Henry Adams. Where the former courses through inorganic life (the mechanical and synthetic inclinations of the V-structure), the

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<sup>308</sup> In a telling phrase, Edmund Wilson described this tendency in Eliot's The Sacred Wood as an "escape from personality" (Axel's Castle 139).

<sup>309</sup> Fausto's father confesses this much to Sydney Stencil in the epilogue, at the end of Sydney's own affair with V. The year is 1919: "My wife has her child" (529).



latter gathers the miasmic power of the historical world. These two alternating poles of the V-structure constitute the figural discourse of the novel.

The V-structure is not mimetic but discursive; that is to say, it is animated and disturbed by human interference and the inanimate, aggregate force of language. These converging forces render the possible trajectories of historical life as unstable, temporal processes. The V-structure supercedes the anima and the inanimate. It is both a stabilizing and disruptive rhetorical power that makes possible the work that enables human understanding, much as T.S. Eliot urged that the permanency of “tradition” had to be learned by a tremendous effort on behalf of the poet. The major difference between Pynchon and Eliot is that the former’s “sensuous” style is troubled by the supersensual force of the world. It is a model of contingency and probability rather than one of absolute certainty. It offers the novelist greater imaginative freedom but also forces repeated and antagonistic encounters with the temporal world.

By contrast, T.S. Eliot conceptualized a restored poetic tradition in terms of a monumental, architectural space. Following Eliot, Joseph Frank argued in a famous 1945 article that modern literary rhetoric gravitated towards spatial forms. Frank demonstrated the technique’s use among modern novelists from Flaubert to Joyce and Djunna Barnes.<sup>310</sup> What Eliot proposed as the successful addition of a prepared and mature work to the tradition was truly “monumental;” the strategy is what Joseph Frank described as the “structural principle...of spatial form” (29). It was a poetry immune to time. The V-structure dramatically exposes the error of that scheme by situating the non-sequential “spatialized” rhetoric of modern literature in relation to human, historical time. In doing so, Pynchon extends it over the fault lines where

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<sup>310</sup> I refer here to Joseph Frank’s highly influential 1945 essay “Spatial Form in Modern Literature.” The essay will play a larger role in later passage of the current chapter. It should be kept in mind that Pynchon cited Barnes’ Nightwood in “Entropy,” as Robert Newman has noted (22).

institutions, populations, and individuals confront and collapse into one another. The strategy shapes the novel's central geo-political event: the Suez Crisis of 1956.

The Suez Crisis began with the UN Security Council's resolution of August, 1951. The resolution requested that Egypt lift the blockade on Suez naval traffic bound for Israel. Great Britain and Egypt emerged from the diplomatic controversy as adversaries: Great Britain mobilized its troops in nearby Cyprus in October of the same year. The crisis extended itself through the Mediterranean in the following years, where it was punctuated by riotous political sentiment. In 1954, Greek residents of Cyprus rioted against the British use of the island as a replacement for its lost strategic positions on the Suez Canal. The crisis reached its peak in 1956, when French and British naval forces were deployed throughout Mediterranean bases.<sup>311</sup> Israel invaded the Sinai Peninsula in October, 1956, and the action was followed by British and French aerial bombardment and ground invasions. Military operations ended in early November; the British regained control of the Canal, and Israel gained control of Gaza and the Sinai. The United States and the Soviet Union sided, however, with Egypt.<sup>312</sup>

The increasingly dangerous Suez Crisis drove a diplomatic wedge between the United States and Great Britain, its primary ally of the first half of the twentieth century. The situation was exacerbated by the fact that the United States and Great Britain were joined not only by NATO, but by the secret UKUSA agreement which had joined their

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<sup>311</sup> V. refers to many of the players of the Arab-Israeli world, among them Israeli Prime Minister David Ben Gurion and the Egyptian President, Gamal Abdel Nasser, who took office in June, 1956, immediately prior to the Franco-British and Israeli attacks on the Suez Canal. It does not mention Israeli defense minister Shimon Peres, who remains an influential figure in contemporary Israeli politics. See also A Companion to V. (186).

<sup>312</sup> One of Pynchon's characters refers to this U.N. Security Council vote in V. (465). U.S. and Soviet motivations were primarily economic: they were competing to bid for Egyptian building contracts for the newly nationalized Aswan dam.

intelligence institutions and formalized the continued collaboration that had begun with the tremendous code breaking successes achieved by Bletchley Park and William Friedman's signal corps units during WWII.<sup>313</sup> But the pacts did not hold during the Suez crisis. The United States intelligence institutions intercepted and decoded the British, French, and Israeli military plans, and thus learned of the betrayal by cryptological subterfuge:

During October, therefore, British, French, and Israeli officials met secretly in France to discuss the situation. Within a few short weeks the discussion turned into action, and on October 29 Israel lashed out with a violent attack against Egypt. Two days later Britain and France joined Israel in the invasion, launching troop carriers by air and sea from Cyprus. (The Puzzle Palace 405)

Following Eisenhower's re-election in late 1956, the United States sent the entire Sixth Fleet of the U.S. Navy into the eastern Mediterranean, ostensibly to show support for King Hussein of Jordan who was fighting against a pro-Egyptian coup d'état in his military, but also to demonstrate that U.S. naval power was prepared to intervene should France and Great Britain attempt to return Egypt to its former colonial status.

The dramatic divide between T.S. Eliot and Henry Adams is played out on this geopolitical stage and in the arena of its pre-history. The novel does not render either the literary figures or nations as synonymous, but rather as converging and diverging forces of the novel's figural discourse enacted as a geo-linguistic drama. The drama culminates with two scenes that are integral to its discourse of the V-structure: Malta during the post-WWI era in 1919 and Malta during the Suez crisis in 1956. The juxtaposition is not unlike that between human intelligence and "people like the State Department and NSA" in the earlier "Entropy" insofar as its contrapuntal movement suggests an exchange between various sentient forces in the dramatic mis-en-scene.

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<sup>313</sup> See The Puzzle Palace 391, 406-409.

That sentence is elaborated in a style that is true to the earlier stories counter-mimetic technique: rather than try to “represent” actual events, it designates certain figurations along the arc of the V-structure as their substitutes. In the case of *Malta and the Suez Crisis*, V. invokes the word “alembic” to elaborate the relation between the civilizations of the Mediterranean basin and the dramatic figural discourse of the V-structure.

The word “alembic” appears only once in V., when Herbert Stencil recognizes a trace of his former self in the contents of a New York apartment. The trace is communicated through the minor details of the room, one of them being the noun form of the alembic, which in this specific context refers to a container used in chemistry.<sup>314</sup>

There is also a specific literary-historical referent for the term “alembic.” The American literary scholar Kenneth Burke’s unique use of the term “alembic” during the interwar period prefigures the competition between the formalist and socio-historical literary projects of the era which figure so prominently in the novel.<sup>315</sup> Burke uses the term “alembic” in two ways, and often simultaneously. The first describes a line of poetry or a poetic figure as a vessel. The vessel contains or is exceeded by its ambiguities (semantic, syntactic) and techniques (rhetoric, form); Burke uses rhetoric, and more specifically, the trope of synecdoche, in which a small detail stands for the whole of some thing.<sup>316</sup> The second sense of the alembic pertains to critical and historical method, or how a reader acts upon a literary writing: critics and readers “alembicate” meaning through various interpretive methods such as historical or formal explanations of the text. The two functions of term are connected in that a careful reader and a well-written line of poetry attempt to “alembicate” the writing into a new form.

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<sup>314</sup> V. 52. The significance of chemistry in Eliot’s work has already been noted.

<sup>315</sup> See The Philosophy of Literary Form 3. And Foreword to Second Edition, ix.

<sup>316</sup> The Philosophy of Literary Form 25.

Burke's writings constantly struggle with a provisional style of literary criticism that would channel and contain both the internalizing properties of formalism and the externalizing pull of human history. Burke's technique resembles an "equation" by which a critic or line of poetry alembicates the various properties of a literary work - history, meaning, form, etc - in accordance with the varied *action* of poetic language. The results of the interpretation often prove elusive, for Burke recognized that the unstable properties of the historical and mimetic act evade literary capture.<sup>317</sup> The "alembic" is troubled by the excesses of ambiguity and other variable properties of the literary work; these, in turn, generate new meanings that exceed the critic's reading (Burke often illustrates this point with examples from the poetry of Coleridge).<sup>318</sup> Burke insists upon human intelligence in his reply to such excess: he calls upon anthropology, psychology, and other sciences to make his case for the synthesizing power of literary intelligence and its ability to continually negotiate the breaking and reshaping of the alembic vessels of meaning and historical life.<sup>319</sup>

Burke's writings, and in particular his writings on Ransom and Eliot, resonate across the dramatic conflict of the novel. But with the character of Stencil the "alembic" assumes significance in relation to the contemporary Mediterranean theater of the

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<sup>317</sup> The Philosophy of Literary Form 20, 75.

<sup>318</sup> The problem of the "alembic" dovetails that of figuration in Vico. Coleridge's interest in Vico is noted by Bergin and Fisch in The Autobiography of Giambattista Vico (83-84).

<sup>319</sup> The appearance of the term "alembic" in Burke's work of the 1930's extends to a series of ethnographic, anthropological, and psychological questions that are ignored in the current chapter. I shall address these questions in greater detail in the discussion of Faulkner in Chapter Three. It should be noted in passing that these trends of the 1930's figure in V.'s occasional references to the Great Depression (it is the decade of Benny's birth) as fragments of an alembic decade which, by its absence, is perhaps the most important period in the work (a topic I will return to in chapter six).

novel. Pynchon's thus deploys the V-structure as an alembic figure for the varied histories that converge in the Maltese scenes.

The figural discourse that attempts to "alembicate" Malta must contend with a specific post-imperial context. As I noted earlier, the United States and Great Britain were divided over how to resolve the Suez Crisis; the division amplifies the dramatic staging of Eliot in Fausto Maijstral's letters. V. situates these varied divisions in the Anglo-American world at the point where the micro-phenomenal sign intersects with the macro-phenomenal geo-political order of modern, institutional history: where Eliot's "Streets" and Mahan's lanes of naval power converge on Malta. The alembic appears at the dramatic point – the apex of the V-structure – where the largest scale human institutions – the nation-states – collide in spectacular conflicts of force. True to Burke's rendering of the "alembic," there is always some excess, some significance, that escape from the past or present to the future.

The novel's figural discourse thus situates the epi-phenomenon and the micro-phenomenon, the dramatic action and counter action as the dramatic pursuit and battle between history and the alembic V-structure. The alembic is figured by the V-structure as a vessel that can no longer govern the vessel-as-word and vessel-as-world. For example, Eliot's writings are cast in Fausto's letter as a tragic example of an intellect overwhelmed by those forces it claims to control by means of its expansive literary intelligence; V. enacts the dissolution of Eliot's permanent "tradition" at the level of language and empire. Again, the mis-en-scene of this dramatic action is significant, as it takes place in the Afro-Mediterranean island of Malta during the Suez Crisis.

The Italo-Arabic island of Malta, which was then under British administration, is the linguistic intermediary of imperial Europe and post-colonial Africa. It is also the scene where one civilization-vessel (Stencil's England) transfers its excess to the next (Benny's America). It is where Italian fascism and anti-colonial Arab nationalism (the term

'alembic' is Arabic for "vessel") collide with British monarchical imperialism and emergent U.S. Republican liberalism.

The centrality of Malta as the intersection of these discourses signals the first encounter between the novel's proper objects - Benny's "first (American) intelligence" - with the international order it inherits from the collapsing European colonial world. The novel's rhetorical strategies dramatize the transition as the V-structure, the inanimate, Stencil's quest, and Benny's "first intelligence" attempt to shape that transition into a coherent historical style.

The novel's figural discourse succeeds in beginning a genealogical style. The style would expand to encompass the institutions and characters of that post-WWII U.S. institutional order over the course of Pynchon's following novels. The style constitutes a pre-history of the anthropomorphic figures Pynchon had announced in "Entropy." The style is historically specific: it extends Henry Adams' critique of the U.S. naval historian Alfred Mahan to the post-WWII Mediterranean basin. The novel's play on the word "vessel," the varied sailors of the work (including Benny), and Malta's centrality in the Suez crisis are the ironic double of Alfred Mahan's theories of U.S. naval power. Mahan repeatedly invoked Malta as the key to domination of the Mediterranean Sea.<sup>320</sup> Mahan repeatedly drew the analogy in order to compare the positions of the Mediterranean European powers in relation to position of the United States vis-a-vis the Caribbean Sea. Malta is recast in V. as the stage for both Adams' critique of the institutions of Mahan's

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<sup>320</sup> See Mahan 24. The tense relations between the United States and the Caribbean are pronounced in the novel, especially in chapter XII, wherein the Puerto Ricans of New York clash with the NYPD. It should be remembered that Puerto Rican nationalists attempted to assassinate President Harry Truman in November, 1950. Puerto Rico became the first U.S. Commonwealth in July, 1952; in March of 1954, Puerto Rican nationalists fired pistols from a visitor's gallery into the members of Congress at work in the House of Representatives.

imperial American vision and Eliot's reaction to their post-WWI effects. Their convergence in V. renders the dramatic encounter between Eliot and Adams as an allegory of Pynchon's own genealogical position vis-à-vis his literary predecessors. The stage of that encounter is again the Suez crisis, as the post-WWII American state attempts to situate itself in relation to those historical processes that shaped the Mediterranean world. V. does not elaborate the consequence of that final crisis. It closes the novel's historical chronology with Benny's confused wanderings and the anticipation of a future American power. The transitive force of the American presence is subdued by the novel's emphasis on the transitional processes that persist through shifting geo-political orders. V. is, in this respect, a figural discourse that looks forward to another, global U.S. order.

For example, the novel's recurring invocations of 1898 do not refer explicitly to the Spanish-American War that marks the beginning of American imperialism, its powerful new Navy in the Pacific and Caribbean, or the U.S. engagement of the European empires in several tense geo-political situations of that period.<sup>321</sup> 1898 functioned for Henry Adams as the heralds of a new internationalism in American power for the coming century.<sup>322</sup> The novel is oriented instead towards a distinctly international order in which the United States plays a small yet increasingly significant role. Instead it narrates the "other" war of the last years of the 19<sup>th</sup> century, the Boer war of the English versus the Dutch Afrikaans, as more important than the Spanish-American War. 1898 marks the first imperial skirmishes between the British and French in North Africa and

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<sup>321</sup> These include conflicts with the Germans in Central America (Mexico) and the Philippines, with the British in South America (Venezuela), and with the French in the Caribbean (Haiti).

<sup>322</sup> That internationalism was obscured during the years of Pynchon's first writings by the Cold War strategy of containment that was first applied on the Korean peninsula in 1954. It has recently been revised again, exposing even more forcefully the failure of the anthropomorphic American intelligence.



the Boer War between the British and Dutch in Southern Africa, while 1955-1956 represents the British intervention on the Suez Canal rather than the years following the Korean War. Any mention of the major events in American history between those dates – these include the First World War, the Great Depression, the Second World War, or the Korean War – is but a disturbance at the edges of the book. The United States is compared to Benny on Malta: a recent arrival to the imperial and religious wars of the modern era with the peculiar ability to survive by calculated risk and chance rather than by intelligent design.

These alignments reinforce the dramatic differences between Eliot and Adams; they also suggest Pynchon's emergent genealogy of U.S. institutions and his own figural strategies in relation to a fluid global history. The novel's figurations of Southern European and Northern African civilizations are Pynchon's first elaboration of the relations between Europe and North African, Colonial African, and later Arabic civilizations.<sup>323</sup> This is no simple Orientalism; it is, rather, a reconsideration of the historical arguments of Anglophone literary modernism in relation to a new U.S. global order.<sup>324</sup> The alembic basin of the Mediterranean and the vessel-island of Malta momentarily contain the V-structure and Eliot's monumental theories of poetry. But the alembic V-structure always produces, after Burke, a significant excess. In this case, the Suez crisis opens the alembic V-structure to an emergent American historical order whose being is both futural and transitive.

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<sup>323</sup> John McClure has situated V. in relation to post-colonial and post-structuralist critique of the modern imperial novel and its historical assumptions of individual agency and their relations to the master narratives of the Western world. See "Resisting Romances: Pynchon's V. and Gravity's Rainbow."

<sup>324</sup> V. maps the debt of literary modernity to early modern Orientalism in Chapter 14, and uses that very term to denote the process (445).

The alignment of literary modernity – its hermeticism, its figurations, its cosmology – through the libraries of Alexandria rather than the amphitheaters of Athens is a clear provocation to T.S. Eliot’s poetic philosophy of history.<sup>325</sup> The provocation is played out in the genealogical ruptures that are concealed by Eliot’s monumental thought: when Melanie arrives to perform in Orientalist Paris in 1913, the hermetic music of “Apollo, with his golden lyre” (Melanie exclaims “Father!” before the sight) is disrupted by the dissonance of V’s automations.<sup>326</sup>

The counter-tradition proposed by Pynchon stretches through the “hermetic style” of modern poetry from Poe to Baudelaire and to Eliot and H.D.; it culminates in the modern European novel with Thomas Mann’s epic Joseph in Egypt. V. proposes that the “hermetic style” had absorbed these descendants of the Egyptian hierophants; now

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<sup>325</sup> There is an important Italo-Arabic tradition in modern Italian literature that is expressed most powerfully in the writings of F.T. Marinetti and in the poetry of Giuseppe Ungaretti. Both Marinetti and Ungaretti were born in Egypt, and both were schooled in Alexandria. But Marinetti would later attempt to attach himself to fascism, while Ungaretti did not. The proto-fascism of Marinetti’s Mafarka the Futurist situates Northern African civilization as a predecessor of Italian fascist violence (See Mafarka the Futurist: An African Novel). Marinetti is of particular import to the Anglo-American modernists, but the Anglophone interest in modern Italian poetry of this period is little-known and obstructed to great extent by Ezra Pound’s vitriolic works and support of Italian fascism; Marinetti’s Orientalist writings are echoed in later modern poems such as Yeats’ “Sailing to Byzantium.” Marinetti’s anti-institutionalism, his militarism, and his misogyny are important influences on later modern poetry, as was his showmanship.

The World War One poetry of the Alexandria-born Italian modernist poet Giuseppe Ungaretti represents a different historico-political trajectory than the work of Marinetti; Ungaretti’s poems often invoke Arab-European history within the parameters of French surrealism (see the poem sequences “L’Allegria” and “Sentimento del Tempo” in Vita d’un Uomo: 106 Poesie, 1914-1960 1966.). Where Marinetti was a technophile and anti-humanist, Ungaretti belonged to a more discreet, bourgeois tradition.

<sup>326</sup> Greek legend has it that Apollo’s lyre was crafted for him by Mercury from a tortoise shell.

they reappear amidst the broken, alembic vessels of history. The hermetic design of Pynchon's figural discourse (and the intelligence institutions with which it is concerned) thus dramatizes a version of that historical transition from Arabic to European civilization recounted earlier by Gibbon in his Decline and Fall of the Roman Empire:

According to a new though probable notion, maintained by M. de Villoison...our ciphers are not of Indian or Arabic invention. They were used by the Greek and Latin arithmeticians long before Boethius. After the extinction of science in the West, they were adopted by the Arabic versions from the original Mss and *restored* to the Latins about the eleventh century. [There is no doubt that our numerals are of Indian origin (5<sup>th</sup> or 6<sup>th</sup> century?); adopted by the Arabians about the 9<sup>th</sup> cent. The circumstances of their first introduction to the West are uncertain, but we find them used in Italy in the 13<sup>th</sup> cent.]<sup>327</sup>

Gibbon's claim is obviously defensive: it refuses to locate that major infusion of mathematics in anything but a sanctioned Greco-Roman history. That Gibbon did so to maintain his expertise in precisely that subject is perhaps the other side of the coin. In these defenses (some of them true) there is evident a desire to lift history into the realm of a positive science. The tendency appears with Gibbon's insistence upon causational origins as the foundational method of historical inquiry. Writing nearly a century later, Leo Spitzer discussed the matter from the humanist's position:

The belief in such vicarious realities as words is possible only in an epoch whose belief in the *universalia realia* has been shaken. It is this phantasmagoric climate...in which Rabelais will move easily and naturally, with a kind of cosmic

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<sup>327</sup> The quote is taken from a footnote on page 5 of the sixth volume of Gibbon's study. Gibbon is overzealous in his assessment of their origins, and Simon Singh has more recently argued that while the specific textual origins of European cryptology are uncertain, they are nonetheless marked by the exegetical techniques of Koranic scholarship at the end of the first millenium (The Code Book 16-20, 28).

independence. It is a belief in the autonomy of the word which made possible the whole movement of Humanism, in which so much importance was given to the word of the ancients and of the Biblical writers; it is this belief which will in part explain the extraordinary development of mathematics in the sixteenth and seventeenth centuries- i.e. of the most autonomous language that man has ever devised. (Linguistics and Literary History 21-22)

Spitzer's argument emphasizes a historical process composed of infusions, convergences, and singularities. It is forward-looking and interested in productive comparison rather than petty distinctions and primary causes. Where Gibbon's account is theological and other-worldly, Spitzer's is worldly and theoretical.

V.'s rhetorical turn to the Mediterranean site is closer to the Mediterranean of Spitzer than that of Gibbon. It is a world of transitions and exchanges in which the Suez crisis emerges from a longer historical process that began with the ransacking of the dynastic Egyptian ruins by Napoleon's armies and the continued imperial and colonial strife in the region.<sup>328</sup> It understands the region's current history as shaped in the present through both an emergent U.S. order (a keen transposition of Mahan's Caribbean Sea back to its source) and also through the falling British Empire. And these are in turn personified, rendered human, in dramatic style, as the characters act out the literary impulses, predictions, and failures of T.S. Eliot and Henry Adams. The novel is the world in miniature: an anthropomorphic drama of conflicting forces.

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<sup>328</sup> V. refers to recent crises such as the Arab-Israeli conflict and the struggle over Palestine (238) and the Suez crisis of 1956 as the most recent events in a long history of regional imperialism and war. This history includes the French-British competition for control of Egypt in the 19<sup>th</sup> century. It was Napoleon who brought archeologists, linguists, and printers to the conquest and the immense archeological and anthropological projects that followed unleashed waves of scientific and linguistic innovation that reconfigured the terrain of the emergent Human Sciences, and inaugurated the modern fascination with Arabic hermeticism.

The matter of institutions that appeared with such force in “Entropy” remains however unresolved. As we shall see in the following chapters, their first mature appearance in V. begins the genealogical arc along which post-WWII U.S. institutions will emerge. They make only sporadic but significant appearances in V., and their place in the figural discourse of the ‘arc’ would appear in a mature form until Pynchon’s next major work, Gravity’s Rainbow, over one decade later.

The figural discourse of V. presents nonetheless a mature articulation of Pynchon’s early style. Its ontological prescience is cast over the hermetic landscape of broken vessels as a historical transition from one historical phase to another. The figural discourse renders dramatically in figural prose those epi-phenomenal laws that govern historical time – precisely those laws that Eliot denounced in the writings of Henry Adams. V. returned rhetoric, dramatically, to history.

#### **XIX. Conclusion: “....and even a rainbow”**

V. betrays a tremendous attention to how the work of Eliot and Adams could relate to the post-WWII U.S. novel and, more generally, contemporary thought. Indeed, the novel’s sources are steeped in the thinking of Pynchon’s day as well as its precedents. Pynchon most likely studied both Harvey Gross’ 1957 article on Adams and Eliot, as well as Hugh Kenner’s 1959 book on Eliot, The Invisible Poet, which noted the affinity between Eliot and Adams as well as the importance of the Baedeker travel guides to Eliot’s early French poems.<sup>329</sup> There is significant evidence that Pynchon also read Adams’ minor works as well as the major histories.

The minor works include Adams’ letters of 1892-1918 (published in 1938). A section of those letters, spanning the years 1897-1898 of Adams’ life, resembles an embryonic

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<sup>329</sup> See Kenner 111-114, 81. The Baedeker guides are mentioned continually throughout V.

version of V. The novel repeats one significant portion of Henry Adams' travels through Europe (especially Paris and Italy) as well as northern Africa (especially Egypt), where he was once delayed by a storm much like the one that kills Herbert's father, Sidney Stencil, at the end of the novel. Adams mentions the competition between Germany and England in both North and South Africa, and in a passage dedicated to Germany, describes its state in terms of its "vortical movement." The "vortex" also features as an important term in Kenner's study of Eliot, but it is re-written by Pynchon as the dramatic conclusion of the novel.

The narrative closes twice in Malta; first with Benny wandering in Valletta in 1956, and later with a Moorish vessel that brings Herbert's father Sydney Stencil to Malta after WWI. Both episodes recount a period of crisis: Benny is there during the Suez Crisis, and Sydney appears during the Maltese revolt against the British. The anticipatory intelligence of figural discourse is dramatized in these historical repetitions and transformations that conclude V.

Sydney Stencil arrives by ship in Malta in 1919. The vessel's captain, Mehemet, tells Sydney the tale of Mara, the goddess mother of Malta, who controls the seas around the island and expelled the Moors from the island. As Sydney leaves the island, V sends a waterspout to destroy Mehemet's ship, thus repeating the symbolic expulsion of the Moors (and later, the British). The conclusive vortex that destroys Sydney Stencil invokes an entire modern literary "tradition." The vortex dramatically reconfigures the V-structure as an active force that consumes modernity with the primary image of the modernist poets, made famous in particular by the "vorticism" of Pound's Cantos and Yeats' "spirals."<sup>330</sup> The name "Meroving," which is attributed to the character V at one

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<sup>330</sup> The word vortex obviously invokes Ezra Pound's "vorticist" techniques in the Cantos but it is also an important word in Marshall McLuhan's understanding of both Eliot and Pound. McLuhan, who was a friend, co-national, and collaborator of the famous modernist scholar Hugh Kenner, explores the term in a lecture on Eliot

point, also appears in the “vortical” sequence of Adams’ letters.<sup>331</sup> The borrowed vorticist images assume temporal significance: the years in which Adams’ letters are written coincide with the earliest historical sections of V.<sup>332</sup> The vortex thus closes the historical arc that extends from Adams’ America to Eliot’s England and back again to Pynchon’s America. The novel’s re-enactment of T.S. Eliot is ultimately ironic: it is as though Eliot, and not Adams, were cast in the role of Gerontion.

The final destruction of Mehemet’s vessel invokes the tremendous whirlpool that destroys the *Pequod* in Melville’s Moby Dick.<sup>333</sup> The V-structure is not a purely historical or formal device: it is genealogical. Herman Melville was a distant cousin of both Adams and Eliot.<sup>334</sup> Just as Eliot had cast Adams out from the “sensuous” New England tradition like Milton’s God throwing Satan down from paradise, Pynchon sent Eliot to join them.

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delivered after McLuhan’s famous writings on technology had been widely disseminated throughout the world. The extension of the modernist ideas about technology in McLuhan’s work, though not as clearly magnified as in Pynchon, provides antagonistic support to my thesis. See “The Possum and the Midwife.” Marshall McLuhan: Pound Lecture 1978. Kenner mentions an incomplete collaboration with McLuhan in The Invisible Poet (xiii).

<sup>331</sup> For an explanation of the name “Meroving,” see also A Companion to V (120).

<sup>332</sup> The Letters of Henry Adams: 1892-1918 126-178.

<sup>333</sup> The influence of Melville is particularly strong in the novel. In the first chapter of V, Benny desires, like Ahab, to extinguish the sun. Pynchon’s re-casting of Melville’s nautical saga against Eliot’s “fall into history” revels to some degree in the strong historical pessimism that troubles both Melville and Adams. It is only after a fall into history that the novelist can see “over a great horizon’s curve, comprising, from this vantage, at once, at least one century worth of wavelets” (489).

<sup>334</sup> See the genealogical chart included in Eric Sigg’s “Eliot as a product of America” (16-17). Eliot was a distant cousin of Adams on his maternal grandmother’s side, and of Melville on his paternal grandfather’s side.

V. begins the genealogical enterprise that would consume the figural discourse of Pynchon's later works. It is a profoundly Vichian proposition. The foundational orders of historical *poesis* began for Vico with the hieratic culture of the Egyptian dynasties. Pynchon continues the modern humanism of Vico's figural discourse by affirming against Eliot that *poesis* is never guaranteed success by the mere accumulation of monumental forms; the broken vessel of Malta is the culmination of a modern archeology of ruin, just as Eliot's poetry is the monument of a falling empire and its institutions. The cyclical imperial expansion and collapse also sustains the dynamic tension between inanimate force and human rhetoric. In the wake of that ruin, V. is a novel of transition and becoming; Malta's occupation during the Suez Crisis re-opens the V-structure towards the future, the uncertain, and America. Its attitude, if it can be described as such, is divided between an Adams-like rendering of supersensual force and the singular, Eliotic authority of the individual intellect. These attitudes are dispersed in the culminating pages of the novel between Fausto Maijstral and Rachel Owlglass, among others, who illuminate the arcing V-structure's trajectory with anticipation and resolve.

In his letter to Paola, Fausto III optimistically notes that only children can recognize that history continues after WWII and that it is they, not Paola's dead mother, the inanimate Fausto III, nor V's fascism that will determine the future. Fausto Maijstral is central to the genealogical dynamic of the novel: his letter to Paola bequeaths to the children a pessimistic inheritance - but he is also V's child.

The pessimism inherited by Paola Maijstral, Herbert Stencil, and Benny Profane is profoundly genealogical. It does not lead however to a restoration of the modern novel's dynastic order but rather to a dramatic contest between human intention and the vectors of historical force. These are dramatized as the novel's figural discourse. Genealogy is thus introduced as an engine of figural discourse.



But genealogy should not be confused, after Eliot, with a biographical interpretation of the novel. Nor should it be confused with the “generational” model of intelligence that is habitually ascribed to modern literary movements as a substitute for the dynastic, patriarchal mode of the 19<sup>th</sup> century (such as Fausto’s “generation of ’37). The critique of the generational mode takes its most articulate form with Rachel Owlglass’ critique of the Beatnik-like ‘Whole Sick Crew’ that includes Stencil, Benny, and Paola in New York. Rachel’s critique is of particular import to both the novel’s figural discourse and to where V. positions itself in relation to other works of American literature. Rachel tells Benny:

Once I will say it, is all: that Crew does not live, it experiences. It does not create, it talks about people who do. Varese, Ionesco, de Kooning, Wittgenstein, I could puke. It satirizes itself and doesn’t mean it. Time magazine takes it seriously and does mean it.<sup>335</sup>

Rachel’s speech is the clearest articulation of Fausto’s historical pessimism vis-à-vis the generational “bloc.” It renders the futural intelligence of figural thinking as a strategy of singular intention. The strategy relies upon the trace of intention left in language by the intervention of a rigorously prepared human *poesis*.

V. argues that the modern historical novel sustains in its most rigorous elaborations the intelligence to think through the inhuman geo-political and linguistic processes and dynasties of the modern world. As a figural process of becoming, its genealogical tendency must contend with emergent and convergent human and inhuman historical

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<sup>335</sup> V. 409. Rachel’s polemic contains several implicit references. The language of the anima/inanimate supplants the Eliotic diction of “experience.” The reference to *Time* magazine echoes the famous lines from Allen Ginsberg’s poem “America.” It must be noted, however, that Benny echoes Adams in his reply to Brenda, his new expatriate lover, in the final pages of chapter 16: “The experience, the experience. Haven’t you learned? Profane didn’t have to think long. ‘No,’ he said, ‘offhand I’d say I haven’t learned a goddamn thing.’” (491)

dynasties. These are configured as the inanimate and the V-structure, and are a variant version of a problem in T.S. Eliot's 'tradition' that was best summarized by R.P. Blackmur:

But there are other accounts of Eliot's criticism which it might be more immediately valuable to take up. There is his indissoluble connection with human behavior; there is his radical allegiance to language; there is his sense of the constant pressure into the mind - into life - of forces for which neither behavior nor language can cope but to which they must respond.

What I am saying is that Eliot's great concern with order and tradition and hierarchy is in part a result of his direct and constant perception of disorder or of unknowable orders.<sup>336</sup>

Eliot's "unknowable order" is mapped over the geo-linguistic course of the inanimate and its rhetorical nemesis, the figural V-structure. The exchange between the epiphenomenal geo-linguistic order of history and the micro-phenomenal order of language cast Eliot (and the modernists) back into the torrent of history. Eliot's fundamental examples, such as the transition from the nascent humanism of the Elizabethan theater to the absence of a dramatic verse in the modern world, are haunted there by the supersensual forces of Henry Adams. It is at that intersection, where hermetic style confronts the modern institution and its instruments of power, that genealogy appears as a current of Pynchon's mature discourse.

V. begins Pynchon's engagement with Faulknerian genealogy which will prove over his following works to sustain the most complicated figural elaborations of historical poesis. The genealogies will not repeat that conflict through what Joseph Frank described as the spatial form of the modern novel "with its larger units of meaning

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<sup>336</sup> "In the Hope of Straightening Things Out" 136-137.

[that] can preserve coherent sequence within the unit of meaning and break up only the time-flow of the narrative" (18). The V-structure spans the novel's micro-phenomena and epi-phenomena, but its alembic form is not one of containment or pastiche. Rather, it renders rhetoric as a temporal process whose vectors and deviations can only be captured, and only temporarily, by incredibly dense figures. Those figures would achieve in Pynchon's later works a genealogical, rather than monumental style. It was from Faulkner, rather than Eliot, that Pynchon's most elaborate temporal figurations of the figural arc of history would emerge.

Pynchon was thus forced to contend with modernist style in a historical, genealogical mode rather than a spatial, monumental form. As I noted earlier, Pynchon's early story "Entropy" had left T.S. Eliot - and modern rhetoric in general - to the side of the matter.<sup>337</sup> But V. was catalyzed by several, difficult questions Eliot posed to modern literary thought: could the "tradition" pose "sensuous monuments" against the emergent global order of institutions? And were the modes in which T.S. Eliot and Henry Adams wrote - poetry, essays, novels, drama, and history - suitable to the new situation? In short, could prose narrative forms elaborate a new literary intelligence with the erudition of other modes such as poetry and philosophy?

The historical novel thus afforded the forum within which to resume the figural discourse of "Entropy." The modern authors - Joyce, Mann, and Faulkner, especially - had written in the historical style, but they had not reproduced that previous mimetic faith in the relations between words and objects that was consistent in Scott, Cooper, Stendhal, or Tolstoy.<sup>338</sup> V. proposes in its revival of the form that the historical novel

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<sup>337</sup> Robert Newman has correctly noted that Eliot makes a significant appearance in Pynchon's short story "Low-lands" of the same period. See Newman 15, 21.

<sup>338</sup> As we shall see in later chapters, it was Faulkner who exerted the most significant influence on Pynchon's mature style.

could elaborate an unprecedented figural discourse of the literary, political, and scientific institutions of post-WWII modernity. The dramatic casting of the novel's figural discourse situates V. against the other massive American novels that are usually selected as characteristic of the period traversed by the historical arc of V. Those include the historical romance (Gone with the Wind), the experimental colossus (The U.S.A. Trilogy), the genealogical novel (Absalom, Absalom!), or the realist epic (Studs Lonigan). V. *sounds* its adoptive world, as all historical novels must, seeking echoes of its creation (1963) in the massified structures of a previous world whose peaks have begun to show as their fluid environment recedes. The result is something between a bestiary and a modern novel of ideas. V. is to the period 1898-1956 what the letter A is to Hawthorne's America or what the rose is to Umberto Eco's late Middle Ages. It triangulates world-historical events with the possibilities of figural thinking and the tremendous problems posed by to language and intelligence as they drift towards the "inanimate" in a transitional age. In this respect, it asserted itself as distinct from the other massive novels that attempted to define the same period in American or European history.

The figural discourse of V. followed Henry Adams in history and T.S. Eliot in poetry, but it was also wholly unique. V. staged T.S. Eliot and Henry Adams as the American intellectuals of the period 1898-1956 who strained to new literary styles after the modern aesthetic had broken, as Joseph Frank noted, the Naturalist foundations of the historical novel into separate "units of meaning;" but V. does not reconcile naturalism with what Joseph Frank calls the "nonnaturalistic style" of modern aesthetics (60). Rather, V. asserts a new style that is engaged in a counter-mimetic figural discourse with a new historical situation. A secondary, rigorous human intelligence continually interferes in the V-structure's attempt to impose a modernist ambivalence on historical life: if the shattering of the alembic-as-word (and as anima) prefigures the inanimate, it also necessitates the reply of a figural discourse - a Vichian *poesis* of historical contingency and possibility.

The unique rhetorical trajectories that had been outlined by “Entropy” thus reappeared as V.’s more ample and mature figurations. The opening mis-en-scene of “Entropy” depicted a post-WWII American nation state that absorbed modern thought into a new anthropomorphic intelligence. This order posed several formidable problems to the possibilities of literary mimesis. Foremost was that of how to render the literary intelligence as a historical *poesis*. Pynchon proposed in “Entropy” that figural *poesis* could render the new national institutions and new theories of language and communication. Henry Adams offered a distinct style for the consideration of such change. Adams understood both human intelligence and the errant, aggregate power of the new institutions as temporary repositories for swift historical forces. Adams’ style was without a viable scientific model, however, as the “degradationist” argument had largely been refuted by the majority of U.S. historians and superseded in philosophy by American pragmatism (to which Eliot adhered). Its only area of success and acceptance had been with its resurrection in the post-WWII fields of cybernetics and where it in turn influenced rocketry, cryptology, and modern biology.<sup>339</sup>

Thomas Pynchon rendered the scientific rhetoric of the Adams-Eliot divide as one central aspect of that emergent drama in V. The scientific language of their exchange is one of the few points in which the positive influence of Adams on Eliot is clear. The figure of the V-structure (it is a “mercury-catalyst”) is a complex reformulation of both Eliot’s chemical tropes of literary-historical order and Adams’ interests in thermodynamics. The electro-mechanical transformation of chemical life into the

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<sup>339</sup> These three sciences would displace what Mahan had theorized as the centrality of naval power in U.S. foreign policy. The failing role of naval power in V. and the emergence of cryptology within the novel anticipates Gravity’s Rainbow, which narrates the convergence of cryptology with rocketry and telemetry. The consonant role of cryptology in biology during the post-war period is discussed by Lily Kay in Who Wrote the Book of Life?: A History of the Genetic Code (2000).

inanimate is conceded: the novel then modulates that historical situation in dramatic prose. The “mercury-vapor lamps” that illuminated the first glimpse of the V-structure on the Norfolk street transposed the institutional intelligence of ‘Entropy’ to a historical *mis-en-scene*.

The figural discourse continued the dialogue between the apostrophic rhetoric of human *poesis* and the inanimate, (sensual and supersensual) institutional forces of history. The dialogue is couched in the dramatic exchange between scientific and literary-historical thought, Eliot and Adams, Benny and Paola, Stencil and V, language and history. The stakes of that conflict are the future of human, historical life and language.

Henry Adams and T.S. Eliot’s writings suggested distinct trajectories for the historical novel that could amplify Pynchon’s study of the present. Pynchon’s figural and historical discourse would absorb their styles and craft them in a dramatic exchange with the anthropomorphic institutions that had mimicked the human form in his earlier “Entropy.” It would follow what Kenner described as Eliot’s “knowing mimicry of the respectable” (99). But *V.* initiated a new genealogical strategy of figuration that was radically different from that of Eliot’s poems or Adams’ histories. It was William Faulkner, rather than Thomas Pynchon, who was the first to recognize the genealogical potential of Adams’ work (which Eliot had belittled), as we shall soon see. Pynchon’s later figural discourses would have to sustain both the supersensual historical energy of Adams, the genealogical schemes of Faulkner, and the sensuous monuments of Eliot. Pynchon would use them all to amplify the mimetic, national crisis that was anticipated in “Entropy” in order to pit two schools of objective modern U.S. thought – that of sensuous, Anglophone formalism and that of Americanist historical realism – against one another in the post-war arena of U.S. global becoming. The result did not resemble any previous style or discourse and its arguments make epistemological claims that

neither modernism nor realism could have sustained; but the claims would have been impossible without their prior failures.

The V-structure of the “Norfolk street” was the first fully conceived figuration of Pynchon’s mature style, and it contains the rudimentary trajectories of its future genealogical elaboration. It associated temporality with discursivity, thus restoring the modern U.S. historical novel to an intelligent encounter with the present. Thomas Pynchon’s first major historical novel, V. was the second movement in a lifelong alternation between shorter fiction, set in the present, and longer, more comprehensive historical novels that expanded upon, deviated from, and generally re-interpreted the shorter works. This alternation, which resembles the “flip-flop” switch that fascinates the jazz musician McClintic Sphere in V., enacts a pattern that, beginning with V., situates Pynchon’s entire career along a secondary trajectory that extends the arcing figures of his novels through the present.

Thomas Pynchon’s following two works, The Crying of Lot 49 and Gravity’s Rainbow, would engage the post-V. scene of the 1960’s and the pre-V. era of World War Two, respectively. Engineers and bureaucrats will replace the doctors and spies of V. as the hierophants of a new institutional and historical order in those two subsequent works. Pynchon would elaborate his Faulknerian genealogical schemes for them, as we shall, from V.’s Kurt Mondaugen and the characters involved in the Yoyodyne Corporation, thus extending the figural arc that had begun with Adams and Eliot from the earth and sea into the mercury lit expanse of the sky.

The path of that arc extends across both Eliot and the cryptologists. T.S. Eliot’s American followers, the New Critics, would sustain a long exchange with American cryptology and its monarch, William Friedman, in the decades that followed. Eliot and the New Critics shared many ideas with modern cryptology, chief among them a tendency to distrust the historical perception of language. But they diverged on other

matters, as the New Critics insisted upon the primacy of the poetic object and the valuation of ambiguity over and against the mathematical and unambiguous interpretations of cryptology. Pynchon would later render that divergence in a genealogical arc that began with the shattered, earthen vessels of the homely New Critics and ended with the propulsion of institutional cryptology into celestial space. As we shall see over the course of the following chapters, that course would begin during the 1930's, the single decade that appears least often in Pynchon's narratives of twentieth century U.S. history. It is a decade hermetically contained, and through whose shell the titanic figures of V. had dramatically struggled to perceive the mercury-lit streets.



## 5. THE HERMETIC DIVIDE

### XX. The Agony of Succession

Mid-way through Thomas Pynchon's *V.*, the younger Stencil interviews a German engineer named Kurt Mondaugen in the cafeteria of the Yoyodyne Corporation. The Yoyodyne Corporation was a disguised version of the ITT Corporation, and in particular the constellation of facilities whose geographic center was ITT's Nutley, New Jersey corporate park.<sup>340</sup> The Stencil-Mondaugen interview constituted Pynchon's first significant modulation of the figural arc by absorbing into its discourse combined scientific and genealogical forces of the new post-WWII U.S. institutional meshworks.

Pynchon's figural discourse absorbed specific methodological elements with the Stencil-Mondaugen interview. The methods at stake were classical. Stencil's inductive method (which moved from particular phenomena to history) dramatized a tradition of British empiricism; Mondaugen's deductive method (that moved from history to specific phenomena) dramatized that of German idealism. The methods, however, converged in a specific institution - the post-WWII U.S. multinational corporation. Their convergence returned the novel's poesis to the figuration that Pynchon had proposed in "Entropy":

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<sup>340</sup>Pynchon specifically cites Yoyodyne's Nutley, New Jersey park. A large outdoor sculpture once graced the campus of ITT's Nutley campus. The sculpture was a metal arc, approximately two stories high, with a pendulum swinging from its apex. The reference has never been noted in any of the critical or source-related works about Pynchon's novel, yet it is the probable inspiration for Pynchon's figural arc. I will return to ITT's significance in chapter seven.

what forces had the post-WWII U.S. institutions absorbed, and how did modern literary thought respond to them?

The Stencil-Mondaugen interview was staged where a horizontal, temporal axis (Stencil's inductive historical quest) and a spatial vertical axis (Mondaugen's deductive institutional science) collide. Where the temporal vectors of Stencil's quest attracted the majority of the novel's historical discourse, Kurt Mondaugen's spatial axis will dominate the ensuing figural proposition. The two are inextricably joined: Stencil seeks to confirm the story that Mondaugen may have encountered the elusive V. and his father, the elder Stencil, when the engineer sought refuge inside a compound of German exiles and other expatriates during a 1922 anti-colonial revolt in South Africa. In other words, Stencil introduced the premise that Mondaugen concludes, not with his narrative, but with how his South African expedition culminated in his current institutional work.

Mondaugen's scientific work in South Africa was designed to capture extra-terrestrial electro-magnetic signals and record them (the work, known as radio astronomy, was first practiced when late 19<sup>th</sup> century European scientists discovered naturally produced signals while transmitting artificially generated electricity through the atmosphere). Mondaugen's post-WWI research was interrupted however by a native rebellion against the local white South African colonists. He sought refuge in a German's walled estate during the revolt (the area "had once been a German colony").<sup>341</sup> To continue his labor, he improvised energy sources and recording devices from various materials. One such instrument (a modified gramophone) recorded the celestial electro-magnetic bursts which Mondaugen called "sferics." Several of the compound's residents suspected the reclusive Mondaugen was a spy and they attempted to read the recorded

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<sup>341</sup> A Companion to V. provides the facts of the region's colonial history as it pertains to the novel (115-140).

signals as if they were encoded messages. V's cohort, lieutenant Weissmann, joked after reading them that "he is a bad cryptanalyst" (266).

Pynchon's correct use of the term "cryptanalyst" betrayed a significant anachronism: the term "cryptanalyst" was coined by William Friedman in roughly the same year that Mondaugen's scene was set (even if it was not commonly used in dictionaries or technical jargon until the late 1920's). The anachronism invokes the fact that cryptology was then shifting from the amateur literary culture of "chamber analysis" (Mondaugen's room in the compound is such a chamber) and was slowly integrated into the institutional hierarchies of the early 20<sup>th</sup> century. Mondaugen's career traverses that entire history as he transformed the solitary confines of chamber analysis into the collective labor of corporate engineering projects, where he was hired by Bloody Chiclitz to work at Yoyodyne developing the telemetry devices that sent coded signals from rockets to earth-bound receivers.

The anachronistic "bad cryptanalyst" thus implied the institutional drift of several new sciences (ballistics, cryptology). The most significant of these was the convergence of cryptology with radio astronomy, the joining of which would later configure governments, universities, and industries into vast institutional networks such as the Yoyodyne Corporation. Pynchon's historical discourse, and the rhetorical force of his figurations, can only be understood hereafter with respect to the convergence of cryptology and electro-magnetic science (in Mondaugen's account, "cryptanalysis" and "sferics") during the inter-war period. The seeming chronological gap in Pynchon's narrative (between 1922-1956) buzzed with an invisible traffic that inexorably moved towards a cohesive, post-WWII institutional form in the Yoyodyne Corporation and "people like the State Department and NSA." V. offered an account not of a being ("people"), but a becoming. The novel's ontological shift from a priori objects to processes that continually shape the present and future allowed a genealogical problem

to burst from the V-structure for a brief moment, and I will return to this problem at the chapter's conclusion.

The matter at hand is that of understanding how the figural arc's institutional vector related to the dramatic literary problems recounted in the previous chapter. Pynchon obviously recognized that Henry Adams had been the first U.S. writer to approximate thermodynamics in literary rhetoric; but he was also the first to comprehend how human institutions had become dynamic repositories for vast flows of non-anthropomorphic, intelligent behavior.

V. specifically elaborated two distinct yet interconnected trajectories with respect to Adams' institutional *poesis*. The first was the extension, through Kurt Mondaugen, of thermodynamics to electro-dynamics. The transition made possible both radio astronomy and wireless telegraphy, from there converged with cryptology, and found an institutional form at mid-century. The second matter was concerned with the divergent and convergent lines that joined linguistic science to modern literary style and cryptology. The two emphasized the novel's ontological shift by stressing philosophical questions of language specific to the novel's historical domain.

Wiessmann's "bad" cryptanalysis of Mondaugen's sferics offers an example that is central to this matter. The cryptanalysis reveals a quote from the German philosopher Ludwig Wittgenstein's Tractatus Logico-Philosophicus (published also in 1922): "DIEWELTISTALLESWASDER FALLIST ("The World is all that is the case"). The decryption and the resulting allusion invoke the entwined histories of three distinct sciences - linguistics, cryptology, and literary criticism. For example, Wittgenstein taught at Cambridge University together with Alfred North Whitehead and Bertrand Russell in the early 1930's. Wittgenstein was deeply involved in the emergence (and critique) of new mathematical theories of language and logic. His theories and those of his colleagues would transform British Intelligence institutions: the famous WWII

British cryptologist Alan Turing studied at Cambridge under Wittgenstein, Whitehead, and Russell. The later novel Gravity's Rainbow addressed that transformation in the context of U.S.-British intelligence operations during the war.

V. was concerned however with a different yet related trajectory with respect to modern linguistics. Beginning with V., the figural arc would cut through the inert matter of language and return it to a labored historical significance. Pynchon's V. proposed that historical significance could only be attributed to language by the responsible and inventive labor of historical human thought. Thought imposed a form upon the entropic waste generated by history; it was like the heat produced by electricity traveling along a wire.

Pynchon "dissolved" linguistic objects into a fluid discursive matter whose temporary institutional aggregations were of lesser historical significance than the processes that preceded them. Pynchon's V. engaged his predecessors, and T.S. Eliot in particular, at select points and exceeded them in proposing a more coherent historical discourse. After all, the institutions had attempted as much, and only a mind capable of exceeding their power could impose its will upon language and history in such a way that could explain them in a manner they could not. The novel's argument certainly did not rely upon subjective categories such as "paranoia" or "anxiety" or end merely with an assertion of some selfish authorial intent; Pynchon's V. emerged rather from the agony of a succession that displaced all its precedents, including Thomas Pynchon, and opened the modern novel again to history.

## **XXI. The Rise of Cryptanalysis**

The reading and interpretation of codes and ciphers (or cryptanalysis, as it would later be called) was in an ascendant phase during World War One. Complex exegetical systems were developed by the primary combatants to unravel enemy communications

and make them intelligible. Cryptanalysis had generally gained the upper hand over cryptography, or the composition of codes and ciphers. Mercury, the courier, was everywhere besieged.

The collection of the communications signals was the first step in cryptanalysis. Enciphered and encrypted communications were simply more widely available to the cryptanalyst during the war. Historians have most often attributed the ascendance of cryptanalysis to this availability, which resulted from a technological shift. U.S. intelligence historian David Kahn and the British historian Simon Singh have both concluded that wireless radio communications gave the advantage to cryptanalysis.<sup>342</sup> Kahn argues repeatedly in his classic work on the subject that the “telegraph created modern cryptography, the radio, modern cryptanalysis” (The Codebreakers 299). The French historian of technology Armand Mattelart has also endorsed this weak determinism:

The major lesson the American government drew from World War I was strategic. In the course of the conflict, a technological leap forward had occurred: the development of powerful radio transmitters and listening stations, the coding of messages, the perfecting of mobile communications with cars and airplanes, radio navigation systems; and in 1915 Germany had taken the initiative of broadcasting news bulletins by radiotelegraph on the war operations and these were picked up by the foreign press.<sup>343</sup>

Technological determinism does not account for the role of literary humanism, and philology in particular, in cryptanalysis. The means of transmission and the methods of analysis had developed from the entirely different fields of 19<sup>th</sup> century thought.

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<sup>342</sup> Singh describes it in general terms as an “intellectual arms race” between the two areas (The Code Book xiii).

<sup>343</sup> Mapping World Communication 62.

Wireless telegraphy emerged from thermodynamics, where cryptanalysis had emerged from the hermeneutic techniques of literary humanism that were refined to attack technological advances during the war. Furthermore, the hermeneutic and technological convergence was accelerated by a third factor: the replication of a standard institutional model for modern cryptology. The ascendance of cryptanalysis must be understood as an example of converging systems rather one of causal sequence.

Wireless telegraphy had emerged from a modulation of thermodynamics that resulted in the field of electro-magnetic theory. Cable telegraphy, for example, had posed a thermodynamic problem because the electrical signal encountered heat resistance as it traveled along a closed wire, an effect that both lessened the effective working energy of the system and also delayed the signal; it was this delay, for instance, that prevented the synchronization of transatlantic clocks during the late 19<sup>th</sup> century. Clerk Maxwell had theorized however that electromagnetic waves might share the qualities of light waves and that heat resistance to induction might be overcome if electrical currents could travel as did light waves through the atmosphere. Wireless telegraphy was thus made possible with the practical extension of 19<sup>th</sup> century electro-magnetic theory into the atmosphere:

Heinrich Hertz (1857-94), a pupil of Hermann von Helmholtz, saw that the problem [of how an electric field produces a magnetic field] would be solved and Maxwell's theory confirmed if he could show that electromagnetic waves, generated by a changing or oscillating electric current, traveled through space with the same velocity as light.<sup>344</sup>

The French mathematician Henri Poincaré noted of the new field of electro-magnetics that: "the instantaneous propagation of induction is a conclusion that the old

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<sup>344</sup> Norton History of Technology 373.

[Newtonian] theory cannot escape.”<sup>345</sup> The problem of projecting electro-magnetic currents into space (instead of along a wire which limited the “instantaneous propagation” of a current’s travel) had, for Poincare` and others, a cosmological weight bearing upon its proof: it could begin to engage space as a dynamic field of interacting forces.

By 1889, Hertz had invented a device that could measure short waves of electromagnetic current in space, thus proving Maxwell’s theory that electro-magnetic waves behaved as light. It was only with the Italian inventor Guglielmo Marconi that Maxwell’s theories and Hertz’s experimental confirmation were rendered practical. Between 1895 and 1901, Marconi patented, exhibited, and developed the increasingly powerful wireless transmission devices that he invented. He later achieved commercial success by selling them primarily to nautical industries that specialized in oceanic commerce.<sup>346</sup> Marconi’s invention also made possible the discovery of radio astronomy. Charles Nordmann, experimenting with Hertzian waves in the French Alps, discovered solar flares that registered as electrical signals on wireless frequency detectors; another inventor, the Russian A.S. Popov, used a receiver to detect radiation from bursts of lightning, and thus founded the science of meteorology.<sup>347</sup>

Wireless telegraphy also found another practical application in the national military institutions. Beginning with the Russo-Japanese war of 1904, wireless telegraphy was incorporated extensively into military communications. During WWI the wireless frequencies buzzed with thousands of messages every day, thus providing

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<sup>345</sup> *ibid.*

<sup>346</sup> Frances Donaldson’s book The Marconi Scandal describes the difficulty that faced the assimilation of Marconi’s inventions into the British state economy in the period following 1910.

<sup>347</sup> *ibid* 379-380.



cryptanalysts with an abundance of material challenges that sharpened their techniques. But wireless technology only transmitted the sophisticated cryptographic systems: it did not provide the systems of analysis and interpretation. Cryptanalysis was not so much determined by wireless technology as it was a counter-attack based upon pre-existing techniques that exploited the primary security weakness of wireless: the unlimited accessibility of enciphered or encoded languages in the atmosphere. Cryptanalysis imposed an intelligible form on the scrambled chaos of the varied wireless frequencies. The battle between cryptographers and cryptanalysts had in its millennial history assumed the properties of a sound wave, and the WWI cryptanalysts were carried upon a furious crest for the remainder of the war.

There is however no strict causal relation linking the wireless technologies and analytical systems of military cryptology during World War One. Modern cryptanalysis had its beginnings in the Human Sciences rather than with engineering (as had thermodynamics). Ciphers and codes were re-introduced first by archeologists during the mid-19<sup>th</sup> century (and independently of telegraphy), and later sustained by literary writers such as Poe, Verne, Doyle, and others. The science was further sustained by academic humanists and literary amateurs who, as I noted in the second chapter, converged in the U.S. Department of War during WWI.

Both the United States and England relied heavily upon literary humanists to perform cryptanalysis during World War One. Historian Simon Singh has noted that “In Britain, Room 40 had always been dominated [since WWI] by linguists and classicists....” (The Code Book 160). One of the more important figures in Room 40 was Oliver Strachey, the nephew by marriage of Bertrand Russell, who would later replace Herbert Yardley as the chief organizer of Canadian intelligence during WWII.<sup>348</sup> The British cryptanalytic

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<sup>348</sup> Oliver was also the brother of Lytton Strachey, the famous British biographer, literary essayist, and associate of the Bloomsbury Group. On the history of Oliver Strachey’s involvement in Room 40 during World War One, see The Codebreakers 309.

services of Room 40 were augmented by Military Intelligence-1(b) during the war, which was staffed also with modern philologists, linguists, and classicists.<sup>349</sup>

WWI U.S. cryptology had emerged from specialized literary and regional political discourses. Those included the highly charged American political atmosphere of mid-western populist and reformist argument, the Bacon-Shakespeare debate, and the hermetic style of modern literature which ranged from modern poetry to the detective novel. Like England, the United States developed its WWI cryptanalytical systems on the foundations of literary humanism. The chief figure among them was Dr. John Matthews Manly at MI-8 in Washington D.C. The MI-8 offices were staffed with humanities professors from several major U.S. universities (and particularly from the University of Chicago), who trained young code clerks, interpreted captured enemy communications, and supervised the other area of military cryptology known as cryptography, or the writing of codes and ciphers, to ensure their secrecy before they were used.

Where MI-8 was charged with cryptanalysis, the U.S. Army Signal Corps was responsible for developing cryptography, or new secret communications systems, in the theater of war. David Kahn described the arrangement:

It was obvious, upon the arrival of the first token units of the American Expeditionary Force in France in the spring of 1917, that the A.E.F. would have both cryptanalytic and cryptographic work to do. Consequently, General Orders No. 8 of July 5, 1917, which established the A.E.F. headquarters organization, provided for these functions. It assigned "American codes and ciphers" to the Signal Corps but gave "policy regarding preparation and issue of ciphers and

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For the history of his role in Yardley's later displacement from Canadian intelligence during World War Two, see The Reader of Gentleman's Mail 213.

<sup>349</sup> The Codebreakers 309.

trench codes” to the Intelligence Division, probably because this was also charged with “enemy’s wireless and ciphers” and “examining of enemy’s ciphers.” Having the cryptanalysts supervise the cryptographers was excellent in theory – and it worked out fine in practice.<sup>350</sup>

The effective wartime cooperation between U.S. cryptanalysis and cryptography rested on the fact that the two groups were fortified by the hermeneutic strategies, linguistic rigor, and myopic skill of philology and literary humanism. The above-cited U.S. Army’s Signal Corps A.E.F. headquarters in France was also staffed with several professors of literature and languages as well as notable amateurs (the Baconist William Friedman was also stationed with them).<sup>351</sup> The cryptanalysts and cryptographers combined their efforts to attack and overcome the security weaknesses of wireless telegraphy. It was critical, for example, that MI-8 cryptanalysts and Signal Corps cryptographers understood the basic difference between codes and ciphers. The distinction announced the twilight of humanism in military cryptology.

Literary humanists were ideal laborers during the early years of modern U.S. cryptology because they maintained two distinct versions of the term “code” in their professional terminology. The first was specifically cryptological. “Codes” had achieved a general currency in the mid-19<sup>th</sup> century, as with the Morse Code that was used for commercial telegraphy. The term also carried a more specific cryptological significance, which Simon Singh has described:

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<sup>350</sup> The Codebreakers 326.

<sup>351</sup> See Kahn 333. J.R. Childs was among the group, and he would later work as a U.S. ambassador to several countries and also publish studies of Italian and French authors (The Codebreakers 337). The Victorianist Richard Altick was perhaps the first author of the post-WWII era to note the presence of so many humanists in MI-8. See The Scholar Adventurers 3, 202. Altick’s 1960 book Preface to Critical Reading followed the pedagogical example of the style manual set by Manly before him.

The term *code* has a very broad meaning in everyday language, and it is often used to describe any method for communicating in secret. However...it actually has a very specific meaning, and applies only to [what in cryptology is known as] a specific form of substitution.... Technically, a *code* is defined as a substitution at the level of words or phrases, whereas a *cipher* is defined as a substitution at the level of letters. Hence the term *encipher* means to scramble a message using a cipher, while *encode* means to scramble a message using a code. (The Code Book 29-30)

Literary humanists had long understood the term “code” in the manner that Singh describes. The term also carried a secondary significance, since the deciphering of the Rosetta Stone, which was particular to literary rhetoric.<sup>352</sup> For example, Hawthorne writes in his preface to The Scarlet Letter, entitled “The Custom- House,” that “according to the received code in such matters, it would have been nothing short of duty, in a politician, to bring every one of those white heads under the axe of the guillotine.”<sup>353</sup> The term “code” has a dual usage in the sentence. It puns on an imaginary book, or actual “code,” that contains in turn the proper (or, in this case, ruthless) political regulations of the age. But “code” is also a substitute for “custom” in that it refers also to social mores and suggests a social or ideological understanding of a “code” (which persists in U.S. literary criticism to the present). Hawthorne’s “Custom-House” was metonymical in that it substituted a “code” for the social edifice. The Scarlet Letter continued from that premise as it invited the reader to “de-code” the varied customs/codes evident in the novel. The novel did not become a “code book” (in which certain terms or letters are equivalent to others) but a rhetorical intervention that disrupted orthodox codification with historical and discursive disparities.

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<sup>352</sup> John Irwin’s study American Hieroglyphics remains both a classic history of this literary phenomenon and an example of the term’s usage.

<sup>353</sup> The Scarlet Letter 45.

Philology was thus predisposed to cryptology during the pre-WWI era because it had sustained this functional, if vague, understanding of “coding.” Terms such as “code,” “decode,” “and “decipher” loosely carried the multivalent significance of language as a dynamic and flexible historical entity, rendering it a tenuous “alembic,” as it were, capable of containing some pointed figurative significance (as in the decayed house that is the concrete double for Hawthorne’s criticism of his local politicians). The practice was retained in post-WWI literary criticism and other sciences (anthropology is the most important example) where this vestigial definition of ‘coding’ persisted as a form of meaningful substitution.

Umberto Eco’s systematic history of the term “code” in the 20<sup>th</sup> century sciences remains definitive. Eco defines three types of codes: “paleographic” (as in the ancient *codex* which metonymically substituted a book for its paper), “correlational” (as in the closed system of the Morse Code), and “institutional” (as in a code of ethics, which is instructional and somewhat open-ended) (Semiotics and the Philosophy of Language 165). Hawthorne’s example from The Scarlet Letter might be said to constitute an exception, as it combines the third (a set of social instructions) with the metonymic properties of the first (a poetic substitute). Literary humanists had sustained ample historical and technical definitions of “coding” that facilitated their cryptanalysis during WWI. That shift constitutes the historic “missing link” between the more literary 19<sup>th</sup> century usage of the term and its later proliferation in the structuralist “code wave” of the 1950’s described by Eco (166).

“Codes” and “ciphers” became more highly specialized during the war. They would no longer be considered as synonymous with “part” or “whole” as Hester Prynne’s “cipher” letter was related to the “social code” in The Scarlet Letter. In the more precise military redefinitions, a cipher-text consisted of individual letters (rather than words)

that were systematically reorganized to confuse enemy cryptanalysts. William Friedman described the difference in his NSA lectures:

In ciphers or in cipher systems, cryptograms are produced by applying the cryptographic treatment to individual letters of the plaintext message, whereas in codes or code systems, cryptograms are produced by applying the cryptographic treatment generally to entire words, phrases and sentences of the plaintext messages. (12)

As cryptanalysis shifted from codes (words and phrases) towards ciphers (individual units of language) during the war it adopted a systemic understanding of how cipher letters could be organized. This shift would begin cryptology's drift away from the inductive empiricism of philology towards the deductive methods of mathematics and modern linguistics during the post-WWI era. Cryptanalysis began to depend increasingly upon mathematical methods (such as frequency analysis, which applied laws of mathematical behavior deductively to linguistic units). It was with the deductive shift towards ciphers that literary humanism's historic role in cryptology began to recede. Literary humanism had sustained an amateur form of cryptology during the late 19<sup>th</sup> and early twentieth centuries. It converged during WWI with wireless telegraphy from differing pre-war scientific debates, but the two would not have merged had the wartime transition to ciphers not been preceded by an institutional transformation of cryptology.

During the war, the cryptanalysts drew the cryptograms down from the atmospheric currents and imposed upon them the refined, analytical force of literary humanist technique. The military bureaucratic systems were challenged however by the task of rendering the convergence of thermodynamics and literary humanism effective in a specific institutional form. The French *Bureau du Chiffre* proved the model for that institution.

The expert *Bureau du Chiffre* was without rival during World War One. The French military had been building the institution as a bulwark against Prussian militarism since the disastrous military defeat in 1870. The institution survived the political scandal of the Dreyfus Affair in the late 19<sup>th</sup> and early 20<sup>th</sup> century, when it had disturbed Henry Adams to wonder as to the limits, laws, and controls of its aggregate intelligence. Sharpened by repeated crisis and challenge, the *Bureau du Chiffre* emerged in WWI as a model of collective labor with rigidly defined hierarchies of cryptological specialization. The French system was divided between armies in the field of battle and the more centralized cryptological operations of their respective headquarters. It was the latter that offered the most innovative institutional form.

French cryptanalysts were divided into specific groups to attack both codes and ciphers, and these were further sub-divided according to their level of difficulty and importance. For example, the German high-command's secret communications received the attention of the best French cryptanalysts. The high-level cryptanalysts were assisted in turn by a stratum of linguists who specialized in the languages in which the Central Powers composed their messages (German, Turkish, etc). Other groups of cryptanalysts worked to break the naval codes, meteorological codes, and diplomatic codes, while others supervised technological research or the distribution of information culled from intercepted messages. Other sections were dedicated to printers who produced code books and cipher manuals, and field technicians who, by the use of traffic analysis, could determine the location of a wireless radio signal's source.

The varied groups and their sub-divisions passed intelligence to the highest level of military command who in turn incorporated the intelligence intercepts into military tactics. With the *Bureau du Chiffre* the interpretation of enemy communications achieved an unprecedented integration into tactical military systems and strategic diplomacy during WWI, forming, as it were, an extensive circuit of inter-institutional communication within the French Republic.

The French *Bureau du Chiffre* provided the institutional model for WWI and post-WWI U.S. intelligence. The American intelligence system followed the French in that its cryptographers who worked to revise and improve the French secret communications systems were subordinate to the cryptanalysts. The cryptographers' work was reviewed by other cryptanalysts who tested the security of the varied systems and acted as a sorting mechanism through which only the most difficult and practical cryptographic systems were allowed to pass. Once tested, the systems would be printed and distributed along the front, and often had "attached [to them] a specialist... to enforce the cryptographic regulations of their own troops" (The Codebreakers 305) so that human laziness or error would not compromise French communications to the enemy. Cryptanalysis and cryptography were thus divided by degrees of specialization and instrumentality.

The WWI integration of large-scale, collective cryptological labor diminished the individual cryptanalyst's role. This solitary figure who David Kahn described as engaging in "chamber analysis" grew increasingly rare within the new bureaucratic, institutional order of French WWI cryptology (The Codebreakers 348). There remained exceptions, however, as cryptologists of exceptional skill worked alone in a monastic quiet. The most important of these vestigial chamber analysts was the French cryptologist Georges Painvin, who cracked the German high-command's ADFGX cipher alone during WWI in his private rooms, surrounded by illiterate servants who could not betray his secrets to the world. The majority of intelligence historians credit Painvin's cipher solution with saving Paris from being overrun by the Kaiser's armies in 1918.<sup>354</sup> Painvin was the last such figure in modern intelligence history, as the chamber analyst was quickly displaced during World War One by the collaborative, institutional model of cryptology.

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<sup>354</sup> See, for example, The Codebreakers 340-345. See also Singh The Code Book.



In the United States, individual cryptanalysis, which was based in large part upon literary exegetical method, was displaced by aggregate cryptanalysis. Herbert Yardley's MI-8 was swiftly modeled after the French system during the war, and the French system was maintained, on a smaller scale, by Yardley's Black Chamber throughout the 1920's. The limited exchange of intelligence between France, England, and the United States also prompted practical reforms that extended beyond the war, as when the U.S. Army adopted the French Bazeries cryptographic system in 1922.<sup>355</sup> While the cooperation between the United States and England remained the most consistent for the remainder of the 20<sup>th</sup> century, its longevity was due to its ability to adapt the French institutional model to its varied cryptanalytical strengths. Those strengths were divided between an increasingly mathematical cryptology and the older model of individual chamber analysis, with the former increasingly in the majority.

## **XXII. From Chamber Analysis to Spectrum Spreading**

Herbert Yardley visited the famed cryptanalyst Georges Painvin in France at the war's end. Impressed by his lonely skill, Yardley returned to Washington D.C. to oversee the disbanding of MI-8 and to press for further cryptological funding in the post-WWI era. The U.S. Departments of War and State nominated Yardley as chief of a new, jointly-funded cipher bureau in New York City; as I noted in chapter two, Yardley would make his office infamous in 1931 with the publication of The American Black Chamber.

There were several reasons for the failure of Yardley's office and David Kahn has reviewed them extensively in his recent biographical study The Reader of Gentleman's Mail. Yardley, Kahn notes, had not anticipated how mechanization would benefit cryptology, nor did he or his office work with the required diligence in the latter half of the 1920's. Yardley had also insisted upon retaining individual chamber analysis as the

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<sup>355</sup> The Codebreakers 249.

basic, if slightly expanded model for his Black Chamber. Both Yardley and the scholar Charles Mendelsohn (who worked part-time for Yardley between lectures at Hunter College) were primarily responsible for breaking codes and ciphers.<sup>356</sup> The two men were assisted by a small office of clerks who compiled frequency tables from telegrams for their use. Yardley and Mendelsohn replicated Georges Painvin's cryptanalytical prowess to a limited degree, but they also extended the romantic, even magical figure of the lone cryptanalyst. In their insistence on the obsolete, literary-humanistic model of chamber analysis, they had become anachronistic.

The cryptanalysts and cryptographers who had worked under Yardley in both MI-8 or in the U.S. Army Signal Corps during WWI began however to develop other models for cryptological labor in the post-war era. Their innovations transformed both the future of cryptology and its historical relationship with literary humanism. Yardley's former MI-8 colleague John Matthews Manly primarily addressed the latter, and the Friedmans engaged the former.<sup>357</sup>

William Friedman had worked in wireless signals intelligence as a cryptographer during World War One. He later taught courses, composed text books, and analyzed cipher machines for the Army. Following a brief return to the Riverbank Laboratories, he was hired to direct the U.S. Army Signal Corps's Code and Cipher section. For the remainder of the 1920's, the section consisted of two employees: Friedman and his assistant, a former pugilist.<sup>358</sup>

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<sup>356</sup> Charles Mendelsohn, 1880-1939. Mendelsohn published a book on Plautus.

<sup>357</sup> Manly, who was Yardley's chief assistant during the war, returned to the University of Chicago and embarked upon a furious, decade-long run of collaborative publications, institutional reforms, and published interventions of which I shall say more in the following section.

<sup>358</sup> See The Puzzle Palace 49.

Friedman recognized during this period that the complex WWI cipher systems required increasingly mathematical means of cryptanalysis. As I noted in chapter two, William Friedman had developed new techniques of frequency analysis. His methods had first been printed in 1920 as Riverbank Publication No. 22, with the title The Index of Coincidence and its Applications in Cryptography. Friedman improved upon his statistical theory in 1925 following his analyses of new cipher machines that were increasingly manufactured by various U.S. and European firms.<sup>359</sup>

Friedman's turn to mathematical cryptology was based upon a model of probability, for which he used the term "coincidence." The basic system of analysis attacked two superimposed monoalphabetic encipherments. Arranging the two alphabets one beneath the other, Friedman devised a sliding, horizontal system that could tabulate frequency counts as the lower alphabet was moved along the stable, upper alphabet. Statistical analysis could discern coincidental patterns along the varied combinations of paired letters. Those patterns displayed a probable recurrent behavior which in turn allowed the cryptanalyst to reconstruct the original cipher alphabet from the statistical measure.<sup>360</sup>

Friedman's statistical system effectively brought cryptology into step with the emergent mathematics of probability that, since Poincaré, had disrupted the classical Euclidean systems; Friedman's innovations cleared the path for the convergence of cryptology with cybernetics in Norbert Wiener's work of the late 1940's. Working from the limits of philology to a new mathematics, Friedman developed a method by which cryptology could keep pace with and translate electro-magnetic signals into an intelligible written alphabet. William Friedman's innovations turned the institutional path of U.S.

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<sup>359</sup> The Codebreakers 376-377.

<sup>360</sup> David Kahn's summary of Friedman's achievement is notable. See The Codebreakers 375-384

cryptology away from Herbert Yardley's Black Chamber and towards the Signals Intelligence Service of the 1930's which, as I noted in chapter two, was formed by the U.S. Army following the closure of Yardley's office in 1929.

During this period American mathematicians had also begun to experiment with algebraic cryptography. The most important of these was Lester Hill. Hill was the first to apply algebraic formulae to cryptological problems in a series of mathematical papers that appeared in 1929 and thereafter.<sup>361</sup> Friedman and Hill's mathematical systems extended the WWI institutional intensification of cryptanalysis, and every cryptographic system submitted for military use would thereafter be subject to their proofs.

Other nations were simultaneously drifting towards mathematics as a foundation for the science. Germany had immediately shifted towards mathematical cryptology in the post-WWI period. The newly formed *Pers Z* was divided, according to the French system, between a cryptanalytic and cryptographic department. The difference, however, was that the German cryptanalysts were primarily mathematicians (many had doctorates in the science) while language experts were shifted to cryptography. Kahn has noted that "This division carries into the practical sphere the distinction that codes operate upon texts linguistically whereas ciphers operate nonlinguistically" (The Codebreakers 437). It was often the case, however, that the *Pers Z* mathematicians were also polyglots who could move easily between the two areas. They published texts on probability theory and cryptology, experimented with new cipher machines (including the infamous Enigma), and maintained a steady development – perhaps the most consistent among the former WWI belligerents – during the interwar period, a notable bureaucratic accomplishment considering the economic and political instability of

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<sup>361</sup> The Codebreakers 404-409.

Weimar Germany, and later, Adolf Hitler's purges of scientists from German institutions.<sup>362</sup>

In addition to Germany, England and Poland both shifted the emphasis of cryptanalysis towards mathematics. Simon Singh noted that during the 1930's the Polish *Biuro Szyfrow* (cipher bureau) hired mathematicians from Western Poland because the inhabitants of the region were fluent in German and also feared German invasion the most.<sup>363</sup> The same mathematical acceleration of cryptanalysis occurred in England, where "there was a concerted effort to balance the staff [of Room 40] with mathematicians and scientists" (The Code Book 160). The British shift would culminate with the revolutionary cryptological achievements of Alan Turing during WWII.

In the United States, a positive feedback loop of experiment and analysis had formed around Friedman's work by the early 1930's. This loop sustained Woodrow Wilson's earlier N.R.C. reforms that had promoted cooperation between state institutions and private firms. The Department of the Army, upon receiving mathematical systems such as Lester Hill's, would pass them along to the Army Signal Corps and then later, to Friedman's S.I.S. for security analysis and to explore their practical applications. Major corporations such as I.T.T. (International Telephone and Telegraph) and A.T. & T. (American Telephone and Telegraph) were involved in this circuit. For example, when Gilbert S. Vernam invented a new electro-mechanical cipher machine for A.T. & T., it was sent along to Captain Joseph Mauborgne of the Signal Corps, who tested the

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<sup>362</sup> Cryptology was held in such high esteem among the Nazis that during WWII the Nazis permitted Ottfried Deubner, a Jewish cryptologist, to work for Pers Z. Kahn notes that "the Nazis made him an honorary Aryan." (The Codebreakers 438). Kahn has published several works on the history of German military intelligence. See, for example, Seizing the Enigma: The Race to break the German U-Boat Codes (1991) and Hitler's Spies: German Military Intelligence During World War II (1978).

<sup>363</sup> The Code Book 149.

device.<sup>364</sup> Parker Hitt (who had participated with Mauborgne in the 1914 military conference on cryptology at Fort Leavenworth) was then working for I.T.T. He hired Vernam away from A.T.&T. and set him to work in I.T.T.'s cryptographic firm, known as International Communication Laboratories (where Hitt was vice-president).<sup>365</sup> The 1920's and 1930's were the first crucible for the combined commercial and military experiments in cryptology and its technological applications in U.S. history, and the model would proliferate in the decades that followed.

The rudimentary pre-WWI manual systems of frequency analysis and chamber analysis were thus displaced by an institutionalized and increasingly mathematical cryptanalysis. Cryptologists used statistical probability theory, algebra, and other methods to attack the more difficult mechanized ciphers produced by the new multi-rotor, electrical cipher machines. The advantage that the cryptanalysts had gained over wireless communications during WWI was extended to match the power of the new cipher machines whose signals continued to be transmitted over the airwaves. Cryptanalysis thus remained in a positive feedback loop with emergent technologies throughout the 1930's. William Friedman's S.I.S. was the most insistent institution, however, in its pursuit of wireless cryptological transmission in the atmosphere.

Following the closure of Yardley's Black Chamber, William Friedman was designated head of the new Signals Intelligence Service in 1930. Friedman petitioned Dr. John M.

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<sup>364</sup> The Codebreakers 393-403.

<sup>365</sup> The sources for Hill's algebraic cryptography, Hitt at I.T.T., and Vernam at A.T. & T. are several, the most important being The Codebreakers (388,403, 405.) Other cipher machines passed through Friedman's labs at S.I.S. and the Signal Corps, including the Hebern cipher machines. Kahn includes a detailed account of Hebern's machines, and refers to a lawsuit filed by Hebern against I.B.M. during WWII. The relationship of I.B.M.'s tabulating machines can be found in I.B.M. and the Holocaust, which sets the interwar manufacture of mechanical calculators in an international context.

Manly in Chicago during this time and sought his help in finding recruits among bright university graduates. Friedman sought potential cryptologists who could engage a host of new research areas he had designated for the science, and these included:

Preparation and revision of Army codes and ciphers and, in time of war, interception of enemy radio and wire traffic, the goniometric location of enemy radio stations, the solution of enemy code and cipher messages, and laboratory arrangements for the employment and detection of secret inks.<sup>366</sup>

The Department of War, and in particular the U.S. Navy, had concentrated on intercepting Japanese wireless and radio traffic since the mid-1920's, and Friedman had done the same for the Army during that time.<sup>367</sup> As I noted in chapter two, both William and Elizebeth Friedman loaned their expertise to the U.S. Coast Guard and U.S. Navy during the later years of Prohibition. The maritime military gained the advantage over rum-runners due to the Friedmans' skill in traffic analysis, or, as it is called above, "the goniometric location of enemy radio stations." This technique was expanded during Friedman's tenure at S.I.S. Bamford notes that the S.I.S. "implementing order did authorize the establishment of a radio intercept service and the construction of listening posts" for purposes of peacetime research; the first listening post was built in Virginia, "which concentrated on high speed receivers but also gathered actual intercept material for 'practice' by the student cryptanalysts."<sup>368</sup>

The S.I.S. shift towards increased radio and wireless research was motivated by both domestic criminal investigations and by geo-political exigency. The Navy had focused since the 1920's on Japanese naval radio traffic, but the Army's entry in the field was sudden, and scientific necessity, technological cause, or military threat do not entirely

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<sup>366</sup> Cited from Army Security Agency document in The Puzzle Palace (49-50).

<sup>367</sup> See The Reader of Gentleman's Mail 91.

<sup>368</sup> The Puzzle Palace 207.

explain the shift. While “Japanese militarism” remains the most common explanation, a general military integration of aviation and naval forces, which required more sophisticated communications technologies, also suffices to explain the accelerated shift towards traffic analysis. The danger of determinism persists. For example, the WWI reliance on wireless communications was resumed and accelerated during the 1930’s as radio had become a major source for signals transmission in the post-WWI era. Cryptology had already been connected to aerial photography and topography during WWI, and their tactical relationship was resumed. At decade’s end the disembodied signals and voices would be joined by actual human bodies and mechanical projectiles during their imminent WWII phase. Military aviation, which projected military power over the sky, would pretend to the light speed the wavelengths as it was rejoined to the surveillance of the Black Chambers.

Cryptology and electro-magnetics converged during WWI: the one did not cause the other to appear. Likewise, the integration of military institutions into extensive logistical meshworks was maintained by new scientific methods and intellectual currents (such as mathematics) that merged with advancing technologies.

Friedman’s S.I.S. was not a product of earlier technological innovations but rather a platform for their projection into space. Cryptology anticipated and improved upon the tactical communications systems for integrated aerial and naval power by transforming the atmosphere into a courier of possibly intelligible signals. S.I.S. was funded aggressively by Friedman’s military superiors (such as Captain Mauborgne) over the course of the decade, and S.I.S. cryptology was soon inseparable from radio traffic analysis. <sup>369</sup> “In 1933 Friedman’s protégé, Mark Rhoads, set up the provisional Radio Intelligence Detachment at Fort Monmouth, New Jersey.”<sup>370</sup> Using a network of similar

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<sup>369</sup> See The Codebreakers 388-89.



stations, the United States began to intercept and attack the high-level Japanese cipher-system in 1938, and had broken it by 1940. The cost to Friedman's health was high; in early 1941 "he was admitted to the neuropsychiatric ward of Walter Reed Hospital with a diagnosis of psychoneurosis, a nervous breakdown" (Puzzle Palace 395). Nonetheless, the atmospheric platform for signals intelligence functioned well in his absence.

The convergence of cryptology and electromagnetic technologies gave the U.S. military intelligence institutions and their allies a decisive strategic advantage during the 1930's and afterwards. James Bamford notes that the United States Army and Navy had nearly two dozen combined working radio and wireless intercept posts by 1938, and the number proliferated during WWII. Their number multiplied during the Cold War when "like cannabis, the NSA eavesdropping stations continued to flourish" (The Puzzle Palace 209). The S.I.S. platform anticipated the tremendous institutional reorganization of U.S. military intelligence during the Cold War, which included not only institutions such as the N.S.A. but also the NASA space program and the development of ballistic missiles for military purposes, surveillance and communications satellites, and the integration of later technologies such as radar (developed by the British during WWII) and the transmission of visual signals (developed by the Germans during the 1930's). S.I.S. effectively extended the institutional form of U.S. military intelligence into space.

During the post-WWII years, when William Friedman was a primary consultant for the N.S.A., traffic analysis was subsumed under the institutional parameters of 'Communications Intelligence.' In Kahn's terms, the area

Includes cryptanalysis, traffic analysis, and analysis of cleartext traffic, [but] it is not confined to studies of man talking to man. Communications in the Cold War includes machine stalking to machines – the self-interrogations of radars, the

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<sup>370</sup> Puzzle Palace 52. Fort Monmouth would continue to be at the center of radio, voice, and signals transmission technologies for the remainder of the 20<sup>th</sup> century. See, for example, The Codebreakers 712, 720.

remote-control systems of guided missiles, the telemetry of artificial satellites, the I.F.F. or identification friend-or-foe systems. All these are communications devices, usually radios modified in one way or another, and a great deal can be learned from their location and operation. N.S.A. entered this electronic field in the 1950's, and began monitoring Soviet missiles in 1958, the year after Sputnik.... (The Codebreakers 718)

James Bamford provides a similar, yet updated summary of Communications Intelligence within the NSA, specifically through its Office of Signals Intelligence Operations:

Communications signals analysis, [is] the study of any emission that could transmit information: electronic signals analysis, primarily ELINT (electronics intelligence) and RADINT (radar intelligence); telemetry analysis; and signals conversion, which attempts to locate signals hidden by such techniques as spectrum spreading, where the signal virtually disappears into the noise, or frequency hopping, where the signal jumps from frequency to frequency at rapid-fire speed. (The Puzzle Palace 126)

Specialists such as William Friedman and institutions like the S.I.S. (and later, the N.S.A.) first projected cryptology into space. Driven by powerful mathematical systems, the vectors of cryptology and electro-magnetics that had merged during WWI extended their obscure designs to form atmospheric networks for the transmission and interception of signals intelligence; these would later become the celestial paths traveled by rockets that delivered signals intelligence satellites into extra-terrestrial orbits. The 1930's thus mark a potential moment of institutional proliferation in U.S. cryptological history, but these consequences were not clear to anyone during the decade's ferment, nor were they guaranteed by fate.

### XXIII: The Formalist Turn: John Matthews Manly and Edith Rickert

William and Elizebeth Friedman and also Herbert Yardley transformed modern U.S. cryptology during the twenty-year gap between the two wars. While Yardley was the first to convince the U.S. government of its strategic value during the peace, he had however attempted to sustain an obsolete model of the science. After publishing the scandalous work The American Black Chamber in 1931, he had become an outcast from the small, deeply interconnected U.S. cryptological community. He published pulp novels and wrote screenplays for a time. Renowned for his infamous breaking of the Japanese codes during the 1920's, in May of 1938 he was asked by the Chinese Nationalists, then under Chiang Kai-Shek, to help them create an intelligence apparatus that would help them resist the Japanese invasion.<sup>371</sup> Yardley departed for China that summer, where he worked for two years. Edna Ramsaier, later Yardley's second wife, was hired during that time to work for William Friedman's growing S.I.S. operation.<sup>372</sup>

Upon his return from China Yardley worked briefly to create the Canadian intelligence bureau, briefly ran a restaurant in Washington D.C., and returned to his governmental career with The Office of Price Administration during WWII and with the Public Housing administration after the war. His intelligence career was ultimately ruined by the very institutions he created. His final published work, The Education of a Poker Player (1957), borrowed its title from Henry Adams. David Kahn noted that although it did not repeat the "creamy elegance and patrician worldliness" of Adams's book, it was a multi-million copy success. Herbert Yardley died, as did Henry Adams, after a series of strokes.<sup>373</sup>

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<sup>371</sup> Kahn dedicates an entire chapter of The Reader of Gentleman's Mail to Yardley's work in China, but the more comprehensive study is Frederic E. Wakeman's Spymaster: Dai Li and the Chinese Secret Service.

<sup>372</sup> See The Reader of Gentleman's Mail 197.

The cryptological lives of William Friedman and Herbert Yardley often intersected between the two world wars, yet Friedman, who had previously idolized Yardley, grew increasingly contentious.<sup>374</sup> Friedman's discretion, mathematical prowess, and technological foresight slowly displaced Yardley's obsolete cryptanalytic systems, dated frequency tables, and faded model of chamber analysis. Their relationship is not so much the story of two men but the history of one institutional model destroying another. The relationship between William Friedman and John Matthews Manly was of an altogether different nature. It was defined by a strong continuation of the exchange between literary humanism and cryptology, albeit in an entirely new register.

The shift from individual chamber analysis to collaborative, mathematically oriented cryptanalysis was the first major break between literary humanism and the U.S. military apparatus. The break was not expressed immediately in an institutional form. The Department of War, with Dr. John M. Manly's assistance, maintained the connection by establishing a reserve corps of intelligence officers following WWI. This standing reserve of intelligence officers would be called upon during World War Two to serve U.S. intelligence once again, and their roles were amplified and diverse in that longer conflict and divided more equally between propaganda and cryptology. Manly did not remain in the reserves to serve in WWII; he was already an elderly man and would dedicate his remaining decades to a literary professional life.

The post-WWI institutional shift of cryptology from its literary-humanist scientific base was simultaneous with another shift within literary humanism. Like cryptology,

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<sup>373</sup> Yardley passed away in Silver Spring, Maryland in 1958. The Reader of Gentleman's Mail 116. See also 235-36.

<sup>374</sup> There is ample evidence of this conflict in William Friedman's correspondence with John M. Manly, which grew especially bitter following The American Black Chamber. David Kahn also reviews the rivalry in The Reader of Gentleman's Mail (37, 91, 95, 100, 129-130, 208-213).

literary criticism became increasingly professional and formalized in its institutional design. It also refined its technical jargon and conceptualization of rhetoric, meaning, and language. While cryptology and literary studies were not by any means synonymous, they were rather joined by common questions and disputes that flared between their parallel trajectories. The long relationship and correspondence between William Friedman and Dr. John Matthews Manly was the more significant one in this respect. Although it lacked the dramatic rivalry and oedipal conflict of the Friedman-Yardley split, its consequences for modern literary studies in the United States were far more significant.

John Matthews Manly maintained an extensive correspondence following WWI. It included exchanges with literary amateurs such as Walter Arensberg, foreign correspondents who shared Manly's cryptological interests, professional cryptologists such as Herbert Yardley, his former employers in the U.S. military, other philologists in the U.S. and abroad, and the Friedmans. Manly was generous in his letters. For example, he wrote letters of recommendation for Herbert Yardley who was petitioning the Department of War to invest in peacetime cryptology.<sup>375</sup> When Yardley's office was closed, he referred its former employees to new employers. Certain military figures, chief among them Brigadier General Marlborough Churchill, thought Manly should be recruited on a permanent basis.<sup>376</sup>

Manly's cryptological correspondence was ancillary to his professorial commitments, which he vigorously renewed when he returned to his position as Chair of the Department of English at the University of Chicago in 1919. He became President of the

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<sup>375</sup> James Bamford notes the recommendation in The Puzzle Palace (23-24). The correspondence may be found in the Manly Papers at the University of Chicago, in which Manly advises the military on civilian recruitment and the maintenance of a reserve corps of intelligence officers.

<sup>376</sup> The Reader of Gentleman's Mail 51.

Modern Language Association (MLA) in 1920 and his Presidential address in December of that year, entitled "New Bottles," echoed the collaborative dynamic of the cryptologists during WWI. John Matthews Manly offered a model for the MLA's institutional reconfiguration. The model was one of supervised, if not collaborative, research: it should "direct the investigations" of individual scholars in the field (xlvi). This program would focus the "specialization and .... organization for the accomplishment of purposes too large for a single investigator" (xlix), such as the editing and studying a "great text or body of texts" (xlvi).

Furthermore, Manly argued, the Association might also engage in an anthropological-linguistic endeavor focused on American English and its dialects, as well as a "recording of the languages all over the world which are vanishing before the advance of modern civilization," and a "cooperative" study of the critical methods used to study the "problems of versification, the basis of rhythm, the perception of time relations, the rhythms of prose, and other related topics" (liii). The MLA should also modify its annual convention to facilitate such cooperation by providing meetings and panels specific to certain research groups and fields of interest (lv-lvi) and expend greater effort to coordinate bibliographical research (lvii). Manly concluded the speech with a visionary, even utopian depiction of the MLA's future institutional form:

Most of us can do but little, because our eyes are fixed, not on the great and wonderful building we are helping to rear - the structure of human evolution, the complete record of man's struggles and defeats and successes, of his dreams, his plans, his battle cries, his songs to celebrate his triumphs or banish his faintness or drown his despair - but upon the single stone each of us is shaping, the brick he is molding for the building. Doubtless the stone cutter must keep his eye on the stone; but the public will not give money for stones and bricks unless it is allowed to see the plans for the building. Each of us who are at work on the details has his own picture - if not of the completed building, at least of the part on which he is at work. We could hardly labor as we do if we labored in

complete blindness; and yet too often we are disappointed, resentful, scornful, if the public, which has never seen the drawings for our building, is not greatly interested in the size and shape and number of the bricks we have made. The building is the thing, the palace of art, the structure of the intellectual evolution of mankind; let us show them the palace, or at least find the showman. (lxix)

The institution proposed by Manly was a *Bureau du Chiffre* for the U.S. humanities. Its sub-divided organization of intellectual labor replicated the institutional model by which cryptology shifted from individual chamber analysis to collaborative labor. There is perhaps a veiled reference to Herbert Yardley, the notorious “showman” of U.S. cryptology, in the final sentence. Manly surely recognized how effective Yardley had been in advocating an institutional form for cryptology during this period.

Yet John Matthews Manly was no showman. He dedicated himself instead to more local interventions. In 1920 he wrote in his letters about restructuring the Comparative Literature program at the University of Chicago.<sup>377</sup> His students and colleagues published, in 1923, The Manly Anniversary Studies in Language in Literature. While it was a formidable collection of essays on literary history, linguistics, and philology, it was also a tribute to Manly’s recent professional work and departmental reforms. The propositions of Manly’s MLA address, his subsequent departmental reforms, and the tributes dedicated to them were only the precedent for an extensive collaborative project: the monumental eight volume variorum edition of Geoffrey Chaucer’s The Canterbury Tales. The work consumed nearly two decades of Manly’s career and prematurely ended the life of his colleague and collaborator Professor Edith Rickert.<sup>378</sup>

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<sup>377</sup> One such letter may be found in Box 2, Folder 8 of the Manly papers at the University of Chicago.

<sup>378</sup> The tremendous work of compiling The Text of the Canterbury Tales proved too taxing upon Dr. Rickert. Manly’s “Preface” to the eight-volume work begins with an

In addition to working with Manly at the University of Chicago, Edith Rickert had been his colleague in MI-8 during the war. Their collaborative effort on the “Waberski” cipher, the evidence of which was used to convict a German spy who had illegally entered the United States, was famous among their wartime achievements.<sup>379</sup> Edith Rickert was among the most diligent cryptologists in MI-8, where she also worked together in MI-8 with Charles Mendelsohn, the classicist who later would assist Yardley in his New York office.<sup>380</sup> Rickert and Manly’s later collaborations, including the Chaucer study, were dedicated to a general reform of the study of English. They published, both together and separately, works on varied national literatures, philology, handbooks of style, and essays on pedagogy. Together they sought to change the perception of contemporary U.S. literature with a bibliographical companion entitled Contemporary American Literature (1922) which was published in several revised editions (revised by their former Chicago colleague Fred Millett, whose own Contemporary American Authors appeared in 1944).<sup>381</sup>

Rickert sought to reform literary studies after her cryptological work. Where Manly’s reforms were institutional, Rickert’s were methodological. In the decade following the war, Rickert inspired both Manly and the graduate students in the Department of English at the University of Chicago to engage new methods of literary analysis. The

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account of the illness (beginning in 1935) and death (1938) precipitated by her tireless dedication to the project.

<sup>379</sup> For more information on the Waberski case, see The Reader of Gentleman’s Mail 43. See also The Codebreakers 354.

<sup>380</sup> See The Reader of Gentleman’s Mail 39.

<sup>381</sup> Millett acknowledged the precedent set by Rickert and Manly in the foreword to his later book (xi), which shared the same publisher with the previous work. Millett’s book also retains much of the form of the prior text but expanded it to include a more contemporary range than that of his predecessors; for example, he engaged more extensively the work of the New Critics (or the “Fugitives,” as he called them).



results were published in Edith Rickert's New Methods for the Study of Literature (1927). The book attempted to synthesize and professionalize into a coherent form certain available methods of literary criticism that Rickert and Manly had advocated in Contemporary American Literature.<sup>382</sup>

New Methods for the Study of Literature also drew upon Rickert's work in MI-8. As she states in her foreword that the "root" of her method

lies, strangely enough, in the methods of code analysis used in the Code and Cipher Section of the Military Intelligence in Washington, during the war. In the belief that processes which served to bring content out of series of numbers and other meaningless symbols might also be applied to the analysis of literature, an attempt was made in 1922, in a graduate course at the University of Chicago, to work out scientifically some of the phenomena of tone color and rhythm. Later, methods were found for the study of imagery, of words, of sentences, and of visual devices. (v)

Rickert's book stands as the first explicit account of the emergent relationship between modern cryptology and the "close reading" practices of textual analysis advocated later in more coherent form by the New Criticism. Rickert proceeds to imagine the pedagogy that might emerge, replete with textbooks and a uniformity of method (vi).

Rickert's analytical "close reading" had formalized Manly's own increasing professional interest in emergent U.S. and British literary formalism; Manly's introductory note to Rickert's book acknowledges the debt even as it anticipates tenets that were later institutionalized with the New Criticism in U.S. literary thought: "As Professor Rickert herself says, a piece of literature must produce its effects solely by

means of the symbols through which the artist communicates to his audience, because there is no other medium between artist and audience" (ix).<sup>383</sup>

The critical methods first elaborated by Edith Rickert were, as Manly noted, "the sign and the cause of a new era in the study of literature" (xii). In the broader context of Manly's institutional reforms of the MLA and the Department of English at the University of Chicago, they appear as a step towards a uniformity of method that would be reproduced later in the pedagogy of the New Criticism. Manly and Rickert together advanced, through their varied publications, this new method for literary intellectual labor, whose institutional form implied the collaborative model that Manly had proposed in his MLA address, and which he and Rickert later perfected in their monumental study of Chaucer.

The method superseded the context. Rickert's method belonged to the empirical and inductive Anglophone branch of the general linguistic revolution that transformed literary criticism. In treating the literary text as a closed system governed by an internal logic, Rickert followed modern linguistics in displacing the dynamic temporality of the morpheme at the point where it had constituted a foundational pillar in the relationship between linguistics and literary thought.

The method would align with others that emphasized the atemporal internal properties of the text, how literary language generated meaning, and its relation to the reader. The formalist turn in Anglophone literary thought also transformed the relationship between U.S. cryptology and literary criticism. The two would converge once more in the debates spurred by modern linguistics during the interwar and WWII era.

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<sup>383</sup> Manly's language is reminiscent here of that of Richards and Ogden in The Meaning of Meaning. Manly often praised Richards' work. Among his papers at the University of Chicago there is an unpublished manuscript of a speech entitled "The Teaching of Literatures" in which Manly clearly designates the 'aesthetic' approach of Richards as the most likely future path of literary studies.

## XXIV The Second Divide

Edith Rickert's New Methods for the Study of Literature directly engaged a long debate over the scientific validity of literary criticism in the United States. Rickert noted that "more than a half century ago, the scientific method, which was beginning to creep into every phase of life, began to be applied to the study of literature" (1). She implied that her work would displace the older scientific model (that of philology) with a formal model of literary analysis (as opposed to the study of the historical "environment" of literature) as the next phase in its justification and reform.

Rickert's comments invoke a long history of literary-scientific debate. The productive tension between scientific models of language and a humanist model of history had sustained the rise of literary criticism to academic status in the late 19<sup>th</sup> century, wherein literary study justified itself to other social and educational forces through claims to a scientific validity. Literary historian Gerald Graff has noted that

one has to understand that while it was the scientific model of research that justified philological studies of literature to other professionals inside the university, it was the civic and humanist claims of literature that justified those studies to outsiders.<sup>384</sup>

The study of literature was divided between the two purposes. One literary scholar of the era, Theodore Hunt, defined them both:

the student should appear tolerably well acquainted with the history of the English language in its outline facts and periods; with a substantial familiarity

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<sup>384</sup> "Introduction." The Origins of Literary Studies in America: A Documentary Anthology. Ed. By Gerald Graff. New York: Routledge, 1989: 5.

with the composite elements of the English vocabulary and conversant with, at least, the primary facts of historical English literature from the time of Bacon.<sup>385</sup>

Philology thus studied the “raw material” of language; literary criticism its more refined, rhetorical forms. This distinction was less important to later critics of the early 20<sup>th</sup> century than the fact that history dominated them both. Philology and literary criticism were sometimes attacked in the 19<sup>th</sup> century for their vague historicism (even proponents of thermodynamics contributed to the debate).<sup>386</sup> The scientific validity of literary criticism and the philological emphasis on the historicity of language were accused of vagueness, lack of rigor, and even (in the later case of the Baconists) political pedantry.

The incessant debate cleared the way, after WWI, for new methods that would displace what remained of the philology’s Victorian literary world; as Daniel Aaron has noted, the genteel “going codes” were gradually replaced by other exegetical systems that

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<sup>385</sup> Theodore Hunt, “The Place of English in the College Curriculum.” The Origins of Literary Studies in America: A Documentary Anthology. Ed. Gerald Graff. New York: Routledge, 1989: 43.

<sup>386</sup> E.L. Youmans, the founder of the journal Popular Science, criticized philology in the 1860’s and 1870’s in his essays and edited anthologies. See The Culture Demanded by Modern Life (1867) and Correlation and Conservation of Forces (1880); the latter work contained essays by prominent experts in thermodynamics, among them Helmholtz and Faraday. Youmans was one of the major American exponents of new theories in the Natural Sciences but also a devotee of Herbert Spencer’s application of thermodynamics to Social Darwinism. Hofstadter discussed both Youmans’ role in promoting Social Darwinism and the influence of thermodynamics on Spencer’s system at length in Social Darwinism and American Thought. Hofstadter was however incorrect in his reading of Henry Adams vis-à-vis social Darwinism, a matter that is attributable to Hofstadter’s predilection for Pragmatism rather than his careful reading of Adams.

claimed a more precise scientific validity - socio-political, psychoanalytic, linguistic, formalist, etc - amongst American literary intellectuals, educators, and writers.<sup>387</sup>

Philology was not displaced so much as it was dispersed. Its fragments drifted loosely through various sciences. Its latent civic mission persisted in the pedagogical debate between the political and scientific responsibilities of literary study that divided humanists during the pre-WWI era and thereafter. On the one hand, the civic impulse renewed literary interest in political thought and spurred its reply to catastrophic geopolitical events. The encounter stimulated literature to more aggressively engage the relations between language, literature, and the socio-political world. A great cry went up against literary scholars such as Carl Van Doren who tried to politicize literary criticism during this period.

On the other hand, philology moved towards the abstract models developed by other sciences, most notably linguistics. John Manly's 1920 Presidential address to the MLA explicitly acknowledged the importance of linguistics to the new institutional model that he transferred from MI-8 to the MLA. When Manly called the MLA's scholars to a "recording of the languages all over the world which are vanishing before the advance of modern civilization," he was referring to the many linguists in his audience who had maintained strong professional ties to the MLA in the early decades of the twentieth century. But linguistics had begun to move in the direction of other scientific models, most notably the natural sciences (a shift that had begun with the Neo-Grammarians of the late 19<sup>th</sup> century) and anthropology (in the work of Edward Sapir, following Franz Boas).

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<sup>387</sup> Daniel Aaron. "Literary Scenes and Movements." Columbia Literary History of the United States. General Editor Emory Elliott. New York: Columbia University Press, 1988: 735.

These shifts were marked by a renewed priority given to speech in post-WWI linguistics. The shift towards speech was the surface effect of a more profound epistemological movement. The new linguistic models did not so much exclude history as they refined how the temporal categories of language could be organized. Philology's preoccupation with written language, which had exerted a strong influence on linguistics, was reduced in the shift towards speech and its concurrent reformulation of linguistic temporality. The shift took its most notable form as Ferdinand De Saussure's Course in General Linguistics, which was first published in 1916, and had by the early 1920's attracted important interpreters and critics in both England and the United States. Among them was a colleague of Manly and Rickert, a young graduate student at the University of Chicago named Leonard Bloomfield.

Leonard Bloomfield earned his Ph.D. from the University of Chicago in 1910. He had studied German and comparative philology with Francis Wood, an expert in Germanic philology. Bloomfield's first major work An Introduction to the Study of Language (1914) was published while he was professor of Philology and German at the University of Illinois. He would later move to Ohio State University (1921-1927), then return to the University of Chicago (1927-1940), and ultimately teach at Yale University. Saussure scholar Roy Harris described Bloomfield as "the most influential figure in American linguistics in the first half of the twentieth century" (Saussure and his Interpreters 59).

Bloomfield maintained during this time strong institutional connections with both the University of Chicago and the MLA. John Matthews Manly had a direct role in promoting Bloomfield's career, as Manly published several articles by the young linguist while he was editor of Modern Philology. While Manly and Rickert's published works do not contain explicit references to Bloomfield (or vice-versa), they traveled in the same professional circles, taught at the same university, and participated in a common discourse over the relationship of philology to linguistics.

Bloomfield's relationship to the MLA remained particularly strong for the entirety of his career (he delivered an address to the MLA convention in 1929), and compared the relationship between the more recent Linguistic Society of America and the older philological organizations such as the MLA in 1946:

The boundaries between fields of science, like the boundaries between the States of our Nation, are but imaginary lines, serving a methodical and administrative convenience; our welfare demands that they be crossed in every direction and with the utmost freedom. ("Twenty-One years of the Linguistic Society" 491)

Bloomfield's early commentary on the multivalent relationships between linguistics, philology, and literary criticism (all of which he regarded as separate sciences) did much to promote such border crossings. Bloomfield insisted, from the beginning to the end of his career, that philology and linguistics were also interconnected sciences (as were philology and literary criticism). He had written already in his first major work that "Linguistics, as we have seen, took its origin in philology, - in the study of national culture. The relations between the two sciences are still manifold" (An Introduction to the Study of Language 319).

Bloomfield's 1914 commentary on the relations between the three sciences could not distinguish clearly, however, on the differences between them. A mature scientific model of a 'general' linguistics that was not entirely bound to the vicissitudes of a "national culture," had only recently been offered in Europe by the Swiss linguist Ferdinand de Saussure. Upon its publication in 1916, however, Bloomfield proved one of the more able proponents of Saussure's work in the United States, the debate over which did much to distinguish more clearly between the three sciences that Bloomfield had previously regarded as kin.

Bloomfield was one of the first and most important early commentators on Saussure's works in the U.S.<sup>388</sup> He was positioned by training and by his catholic ability to draw connections and distinguish between linguistics and other sciences. His 1923 review of Saussure's work and the later 1927 essay "On Recent Work in General Linguistics" introduced his readers to Saussure. The former essay offered a cursory evaluation of the Course in General Linguistics; the latter essay summarized the critique of Saussure attempted by C.K. Ogden and I.A. Richards in The Meaning of Meaning.<sup>389</sup> This last essay was published upon his return to the University of Chicago in 1927 and it most likely influenced John Matthews Manly's interest in hiring I.A. Richards to the English Department there, of which more shall be noted in a later section.

Leonard Bloomfield's writings on Saussure grew increasingly critical over the course of his career as he shifted towards behaviorism in his work.<sup>390</sup> The early essays nonetheless offer a glimpse into the centrifuge that reduced the role of philology in modern linguistics (and contributed also to increasingly separating literary criticism and cryptology from philology, by varied degrees). But while the reception of Saussure's Course in General Linguistics separated linguistics from philology, the break was not complete even within the work itself.<sup>391</sup> Saussure's better commentators have demonstrated how Saussure extended previous problems in comparative philology to

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<sup>388</sup> Roy Harris' chapter on Leonard Bloomfield's readings of Saussure in Saussure and His Interpreters (59-75) is the best work published on this subject to date.

<sup>389</sup> Bloomfield's review of Saussure and the later essay on general linguistics were reprinted in A Leonard Bloomfield Anthology in 1970. My citations are from that work.

<sup>390</sup> Both Falk and Harris discuss Bloomfield's readings of Saussure in detail. See, in particular, Harris' chapter on Bloomfield in Saussure and his Interpreters.

<sup>391</sup> Elizabeth Clark's recent book History, Theory, Text: Historians and the Linguistic Turn repeats the common error of presenting Saussure as a definitive break with philology. For a description of an important line of continuation, see the discussion of Von Humboldt's influence on Saussure in Structuralism: A Philosophy for the Human Sciences (65).



new formulations of linguistics which, as Leonard Bloomfield wrote in his 1923 review of Saussure, “had long been in the air.”

Saussure’s major contribution to linguistics rested with a more precise division between a historical and abstract model of language. The former, what Saussure called *la langue*, constituted the *synchronic* realm of scientific linguistic inquiry (though, as Harris notes, Saussure never clearly defined the term).<sup>392</sup> *La langue* was separated nonetheless from two other elements: *langage* (such as a national language) or *parole* (individual speech). The latter two formed a *diachrony* (understood respectively as a dynamic temporal – though not necessarily historical – system, as opposed to the static conceptual register of *synchrony*).<sup>393</sup> Nonetheless, as Harris has correctly noted, diachrony and synchrony should not be entirely separated.<sup>394</sup> Nor should synchrony be understood as ahistorical; indeed, Harris has demonstrated that Saussure’s terms argued for greater distinctions between varied temporal states of ‘*la langue*’ that had been amorphous and vague in comparative philology.<sup>395</sup>

The diachronic and synchronic distinctions of Saussure’s model rested to a great extent on how it defined particular linguistic units. Diachrony favored the analysis of how individual units of *langage* or *parole* related to one another in a manner that was

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<sup>392</sup> Reading Saussure 15.

<sup>393</sup> Piaget offers an excellent definition of the temporal (but not necessarily historical) definition of the transformative laws that govern structure. The definition applies to Saussure, even as Piaget recognizes that Saussure did not use the term “structure” in the sense that Piaget defines it. See Structuralism 11-12.

<sup>394</sup> Saussure and his Interpreters 193. Harris also makes an argument against those who would separate philology entirely from linguistics (21).

<sup>395</sup> Reading Saussure 10.

different from the systemic arrangement of synchrony.<sup>396</sup> The distinction relegated philology, which Saussure defined as concerned with temporal questions of causality and genesis, to a lesser importance in the diachronic sphere.<sup>397</sup> Philology's role was lessened further within the diachronic system as speech was granted priority over written language. While these relations and divisions were not always entirely clarified by the Course, Saussure had emphasized a broader distinction: the separation of *la langue* from the more dynamic temporality of diachrony was for Saussure a necessary event in rendering linguistics a modern science.<sup>398</sup>

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<sup>396</sup> See, for example, Harris' discussion of the difference between *diachronique* and *historique* in Saussure and his Interpreters, 36.

<sup>397</sup> See Course in General Linguistics 91-92.

<sup>398</sup> Saussure's work has often been misunderstood and presented incorrectly to U.S. readers. For example, Fredric Jameson has described this shift in the divide between *parole* (the isolated utterance, the particular) and *langue* (the language system, the whole) in Saussure as follows:

Thus, at one stroke, all purely articulatory matters, all questions of local accent, mispronunciation, personal style, are eliminated from the new object under consideration, becoming themselves problems for a different science, that of the *parole*. The study of the *langue* remains concrete, for we can investigate it by testing the limits and characteristic forms of any native speaker's understanding; yet the investigation is now no longer complicated by the presence of some particular object (like an individual sentence) to which it would stand as a physical law to its experimental manifestation. (The Prison House of Language 26)

Jameson exaggerates several distinctions. Firstly, Saussure did not offer an object of study so much as the outline of a system. Secondly, the claim of "elimination," incorrectly separates diachrony (the realm of *parole*) from synchrony, which remained connected (though Saussure did not precisely explain how). Finally, *parole* was not a science unto itself, but only an area of general linguistics; indeed, Saussure proposed that linguistics was only one branch of a more extensive science, which he called semiology.

In doing so the Course in General Linguistics sought to replicate the methodological rigor of the natural sciences, but it clearly distinguished between the objects of nature and the objects of linguistics (which were socially formed).<sup>399</sup> This was one major distinction between natural science and linguistics: *la langue*, Saussure repeatedly contended, was not to be found in nature, the social fabric, or the primacy granted to the individual utterance; *la langue* was defined by its arrangement – not its functions or phenomena – as a synchronic ‘state’ constituted by the horizontal relations of signs to one another in a collective consciousness.<sup>400</sup> This internalized scheme was the fundamental difference between *la langue* and the socio-historical world of *parole*, but it also distinguished linguistics from the natural sciences.

The Course in General Linguistics offered a revolutionary yet incomplete outline of a new science of linguistics. The outline was riddled with stimulating problems. For example, how could linguists obtain a comprehensive knowledge of *la langue* after Saussure claimed that “Language in its totality is unknowable” (Course in General Linguistics 20)? How did vestigial traces of the historical world (diachrony) exert pressure upon the synchronic inner language system? And how was the individual utterance (*parole*) to be conceptualized (Saussure did not live to present his promised lectures on a *linguistique de la parole*, and destroyed his lecture notes before dying).

The incomplete yet innovative Course in General Linguistics stimulated significant revisions in several sciences (for example, its positions in mid-20<sup>th</sup> century anthropology, and in late 20<sup>th</sup> century literary history, are unique).<sup>401</sup> The questions and

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<sup>399</sup> See Harris Reading Saussure 19.

<sup>400</sup> Harris discusses the role of this term in Saussure as well as its derivation from psychology and previous linguistic models. See Reading Saussure 9, 95, 136.

criticism it provoked exerted direct and indirect pressures on literary criticism and cryptology in the United States during the inter-war period as each reacted to the consequences and debates over Saussure's work in unique ways.

As we have seen, the Course in General Linguistics relegated philology to a lesser status in the realm of *langage* and *parole*. Within that realm it occupied the reduced space reserved for written languages. The reasons for its relegation were both elemental and methodological: philology assumed a lesser role because its fundamental unit, the morpheme (which favored the analysis of historical change in written words), was displaced in linguistics by another, more fundamental element: the phoneme (which favored the analysis of speech). Ernst Cassirer later attributed this shift (in 1944) to the fact that the "structural problems of phonology were a much later discovery than those of syntax or morphology" (An Essay on Man 123). The shift towards phonology and phonetics (defined later by Trubetzkoy as the study of material sound and meaning, respectively) contained evidence of a more profound epistemological convulsion whose tremors crossed several sciences and generally reorganized their relations, but without completely rupturing them.<sup>402</sup>

The elemental shift from morphemes to phonemes occurred gradually over many decades and achieved a critical mass during the post-WWI era. Morphology, properly constituted, was the study (often comparative) of those elements that composed written language. As such it was a cornerstone of philology (and its relationship to linguistics).

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<sup>401</sup> Frederic Jameson's The Prison House of Language surveys its influence in the Slavic world and the Anglophone world. Jameson does not account for the writings of the French post-structuralists, and in particular Jacques Derrida, who produced tremendously influential readings of the Course in General Linguistics. Roy Harris' book Saussure and his Interpreters offers a compelling but orthodox corrective to the later structuralist and post-structuralist reception of Saussure.

<sup>402</sup> See Cassirer's discussion of Trubetzkoy in the footnote in An Essay on Man 126. See also The Prison-House of Language 16.

Leonard Bloomfield had defined morphemes in a 1926 essay as the “minimum form” upon which the study of word construction depended. Bloomfield’s definition distinguished further between morphemes and phonemes. Phonemes, for Bloomfield, were “the minimum same vocal feature... or distinctive sound” particular to a group or groups of morphemes: but phonemes were not according to Bloomfield the base units of linguistics.<sup>403</sup> Saussure, however, had granted phonemes an irreducibility that favored speech, and hence they replaced morphemes as the base units (if not the “true objects”) of the Course in General Linguistics. Phonemes provided both an elemental foundation for the science and basic units for the laws that governed its systemic internal and external organization.<sup>404</sup>

This elemental shift was succeeded by a shift in method. American linguistics shifted to phonology (the study of sound-meanings) while after Saussure European linguistics drifted towards phonology (but not in a purely mechanical sense). Bloomfield and other American linguistics advocated inductive method that moved from individual examples to general laws; Saussure and the later structuralists were deductive. They confirmed general laws by observation.

Jean Piaget, the historian of structuralism, offered the most lucid account of this difference. Following Saussure’s distinction in the Course that the “speech sound” was “an aggregate of auditory impressions and articulatory movements, comprising what is heard and what is spoken, one delimiting the other” (41), Piaget understood this to offer a radical distinction between

*structures* and *aggregates*, the former being wholes, the latter composites of elements that are independent of the complexes to which they enter. To insist on

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<sup>403</sup> “A Set of Postulates for the Science of Language” 130.

<sup>404</sup> Harris addresses the absence of a “true object” in the Course in General Linguistics as a remnant of 19<sup>th</sup> century romanticism. See Reading Saussure (4).

this distinction is not to deny that structures have elements, but the elements of a structure are subordinated to laws, and it is in terms of these laws that the structure *qua* whole or system is defined.<sup>405</sup>

Piaget clearly distinguished that a speech sound such as a phoneme relinquished a certain primacy upon its fixture in the homogenizing legal relations that constitute synchrony (in Saussure); while in the diachronic order it retained its dynamic internal and temporal form. The diachronic order thus favored empirical study and inductive method; the synchronic favored abstraction and deduction or, as Saussure circumspetly phrased the matter: “it is an error of method to proceed from words in order to give definitions of things” (Course 14). Piaget’s distinction elucidated a methodological rift in structuralist thought by which the question of how to know an object was divided between two procedures. The phoneme was the pivot of each.

The Saussure scholar Roy Harris also adopted the position that the basic linguistic units differed in character in synchrony or diachrony.<sup>406</sup> Furthermore, Harris understood the phoneme historically as extending definitions offered by linguists prior to Saussure.<sup>407</sup> The main difference between Harris and Piaget is that Harris advocated a Baconian, empiricist approach and revision of Saussure. He favored induction over deduction. While Piaget understood Saussure’s phoneme within a paradigmatic history of scientific change, Harris elucidated the matter by comparing varied writings, and at one point elaborated a comparative reading of Saussure and John Locke.<sup>408</sup> The paradigmatic approach of Piaget and the more empirical, inductive interpretation of

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<sup>405</sup> Structuralism 7.

<sup>406</sup> Reading Saussure 163.

<sup>407</sup> *ibid* 48-49.

<sup>408</sup> *ibid* 208.

Harris offer by contrast a fundamental difference between inductive and deductive approaches to structuralist theory and also its history. The consequence for our study and for a careful reading of Pynchon depend entirely on how this division in linguistics was received by American literary critics and cryptologists.

Post-WWI Anglophone linguistics favored what Piaget described as dynamic “aggregate” units, while Saussurean linguistics (and cryptology) increasingly favored inductive procedures that moved from general rules to a system of particulars. The distinction allowed for what Piaget, citing Emmon Bach, described as

the remarkable work of American linguists between 1927 and 1957 [which] was altogether Baconian in method: inductive data gathering, heterogenous domains of research – phonetics, syntax, and so on – pyramidally arranged and more or less loosely connected in retrospect, distrust of “hypothesis,” indeed of ideas, a program of making ‘protocol sentences’ serves as epistemological “bases,” and so forth.<sup>409</sup>

Saussure’s Course in General Linguistics had few, if any proponents in the United States during the interwar period, but the system it proposed stimulated reactions that had tremendous and distinct consequences for both literary criticism and cryptology.<sup>410</sup> For example, Anglophone literary criticism followed a distinction which to Bloomfield was pivotal: that morphemes were composed of “sememes” or units of meaning.<sup>411</sup> When Anglophone linguistics shifted its emphasis to phonology in the 1930’s, it retained this

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<sup>409</sup> Structuralism 83. On a related note, Harris has taken Saussure to task for not elaborating an inductive model for linguistics (Reading Saussure 231).

<sup>410</sup> Bloomfield’s shift towards behaviorism displaced his early admiration for Saussure and followed the inductive lines of Baconian empiricism. Piaget refers explicitly to Bloomfield prior to the quote I cited above.

<sup>411</sup> “A Set of Postulates for the Science of Language” 131.

semantic definition of the basic unit. According to Cassirer (writing at Yale University in the mid-1940's, while Bloomfield was still teaching there): "Linguistics is not interested in the nature of sounds but in their semantic function" and later "the phoneme is not a physical unit but a unit of meaning."<sup>412</sup> The Course in General Linguistics would have never made, or sustained, any such claim. The semantic-phonemic link was partly "to dictate the relationship between American and European versions of structuralism for the next quarter century" (Reading Saussure xiii).

The linguistic emphasis on the semantic-phonemic link would also extend to literary criticism and cryptology, albeit in differing and more subtle ways. Semantic units such as phonemes offered to literary criticism both a continuation with previous philological emphasis on units of written language and also an opportunity to revise its approach along psychological lines. When Ogden and Richards criticized the absence of a scientific approach to the problem of meaning, or semantics, in Saussure's Course, they followed precisely an empirical line, concerned with "aggregates" rather than "structures," to elaborate a linguistic model of literary language that included a prominent semantics. The relationship between their critique and the New Criticism, as well as the work of Rickert and Manly, will be addressed in a later section.

Cryptology also responded in a positive manner to the phonemic shift. The commanding position of cryptanalysis since WWI supported several modular components that were analogous to those of Saussure's abstract synchronic linguistics. Cryptology had found its basic unit, the cipher signal, an electrical pulse that could be communicated by sender using technological means of transmission (as opposed to the vocal speech of human physiology). Cryptologists perceived the cipher system as a closed, static system that operated according to specific internal laws (these laws were subject however to the vertical arrangements of quantities rather than the horizontal

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<sup>412</sup> An Essay on Man 125.



adjacency of linguistic signs). And both linguistics and cryptanalysis had moved from a historical model of language (that of philology) into an abstract, formal realm that favored quantification (albeit both used different types of mathematics). And cryptology developed, as did later structural linguistics, increasingly refined applications for its basic units that dispersed them over a system. In cryptology, the basic unit was broken down and dispersed over several wavelengths during transmission (a technique known as “spectrum spreading”), while later structural linguists such as Roman Jakobson began to understand phonemes not merely as base units but as units whose significance only became apparent when understood according to their dispersal over a language system.<sup>413</sup>

The comparison between linguistics and cryptology was not merely formal. Indeed, linguists and cryptologists often demonstrated scientific interest in the others’ respective fields. For example, Leonard Bloomfield had drawn a parallel between cryptology and philology in a manner that anticipated questions that would later appear in Saussure’s writings. Bloomfield was an active student who published several short essays immediately following his graduation from the University of Chicago. In a 1911 review of his former professor Francis Wood’s latest book, Bloomfield attacked the arbitrary role assumed by “phonemes” (units of sound) in comparative philology:

From this immense material it is easy to gather parallel-words galore to prove almost any desired “phonetic law” especially if the law, like the ciphers of the “Baconians,” is formulated ad hoc; but such empty word groupings and formulations have no claim to truth. We are dealing with history. The task of the etymologist is not to advertise himself by discovering as many such “sound laws” as possible, but rather to study faithfully and carefully the material before him. (“Review of Wood” 28)

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<sup>413</sup> Leonard Jackson offers a limited review of Jakobson’s idea in his polemical study The Poverty of Structuralism (73-74).

Bloomfield's polemical analogy engaged at this early date the emergence of phonemes as foundational units of linguistics; most importantly, it advocated a rigorous empiricism against the haphazard deductions of the Baconists (the same emphasis on inductive empiricism would later divide Manly and Rickert from the Friedmans). Bloomfield's interest in cryptology was sustained, if only occasional; in a telling example from his 1933 study, Language, he argued

the application of linguistics to the recording and transmission of speech, as in steganography or codes, depends largely on the phonemic principle and requires no special discussion. (506)

The statement is deceptive: cryptology did not depend on "speech" but on written language. Nonetheless, Bloomfield was correct however to note that cryptology had adopted the analysis of basic units, wherein cipher signals took the role of phonemes in a closed, abstract system of relations.

The subterranean links and rifts between linguistics, cryptology, and philology were evident in Saussure's work. Cryptology was partly located in that corner of *parole* occupied by written language with the hermetic distinction, as Eco has noted, that its "[communicative] function is more concealed or alluded than asserted" (Semiotics and the Philosophy of Language 167). In other words, once a code or cipher was transmitted in entered the world of speech and thus expressed a synchronic value. The form of transmission is identical in cryptology and in Saussure's "*circuit de la parole*." In transmission between a sender and receiver, the receiver was in a mediating position where the receiver could intercept and decipher what Harris called the "public code" of language (Saussure and his Interpreters 196). Saussure's invisible scientific observer, the secret agents of linguistics, occupied by implication the role of the cryptanalyst. Saussure's model was technologically specific: "the vocal organs are as external to the language system as the electrical apparatus which is used to tap out the Morse Code is external to that code" (Course 18).

The Course in General Linguistics used the analogy in two ways, however. The first was to distinguish, as the citation above demonstrates, between speech (*parole*) and language (*langue*). The second was to assign cryptological writings (such as “military signals”) to the space of written languages as they would appear within a general semiology (that included linguistics) within which those military sign systems constituted distinct languages.<sup>414</sup>

The ambivalent position of cryptology between *langue* and *parole* can be ascribed to the incomplete nature of the Course in General Linguistics. That ambivalence that saturates the Course occupies however a distinct historical location at the intersection of the hermetic style and the thermodynamic revolution discussed in previous sections of this study (and, as I have noted, those two distinct currents had also converged in modern cryptology after WWI). Although the later reactions of both cryptology and literary criticism to the effects of Saussurean linguistics can be regarded as isolated events, the trajectory of Pynchon’s V-structure proposes that they were in fact the interconnected surfaces of a singular convergence and particular to a certain historical age. Saussure’s cryptological examples and their role in modern linguistics are best understood in that light.

The hermetic tendencies of Saussure’s thought were rendered explicit long after the Course in General Linguistics with the publication of Saussure’s 19<sup>th</sup> century writings on Latin anagrams and hypograms. It was only after these appeared that Saussure’s commentators (most recently Roy Harris) began retroactively to study the “hidden”

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<sup>414</sup> Course in General Linguistics 15. See also Reading Saussure (31). Harris’s later examples demonstrate how cryptological terms continued in later linguistics, such as in the example of Moulton’s work of the 1960’s and 1970’s (206). Again, Eco provided the most comprehensive overview of that dissemination in Semiotics and the Philosophy of Language, in which artificial and technological languages are also addressed within the distinction between a general and specific semiology.

arguments and positions of the Course in General Linguistics or consider the implications of Saussure's work in a literary-critical register.

Saussure's research in Latin anagrams was edited (it consisted of 140 notebooks) and published by Jean Starobinski in 1971. In a 1973 review article printed in the journal Diacritics, Sylvan Lotringer described "another Saussure" that emerged from the work ("The Game of the Name" 2). Contrary to the deductive theoretical premises of the later Course, this earlier Saussure sought laws of organization (i.e. bifurcations of phonemic pairs) that recurred in the Latin texts. Lotringer notes these laws would in turn confirm an "intent" whose subject was the name, or proper name, concealed beneath ("hypo") the surface text (5).

Saussure's cryptological endeavors received significant attention during the early 1970's, and Riffaterre, De Man, and Wunderli have all offered insightful accounts of the matter.<sup>415</sup> Even Leonard Jackson (a British critic of both Saussure and his post-structuralist readers - especially De Man), nonetheless conceded the plausibility of Saussure's anagrammatic research even if he denied with later structuralists and post-structuralists who regarded the work as evidence of a philosophical crisis from which Saussure turned away.<sup>416</sup> Paul De Man summarized the matter best in his review of Michael Riffaterre's Semiotics of Poetry:

Saussure's conviction, or strong hunch, that Latin poetry was structured by the coded dispersal (or dissemination) of an underlying word or proper name throughout the lines of verse substitutes a process of formal elaboration for a referential reading....As is well known, he [Saussure] claims to have interrupted his inquiries partly because he could find no historical evidence for the existence of the elaborate codes he had reconstructed, but principally because he could not

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<sup>416</sup> See The Poverty of Structuralism 207-208.

prove whether the structures were random, the outcome of mere probability, or determined by the codification of a semiosis. (36-37)

De Man follows Lotringer's review (he cites it directly) in emphasizing Saussure's hesitation before such a vast and improbable project. The speculations for why Saussure abandoned the seemingly endless search for anagrammatic rules that would unite form and meaning appear in both Lotringer and De Man by contrast to the closed system of the Course in General Linguistics.<sup>417</sup> Saussure's research regarding the hidden *nomos* of Latin verse nonetheless resembled the work of the Baconists (and especially the Riverbank Baconists) in its pursuit of cryptic texts; the critical difference was that the Riverbank Baconists were driven by political desires to deform their methods and arguments, while Saussure mercifully concluded when he could not compile a scientific system of laws to organize his research.

Saussure's earlier hermetic research did not entirely vanish when he embarked upon the Course in General Linguistics; even Lotringer later conceded that "the anagrammatical theory seems here to be curiously on the near side of the now classic hypothesis of the *Cours* [that 'the user is not the master of his language']" (6). Following Lotringer's concession, it is possible to see how Saussure transferred his cryptological habit to the Course as an attempt to systematize an apparent hermetic problem, even as he abandoned the inductive Baconian empiricism central to the earlier enterprise.

Roy Harris has emphasized the Course hermetic tendencies by arguing that it is constructed upon a series of "hidden theoretical premises" that are "disguised either as undisputed historical facts or as matters of commonsense observation" (Reading

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<sup>417</sup> It should be noted, however, that De Man refutes Lotringer on one important point. Where Lotringer ends with a psychoanalytical reading of the anagrams as a form of repression and concludes they "must be torn down," De Man argues that "Saussure's retheorization of the question in the *Cours* can more charitably be seen as the insistence of theoretical discourse in the face of the dangers it reveals" (37).

Saussure 5). These premises include the statement that “linguistics is a subject with an identifiable history” (5), that “a sign system is adequately defined, from a semiological point of view, in terms of ‘form’ rather than ‘substance’” (31), that the sign itself is not ideographic or phonetic, but “mute” (42-3), and that an *etat de langue* (language state) “is not only a period, but something much more enigmatic: a period with a geographical area” (105). In terms of its scientific justification, Harris notes that Saussure’s deductive model relies upon an arguments whose “hidden premise seems to be that sciences simply are endeavors to bring together and interrelate under a few general laws or principles as many disparate facts as possible pertaining to one subject” (196).

Harris’ position that the Course in General Linguistics is structured by such “hidden premises” is corroborated by an exceptional passage in the Course itself. The passage argues that literary language and its philological proponents are hermetic agents that obscure linguistic history:

It is true that this uninterrupted evolution [of language] is often hidden from us by the attention paid to the corresponding literary language. A literary language is superimposed upon the vernacular, which is the natural form a language takes, and it is subject to different conditions of existence. (139)

The relationship of literary language to the vernacular is that of a super-imposition that re-encodes the natural language in an artificial form. A great part of diachronic study should then be dedicated to the recovery of the hermetically sealed “vernacular.” Saussure’s hermeticism thus provokes its opposite: the decoding of the vernacular rather than the literary language. The Saussurean law that “language in its totality is unknowable” must also be read in retrospect as attributing ambivalence to that impossible project.

Harris’ comparison between Saussurean linguistics and Durkheim’s sociology presented the Course in General Linguistics as conceiving of language as a social

institution concealed by hermetic tendencies and obscure forms.<sup>418</sup> The tri-partite divisions between *langue*, *langage*, and *parole* were the ceilings and floors of its arcane edifice, concealing labyrinths whose corridors shift according to the mysterious workings of time and the internal pressures of the system's architectural weight, and whose upper floor, *la langue* was at the furthest remove from the social base. Nonetheless, Saussure insisted that the science pursue its course; or, as one of his students wrote in his notebook: *La langue est comparable a une machine qui marcherait toujours, quelles que soient les deteriorations qu'on lui ferait subir* ("Language is a machine which keeps going regardless of the damage inflicted upon it").<sup>419</sup>

Saussure's machinic metaphor was not a dispensable aesthetic device. As many of Saussure's readers have noted, thermodynamics and its progeny (electrodynamics, hydro-dynamics) were a formative influence on the new linguistics, and in particular Saussure's design for the synchronic system. Dynamic terms such as "force" and "energy" are pervasive in the Course, and the synchronic model's spatial contours are drawn almost entirely from thermodynamic designs. For example, Saussure draws "isoglossematic lines" to depict and explain the overlapping of dialects in a space (200-201). He compares them explicitly to isotherms, lines used in physics to demarcate variable curves at whose every point a constant temperature is maintained.<sup>420</sup> The

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<sup>418</sup> Harris' definition of its institutional form is not purely social. See Reading Saussure 67, 81-82. Jameson also drew the same analogy between Durkheim and Saussure, with similar results (The Prison House of Language 27).

<sup>419</sup> The sentence appears on page 113 in the notebook of Saussure's student Emile Constantin, which was published as Saussure's Third Course of Lectures on General Linguistics: (1910-1911).

<sup>420</sup> Lewis and Randall defined isotherms within the category of things constituted by "the dependence of a variable property, such as the volume, upon such other variables as temperature and pressure" (27). In mathematical terms, they could be described by calculus in terms of differential equations. Lewis and Randall defined isotherms however as parts of an "aggregate" by which "the state of a system is defined by

isothermic lines of regional dialects behave as “the edge of a wave advancing of retreating” (204-205). Population boundaries are thus transformed in synchrony as fluid, dynamic areas with corporal structure; if the “wave” were based entirely in phonetics, it would merely dissipate in the air.

Ernst Cassirer was the first to recognize the paradigmatic relationship between thermodynamics and structural linguistics in An Essay on Man (1944), when he noted its influence on the system form of “structure” (what Saussure describes as a “state”):

It became clear [after Faraday and Maxwell] that the electromagnetic field could not be split up into individual points. An electron was no longer regarded as an independent entity with an existence of its own; it was defined as a limit-point in the field as a whole. Thus arose a new type of “field physics” which diverged in many respects from the former conception of classical mechanics. (121)

Piaget followed Cassirer with a more subtle account of their paradigmatic relationship in Structuralism (1968) with analyses of internal features shared between structural linguistics, thermodynamics, and other sciences (such as mathematics and psychology) and of certain characteristics particular to each. These included how probability theory attributed to each system a “‘structure’ by forming the set of possibles from which the real is then selected,” thus recognizing the “quasi-intellectual” capability of selection between possible future states within a system (43). Piaget recognized as well the near instantaneous manifestation of an effect throughout the field as a whole (54) and also, in a critical moment, how certain states carried within them a persistent dialectical tendency that sustained contradictions within each state; Piaget’s example for the latter

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properties of the system” (27). Saussure would not have endorsed such a model, as it would have placed synchronic laws at the service of systemic parts, rather than the other way around. It should also be kept in mind, however, that isotherms are used also in meteorology to describe weather patterns, and it is possible that Saussure had this less tangible application in mind.



was “construction by negation” typical of the “oscillations back and forth between a corpuscular and a wave theory of light” in physics.<sup>421</sup>

Saussure scholar Roy Harris has dedicated significant sections of his writings over the past two decades to both thermodynamics in Saussure’s writings and how it was historicized or systematized by later thinkers (especially Cassirer and Piaget). With respect to the former, Harris has argued that modern technologies provided a model for Saussure’s speech circuit that relied upon particular concepts of “energy conversion” (Reading Saussure 213-215). Harris addressed the latter question in his more recent work:

The question of why, outside the domain of linguistics, Saussure’s synchronic system was such an attractive idea is more complex. It is often suggested that one reason was that it fitted in rather neatly with similar ideas that were becoming familiar in other disciplines in the late nineteenth and early twentieth centuries. Piaget argued that the first field in which structuralism made itself felt was mathematics, with the concept of the ‘group,’ which in turn links up with the kind of formalization of logic associated with Russell and Whitehead’s Principia Mathematica. Piaget is doubtless right in detecting conceptual parallels between mathematical structuralism and linguistic structuralism.... It must be open to question, however, whether any of this comes very close to explaining something much more fundamental about the appeal of the synchronic system. For mathematics and mathematical logic have no social implications; or, if they do,

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<sup>421</sup> Structuralism 124. Frederic Jameson borrowed the wave/particle example from Piaget in The Prison House of Language (14). The point was not to illuminate a productive contradiction between two methods, but rather to establish the “limits of perception” inherent in such holistic models, in which the “field” of language designates what composes the system as a structure rather, than, an aggregation of parts. The lingering question is that of the observer’s position: can the perceiving subject exist within the synchronic system yet not have access to its form and only “perceive” the diachronic “outside” as it were? On which side does the subject stand: the passive order of synchrony, or the active order of diachrony?

these are not obvious to the generality of educated people, or at least to those who would have regarded themselves as educated at the time these ideas were being advanced. Similarly, although Cassirer is right to point out the parallels between structuralism in linguistics and structuralism implied by theories of the electromagnetic field....one must question whether these would have struck many people at the time. (Saussure and his Interpreters 194)

What is lacking in Harris (a British scholar who carries the imprint of the Anglophone tradition of logic and its Cartesian fascination with “mind”) and also in Piaget and Cassirer (but for different reasons), was the possibility that thermodynamics and linguistics would have joined in a single field, as opposed to sharing traits across different systems, methods, elements, etc. Cryptology was such a field because it retained its inductive, philological method within an expanded model that had, in its drift towards quantification, subordinated induction to deduction and general laws. In doing so it ordered its procedures in a manner that was parallel to modern linguistics and worked, as it were, from the top down (in both scientific method and physical space – from the sky to institutions).<sup>422</sup>

Others had indeed hinted at the convergence of linguistics and thermodynamics (as did Norbert Wiener in his early writings on cybernetics in the late 1940’s). But that an artist should have done so does not factor in the varied histories concerned with those subjects. What is one to make, then, of the figural arc of Pynchon’s “V-structure?” Its trajectory clearly followed a mock-deductive path from Mondaugen’s celestial “sferics”

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<sup>422</sup> Piaget’s most interesting sections on the structural history of mathematics define positive connections (Structuralism 17, 24, 36), and Caws also offers a brief description of their relation (Structuralism: A Philosophy for the Human Sciences 16-18). Harris however offered evidence in his earlier work contrary to an overestimation of the relationship between mathematics and linguistics (Reading Saussure xiv). While contemporary cryptology is almost entirely determined by mathematical procedures, a full account of its emergence and relation to these prior histories has yet to be written.

to an earthly institution (Yoyodyne) and there encountered another, the younger Stencil's, who by induction arrived at the same institution by assembling fragments into a system. Their collision in the Yoyodyne cafeteria (its very location perhaps a comic aside on the matter of energy conversion) joined the two procedures in a figural arc, and that figure traversed an entire scientific age (an age shaped by contingency and probability, no less).

Their nexus was not systemic. For example, V. does not propose what Umberto Eco described, following Saussure, as a "general semiology" of the world's languages.<sup>423</sup> It was neither bipartite sign (Saussure) nor tripartite semiosis (Peirce), structure nor aggregate, object nor subject. Nor did the figure become anarchic, a free radical, as it were, traveling quixotically through history.

The V-structure's figural arc opened a historical discourse that the discursive components of these sciences could not. The V-structure (crackling with possible and actual historical energies) elaborated the genealogy of a new entity - an institution with a unique intelligence capable of converting the inhuman agency of abstract structures into actualities - Henry Adams' dynamo reborn as a national aggregate of institutions. The figural arc attempted to subsume that historical aggregate into its form, dissolve it, and reincarnate it in dramatic, radically historical style. Only then, when the transformation of historical matter into novelistic discourse had begun, could the arc begin to organize miasmatic patterns of intelligent behavior as genealogies and produce a discourse. The figure offered, against the scientific partitions of modern linguistic models, a historical discourse whose temporal vectors disrupted those same partitions. To paraphrase Wittgenstein, "the figure is all that is the case."

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<sup>423</sup> See Semiotics and the Philosophy of Language 6-8.

The figure's sustained plasticity throws considerable light on how Pynchon's novels reconfigured the relationship between modern linguistic theories and literary language. One important, though by no means comprehensive point, was elucidated by Edward W. Said in his discussion of Saussure's anagrams:

Saussure's studies are therefore directly tied to a long tradition, in the West and elsewhere, of seeking to demonstrate that productions of the mind, most notably language, follow wholly compelling, universal patterns of behavior. This tradition, however, stands polemically opposed to a more liberal one that argues for the innovative powers of individuals to change these patterns, to inaugurate new patterns by setting individual precedents. (Beginnings 55).

Pynchon's emergent genealogy, captured in the figural arc, clearly leans towards the liberal tradition described by Said, with two significant exceptions. First, it has intelligent competitors such as Yoyodyne, aggregates of inhuman force that could direct historical energies in a manner that other institutions or individuals could not, and with which all languages had thereafter to contend. Second, Pynchon's discourse disputed the most important strand of the "liberal tradition" to which Said referred, the new literary criticism, beginning with I.A. Richards and C.K. Ogden's The Meaning of Meaning, which argued that affective, more loosely "symbolic" art fundamentally differed from the more precise symbolic statements of science.

## **XXV The Semantic Crisis**

John Matthews Manly was in London, England in 1933, working on the variorum edition of Chaucer's Canterbury Tales. It was his final year of work as Chair of the English Department at the University of Chicago, and he was perhaps thinking of its future. He wrote to his former MI-8 colleague David Stevens in a letter that:

I entirely agree with you that I.A. Richards would be a valuable man for the Department of English; he represents a type of interest and scholarship too

little developed by us or any other American University and seems to be a first rate man. I have not met him but will try to do so in the spring when I visit Cambridge.

Meanwhile, unfortunately, it appears from my own knowledge of the financial condition of the University and also from recent letters, the University is not now in a position to attempt to secure either of these two desirable men. If we could have them I think the Department could successfully challenge comparison with any Department of English in the world. I hope sincerely that conditions may change for the better before long, to make possible getting one or both of them.<sup>424</sup>

Manly's estimation was grounded in the professional direction Richards had steered literary criticism pursuant to Saussure's evacuation of philology. In their reply to Saussure, I.A. Richards and C.K. Ogden opened the way to a new science of language and communication (semantics). They did so not only by avoiding the historicism that had crippled philology but by making literary study an exemplary model for a renewed study of language. In doing so, they extended Saussure's critique of philology in significant ways.

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<sup>424</sup>The other man to which Manly refers is Prof. Kenneth Sisam. The letter is dated March 14<sup>th</sup> and it is in Box 11, Folder 11 of the Manly Papers. The letter was deposited in the Manly Papers at the University of Chicago by Manly's former student, colleague, and secretary David Stevens in August, 1970 (Stevens worked at the Rockefeller Foundation during the 1930's). Stevens appended the following explanation to the letter in the file:

Richards was interested, as was I, in the American setting for his varied purposes in interpretation, criticism, and international understanding through universal use of English. Funds from the Rockefeller Boards set his long-term plans in motion, but the funding of his first years at an American University created the patterns of all the work of Richards from 1939 to now (the summer of 1970), when he was honored by the American Academy of Science as culminating indicator of his service to learning in both customary senses. Attachment to Harvard was on the initiative of President Conant. Chicago had reacted with no response to the ideas of Manly as seen in this second paragraph [first above]....

Previously, philologists had contended that the relation of the word to its function was that of an alembic/vessel to its content; as such, it was subject to historical fluctuations and the imprint of time. Morphological units (consigned by Saussure to the realms of *diachrony* and *parole*) had taken priority in philology over *la langue*, which was not subject to the strong influence of a temporal vector. Saussure had insisted upon a partial separation of the temporal and abstract orders of language, and the distinction solved the problem that had obstructed linguistics since the classical age of the comparative grammarians, whose

backward looking view of linguistic structure led them to envisage it as being constantly eroded by the destructive operations of phonetic change. Thus, at any given point in the history of language, the linguist was confronted not by a coherent grammatical system but by the ruins of former systems.<sup>425</sup>

Saussure's renewed model of linguistics, based on phonemes rather than morphemes, cleared the way for the synchronic study of *la langue* at the expense of the earlier philological model. But it had also raised to greater prominence the problem of mind in linguistic study. This psychological trend offered to Ogden and Richards the opportunity to elaborate a new model of language that would reform semantics as a model of mind and communication in a manner that Saussure had ignored, thus situating literary criticism more firmly within the Anglophone tradition of logic (as opposed to a Vichian tradition of history) .<sup>426</sup>

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<sup>425</sup> The citation is from Harris' "history of structuralism" (Saussure and his Interpreters 6). While Harris cites Ducrot to refute the historicizing of the role of linguistic units in the study of language, I cite Harris' synopsis because it is a fine summary of the general attitude of philology towards the systemic perception of language.

<sup>426</sup> Roy Harris has often commented upon the psychological premises of Saussure's writings. See, for example, Saussure and his Interpreters 198.

The Meaning of Meaning: A Study of the Influence of Language upon Thought and of the Science of Symbolism (1923) emerged from much the same set of scientific questions that had formed Saussure's work. What was the relationship of language to the human mind? Could it be conceived in something like a model of technological communication (such as Saussure's *circuit de la parole* or the tripartite model offered by Richards and Ogden)? How could the role of history be diminished when studying language? And what could linguistics learn from other sciences - thermodynamics, psychology, etc. - that had advanced methods that challenged the historicist models of philology?

Richards and Ogden evaluated the sciences mentioned also in Saussure, if in contrasting ways. They amplified the psychological and cognitive problems raised by Saussure, drew upon mathematics and logic to provide foils and compliments to semantics (especially through Bertrand Russell's work), and drew parallels with the problems of modern physics. While cryptology does not appear in any significant form (it would in a later essay on semantics written by Richards), a related state-sponsored science, that of propaganda, was subject to considerable critique for its manipulation of human language.<sup>427</sup> After citing Montague's Disenchantment, Ogden and Richards noted "the return of the exploiters of the verbal machine to their civil posts is a return in triumph, and its effects will be felt for many years...."<sup>428</sup> Richard and Ogden's

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<sup>427</sup> In a late essay (1969), which he considered to be his best on the subject, Richards used the language of cryptology to describe the model of communication upon which semantics rested. The speaker encodes a message, which is transmitted with as little 'noise' (or ambiguity) as possible, where it is decoded at the other end by the listener. The model proposed by Richards, which clearly resembled that of post-WWII cybernetics, also offered a brief sketch of the varied uses of the term "code" in various other contexts. See "Semantics" Complementarities 98-107.

<sup>428</sup> The Meaning of Meaning footnote, 18. The reference to "the military code" on the preceding page falls under what Eco would call an "instructive" code, or laws regulating behavior. One can only wonder how John Matthews Manly would have reacted to such a statement, since cryptology had come to provide the primary intelligence used by propagandists.

emphatically secular and more socially oriented ethics stand in sharp contrast to Saussure's frequent abstractions.

The Meaning of Meaning also modulated slightly or maintained select elements of Saussure's work. Ogden and Richards posed an anti-historicism similar to that of the Course in General Linguistics, but where the latter depended on subtle distinctions between "history" and the temporalities that alter abstract linguistic states, the former relied upon the relation between a thinking subject and unspoken social relations that provided references ( a "context") for that subject's thought. The Meaning of Meaning also retained Saussure's position that linguistics would form the main branch of a more general science of semiology (with semantics as its newest progeny).<sup>429</sup>

On the whole, however, Richards and Ogden ventured a foundational critique against Saussure's Course. The consequences of that critique were paradigmatic in that they divided Anglophone literary criticism for the remainder of the twentieth century between a vertical, hierarchical model of meaning (the many levels of which are outlined in detail by Richards and Ogden) and a horizontal model of language (for which Saussure provided the foundation, which would later return to literary thought via structuralism and post-structuralism). The difference in the two paradigms was evident in the diagrammatic models of speech they proposed:

Ogden and Richards forthwith reject the Saussurean bilateral model of the sign in favour of a trilateral model which takes into account not only the relations between the thought (or *reference*) and the *symbol*, but also between each of those and the referent. They point out that the relationships are different in all three cases. This yields a far richer account of signification than any simple association

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<sup>429</sup> Ogden and Richards' critique rests however upon a fundamental misunderstanding of the distinctions between synchronic and diachronic orders in Saussure. See, for example, Reading Saussure 62-63. Piaget has offered the most incisive reading of the position of semantics within Saussure's *diachrony* (Structuralism 78).



of *signifier* with *signifie*. The resultant “triangle of signification” proposed in *The Meaning of Meaning* subsequently became one of the famous landmarks in the history of semiotics in the twentieth century.<sup>430</sup>

The model proposed by Ogden and Richards expanded Saussure’s complex formal account of language with a science of its substance. As such, it claimed to be an improvement, and that ameliorative claim rested on a fundamental methodological difference. Beginning firmly from a commitment to empiricism and inductive method, Ogden and Richards dismissed two particular elements of the Course in General Linguistics. The first was that Saussure had not offered a concrete object for linguistic inquiry, but in its place an abstract design: “*la langue*.” In lieu of an object, Richards and Ogden argued, Saussure offered the erroneous term “sign.” Against this term, or as a more capable substitute, Richards and Ogden employed the term “symbol.” Saussure had rejected the latter term because it retained “the rudiment of a natural tie between the signifying and the signified” (The Meaning of Meaning 6), a relation which, according to Ogden and Richards, could provide the foundation for a science of semantics that included an external object from outside the abstract language system in its scheme.<sup>431</sup> The distinction between “sign” and “symbol” was paradigmatic: it offered an entirely different scientific model, replete with new methods, assumptions, and didactic techniques.

The Meaning of Meaning achieved a modular form for semantics by a focused attention on the relationship between symbols and thought. Proceeding from the basic unit (the

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<sup>430</sup> Saussure and his Interpreters 70. Harris’ remarks occur in his discussion of Bloomfield. See also Harris’ Reading Saussure (62) for a discussion of Saussure vis-à-vis Richards and Ogden, and the critical commentary on their work.

<sup>431</sup> Fredric Jameson has misunderstood this fundamental feature of Ogden and Richards’ work, which did not exclude reference to an “outside” but depended upon it (even if that outside was not necessarily historical, but rather experiential and grounded in psychological factors, such as memory). See The Prison House of Language 24.

symbol), Richards and Ogden established a series of levels through which a symbol passed before arriving at meaning. These included a causal theory of sensory perception, the repetition of causes that produce a referential context, and how the context stimulates the most likely and correct interpretation (but can also produce a false interpretation). Recurrent interpretations formed beliefs, or an aggregate “compound” whose design they refer to as “the contextual theory of reference” (73). Once such a symbolic state is outlined, truth statements become possible: “to make a statement is to symbolize a reference” (82) which then makes possible a truthful definition. Statements, in their most precise and exact form, shape the relation between symbol and its referent into a truthful fact; they become “thinking machines” (a phrase that Richards would repeat in the first sentence of his later book, The Principles of Literary Criticism).<sup>432</sup>

The rules that governed symbolic language and their meanings were not uniform. Richards and Ogden offered varying degrees of symbolic effectiveness, and drew a definitive line between “the symbolic and the emotive” functions of language. They defined the emotive as “a common and important use of words which is different from the scientific or, as we shall call it, the strict symbolic use of words” (148). Emotive language prompted a “general revival of poetry” (viii) and a renewed literary criticism.

Saussure’s work had this positive consequence for Richards and Ogden: it liberated literary criticism from the weighty baggage of philological historicism. Without a temporal vector that could explain the relationship between emotive language and history, literary criticism emphasized the internal relations between emotive languages in a literary text – its “context” – and offered a theory of scientific value it had previously lacked. The communicative model of semantics thus conceived literature as

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<sup>432</sup> The Meaning of Meaning 89.

a system of internal, spatially ordered relationships (similar to those of a painting) that spanned the divide between language, experience, and mind.<sup>433</sup>

The program outlined by The Meaning of Meaning cleared the way for I.A. Richards' subsequent literary criticism to reinvigorate the study of literature in the Anglophone world. The most important works that he produced in the period that immediately followed were Principles of Literary Criticism and Practical Criticism (published in succession beginning in 1924). Richards never abandoned the empirical, materialist, or scientific parameters proposed in The Meaning of Meaning; indeed, his major writings were elaborations of the earlier model. The difference was that Richards focused thereafter on the matter of "emotive" language with respect to literary criticism, striking, as it were, an entire new discipline from his earlier work with Ogden.

The difference between Richards and other contemporary Anglophone humanists is most apparent when placed in contrast to the work of his rival T.S. Eliot. The discord between Eliot and Richards made possible their integration into U.S. literary thought during the 1920's and thereafter, providing for both the cryptologists and another group, the New Critics, scientific arguments for their own disciplinary and institutional reforms. The work of Richards was the more important of the two with respect to scientific and institutional reform (as opposed to Eliot's predominantly aesthetic and historical influence). Richards maintained the contacts that had united cryptology and thermodynamics during WWI in the dominant positivist and empirical strain of his work, but the influence was rendered invisible, and to understand the secretive after-life of that bond in U.S. cryptology and literary thought it is first necessary to understand how Eliot's mysticism prevailed over Richards' scientism.

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<sup>433</sup> See, for example, The Meaning of Meaning 113-114, 236-237. Richards also included a chapter on painting in his next major work, Principles of Literary Criticism.

Richards contentiously engaged Eliot's work; R.P. Blackmur once noted that Eliot and Richards were engaged in "honest wrestling." The two diverged on important social matters pertinent to literary study. For example, Richards was rabidly secular in his literary criticism; Eliot was an unreformed mystic. Richards often attacked Eliot in The Athenaeum (where Eliot had reviewed Henry Adams). In a particularly antagonistic review of Max Eastman's writings, Richards accused both Eliot and Eastman of being "untrained in the technique of interpretation."<sup>434</sup> The critique hinged entirely on Richards' the study of meaning:

To be a good interpreter you must not only know how you are using the words yourself, but be able to imagine how the other man has been using his. In brief, you must *understand* before you argue. Such interpretive freedom requires the scientific spirit, but it needs moreover a systematic exercised acquaintance with the possibilities of *meaning* [emphasis mine] and a conscious technique of questioning.<sup>435</sup>

The term "technique" carried a particular significance in Richards' literary criticism. It invoked the then current use of the term "technics" ("technology" in contemporary usage) and aligned Richards' methods and ideas with those of an applied science; the term resonates with his "thinking machines" and his later interest in actual machines that could resolve the difficulties of semantic ambiguity. Both are theoretical instruments for Richards; the difference, while sometimes distinct, is often unclear in his early writings.<sup>436</sup>

Richards' technical jargon stands in sharp relief against Eliot's Christian humanist style. The difference is not merely one of terminology. As I noted in the previous chapter,

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<sup>434</sup> "Max Eastman's 'The Literary Mind': Its Place in an Age of Science." Complementarities 51.

<sup>435</sup> *ibid.*

<sup>436</sup> See "Multiple Definition." Complementarities. 63

Eliot was averse to the historical model that Henry Adams borrowed from thermodynamics. Richards used thermodynamics as a precedent and model for his system, and continued the positivist, ameliorative strain that had sustained the science in the 19<sup>th</sup> century. His technical language regularly defined a more efficient system - a closed system, whose entropic waste was limited - for both literary criticism and the cognitive work of its subject. The following passage from Principles of Literary Criticism is exemplary of what Richards would call the "inter-inanimation" produced by elemental substances.<sup>437</sup> These elements would provide the basis for intelligible experience and its most valued form, the emotive literary language:

Imagine an energy system of prodigious complexity and extreme delicacy of organization which has an indefinitely large number of stable poises. Imagine it thrown from one poise to another with great facility, each poise being the resultant of all the energies of the system. Suppose now that the *partial* return of a situation which has formerly caused it to assume a stable poise, throws it into an unstable condition from which it most easily returns to equilibrium by assuming the former poise. Such a system would exhibit the phenomena of memory; but it would keep no records though appearing to do so. The appearance would be due merely to the extreme accuracy and sensitiveness of the system and the delicacy of its balances. (95-96)

Richards later describes the mnemonic energy system against mechanistic theories of behavior, suggesting that it provides the grounds for a theory of associations that is suited to describe the effects of emotive, or literary language (the anti-mechanistic jab is perhaps directed at the lingering influence of Bergson in Eliot's work). Prior scholarship of Richards' work has focused on the psychological or what R.P. Sharma described as the "neuro-physiological" foundations of Richards' work, but thermodynamics

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<sup>437</sup> "Interinanimation" appears in both Principles of Literary Criticism and in a later essay, "Semantics."

provided something more elemental – a substratum, as it were, whose dynamic energy provided the material for his theories of subjectivity and language.<sup>438</sup> Richards' thermodynamics was not a pessimistic model, such as that found in Henry Adams, but rather an optimistic one that emphasized equilibrium and efficiency.

Working from that positivist scientific base, Richards devised modern hermeneutic “machines” to identify and classify both psychological processes and types of literary language. He developed an entire new vocabulary of terms such as “interanimation,” “energy system,” “machines,” and “apparatus” in the first decades of his work. The lexical spectrum looked forward to an age of mechanized languages capable of reproducing the internal complexities of literary works as the harmonies that vibrated in the minds of ideal social beings.<sup>439</sup>

Both T.S. Eliot and I.A. Richards refuted the alleged pessimism and misanthropy of Henry Adams' use of thermodynamics. Eliot maintained that thermodynamics could not offer the cosmological or aesthetic models necessary to heal the “fall into history” or the ills of the modern world; he would later find his model in the Church of England. Richards, by contrast, adopted a radically secular position on thermodynamics. He maintained optimism about its value as a model for efficient communication, anticipating, as it were, later developments in cybernetics.

Their differing positions on thermodynamics exposed profound methodological and social differences between the two intellectuals. The paradigmatic differences extended

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<sup>438</sup> I.A. Richards' Theory of Language 2-3. Sharma's book was one of the more insightful studies of Richards' work. It was published however when Anglo-American academic interest in Richards had declined.

<sup>439</sup> A similar interest may be found in the historian Lewis Mumford as well, who described the French scientist Releaux as “the first great morphologist of machines.” Technics and Civilization 9.

to the logical methods they proposed for literary criticism. Richards offered distinctly empirical and inductive methods for the study of literary language. Where Richards worked from the particular towards complex new forms of semantic unity, Eliot's criticism proposed that literary history was a whole, granted a priori, to which the individual work was to be added as a compliment. Richards summarized the difference indirectly in his 1928 work Practical Criticism: "The view that what we need in this tempestuous turmoil of change is a Rock to shelter under or cling to, rather than an efficient aeroplane in which to ride it, is comprehensible but mistaken" (51). Although Richards admired Eliot's poetry, he clearly refuted his literary criticism and Eliot's biographers have as a result often depicted Eliot as the reluctant victim of Richards' academic advances.<sup>440</sup>

There is no measure for the institutional, discursive, or professional modifications prompted by The Meaning of Meaning and extended through Richards' later writings and his criticism of Eliot. Paul Bove' has noted that "he [Richards], more than anyone else, deserves the title 'father' of academic criticism" because "before Richards, academic criticism of English literature did not exist as a discipline in English of American universities" ("A Free, Varied, and Unwasteful Life" 40, 45). Two specific movements - cryptology and the New Criticism - engaged Richards' work in the United States with significant modifications.

The first movement was manifold. On the one hand, it was the institutional and scientific reform of cryptology begun by Manly and the Friedmans, while on the other hand it was the institutional and scientific reform of literary study inaugurated by Manly and Rickert in Chicago (who elaborated, as early as 1920, a professional model of "collaboration" similar to that which Bove' recognized as effective in Richards).<sup>441</sup> The

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<sup>440</sup> See, for example, Peter Ackroyd T.S. Eliot (99-100).

two branches of this provincial movement, whose geographic origins were in the upper Midwest, proved competent early interlocutors for the second movement - the New Criticism - which emerged from the U.S. South.

The second movement was also manifold. During the 1920's, the prescient Edmund Wilson called its first branch the "Tennessee Poets," referring to the group (also known as the "Agrarians"), consisting of Allen Tate, John Crowe Ransom, and others, was centered at Vanderbilt University in Nashville, Tennessee (Tate had earlier been Ransom's student at Vanderbilt). The second group was located in Baton Rouge, Louisiana, at Louisiana State University, where two men - Robert Penn Warren and Cleanth Brooks (both had been Ransom's student in Nashville) - assumed editorial responsibilities for The Southern Review in the mid-1930's. Beginning in the immediate post-WWI period, the two groups produced an extensive and influential body of scholarship known as the New Criticism that engaged the U.S. cryptologists prior to and during their respective institutional apotheoses.

The New Critics produced varied critical and pedagogical methods in response to both Eliot and Richards. They generally followed T.S. Eliot in proposing theories that were anti-modern in their social implications and rooted in the nostalgia for the vestigial

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<sup>441</sup> I refer here to Paul Bove's chapter entitled "A Free, Varied, and Unwasteful Life" in Destructive Poetics (46). The title of the chapter is borrowed, ironically, from a passage in Richards' Principles of Literary Criticism (51). The writings of Bove, Arac, Spanos and others were the first to engage the influence of Richards and the New Criticism with respect to later deconstructive reading techniques as merging into a singular genealogy within Anglophone literary study in the twentieth century (see, for example, "Variations on Authority: Some Deconstructive Transformations of the New Criticism" in Bove's book Mastering Discourse). While many of that group recognized and valued the import of the early formalists such as Richards, Eliot, and the New Critics, their criticism was directed firmly against the aversion to history in their writings and teachings. I would offer that a distinction should be made however between the profoundly secular materialism of Richards' work and Eliot's idealism. It was Eliot's idealism and religiosity that was best received by the New Critics in the U.S., and which prepared the way for the anti-materialism of deconstruction.



traces of pastoral and neo-classical cultures in modern literary life. Their work looked back with nostalgia on the dynastic, agricultural society of the U.S. South, which they identified as an antidote to northern industrial and corporate society. Certain among them, and John Crowe Ransom in particular, publicly advocated that “Agrarian” position in conservative opposition to the federal U.S. state’s incorporation of southern agricultural society into its institutional designs.<sup>442</sup> The New Critics borrowed from T.S. Eliot’s religiosity in order to maintain a mystical connection between Southern literary idiom and the land. Cleanth Brooks, in a late essay, summarized the bond between Eliot and the New Critics through a point by point comparison with the Agrarian essays collected by Ransom in I’ll Take My Stand (1930).<sup>443</sup> In order to do maintain that mystical connection, the New Critics had first to subordinate the secular and scientific arguments of Richards’ work to Eliot’s Catholic views. Ransom was again the most important in this respect.

The opening essay of John Crowe Ransom’s 1941 book The New Criticism outlined the points derived by the New Criticism from Richards’ works. In his reading of the American literary critic R.P. Blackmur, Ransom praised him for avoiding moral or psychological approaches to the text (despite the fact that Richards advocated moral and psychological understanding of emotive language). Following the Blackmur example, Ransom introduced Richard’s ‘field theory’ as a system of literary interpretation.

Ransom isolated Richards’ formal interpretive terms and evaluated their systemic value. He noted that Richards separated “meaning” (symbol) and “beauty” (affect) and developed from there a specific terminology and table of definitions. “Meaning”

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<sup>442</sup> Paul Bove’s essay “Agriculture and Academe” in Mastering Discourse surveys the matter.

<sup>443</sup> “T.S. Eliot and the American South” 60-61.

corresponded to “knowledge,” while “beauty” was a form of affect that, in its most sophisticated expression, might culminate in “synaesthesia” in a literary text. For example, the term “synaesthesia” (introduced first in The Meaning of Meaning) culminated the index of terms that categorized affective meaning as a complex of syntactic and emotive relations.

The categorical index and its “field theory” were for Ransom the important aspects of Richards’ contribution to a new literary criticism. They permitted Ransom and his students to codify literary study in a manner that could claim to resist the fluctuations of time and history (just as the New Critics hoped to resist federal impositions on Southern land). In absorbing the foundational precepts of Richards’ “field theory” (but without the historical implications of thermodynamics) the New Critics unwittingly rendered invisible the positivist version of thermodynamics that Richards had used as a template. In its place, they offered the correspondence of southern U.S. literary language (Richards’ “emotive language”) with another sub-stratum, the land itself.

The thermodynamic model was thus entombed in the formal hermeneutic systems of the New Criticism, wherein “emotive” literary language was understood in terms of a corresponding U.S. territory rather than in terms of a linguistic model. In either case, however, the literary language was conceived as a closed system which efficiently produced meaning and stimulated judgment. It was partly due to this shared model of thermodynamics, and partly due to a shared refutation of “history” as the grounds for linguistic analysis, the New Criticism resonated with U.S. cryptology.

The New Criticism and U.S. cryptology converged on several points during the inter-war period, through WWII, and afterwards. Both groups sought a scientific reform of literary study. They followed debates in modern linguistics because the field offered an opportunity to refute philology and its historical perception of language. Each group absorbed at some level a thermodynamic model of language conceived as a balanced

and enclosed system of effective communication and interpretation. And each endorsed a rigorous empiricism. As we shall see in the varied readings of Poe offered by Friedman, Wimsatt, and Eliot, there remained strong differences between the groups. Nonetheless, the fundamental thermodynamic model of language (conceived as space) remained intact.

The cryptologists and New Critics also shared a ferocious suspicion of established institutions yet also a fervent desire to reform them.<sup>444</sup> The New Critical revolution was averse to those institutions – universities, laboratories, and state-funded facilities – that arose from the modern sciences and were subject to the fluctuations of economic and social factors and the expansive power of the federal state. Nonetheless, they proposed new definitions of literacy, methods of literary study, and invented a new jargon that effectively professionalized literary study in American universities. The cryptologists were more compliant institutionalists; Manly was a University professor and served as president of the nation’s largest organization of literary scholars, while the Friedmans traveled between independent facilities and the Department of War before finally settling into the institutions of the post-WWII U.S. state. William Friedman noted after World War Two – when the New Critics achieved apotheosis in the American university system – that “the most powerful instrument or weapon ever forged by man in his long struggle for emancipation from utter dependence upon his own

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<sup>444</sup> Edward Said noted that the New Critics were “radically anti-institutional.” (Reflections on Exile, 124). See also Paul Bove, “Agriculture and Academe” in Mastering Discourse. Bove argues that the New Critics claimed to resist the expansive power of the U.S. state and that in doing so they were effectively incorporated into its designs. It is ironic that, given the anti-institutional tendencies of the New Critics, and the hatred they shared with Eliot and Faulkner for Woodrow Wilson, that Woodrow Wilson would have most likely endorsed the argument that meaning was a fundamental category of literary thought. We must recall his earlier diatribe against the philologists: “You divert attention from thought, which is not always easy to get at, and fix attention upon language, as upon a curious mechanism, which can be perceived with the bodily eye, and which is worthy to be studied for its own sake, quite apart from anything it may mean” (“Mere Literature” 84).

environment is the weapon of literacy.”<sup>445</sup> A general reform of literacy thus shaped their respective institutional trajectories; the 19<sup>th</sup> century sense of civic responsibility remained strong in them all.

There also existed stronger differences between the two groups. Chief among these was how the two groups theorized the problem of meaning. Both groups developed a specific vocabulary for their respective cases. On the one hand, the New Critics valued meaning and how it rendered language semantically “complex.” To that end they crafted a new vocabulary of literary analysis that included valued terms such as “ambiguity,” “paradox,” “irony,” and so forth. Their general tendency was to prize the diversity of meaning in literary expression over any historical considerations. As I noted in Chapter Two, Friedman and Manly also developed a new, more precise vocabulary for the science of cryptology. Like the terms of the New Critics, their diction was meant to eliminate the historical ambiguity of previous terms. The new cryptological jargon and Friedman’s later quantification of language were designed however with another end: to eliminate semantic ambiguity that would allow for the misinterpretation of military communications.

The New Critics were opposed to the cryptologists on the matter of semantic value and the difference would sustain the scientific divide between cryptological and literary analysis. The New Critics would thereafter develop a network of institutionalized reading practices that proliferated meaning, while the cryptologists eliminated it from the military institutions or, like Rickert, attempted to quantify the analysis of literary language (in another respect, however, Edith Rickert’s New Methods for the Study of Literature had anticipated the formalism of New Criticism). But it was William Friedman who provided the most concrete connection between the groups during the 1930’s (while Manly and Rickert were distracted by the Chaucer project).

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<sup>445</sup> Friedman, William. Six Lectures Concerning Cryptography and Cryptanalysis. A Cryptographic Series, Number 67. Aegean Park Press, [ No Date]: 18.

William Friedman, the New Critic W.K. Wimsatt, and T.S. Eliot all converged on a common literary figure, Edgar Allan Poe. The convergence occurred during the late 1930's and early 1940's in essays written and published by each on the Poe's writings. The essays were distinct from the biographical questions that plagued the earlier "revival" in the study of Poe which Edmund Wilson had written about in the mid-1920's. Wilson noted that the common approach of "socio-psychological biography" during the 1920's revival was to prove that Poe's "very intellectual activity, his love of working out cryptograms and crimes, had been primarily stimulated by the desire to prove himself logical when he felt he was going insane."<sup>446</sup> The later essays by Eliot, Friedman, and Wimsatt were composed in the formalist spirit of the New Criticism as devoid of such biographical innuendo, and as such implied denunciation of that earlier work. All three authors sought instead to determine the importance of cryptology with respect to Poe's style.<sup>447</sup>

Cryptology occupied a small yet disproportionately influential place in Poe's writings. Poe's essays on cryptology were two - "A Few Words on Secret Writing" and "Cryptography." Poe's knowledge of cryptology was classical in terms of its references and he most often alluded to texts on the subject that were centuries old. American cryptology was, during Poe's lifetime, at perhaps the lowest point in its development, and there was very little available for Poe to read in English, as France and Germany dominated the field during this period. The influence of these European writings, especially in the French, is evident in Poe's essay "Cryptography," in which he makes reference to the writings of De la Guilletiere.<sup>448</sup>

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<sup>446</sup> "Poe at Home and Abroad." 180.

<sup>447</sup> It should be noted that Manly was also interested in Poe. He had drafted an essay on Poe's cryptology for publication and Modern Philology printed several articles on Poe (yet none of them cryptological) while he was its editor.

Poe's other essays on mathematics and machinery might also be included, especially the essay on "Maelzel's Chess Player." The chessboard was one of the most important figural devices with respect to cryptology; it was also a real device for use in encoding and decoding, an example of which is the cipher template found in Jules Verne's novel Mathias Sandorf (Gertrude Stein referred to its English translation, The Cryptogram, as a childhood favorite in Everybody's Autobiography). Furthermore, Poe's detective stories, while not explicitly cryptological, allude to this science. Poe's famous detective Dupin outwits a thief who is both a poet and mathematician in "The Purloined Letter," and certain critics have argued that Dupin is a cryptographer by "avocation" because he is able to solve the most difficult mysteries in a manner that is never fully revealed.<sup>449</sup> Dupin's method re-arranged empirical evidence into a new order, an approach that was not unlike the re-arranging of ciphers in the solution of a cryptogram.

The WWI U.S. cryptologists carefully studied Poe's writings. In 1921 Friedman left Riverbank to become the chief cryptanalyst for the U.S. War Department. He consolidated his position as the nation's leading cryptanalyst over the following decade, writing new army codes, testing proposed enciphering machines, and publishing a series of monographs and texts that brought order to an otherwise disjointed field. He maintained all the while a lively correspondence with John Manly, and both Manly and Friedman began composing separate essays on the subject of Poe's cryptology in the early-1920's.

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<sup>448</sup> See Edgar Allan Poe. "Cryptography." Poems and essays of Edgar Allan Poe. Boston: Dana Esthes Company, 1884: 431. Burton Pollin's 1970 book Discoveries in Poe discussed Poe's extensive reading in French literature. Pollin's book begins with an interesting chapter on the influence of Hugo on Poe's writings, especially "The Masque of the Red Death." See Discoveries in Poe, 1-24

<sup>449</sup> Buranelli 85

In 1922, John M. Manly had embarked upon prospective research towards a study of early U.S. cryptology from the period between the Revolutionary War and the U.S. Civil War. Over the course of the year, he and William Friedman exchanged dozens of letters on the subject, many of which returned to the subject of Poe's cryptology.<sup>450</sup> Four years later, following the publication of Joseph Wood Krutch's Edgar Allan Poe: A Study in Genius (the same work discussed by Edmund Wilson in his review of the Poe revival), Friedman and Manly returned to the question of Poe's cryptology in their letters. Friedman informed Manly that a chapter of Krutch's work had been printed by H.L. Mencken in the magazine American Mercury, and that Friedman had sent along his own essay on Poe to be reviewed by their former colleague, Herbert Yardley. Manly replied that Friedman's essay was distinct from his own essay on Poe, and that both should go to press. Manly's was never printed; Friedman's was rejected that same year by both American Mercury and Atlantic Monthly.<sup>451</sup>

As I noted earlier, William and Elizebeth Friedman were occupied in the late 1920's with the reconstruction of U.S. intelligence after the closing of Yardley's office in 1929. Manly, in the meantime, had embarked not only on the Chaucer project but had also underwritten a family enterprise in mechanical engineering which consumed his time. William Friedman continued however to research and compose essays on cryptology, and he began to find publishers for them in the mid-to late 1930's. The essays included five historical articles on cryptology and a sixth article that he co-authored with his wife Elizabeth. Friedman's publishing activity reached a second peak in 1938, when he again published five articles on the subject of military cryptology, and a sixth essay on "Thomas Jefferson's Cipher Device." His most important article of this period was the

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<sup>450</sup> Their correspondence may be found in Box 2, folders 12-15, of the Manly Papers at the University of Chicago.

<sup>451</sup> The 1926 Friedman-Manly correspondence on Poe is in Box 3, folder one of the Manly Papers at the University of Chicago.

revised version of the earlier essay on Poe, entitled "Edgar Allan Poe, Cryptographer," published by "William Friedman, Office of the Chief Signal Officer, War Department" in the Duke University journal *American Literature* in November, 1936.

Friedman's article opened with a broadside against the "remnants of a medieval point of view" that obscured the estimation of Poe's cryptology in Krutch's earlier and highly influential study. From this rationalist perspective, Friedman offered a summary of Poe's articles on cryptology and an estimation of their methods vis-à-vis certain cryptograms mailed to him, the systems of their solution, and notes on the history of those methods. Friedman did not venture into analysis of the cryptology in Poe's fiction: he remained concerned throughout with estimating Poe's worth as a cryptologist, and, more specifically, his ability to conquer ciphers of varying complexity. In the end, Friedman credited Poe with reviving public and intellectual interest in the subject and praised his knowledge of the basic methods, instruments, and hazards of cryptology, but conceded only a potential sophistication to Poe's knowledge of the subject.<sup>452</sup>

Beginning where Friedman had ended, the New Critic W.K. Wimsatt conceded in a 1943 essay the "limitations to Poe as a cryptographer," yet concluded that Poe's prose on this subject was exceptional.<sup>453</sup> The influence of Friedman on Wimsatt's essay is more than discursive: Wimsatt read Friedman's earlier essays and corresponded with him during the course of writing his article (it is possible that the two even met in person, as both lived in the Washington D.C. area during the late 1930's). As a result,

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<sup>452</sup> Poe's essayistic style when writing on cryptography has influenced all of the historians of cryptography, especially writers such as Pratt and Arensberg, whose prefaces and chapters on the subject resemble Poe's prose in both style and structure. Both writers also begin with specific examples drawn from historical antecedents, just as Poe does. Pratt, for instance, begins his book with the Greeks, and Arensberg draws from the Middle Ages.

<sup>453</sup> "What Poe knew about Cryptography." 754, 779.



Wimsatt made sure to use proper cryptological terms: i.e. "cryptanalysis," "frequency," and he defines a "cipher" somewhat correctly as a "cryptogram in numbers." Friedman would later reciprocate by citing Wimsatt in his NSA lectures as an example of the import of modern literary thought to cryptology. Wimsatt's debt to Friedman was extensive, and Wimsatt cited him throughout the piece. Yet Wimsatt's article suggested also aesthetic evaluations that Friedman's did not.

Wimsatt's essay, like Friedman's, emphasized Poe's instrumental abilities in the cipher articles printed by Poe in the late 1830's, but Wimsatt also stressed the rudimentary relation of Poe's method to his aesthetics. Wimsatt cited Poe's ability to note the alliterative quality of language and the "mnemonic arrangement" of letters to expose patterns of repetition in certain ciphers. The result is a myopic focus on individual units of language. Paraphrasing Poe, Wimsatt notes the "cipher breaker....is not at all concerned with the phrase - which he learns only after he has solved the cipher" (764). The formal patterns of language, and instrumental methods for their arrangement, thus assumed precedence over meaning in Poe's early writings on cryptology. Poe's analytical ability, however, remained an "untrained wit" (765) until he studied further (and then only in the Encyclopedia Britannica), and Wimsatt cites the appearance of terms such as the German "geheimschrift" ("secret writing") and "occultae scripturae" in Poe's later writing as signs of a feigned erudition on the subject. The essay concludes, in this respect, with a provocative summary of "The Gold Bugs" with respect to Poe's prior cryptology:

What had been a kind of newspaper game now became a topic for a polite magazine article, a science which had originated with the dawn of thinking, an instrument of diplomacy, and an activity of that mysterious part of the brain which he had mentioned in the "rue Morgue" murder story, the "organ of *analysis*." Finally, when he came to the writing of "The Gold Bug," he combined the two of his inventions, the detective story and literary cryptography, in a

climax to his cryptographic writing which is perhaps not always fully appreciated as such. (778)

Wimsatt's review of Poe's cryptological writings set the stage for a reevaluation of Poe's fiction. The intellectual capacity for rigorous formal analysis of language, the tendency to invent and combine literary forms, and, less kindly, their market value, were to Wimsatt representative of a precedent that Poe had set for modern literary prose, and to be considered always in the absence of any biographical or moral interpretation of Poe's life and writing. Like Friedman before him, Wimsatt's concern was to establish a rational precedent for the discussion of Poe's cryptology. Where Friedman emphasized that Poe helped to render scientific cryptology intelligible, Wimsatt had stressed the aesthetic value the science imparted to modern literature through Poe's work.

T.S. Eliot addressed the matter in passing in his 1948 essay "From Poe to Valery." Eliot offered that "these Frenchmen [Baudelaire, Mallarmé and Valéry] have seen something in Poe that English-speaking readers have missed" (7). Separating Poe from the "Anglo-Saxon critics [who] are, I think, more inclined to make separate judgments of the different parts of an author's work" (12), Eliot's considered Poe's "aesthetics" as an unattainable "consciousness of language." Where Friedman and Wimsatt studied Poe's cryptology in rational, empirical terms (reminiscent of I.A. Richards' work), Eliot dismissed Poe's interests in "cryptography and ciphers" however as "adolescent" even as he described its agents in terms of the "brilliant and eccentric amateur" (10). Eliot was not so much concerned with Poe's technique, but his mind's ineffable ability to render language as an almost mystical aesthetic experience.

Eliot's rendering of Poe's influence on modern literature (and French literature in particular) lies in its formal connotations. Eliot's "consciousness of language" is most usefully compared to the term's use in an earlier work by Edmund Wilson. Edmund Wilson used "consciousness" as a synonym for the term "form" in his discussion of

Valery in his earlier book *Axel's Castle* (1931), which elaborated his earlier essay "Poe at Home and Abroad."<sup>454</sup> Wilson described "form" as enclosing the poetic work in a hermeneutic space; conversely, Eliot argued that "pure poetry" in modern French verse connoted the process of writing, and was not oriented towards a finished end that might constitute a complete "form." Poe's ciphers could not achieve the open ended, formal "consciousness of language" that necessarily explained, for Eliot, Poe's importance in modern literary tradition.

But when read against Poe's cryptological fiction (not his essays), the "consciousness of language" is coextensive with a consciousness of a geographic space. Poe's alignment of language with a territory (imagined and real) through cryptology was, to borrow Eliot's term, another "missed" element of his work, and it is most clearly evident in Poe's most influential cryptographic story, "The Gold Bug," engaged the matter directly. The story is narrated by a doctor who is acquainted with an eccentric white man named William Legrand. Legrand lives with a black servant named Jupiter on an island off the coast of South Carolina. The eccentric Legrand finds a gold beetle and an old parchment with cryptic writing on it, the text of which only appeared when heated. The parchment's cryptogram is solved after a long period of research (during which the doctor begins to fear for Legrand's sanity) by ascribing letter-value to the numbers and symbols on the parchment. This method was known to cryptologists (and cited by both Friedman and Wimsatt) as "substitution."

In the story, a secondary code is revealed by the substitution of letters for the symbols of the original message, and it refers to specific local geographic phenomena and sites:

A good glass in the Bishop's hostel in the Devil's seat - twenty-one degrees and thirteen minutes - northeast and by north - main branch seventh limb and east

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<sup>454</sup> I refer, in particular, to the third part of Wilson's essay, where he cites the influence of Poe on the writers - Baudelaire, Verlaine, Valery, L'Isle-Adam - he would later discuss in *Axel's Castle*.

side – shoot from the left eye of the death’s head – a bee-line from the tree through the shot fifty feet out.<sup>455</sup>

The decoding of the cryptic text revealed meanings that corresponded to an actual space. While Friedman and Wimsatt differed only slightly in their estimation of Poe, both implicitly agreed on the matter of Poe’s analytical skill. When extended to aesthetics, that skill was manifest, for Wimsatt, in the inventive confusion of forms. It is Eliot’s later interpretation of Poe – offered, ironically, against cryptology in his work – that sustains most effectively the relationship between southern writing and the land as a “consciousness of language” that is expansive, rather than terminal, in corresponding to space.

Eliot’s reading of Poe complemented, in its own diffident way, the complex circuit that united Southern territorial and literary tradition.

As I have noted in passing, however, the New Criticism’s emphasis on spatial form did not preserve the South, but was incorporated into the institutional designs of the university system (first at Vanderbilt and LSU, then later at Yale, Columbia, and Minnesota). A similar institutional trajectory holds for the cryptologists, as their own spatialized order of language assumed an institutional form in the post-WWII U.S. security state. The historical beginnings of both were agrarian; for the New Critics, agriculture maintained the social and literary traditions of the South, to which their teachings and writings provided the compliment, while the cryptologists had extended their work from the political Populism (itself rooted in agrarian movements) and agricultural research of the Riverbank Laboratory.

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<sup>455</sup> The Complete Works of Edgar Allan Poe. 137.

The New Critics and the American cryptologists did not cohere into any unified method, theory, or school of thought. They occupied, instead, parallel tracks that occasionally converged. The definitive works of the New Criticism - of Warren, Tate, Beardsley, Ransom, etc. and others - only emerged with enough force to enter the mainstream of American thought during the World War Two period. Major U.S. literary figures such as Kenneth Burke and Edmund Wilson, for example, found themselves in the midst of the resurgent New Criticism after they had abandoned many of their political literary projects in the late 1930's, and elaborated effective arguments against it. Others, such as R.P. Blackmur and F.O. Matthiessen, attempted to reconcile formalism with left politics, while a new generation of literary critics, such as the Canadian Northrop Frye, developed new systems of literary analysis in other contexts, and against the New Criticism, which restored the novel to prominence in literary study (against the New Critics' emphasis on poetry). The work of these later critics did not however have the institutional or geo-spatial implications that allowed the New Critics to prosper within the tense territorial divisions of the Cold War, and, although their influence was extensive in the 1950's, they competed with their antagonists rather than displacing them.

The post-WWII institutional success of the New Critics in U.S. higher education was simultaneous with the success of the cryptologists. William and Elizebeth Friedman presided over the institutional apotheosis of cryptology during the early years of the Cold War. But where the work of the New Critics was celebrated, and created the climate in which their favored authors - Eliot and Faulkner - won Nobel Prizes, the cryptologists remained shrouded in myth and institutional secrecy. While they also corresponded, as the New Critics had, in an extensive Anglo-American dialogue (the UKUSA Act confirmed Friedman's own extensive correspondence with his counterparts in British intelligence, and stands to this day), their competitors were not internal but the cipher bureaus of the "Second World" of Soviet and Chinese

communism. In the end, however, decidedly external factors divided the two groups, an in particular an irreconcilable divide over their attitudes towards technology.

The New Critics understood the anti-institutionalism of Henry Adams, T.S. Eliot, and William Faulkner as a historical discourse directed against industrial modernity. They did not accept Richards' optimism about the possibilities of machinic forms of intelligence. Robert Penn Warren summarized this position in 1958:

After all, no criticism – no matter how much more ambitious or systematic than these essays, would be complete. There is no complete criticism, and no complete critic. Even our own time, sometimes called, happily or unhappily, an age of criticism, is not remarkable for a massive and systematic orthodoxy, but for the variety and internecine vindictiveness of voices; and even the “New Critics,” who are so often referred to as a group, and at least are corralled together with the barbed wire of a label, are more remarkable for differences in fundamental principles than for anything they have in common. It sometimes seems hard to find much they have in common except their enemies.

No, there is no complete criticism, and that, perhaps, is just as well. It is certainly just as well, if we conceive of a complete criticism as a sort of gigantic IBM machine – i.e. ‘the method’ – into which deft fingers of filing clerks feed poems and novels and stories, like punched cards. Who would punch the cards? Somebody has to punch them, if you have such a machine, and the hand that punches the cards rules the world. After all, even if you have such a machine, you have to trust the intelligence, tact, discipline, honesty, and sensitivity of that fallible human machine – the card puncher.<sup>456</sup>

While Warren and the other New Critics refuted the technical optimism of I.A. Richards, the cryptologists had no such reservations. Led by figures such as William

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<sup>456</sup> Robert Penn Warren: Selected Essays. xi-xii.

Friedman in the U.S. and Alan Turing in Great Britain, they adopted technology to the hermeneutic ends of military intelligence. They conquered linguistic ambiguity, adapted mathematics and technologies quickly to the institutional demands that were upon them, and were effectively absorbed into the more stable hierarchical formations of the cold war U.S. security state. In doing so, they compromised human intelligence to new machinic forms of analysis as the cryptologists eventually created perfect reading methods and actual “thinking machines.” During the 1950’s, their science arrived at what John Manly might have called “a completed building” had he lived to see the tremendous post-WWII institutional meshworks built from the philological margins of U.S. literary history and linguistic debate. The building was erected from genetic units – morphemes, phonemes – that were enciphered and deciphered from atmospheric currents by machines of inhuman complexity. This was the house they had built, after strange gods.

## XXVI. Pynchon’s Genealogy

The “liquidation of genteel culture” that closed The Education of Henry Adams was simultaneous with the scientific reorganization of language that rumbles through Pynchon’s V.<sup>457</sup> The novel’s proper discursive subject was language, and it effectively dramatized the matter by conceiving it as the historical complement to natural force. Due to its elemental materiality (that sub-stratum of kinetic energies from which Richards’ psychology had also sprung) language could not be entirely objectified; only its general outline could be perceived – a “V-structure” that generated a historical discourse.

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<sup>457</sup> I borrow this phrase from Edmund Wilson’s review of Gilbert Seldes’ The Great Audience, the sequel to Seldes’ analysis of the new popular culture media in his 1924 book The Seven Lively Arts. See “Gilbert Seldes and the Popular Arts” 165.

A particularly revealing sentence in Pynchon's novel captures the amorphous character of that discourse as a problem of nomenclature: "...Victoria was slowly being replaced by V.; something entirely different, for which the young century had as yet no name."<sup>458</sup> The vertical movement from the human identity (Victoria) to inhuman aggregates of force (V, fascism) was essentially a linguistic movement from elemental, organic processes towards inorganic systems and aggregations that were as yet unnamed, let alone understood as "meaningful." The upward motion of this process, from base units to utopian (or, for that matter, dystopian) had its parallel in the scientism - the "interinanimation" - implied in the work of I.A. Richards. This trajectory constituted the vertical axis of the V-structure's figural discourse with respect to Anglophone literary criticism and linguistics as a movement from part to whole.

The figure's horizontal axis invokes the other major branch of modern European linguistic thought. The letter V is repeatedly strung across dozens of series in the novel that form a complex circuit i.e. "Vheissu-Venezuela-Vesuvius."<sup>459</sup> The V-structure can thus be understood to operate along the horizontal axis by which Saussure defined the relations of signs; as I noted earlier, the term "structure" always carries this weight throughout the novel.

The novel's figural discourse began when the horizontal axis came into violent contact with history along a vertical axis (it transfixed Benny on the Norfolk street). Pynchon inscribed the figural arc like a strange hieroglyph upon that historical contest between language as life/anima and language as a structured, inanimate force which "as yet had no name" but whose phenomena accrued in the historical world of institutions, peoples, and individual minds. These were the raw material of human discourse, acted upon

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<sup>458</sup> V. 443.

<sup>459</sup> V. 207



with the tremendous vitality of Pynchon's early mature style, and their convergent linguistic and technological branches joined in the institutional context of the Stencil-Mondaugen meeting.

The figural discourse of the V-structure produced more than a "thinking machine" or discursive master key to the age in question. It operated, through the novel, at a slight remove from the history in question, as if the kinetic waste, and not the machine itself, were the novelist's figural domain. Pynchon thus rendered a historical discourse of human institutions (a *poesis*) from the relationship of that wasteful language to the turbulent designs of the historical dynamo. In doing so, it refuted the claim made by Ogden and Richards that "emotive" language cannot make statements of scientific or philosophical value. Indeed, Pynchon made the Anglophone formalists the novel's truthful exemplars of how emotive language could shape the vague intuitions of a new epoch into epistemological claims about scientific institutions and methods.

The V-structure's geo-linguistic design ironically repeated, to that effect, the spatial conceptualization of language particular to the New Criticism, I.A. Richards, and T.S. Eliot. Pynchon recognized that the westward motion of the work of Eliot and Richards (and its institutional incarnations) to the United States was related (but not equivalent) to the motion of other sciences to the United States during the post-war period (i.e. the sciences such as ballistics, cryptology, and "sferics," that emanate from Mondaugen's example). Pynchon correctly recognized that the hermeneutic systems of Anglophone literary formalism had absorbed those other sciences in that drift. Such convergences defined his early style, a tendency that has often led to the simplistic accusation that Pynchon's style is too "academic" (while ignoring the more important matters of his rhetorical discourse).<sup>460</sup> But V. did not propose a scientific paradigm or a counter-

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<sup>460</sup> For example, Pynchon had engaged "ambiguity" in terms of both the New Criticism and cybernetics in "Entropy." In the dialogue between Saul and Meatball, Saul argued:

theory; it dramatized Anglo-American literary thought by opening it to its own history through rhetorical figures, dramatic mis-en-scene, and a responsive, meaningful study of contemporary language and history.

The majority of Pynchon's readers have consistently ignored the matter of how V. engaged history through modern theories of language. In his compendium to V., Pynchon scholar Jerry Grant cited Wittgenstein scholar Jorn Bramann to explain the relevance of Pynchon's allusion to Wittgenstein. According to Grant, Pynchon's citation "excludes"

the idea of transcendence, a world beyond the world of facts....[and] the idea of a realm of absolute values...[and] a comprehensive... order of reality that

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If it is anything it's a kind of leakage. Tell a girl: 'I love you.' No trouble with two thirds of that, it's a closed circuit. Just you and she. But that nasty four-letter word in the middle, *that's* the one you have to look out for. Ambiguity. Redundance. Irrelevance., even. Leakage. All this is noise. Noise screws up your signal, makes for disorganization in the circuit.

The terms "circuit" and 'ambiguity' were both fundamental to Richards' vocabulary and the semantic system that he proposed. The troublesome consequence for Pynchon's polemical reconfiguration of "ambiguity" in relation to the new science of cybernetics (and by association, thermodynamics and Adams' historical thought) was that of how address the problem of ambiguity in relation to three distinct areas. These were elaborated as the multiple referents of the V-structure in V. For example, The V-structure responded to John Crowe Ransom's formulation of the "concrete universal," which followed Eliot's lead in emphasizing the poetic image. Ransom's concept unites the universal and the specific in a single point that holds together the work of art as a complete aesthetic system. The alembic V-structure responds to Ransom by shaking it loose from its critical apparatus with the force of a historical intelligence. The V-structure did not merely repeat the concrete-universal that Ransom and the New Critics used to organize the elements of a poem or novel into a singular and irreducible material image. Pynchon striated the figure with temporal vectors that absorbed entire poetic-dramatic traditions into a prose narrative form. The V-structure loosed the tradition from a singular, irreducible point in space. Pynchon's early writings were thoroughly informed by these debates and they refute how Eliot and the New Critics persist as straw men in many of the arguments that arose against them in the years concurrent with the publication of Pynchon's first major works.

composes the individual facts into the kinds of system constructed by Aristotle, Hegel, Marx, or other thinkers. Reality, in other words, is a conglomerate of nothing but facts. (Grant 139)

Following this quote Grant cites varied scholars who argued that the novel's perception of the "world" was fragmentary and incomplete.<sup>461</sup> According to Grant and the many Pynchon scholars he cites, the novel is a failed attempt to inductively organize empirical evidence into a coherent system of perception. The failure thus precludes intelligible philosophical action and favors Stencil's method over others in the novel.

Such a reading is fairly representative of Pynchon scholarship. It cannot be sustained however when one takes into account Mondaugen's scientific techniques and their institutional histories, which are rooted firmly in the deductive Hegelian tradition of German idealism and its ensuing manifestation in the Prussian and German state institutions (universities, government-corporate facilities, etc). Nor can it explain how the novel's style engaged modern linguistics or later theories of structuralism (and even Wittgenstein's radical critique of language) to propose a historical discourse of modern linguistics and its related sciences.<sup>462</sup> The majority of Pynchon scholarship has instead continued the ahistorical vectors that were proposed when modern linguistics destroyed philology and loosed the institutional forces of both cryptology and literary formalism.

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<sup>461</sup> See A Companion to V. 139-140.

<sup>462</sup> Grant's compendium to the novel cites both the Tractatus and the later Philosophical Investigations as making several important appearances in V. Roy Harris offers a brief but important comparison of the relation between Saussure and Wittgenstein's Philosophical Investigations (Reading Saussure 57). Peter Caws has situated Wittgenstein's earlier Tractatus in relation to the philosophical implications of structuralism (Structuralism 237-252).

The V-structure's discursive arc was thus composed of so many parallel and intersecting lines. Its spatial vectors were dramatized as one collapsing geo-political order (the British Empire) transferred to another (the Cold War U.S. state), while these traversed the dramatic temporal vectors of modern individual and institutional life. There remains, however, a notable gap in the novel's frame of actual historical reference. V. did not explicitly elaborate the thirty year period between the Yoyodyne meeting (1956) and Mondaugen's account (1922) in a linear chronological order. The novel's dramatis personae offer only fragmentary evidence for the relevance of the 1920's and 1930's to the figural discourse. For example, V disappeared following her involvement with D'Annunzio's fight for the repatriation of Istria to Italy, Benny Profane was born in a Hooverville shack (early 1930's), Fausto Maijstral's story on Malta began with the 1930's and merged with V's later reappearance there prior to WWII. The dramatic characters do not constitute the primary matter of the discourse and they are displaced by the convergence of other forces and institutions. For example, the reader might arrange Yoyodyne's formation in chronological order across V. and the subsequent novels. It would begin with the end of WWII (in Gravity's Rainbow), reach its highest point of intensification in the mid 1950's (at precisely the moment when Stencil interviews Mondaugen in V.) and then begin its decline in the mid-1960's (in The Crying of Lot 49). But neither the characters or the intersecting sciences and institutions are subject to such linear arrangement.

Rather, the figural arc's rhetorical density is dissolved into a mass of conflicting forces. Its varied agents travel distinct trajectories and move at different speeds and with varying amounts of force. Institutions, for example, move at a glacial pace when compared to the frantic movements of individual, human time. In later novels other characters will interact with the same institutional entities, albeit at differing stages of

their development (Chiclitz, Mondaugen, and Yoyodyne will reappear in the late novels as well).<sup>463</sup>

Beginning with the Stencil-Mondagen interview in V., Pynchon's figural discourse would assume a genealogical character. Genealogy would be understood as simultaneity of the present and the past that could accommodate the multiple vectors of the figural arc. Genealogy would incorporate the repetition of characters, institutions, and sciences in Pynchon's work into a *poesis* and in doing so it achieved a mature and coherent form capable of shaping the divergent and convergent arms of the V-structure into a singular discourse.

Pynchon's V. returned to a specific type of literary discourse to achieve that form. As the Friedmans perfected the intelligence institutions of the U.S. state and the New Critics spread their creed across U.S. education, Pynchon recognized that the jettisoned literary-cryptological tradition of the hermetic style had also resonated amongst American prose writers. A specific strain of the U.S. modern novel restored the temporal vector to the relations between language and history, literature and cryptology, and the critique of U.S. institutional life. Of the many novelists who would engage the problem, William Faulkner (following Henry Adams along a different path than Eliot had) was the first to elaborate a significant and influential style from the matter. It was Faulkner, more than any other U.S. writer, who provided the discursive

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<sup>463</sup> Mondaugen, Chiclitz and Yoyodyne would re-appear in different forms in other later novels, but their convergence with Stencil in V. was unique. It was the first and only time in Pynchon's career in which the matter of their pre-WWII history is addressed. The pre-history constituted the horizontal axis of the arc whose properties were primarily temporal (as opposed to the predominantly vertical curve of the institutional axis and Yoyodyne's spatial configuration).

precedent for Thomas Pynchon's exceptional rhetorical figures and the model for his genealogical-historical style.<sup>464</sup>

For example, the previous example of how the characters of Mondaugen, Chiclitz, and Yoyodyne would return in later novels offers an introduction to the matter. William Faulkner's readers have often noted that Faulkner inherited from Balzac the tendency to repeatedly use the same characters in different works.<sup>465</sup> Pynchon inherited this same tendency from Faulkner, yet used it more selectively, perhaps to draw attention to characters such as Mondaugen and certain institutional and linguistic currents of the novels. Faulkner's genealogical schemes offered to Pynchon a means by which to suffuse the figural arc with entire institutional and intellectual histories. Genealogy would constitute, among other things, a critical extension of the historical discourse of William Faulkner's novels. Pynchon's genealogy would not however reproduce the dynastic, patrilineal family that had shaped Faulkner's novels; the originality of Pynchon's work rests with how he offered (contra Faulkner's disintegrating dynasties and emergent industrial interests, such as the railroads and aviation) a genealogy of the new institutions.

Each of Pynchon's writings thus constitutes a state (not a "stage") from which the figural arc carries certain elements from one to the other. The possibilities of other arcs began to emerge from the V-structure, their genealogical missions diverse. Pynchon

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<sup>464</sup> V. contains also a brief, grotesque parody of the racist rhetoric of southern fiction that immediately brings to mind Faulkner's reputation (which had been inflamed by his comments on the Civil Rights movement in the late 1950's). The parody takes place in a description of the Winsome apartment, where many of the novel's New York scenes take place. Rooney Winsome owns the record label that presses and distributes the jazz works listened to by the Whole Sick Crew. His wife, Mafia, is a novelist from North Carolina, whose racial stereotypes echo the literal and reductivist interpretations of Faulkner's works (see *V.* 129).

<sup>465</sup> See *Gidley* (46), *Cowley* (35); on the influence of Balzac, see *Blotner (Faulkner: A Biography, 110)*.

thereafter sustained them as the figural discourse that crackled between the V-structure's antennae, less a thing than a lightning force. These would achieve complete elaboration in Gravity's Rainbow.<sup>466</sup> Their elaboration would depart first on a significant detour in The Crying of Lot 49.<sup>467</sup>

V. anticipated the genealogical discourse that would be developed in Pynchon's next work, the novella published in 1966 as The Crying of Lot 49. In that work, Oedipa Maas would appear as the antithesis of Stencil's genteel detective style, which was that of Poe, Doyle and the 19<sup>th</sup> century. Pynchon's genealogy traversed these two characters with other histories that contained their own respective genealogies, as when Stencil encounters Mondaugen, or in a similar scene, when Oedipa encounters Stanley Koteks in The Crying of Lot 49. Yet the dramatis personae can never be separated from their institutional habitat; the institutional genealogies of the post-WWII corporations such as I.T.T. (which Pynchon configures as the omnipresent Yoyodyne) are not the objects of a separate genealogical component, or at a slight remove from the historical trajectories of Pynchon's figural arc. They are integrated, incorporated, and embodied in the discursive force of Pynchon's style. The detective in both V. and The Crying of Lot 49 suggested a second literary-historical shift that occurred during the 1930's in which the hermetic style of modern poetry entered the discourse of the modern novel, dragging

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<sup>466</sup> Pynchon would resume the Mondaugen-Stencil scene in his later novel Gravity's Rainbow, which can be understood, as I noted earlier, as V.'s precursor. It is noted in V., for example, that Mondaugen was an engineer on the Nazi V-weapons project, and the V-rockets traverse the figural arc of the later book.

<sup>467</sup> Pynchon would absorb into its workings "people like the State Department and NSA," thus expanding the spectrum of the arc's temporal vector. Pynchon's subsequent novella, The Crying of Lot 49, further dramatized Kurt Mondaugen's figure through characters such as Stanley Koteks, the Yoyodyne engineer who despairs over the crushing, aggregate powers that enforce his institutional predicament. At the other end of the spectrum, however, the character of the detective would operate as an optimistic counter-weight to the engineer, as character such as Stencil and later, Oedipa Maas, would create historical significance from their miasmatic, contemporary scene.

along with it the jargon, figures, and institutions of modern U.S. cryptology. Edmund Wilson's 1931 book Axel's Castle anticipated this shift, and it is through Wilson's work that the hermetic style's transition from Faulkner's novels to Pynchon's figural genealogies may be rendered coherent.

Edmund Wilson favored austere deviance rather than professional calm. The tendency often betrayed subtle, prophetic turns against popular taste. Looking back over a half century of American Presidents, he could write without sarcasm in 1951 that Theodore Roosevelt's letters were "attractive, even inspiring;" in 1965, he wrote of the Italian literary historian Mario Praz that he offered "literature to be relished, colors to sate the eyes, soups, pasta and fruits to be tasted, flesh, fabrics and ornaments and marbles to be pored upon and cherished and prized."<sup>468</sup> Rather than fade, Wilson's writings acquire contrast the longer they are exposed to the historical light. In retrospect, they seem prescient with respect to the future of the hermetic style in the U.S. novel.

Edmund Wilson's 1931 book Axel's Castle was composed during the greatest economic disaster in modern history; its subject was a literary style that flourished in spite of the world. Axel's Castle tells the story, now canonical, of how Irish writers (Yeats and Joyce), French writers (Valery and Proust), U.S. writers (Eliot and Stein) had emerged from a movement known as "Symbolism" whose roots were in both European and U.S. Romantic literatures. Symbolism was, for Wilson, the "second flood of that same tide." The chronological scheme of Axels' Castle maintains that fluidity, casting passing glances to other literary movements that contributed to and diverged from the Symbolist stream.

Axel's Castle's tidal historical narrative and lucid formal expositions anticipate how the hermetic style of modern poetry would merge with novelistic discourse over the

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<sup>468</sup> The Bit Between my Teeth. 77, 668.



following decades. Wilson asks whether the hermetic formal devices of Symbolism can withstand the pressure of historical forces. Wilson uses the French poet Rimbaud to exemplify how the Symbolist aversion to the historical world was lived in actuality by Rimbaud, whose experiments in life and art

have yet succeeded in effecting in literature a revolution analogous to that which has taken place in science and philosophy: they have broken out of the old mechanistic routine, they have disintegrated the old materialism, and they have revealed to the imagination a new flexibility and freedom.”

Wilson’s chapter on Gertrude Stein provides an excellent example of how Symbolist technique renovated “mechanistic” conceptions of language.’ Wilson’s reading of Stein’s poem “A Patriotic Leading,” in which argued that the difference between the poem and the military manual it derides is primarily a *serial difference*, strongly emphasizes the point: “The difference between Gertrude Stein and the author of the Courts-Martial Manual is entirely a technical one: it is a difference simply of syntax and of the order in which each evokes his or her selected group of images” (251). The innovations are primarily combinatory; they reorder literary language. Such innovation is achieved as the poet withdraws behind or vanishes into the literary act; to use Wilson’s language, the poet “disintegrates,” into the modern present. Conversely, literature would also vanish. Wilson described the effect in the concluding pages of Axel’s Castle:

I cannot believe, then, with Paul Valery that Symbolism is doomed to become more and more highly specialized until it has been reduced to the status of an intellectual pastime like anagrams or chess. It seems far more likely that it will be absorbed and assimilated by the general literature and thought. All the exponents of symbolism have insisted that they were attempting to meet a need for a new language. ‘To find a tongue!’ Rimbaud had cried. (332-33)

Wilson did not sound the future too deeply; he only offered the key note – Faulkner would provide the musical staff. When the hermetic style seeped into “the general thought” it stimulated both modern U.S. cryptology and a formidable enterprise in Anglophone literary theory, but it also spurred a current in the modern U.S. novel that had vanished with Edgar Allan Poe and began again with William Faulkner.<sup>469</sup>

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<sup>469</sup> Wilson would not have been deaf to the significance of the formalist currents with respect to U.S. intelligence. He had work as a translator in the U.S. Army Intelligence Corps in France during WWI (See Edmund Wilson: A Biography 39).

## 6. THE HERMETIC TURN: FAULKNER, PYNCHON AND THE PULPS

### XXVII Mercury's brother

William Faulkner was the eldest of four brothers in a family descended from Scotch immigrants. The Falkners (this was their original name) had migrated through the U.S. south during the early 19<sup>th</sup> century and finally settled in Mississippi, just as the Sutpens had in Faulkner's later novel Absalom, Absalom!. William was raised as were the Sutpen sons in a crucible of Civil War stories (his paternal grandfather had served in the Confederate Army), pioneer tales, and the crumbling rituals of agricultural aristocrats who had once owned the large southern plantations. He was also an avid young reader, and studied both the classics as well as the major 19<sup>th</sup> century novelists such as Conrad and Dickens. His life and work were forever divided between the local world of Oxford, Mississippi and the cosmopolitan style of the modern novel. When young William enlisted as an aviator in the U.S. Army Signal Corps during World War One, he carried that divided historical-literary inheritance through the adventure. The two would merge in his mature literary style as they had in no previous U.S. writer's work.

William Faulkner was however refused service in the U.S. Army Signal Corps because he was either too short of stature or too poorly educated. William's younger brother Murry enlisted in the U.S. Marines Corps shortly thereafter and was sent to fight in France. In the spirit of fraternal competition, William, who was then working in a munitions factory in New Haven, Connecticut, adopted the manner and affect of an Englishman (with the appropriate forged credentials) and enlisted in early summer of 1918 in the Canadian R.A.F. William arrived in Toronto for his flight training, where as

his biographer Joseph Blotner notes, he studied “wireless telegraphy, topography, and air force law” (212). Faulkner was proud in particular of his training as a telegraphist:

In August Faulkner was writing home that he was gaining proficiency at taking Morse Code. Earphones clamped over their heads, the cadets would translate the crackling dots and dashes into printed letters and numbers. He reported with satisfaction that he had passed a test which many of the other cadets had failed. (Blotner 213)

William’s flight training was still incomplete at war’s end; he returned to Mississippi in uniform and recounted heroic tales of his military deeds. His brother Murry also returned; Murry was wounded by a German artillery shell in at Epinal, near the Argonne Forest, in late 1918, and discharged after a long convalescence.

William Faulkner briefly attended the University of Mississippi, worked various jobs, and began to write poetry. Beginning in the mid-1920’s with his first novel Soldier’s Pay, William Faulkner abandoned the youthful modern style of his early poetry. Soldier’s Pay combined instead the rhetorical strategies of hermetic modern poetry with the local folklore of his native Mississippi or the Falkner family (Murry’s traumatic WWI head wound would be the prototype in Soldier’s Pay). More specifically, William configured his study of “wireless telegraphy, topography, and air force law” with the hermetic style, and the result was an unprecedented transformation of the modern novel that resulted in a divided historical discourse: where in life he was eager to fight for the U.S. government (he would later try to enlist again during WWII), in his novels he criticized and belittled its institutions.

The New Critic Robert Penn Warren partly captured Faulkner’s complex rhetoric of division when he described the “Clausewitzian” (11) transition from martial to civilian life in Faulkner’s work. “Clausewitzian” referred to the Prussian soldier and military strategist Carl von Clausewitz’ dictum, proposed in his 19<sup>th</sup> century book On War, that

“politics is the continuation of war by other means.” For the Agrarians such as Davidson and New Critics such as Penn Warren, Clausewitz’ dictum suggested the continued aggression of the U.S industrial north and Midwest against the former Confederate states. Yet history alone was not the grounds of literary criticism: the “Clausewitzian” character of Faulkner’s novels corresponded to a term that was central to the critical vocabulary Penn Warren used to explicate Faulkner’s writings: the “paradox.” The lesser, historical paradox was transmuted by Faulkner, according to Penn Warren, into a rhetorical style that did not correspond necessarily to historical fact, but rather to the reader’s cognitive experience of the novels.

Following I.A. Richards’ account of the symbolic capacity of emotive language, Penn Warren extended “paradox” to the reader’s experience of the difference between art and life and, in a specific, post-WWII context, the extension of martial institutions into civilian life. Warren’s ideal readers of Faulkner were the G.I.’s who returned from WWII to find mechanized war extended through the civilian peace as a paradoxical and continued militarization and industrialization of agrarian civil society. Penn Warren thus fashioned Faulkner’s readers into substitutes for the many broken veterans of Faulkner’s novels. These included the blind Donald Mahon, the brothers Sartoris and their reluctant servant, Caspey in the early novels and continued through the later, post-WWII writings (A Fable in particular).<sup>470</sup>

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<sup>470</sup> Don Quixote was a veteran of the Spanish wars against the Dutch. Wordsworth’s veteran was

A Soldier, to the tropic isles had gone,  
Whence he had landed some ten days past;  
That on his landing he had been dismissed  
And with the little strength he yet had left  
Was traveling to regain his native home.

The military aviator was Faulkner’s major addition to the Romantic genealogy of the wounded veteran in modern literature; the figure first appeared with Cervantes’ errant knight and continued through Wordsworth’s “Discharged Soldier” to the major modern realists such as Stephen Crane. The character type achieved unprecedented

In this way, Penn Warren's reading of Faulkner's rhetoric enabled a secondary social discourse, and Warren's writings on Faulkner corresponded neatly with the state-sanctioned cultural discourse in the post-WWII era outlined by Lawrence Schwartz in his study of Faulkner's Cold War success.<sup>471</sup> Yet Penn Warren's terms ("Clausewitzian," "paradox") maintained separate aesthetic and socio-economic categories that, as James Snead demonstrated in his erudite study of Faulkner's rhetoric, were alien to, and even criticized, in the implicit genealogical discourse of Faulkner's style. The "Clausewitzian" paradox was thus reduced by Penn Warren to an affective continuation of Faulkner's veterans rather than a complement to the historical vector of Faulkner's historical discourse, whose proper and comprehensive form was genealogical.<sup>472</sup>

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development in post-WWI European and U.S. fiction. There are many studies available on this subject, but the following are among the best: Guerre et Litterature: Le Bouleversement des consciences dans la litterature romanesque inspiree par le Grande Guerre (1974) and The American Soldier in Fiction, 1880-1963: A History of Attitudes towards Warfare and the Military Establishment (1975).

Faulkner developed a new and particular version of the figure, the aviator, for the WWI war novel; the type remained implied in war's dramatic consequences throughout Faulkner's work, yet disconnected from related currents of Faulkner criticism. See, for example, Volume II, no. 2, of The Faulkner Journal (Spring 1987), which was dedicated entirely to "William Faulkner and the Military." A recent essay by entitled "The Guns of *Light in August*: War and Peace in the Second Thirty years War" by Warwick Wadlington has explicated Faulkner's relationship to war more thoroughly. It should also be remembered that Penn Warren's essay was reprinted in 1966, during the first year of major U.S. military operations in Vietnam.

<sup>471</sup> Schwartz's influential study of Faulkner offered an influential and orthodox historical-materialist approach to the U.S. publishing industry that "created" Faulkner's reputation. The work ultimately denies the potential of the aesthetic to generate meaningful discourse. Where Warren displaced interpretation onto the subject, Schwartz displaces it onto the economic base and its ideological superstructure. Both ignore the novels.

<sup>472</sup> The reasons for this are several. First and foremost was the fact that the New Critics had followed T.S. Eliot and I.A. Richards, both of whom considered historical matters as suspect grounds for evaluating literature. This was not, however, because the New

In his landmark study, James Snead defined Faulkner's genealogical style in the following terms:

Faulkner's genealogical research discovers not purity but rather merging and chaos, states against which the traditions of social classification and division vainly struggle...Genealogy is the typical mode of Faulkner's novels, in the Nietzschean sense of a search for the origins of value as well as the more usual sense of exploring family lineage. (Figures of Division 7)

Snead studied how Faulkner's genealogy and its rhetoric were a "fluid style" (1) quite different from what the static forms proposed by the New Criticism. The fluid style recognized the "futility of applying strictly binary categories to human affairs, [that is] the main lesson of Faulkner's novels" (ix). Snead developed a new vocabulary of terms such as "disfigurement" for Faulkner's readings of race relations in the U.S. South, in which miscegenation constituted a genealogical fact distinct from the binary separations imposed legal institutions (i.e. Jim Crow laws) and continued through the genteel divisions of the New Criticism.

Snead's account of Faulkner's genealogical style offered a counterpoint to Warren's separation of the Clausewitzian historical argument from the formalist critical term "paradox." Penn Warren's "paradox" remained nonetheless useful for Snead and other Faulkner scholars, as it denoted the primary rhetorical technique in Faulkner's fiction, the oxymoron. For example, Bruce Kavin defined the oxymoron in relation to the

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Critics (and John Crowe Ransom or Alan Tate in particular) did not offer historical arguments, but rather because they separated the two. The separation invokes the second reason for their maintained division: Penn Warren's "Clausewitzian paradox" rendered experience as an abstract form of subjectivity. Warren emphasized "experience" as the pivot of a reader's identification with certain characters, but does not include, for example, the actual material practices and skill that informed Faulkner's writing on subjects such as cryptology or aviation. Warren's arguments ultimately excluded biographical considerations or historical discourse in favor of abstract and limited definitions of individual experience.

cinematic techniques of Faulkner's prose, as a "rhetorical device characterized by the juxtaposition of incongruous or contradictory terms" that permitted "him to carry on dialectical montage within the sentence...."<sup>473</sup> Kavin proceeded to enumerate various examples (i.e. the "quiet thunderclap" in Absalom, Absalom!) that joined oxymoron to both modernist literary rhetoric and cinematic technique (specifically, the contrasting style of montage).

It is impossible, however, to understand the rhetorical figures as separate from Faulkner's "Clausewitzian" historical discourse. The two were the part and whole of genealogy, in which the rhetorical figures of the hermetic style were combined with a "Clausewitzian" of institutional life (that included also an extensive historical discourse on the new institutions, sciences, and machinic phenomena that he and his brother first encountered during WWI). It was by a Clausewitzian historical discourse that Faulkner modified the rhetorical strategies discussed in previous chapters of the present study. In that respect, Faulkner's genealogical style was unprecedented in U.S. literary history. It owed its historical discourse, however, to the problem of an embodied intelligence (institutional or individual) inherited by Faulkner from Henry Adams.

Faulkner's biographers Joseph Blotner and Michael Millgate have both separately cited evidence that The Education of Henry Adams was circulated in the exchange of books and ideas between William Faulkner and his mentor, Phillip Stone. Blotner notes in his study of Faulkner's library that Stone had ordered The Education in 1922 (123) but that Faulkner did not keep a copy in his library, and probably only borrowed it. Millgate also cites Stone's order of the book, but does not provide any evidence of Faulkner reading Adams' book (4).

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<sup>473</sup> "The Montage Element in Faulkner's Fiction." 113.



Faulkner scholar Mick Gidley provided a more engaged reading of Adams' influence on Faulkner's style. Gidley cited dozens of examples from Faulkner's work that were inspired by Adams, among them the Harvard College section of The Sound and the Fury, the character of Joanna Burden in Light in August, and the "notion of dynamism" that permeates Faulkner's late novel of the Snopes family, The Town (Gidley 64-65). Gidley connected these examples to Adams' theories of history and thermodynamics: "We have only to think of Dewey Dell in As I Laying Dying (1930) to know that Faulkner too was drawn to this [supersensual] force [of the dynamo]." (65-66). Furthermore, Gidley proposed, Faulkner's writings and life were filled with interests and reading habits that linked the novelist with the historian: "they worried ambiguously over Progress, technological progress. Faulkner, in real life as well as in fiction, had a great admiration for the early motorcar and aeroplane (65)." Faulkner's biography, fictional characters, and reading habits appear as a dramatic reply to Adams' work, and despite the differences between them:

But it might well be the case that Adams' autobiography, precisely due to the disparities between the two men, could have assumed a special revelatory character for a youngster from Mississippi, and thus furnished him with material for his fiction. (64)

Gidley's compelling examples, the oft-told story that Faulkner composed As I Lay Dying to the hum of a dynamo, and other Adams-Faulkner ephemera bring an elaborate and sustained figural discourse in Faulkner's novels to their surface.<sup>474</sup> In that respect, Henry Adams endowed Faulkner's genealogical style with a particular set of problems for which a conventional definition of "Clausewitzian" can only partly account. Faulkner did not merely write beside a dynamo: he composed so that his novels converted historical energy into a stylized novelistic discourse. The modern

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<sup>474</sup> Millgate provides the most concise account of Faulkner's love for the dynamo that he worked beside at the University of Mississippi power plant (28). See also Joseph Blotner (Faulkner: A Biography. Vol. 2, 635) and John Faulkner (121).

novel embodied through Faulkner's writing the aggregate, genealogical form of a new historical intelligence. Genealogy did not move from individuated dramatic characters to larger social or aesthetic formulations in the novels that Snead described as the "subjective loosening of the causal principle" (183); each novel (and its predecessors and successors) elaborated something closer to what I.A. Richards might have described as the "energy field" of literary thought. In that energy field, characters, institutions, and inanimate forces merged and separated in often asymmetrical and non-linear relations and forms that constituted the genealogical style. Its historical discourse exceeded the parameters set by the New Critics for the study of Faulkner's work and also stretched the limits of "Clausewitzian" military-political theory. With respect to the former, the influence of Adams' historical style situated Faulkner's work in relation to physics rather than anthropology (a science favored by the New Critics and their followers).<sup>475</sup> And with respect to the latter it contrasted Clausewitz' denunciation of institutionalized military intelligence as ineffective in his classic work, On War.<sup>476</sup>

Faulkner synthesized those varied elements into a rhetorical style by rendering his familial (genealogical) characters as dramatic incarnations of historical energy.

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<sup>475</sup> For example, Thomas Daniel Young's essay "Pioneering on principle, or how a traditional society may be dissolved" attempted to examine the problem of social decay in Faulkner's novels. Young borrowed from John Crowe Ransom's influential argument, proposed in The World's Body, that "'societies of the old order' handed down both 'economic forms' (work form) and 'aesthetic forms' (play forms)" (34). These forms -especially the aesthetic - stabilized society and ensured continuation. Young's thesis follows Crowe's in that it understands Faulkner according to an anthropological model of culture that ignores the role of blind natural (or institutional) forces that Faulkner learned from Henry Adams, and which displaced (or at least reduced) anthropology by way of thermodynamics.

<sup>476</sup> Clausewitz viewed military intelligence as a negligible pursuit in his classic work On War. At its best, what he describes in one-dimensional terms as "information" offered only "probability" and was often a hindrance to the tactical application of military force. Clausewitz' attitude was embodied by the entire Prussian military system, which, unlike its Austro-Hungarian counterpart, neglected to seriously reform its intelligence apparatus until the middle of the First World War. See Clausewitz 64-65.

Foremost among these were the previously cited veterans (especially aviators) who merge with the new machines; later characters merged with inorganic and hermetic linguistic forces, such as those of cryptology. The style was evident with William Faulkner's first novel, Soldier's Pay, which was based on a character named Donald Mahon. Mahon (who also received a wound to his head during WWI) was made to resemble William's brother Murry, with the exception that Mahon was an R.A.F. aviator (just as William had aspired to be -the biographical resemblances to both William and Murry of Mahon's composite character were dramatized so as to exceed mere biography.). Thus one of Faulkner's most common character types, the returning war veteran, embodied the transition from martial to civilian life as the protagonist of the novel's dramatic genealogical style.

Archaic and modern life merged in the civil society to which the veterans returned in Soldier's Pay. The simultaneity was not static but transitional, as a neo-classical conception of the U.S. South ceded before an expansive militarized industrial (northern) society. Soldier's Pay borrowed heavily from Gibbons' History of the Roman Empire, a book from which the characters who nurse Donald often read to him, and the novel alluded often to the pagan gods of Rome and depicted characters as Lucretian beasts.<sup>477</sup> Faulkner scholar Emily Dalgarno has noted the influence of Gibbon on Soldier's Pay with particular respect to "the relationship between clerical and military life" in the novel, and in particular Gibbon's "indictment of the church as another of the internal causes of decline [of Rome]" (36-37). Though not as keen and careful a reader of Gibbon as was Henry Adams, Faulkner followed Adams' pessimist account of the United States during the transition from what social critic Michael Denning recently called "the Lincoln Republic" to the advanced institutionalism inaugurated by Woodrow Wilson, thus suggesting a parallel to the transition from Pagan Rome to its Christian successor (Woodrow Wilson's father was also an Episcopalian minister, as was Rector Mahon,

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<sup>477</sup> The connection between Gibbons and Adams is fundamental. See Chapter One.

Donald's father, in the novel). Beginning from this transitional mis-en-scene, the novel relied primarily upon oxymoronic contrasts of a dramatic nature. Chief among these was the conflict between Januarius Jones, a Latinist by profession, with the wounded soldier Donald Mahon, which provided the discursive, anti-institutional form to the novel's hermetic, paradoxical scenes and figures.

Januarius Jones arrived a stranger but remained a guest in Rector Mahon's Georgia home at the end of WWI. Rector Mahon's son, Donald, returned shortly thereafter from the war, enfeebled by a terrible wound to the frontal lobe of his skull that threatened to blind and ultimately kill him. The terror of Donald's return was compounded by its gruesome surprise; in fact, the U.S. War Department had earlier notified the Rector that his son was killed in action.

Januarius Jones lingers in the funereal shock at the Mahon home to take sexual advantage of the traumatic situation. His first target is Donald's fiancé, Cecily Saunders, but his attention is soon diverted to Donald's childhood love, Emmy, who lives and works as a servant to the Mahons. Shortly after Donald's arrival, Januarius enters the Mahon home and informs Gilligan, a veteran who has escorted Donald, that he (Jones) "merely came to call upon our young friend in the kitchen and to incidentally inquire after Mercury's brother" (112). The "young friend" is Emmy; "Mercury's brother" refers to the injured Donald. Donald thereafter embodies the hermetic figures that recurred in the opening pages of Soldier's Pay, as Faulkner scholar Margaret Yonce accurately noted, where the figure is not yet identified with the wounded Donald Mahon. Yonce argued of its sources that

Accordingly, the vestiges of a mythic tradition made available to the modern world by Frazer and Weston, as well as Roman culture in the early centuries of the Christian era, inform the substratum of the novel. He [Faulkner] weaves a vast tapestry from Classical, Medieval, Renaissance, and Romantic sources

against which to project the rather ordinary and fragile lives of his wounded war veterans returning to a world which cannot accommodate them. (I)

Mercury's roles within this scheme are manifold. In addition to his traditional significance as a "messenger and guide," Mercury also prefigured by way of its etymology (Hermes/herm) the statues that populate Faulkner's writings (6-7). Donald's dramatic configuration as a figure composed of both modern and archaic matter precedes his later transformation from a living creature into an inanimate form (a "herm").

The dynamic figure renders a historical discourse. Donald dramatically embodies the transition from the pre-modern to the modern world. The pre-modern sustains a world of bestial, Lucretian forms that persist anachronistically beyond the Southern wilderness into the present (for example, in Emmy's account of Donald's youth he is depicted as a creature of the woods). These are combined with the military-industrial forces that are imposed upon Donald's civilian life. Donald is configured with the novel's ruminations on modern transport, its speed, and the emergence of a technophilic society enamored with telegraphy and radio as a shocking contrast of the Donald's archaic pre-war atavism and his post-war trauma. Donald's association with Mercury joined the classical rhetorical figures of the hermetic style with the dynamic electrical technologies of the second Industrial Revolution. These assumed a historical force that was both cohesive and divisive as Faulkner's novel converted those forces into dramatic figural style: the varied historical currents of Donald's figural form were the first, dramatic configurations of Faulkner's early genealogical style.

The genealogy was elaborated as a dialogue by the dramatic exchange between Januarius Jones and invalid, speechless Donald. The exchange sustained the novel's figural discourse, not only as an exchange between characters but also as a contest between martial and civil institutions. The dramatic contrast split the discourse between

Donald's tragic, embodiment of a pre-war repose and Jones' vital incursion as a representative of a predatory post-bellum society. Jones' role in this Clausewitzian historical situation is summarized in a later passage:

Emmy had become an obsession with Januarius Jones, such an obsession that it had got completely out of the realm of sex into that of mathematics, like a paranoia. He manufactured chances to see her, only to be repulsed; he lay in wait for her like a highwayman, he begged, he threatened, he tried physical strength, and he was repulsed.....Yet he knew if he didn't get her soon he would become crazy, an imbecile. (236)

The distinction between Jones and the other characters is rendered in quantified terms: Jones' relentless pathological behavior increases in proportion to the despondence of the other characters who are concerned with Donald's health. The ultimate significance of this contrast emerges with Faulkner's ascription of an "Oriental" nature to Jones' mad pursuit of Emmy:

After a time it assumed the magic of numbers. He had failed twice: this time success must be his or the whole cosmic scheme would crumble, hurling him, screaming, into blackness, where no blackness was, death where death was not. Januarius Jones, by nature and inclination a Turk, was also becoming an oriental. He felt that his number must come: the fact that it was not was making an idiot of him. (236)

The dark colors and numerical tropes associated with the 'orientalized' Jones ascribe an alien and occult function to the emergent post-bellum society. James Early has noted in his study of Faulkner's Go Down, Moses that Faulkner had originally depicted the character Lucas Beauchamp in a similar style in early drafts, as having "'the face of a very dark Arab' with 'Moorish features,' which became finally, in Go Down Moses, 'faintly Syriac,' 'the color of a used saddle'" (10). Jones prefigures a recurrent association between the 'Orient' and mathematics in Faulkner's works – it was Lucas who, in "The

Fire and the Hearth," acquired a metal detector in order to locate a treasure of gold coins that he believes to be buried on the McCaslin property and with which he hopes to multiply his already considerable bank account. Jones is an earlier version of that figure: at novel's end it is he, rather than the victimized country boy Donald, who embodies the vital forces of the novel's post-bellum institutional situation.

The dramatic, divisive combinations of Soldier's Pay argued that the successful continuation of the post-WWI institutions rested with the occult energy of Jones rather than with Donald's ruined form (a precursor to the despised Snopes family of later novels). The figural discourse and counterpoint to that situation was not limited to the dramatic socio-economic or "paradoxical" experience of reading: the novel's figures propelled a new genealogical discourse with a forceful dramatic momentum. Faulkner converted the novel's social types (the intellectual, the veteran, the minister) into dynamic units of energy in dramatic exchange with larger institutional aggregations (the Mahon family, its ancillary parish, or the state institutions). The relations between them were too unstable to correspond to one fixed referent, too historical in their polemic, and too deeply rooted in Faulkner's biography to sustain the simple experiential and formal dualism of Robert Penn Warren's "paradox." Rather, Faulkner's first novel ventured to propose a dynamic figural discourse in which the modern novel was the intelligent antagonist of other historical forces, and the divide between Donald Mahon and Januarius Jones in Soldier's Pay assumed a coherent discursive form only when it engaged the central foils of Adams' late writings: the institutions of the modern U.S. state.

The anti-institutional scheme of Faulkner's discourse echoed those of both T.S. Eliot and Henry Adams (with the exception, vis-a-vis Eliot, that Faulkner was a more secular humanist). Faulkner's early novels often presented political leaders and institutions as agents of the transition from the pre-modern world to militarized post-bellum society. Faulkner's early writings granted a particular, critical agency to his characters in this

respect. For example, they repeatedly attacked President Woodrow Wilson (the era's consummate institutionalist) in both Soldier's Pay and Sartoris as well as those institutions that extend his power by a metonymical force. The Clausewitzian situation, in which peace, civilian life, and its institutions were extensions of war, appeared in Soldier's Pay when "Fate, using the War Department as an instrument, circumvented" the veterans gathered in the small Georgia town in which the novel is set (144). The War Department has a surrogate power - that of civilian law - during the peace: "The shadow of the courthouse had taken half the town like a silent, victorious army, not firing a shot" (155). The female characters of the fiction sustained the antagonism; Mrs. Powers, who escorted Donald Mahon home in Soldier's Pay (and later marries him), hoped for redemption from her plight (her first husband died in the war) "in spite of war departments" (31). Edmund Wilson once noted that "When Faulkner departs from the South to write about the fliers of the First World War, we are as far from Woodrow Wilson as from Dos Passos and Eugene Debs...." (Wilson 295). Wilson recognized that Wilson, a Virginian, embodied Faulkner's despised New South.

The figural war veteran was a pivot, or a transitional node, for these varied forces. Donald Mahon of Soldier's Pay and the brothers Sartoris in Sartoris were all aviators and ruined, maimed, and killed by their passion for flight, motion, and speed. Faulkner's style extended their destruction to with the genealogical continuation of their lives following WWI, and fixed them between such entities as the War Department, the courts, and the family. The novel's recomposed that dramatic and transformative between-ness not as social history or ethnography, but as a hermetic and stylized counter-discourse to institutional life. Mahon was the living testament - the statue come to life - of the revulsion against military bureaucracy in Faulkner's novels; he was repaired by British surgeons so that in survival he "remembers nothing of his life before he was injured" (128). He was, by contrast to Jones' calculations, a cipher - a zero-sum. The veteran was not an institutional catalyst but rather a wasted thing escaped from the state institutions. The novel seized the matter and converted into a



vital, figural discourse: in Faulkner's later novel Sartoris, Horace Benbow ruminated that "Perhaps this is the reason for wars... the meaning of peace" (151).

The ruined aviators of the WWI U.S. Army Signal Corps stimulated another institutional discourse in Faulkner's novels: they rendered the dynastic family decadent and obsolete. Their return placed the two institutions - family and the state - at a Clausewitzian intersection whose variety stretches back from Faulkner's work to the institutionalized racial and economic strife of the Civil War. The dynastic, multi-racial, and deterritorialized Southern families were the pillars of Faulkner's genealogical style, and every actor was a combatant within the genealogical style as families, social organizations, military organizations, economies, and courts violated one another in a pitched and continuous historical battle. This battle proved the martial allegory to Adams' historical energy fields, recomposed by Faulkner as what Snead described as the "chaos" of his genealogies.

Yet genealogy, in the traditional, familial sense, had also become a decadent, wasteful mode. A new analytic power succeeded it as the dynastic, organic institution of the rural family collapsed into the inorganic institutions of the modern U.S. state. William Faulkner's novels anticipated the emergent relationship of exchange between the two that would be sustained for the near future. The convergence of those two institutional entities assumed varied forms in many of the author's greatest works; the patrilineal, dynastic social order and the institutional, Clausewitzian order of the militarized state were not an oppositional order but a transitional one, involved in a dynamic and suicidal exchange wherein institutional powers have their inanimate but vital surrogates such as the railroads, automobiles, telegraphs, and airplanes just as families had children, extended relatives, employees, and slaves. The young aviators belied this oxymoronic relationship; they were the dynastic remains of the original families who embraced the surrogates of the new power (if not those who embody it such as Januarius Jones). Hence, early characters such as Donald Mahon, Horace Benbow, and

the young brothers Sartoris were extended, often catastrophically, from traditional genealogical institutions (family, slavery, property) into technophilic, institutional genealogies. They formed a genealogical nexus between modern and pre-modern institutions of Faulkner's early dramatic figural style.

Faulkner's early genealogical discourse elaborated the historical, often violent exchange between dramatic figures and institutions. Yet the dramatic characters often consumed the rhetorical and figural components of the style, and subsequent anthropological readings of Faulkner (such as those of the New Criticism) only compounded the disparity. Despite those later readings, one could still barely discern the hum of the dynamo behind them. Its presence remained ghostly, until, in his later WWII writings, Faulkner found an adequate technique that would render rhetorical language - as opposed to representative characters and institutions - as the primary intelligence of his genealogical discourse, wherein the counter-mimetic power of his style was joined to its counter-institutional historical discourse.

Murry and William Faulkner repeated their enlistment contest during the Second World War. William was almost financially destitute at the time. When his novels failed to provide a steady income, he had tried his hand in Hollywood earlier in the 1930's. Despite several offers to return to work in Hollywood during the early 1940's he initially favored his impossible military prospects. He eagerly described the choice in a letter written in March, 1942:

I am going before a Navy board and Medical for a commission, N.R. I will go to the Bureau of Aeronautics, Washington, for a job. I am going to get full Lieut. and 3.2000 per year, and I hope a pilot's rating to wear the wings. (Selected Letters 149)

William Faulkner had bet that his continued amateur experience as a pilot after WWI would gain him access to the U.S. Army Air Forces during WWII. In 1942 the U.S. Army

Air Forces again turned him away. William believed his age was a factor – he was then 44. Murry had instead been working for over a decade as an F.B.I. special agent. He also attempted to enlist for active duty upon the outbreak of WWII but was initially held back as a reservist. His petitions for activation were later granted and he later wrote that “The long-awaited orders placing me on extended active military duty reached me in April, 1942. I was to report to the Counter Intelligence Corps at Washington on May 11” (Faulkner 170).

Go Down, Moses was composed in the beginning of the Second World War and precisely during the period in which Faulkner attempted, for the second time, to enlist in the U.S. military. Faulkner discovered (or was reminded) that cryptology constituted an ur-language in the hermetic style. The long chapter entitled “The Bear” in Go Down, Moses configured cryptology with the dramatic genealogical figures and rhetoric of his earlier hermetic style in such a manner that “The Bear” developed entirely new trajectories for Faulkner’s novelistic discourse. These were as much an entirely new elaboration of familiar themes in Faulkner’s work as they were a response to how Faulkner’s works had been received by U.S. novelists of the 1930’s, as we shall see.

Young Isaac McCaslin. Isaac, or Ike, is the dramatic protagonist of the chapter two combined narratives. The first tells the young boy Ike’s participation in the hunt for a near mythical bear known to the local residents as Old Ben. The story exhausts the last, Lucretian residents of the pre-modern Old South in the final pursuit and killing of Old Ben by Sam Fathers (the last Chickasaw Indian chief), Boon Hogganbeck (an atavistic woodsman) and a tremendous dog named Lion. The second story is that in which Ike, now a young man, discovers a ledger containing the McCaslin family’s tangled beginnings and its corrupt relation to the land. The revelation takes place prior to Ike’s dramatic, ultimate visit to the site where the old bear was killed and where Sam Fathers and Lion the dog are buried. Ike stands in between two worlds at the site, which is within a new lumber mill’s confines, and witnesses the proud, desperate gesture of

Boon Hogganbeck, the last of the old woodsmen. The convergence of the two stories in that moment not only blurs the line between the Lucretian, human beasts and the great bear in the final onslaught of the deforestation: it transforms Ike into a discursive, hermetic force.

The incredible achievement of "The Bear" rests upon its configuration of the two disparate historical narratives into a single figure. The configuration is achieved by an 'encipherment' that joins the genealogical mode of "The Bear" to the Clausewitzian situation of the later historical order:

It had already begun on that day when he first wrote his age in two ciphers and his cousin McCaslin brought him for the first time to the camp, the big woods, to earn for himself the wilderness the name and state of hunter provided he in his turn were humble and enduring enough. (192)

The narration proceeds from when Ike learns to write in a cipher, continues through his youthful resistance to attending school (as when General Compson intervenes on his behalf), and ends when he learns to read the hieroglyphic ledgers that contain the family genealogy. The trajectory is distinct among Faulkner's characters: Ike begins as an encoded, figural being - "two ciphers" - rather than a Lucretian beast. Ike's body and mind are rendered as capable of joining the modern world and the primordial one in a single genealogical line; the line itself runs, however, on parallel tracks that are joined in Ike's being.

"The Bear" joins the animal and human, archaic institution and modern institution, by the word and its encipherment. But "the quarry of the hunt," Snead noted, "is the past itself" (182). For example, Ike sweeps away the traditional Southern codes of privilege and property in the climactic discourse with his cousin McCaslin Edmonds. His polemic against McCaslin is prompted by Ike's decipherment of the ledgers that contain the family history, which are themselves written in abbreviations and signs rather than a standard grammar. They are a code through which Ike understands Southern history

and custom always in two registers at the enciphered, genealogical intersection of the present and past. "The Bear" culminates not only as the dramatic encounter between Ike and his cousin but as the entirety of the chapter's elaboration in two simultaneous languages. "The Bear" is, as Faulkner's biographer David Minter has correctly noted, truly a "cryptic text" (188).<sup>478</sup>

"The Bear" culminated the discursive historical tangent that William Faulkner's novels had set upon modern U.S. prose style. From his first novel, *Soldier's Pay*, through the later WWII fiction, Faulkner incorporated the technical language of cryptology, avionics (which he also mastered during his WWI flight training), and even the cinema as internal components of a genealogical historical discourse that he had merged from the hermetic style into the U.S. novel. In doing so, Faulkner extended the historical, anti-institutional style of Henry Adams. But where Adams had evacuated the Romantic rhetoric from the analysis of new institutions such as the multinational corporations, the State Department, and the U.S. Navy, Faulkner re-occupied the southern institutions – the family, slavery, property – with new and dramatic genealogies. But Faulkner's genealogies were too decadent, their characters too often enfeebled by the weight of history, to sustain the forces that converged upon them. Faulkner's reaction to Adams failed to elaborate a positive discourse, perhaps a pragmatic one, such as that which with T.S. Eliot replied to Henry Adams. Faulkner's figural discourse, constituted of dramatic characters and oxymoronic prose, surveyed the ruinous temporal fray of his work. All that misanthropy was presided over by the mediocre New South, embodied by the degenerate Snopes clan.

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<sup>478</sup> Ike echoes the "Yankee intelligence officer" who during a flashback in Ike's reading of the family journal discovers General Lee's battle order in the rubbish that was used to wrap cigars and later left behind by Lee's forces "on the floor of a saloon. (286)" Ike's decipherment of the history allows him to anticipate the future decline of the family and, by consequence, the historically vital South.

The final published version of “The Bear” was completed in 1941 immediately prior to William Faulkner’s second failed attempt to enlist in the U.S. military. Faulkner returned to Hollywood the following year and later elaborated its cryptological concerns in his 1944 adaptation of Raymond Chandler’s The Big Sleep for the director Howard Hawks, as we shall see.<sup>479</sup> In both cases, Faulkner’s work turned to more contemporary, urban renditions of his hermetic style that had been incorporated by the “hard-boiled” school of detective fiction in California.

The hard-boiled school adapted specific techniques from Faulkner mystery novels and other popular literary genera. For example, Faulkner’s characters reappeared from one novel to the next, modern institutions (the family, the state) were striated with violence and inherited bad faith, and no single scientific or logical method (deductive, inductive) could account for the varied relations that constituted how Faulkner’s genealogical rhetoric replied to a Clausewitzian historical situation. A few writers of this new detective fiction followed Faulkner’s discursive precedent in U.S. fiction during the 1930’s and the period that followed, and for the most part they found a generic home in the pulp detective story. Their territorial location was not the U.S. South but the West Coast, and in particular the urban spaces and arid, mountainous regions that surrounded it. The hard-boiled school’s version of the hermetic style was more local than that of a later generation of novelists, and in particular Toni Morrison, who elaborated Faulkner’s ciphers of the U.S. South on a more expansive scale (Gabriel Garcia-Marquez would also elaborate “The Bear’s” double cipher in his magisterial One

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<sup>479</sup> Faulkner’s version of the script was shot in 1944 and screened to Allied military audiences the following year. It featured Humphrey Bogart as Detective Phillip Marlowe, and he is depicted in several scenes as he attempts to decode a criminal’s cipher. The 1944 version of Hawks’ film was then rewritten and certain scenes were removed and substituted by different scenes. The majority of removed scenes were those concerned with code-breaking, which is barely referred to in the post-war 1946 version of the film. This topic is the subject of another essay I have written.

Hundred Years of Solitude).<sup>480</sup> During the 1960's, only Thomas Pynchon would stand between them, as we shall later see.

### **XXVIII. "Like a patient etherized upon a table": Johnny Got his Gun**

The hard-boiled detective novel developed commercially within the emergent mass culture industries, and in particular the serial magazine literature, of the 1920's and 1930's. Dashiell Hammett, James Cain, and Raymond Chandler were the most successful writers (Dashiell Hammett, for example, came to admire Faulkner's work over the course of the decade).<sup>481</sup> And behind this more commercially successful vanguard there worked a host that included Dalton Trumbo, John Fante, and Nathaniel West. William Faulkner, who was always an admirer of the detective story, was to the hard boiled school of pulp mystery writers the American equivalent of a Proust or a Joyce.<sup>482</sup>

The hard-boiled school transposed Faulkner's hermetic style to the American West (and California in particular). They imposed Faulkner's genealogies - their dramatic casts, the chaotic historical energy, the suspicion of aggregate, institutional life - on a smaller world of characters, at the center of which stood the detective and the social outcast.

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<sup>480</sup> A relationship has been acknowledged between the two writers, but in different terms and through different examples than those of cryptology. See the Spring, 1996 issue of The Faulkner Journal, which is dedicated to the influence of Faulkner in Latin America.

<sup>481</sup> There is a running commentary on Faulkner's work, beginning with Sanctuary, in Hammett's letters.

<sup>482</sup> John Fante, for example, paid an explicit compliment to Faulkner's style in Ask the Dust. Faulkner was also a friend of Nathaniel West for many years. The two originally met in New York City, and were later reacquainted in California. The influence of West on Pynchon's style is well-documented. Peter Freese has noted Nathaniel West's interest in thermodynamics and argued that a character in West's A Cool Million, Lemuel Pitkin, resembles the character V. See Freese, 172.

The detective figure became the urban substitute for Faulkner's more rigorously high-modern rural characters, in particular his war veterans. The detective retained the war veteran's radical narrative subjectivity and his shell-shocked suspicion of social institutions, especially the law (these characteristics were didactically codified by later scholars).<sup>483</sup>

Through the detective and other figures, the hard-boiled novelists transmuted Faulkner's genealogical style. Their work resulted in a varied, often stunted prose version of its hermetic style. Nonetheless, they rendered the hermetic style from Faulkner's novels to a popular commercial form, and the hard-boiled school became the conduit that Edmund Wilson had anticipated in Axel's Castle; it "absorbed and assimilated" Symbolism through Faulkner's modern novels into a "general literature." Two novels - Dalton Trumbo's Johnny Got his Gun and Raymond Chandler's The Big Sleep (both published in 1939) engaged Faulkner's work in distinctive ways, to which he would later reply (and to the latter novel in particular).

Johnny Got his Gun (1939) is at best a footnote in any literary history of the 1930's. Dalton Trumbo never compiled an oeuvre of major literary works, and, although he was hailed as a promising young novelist in the late 1930's, he soon abandoned his literary pursuits.<sup>484</sup> He turned to Hollywood during WWII where he worked as a

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<sup>483</sup> Later literary criticism predominantly defined the central character of the pulp writers as the detective or its unemployed substitute, the social drifter, by an ethical "code" of masculine behavior Tough Guy Writers of the Thirties 22-23. For Grubstein, Marlowe's code only makes sense as abstraction or in extraction from the actual text. Grubstein elaborates a codified idea of the tough guy, in four parts: 1) physically scarred yet durable; 2) emotionally stoic; 3) asocial, but loyal to individuals; 4) "confronts death without morbid pessimism."

<sup>484</sup> Johnny Got His Gun was Trumbo's third and final attempt to write literature in one of the major modes. Thereafter he retreated to Hollywood and a long, infamous career as a screenwriter. An unfinished novel, Night of the Aurochs was published posthumously. Trumbo's biographer Bruce Cook has described the problem of



scriptwriter in the film industry. Johnny Got his Gun was published immediately prior to his employ as a screenwriter and the novel culminated Trumbo's apprenticeship in the pulp industry. A commercial success, its readers bought the book by the hundreds of thousands and listened to James Cagney narrate its broadcast on the radio in 1940.<sup>485</sup> While not a mystery novel in the classical sense (even according to the newer "hard boiled" standards), it was the most concise generic adaptation of the hermetic style, replete with a thermodynamic model of communication.

A telephone is ringing somewhere outside. The narration slowly recognizes the sound from a narcotic haze, but cannot see it or reach it. Where is the phone, and where is the narrator? The first sentences do not signal any geographic position, only a sensual possibility: "sour french wine [sic]" (3). It is followed by an allusion to e.e. cummings' 1922 novel of internment as a prisoner of war, The Enormous Room: "It sounded like it was ringing in a room about a million miles wide."

The reference to cummings offers five important clues. The first pertains to the solipsism that is to frame the narration: "*his* head was a million miles wide too" (3). The second clue reveals the protagonist's gender. The third possibility merely suggests a possible chronological and geographic situation for the subject: that the novel is possibly set in France in a late WWI or post-WWI moment. The fourth is that the mysterious subject is possibly a soldier or associated with the military. The fifth and

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Trumbo's oeuvre as follows: "So we are left...with the problem of evaluating an immensely talented writer, a very able and prolific writer, who has demonstrated on several occasions that he was capable of real art; yet one has not much more than a single novel and a handful of screenplays to point to as the artistic achievement of his lifetime." See Dalton Trumbo 13. Robert Kirtsch, who edited Trumbo's unfinished novel, notes that Trumbo wrote four novels in the years 1935-1941. See "Introduction." Night of the Aurochs.

<sup>485</sup> See Words at War: World War II Radio Drama and the Postwar Broadcasting Industry Blacklist. 181-82.

final clue separates the narration from the narrator through the third person voice. The third person amplifies the distance between the narrator's uncertain location and the sonic evidence provided by the ringing phone. His subjectivity is thrice mediated: first by a split between narration and narrator, second by the historical clues that interrupt narrative time and space, and finally by the rhythmic and insistent stimulus of the telephone.

The clues propose a hermetic circuit of problems to the reader.: how can one ascertain the (historical) distance between a narration and its reception? Is this comparable to the reception of sound? Can a narration proceed in the absence of a subjectivity that is fixed in time and space? Can history? Does speech traverse those boundaries more effectively, or does the written language? Is technology a barrier to communication, or is human expression amplified by technological instruments? These questions impinge upon how the narration proposes to overcome the divide between the narrator's interiority and the phone's exteriority (and the reader's as well). They propose, in the contiguity of their sonic evidence and discursive proposals, the mystery that has been offered to investigation.

What begins as a sound wave eventually begins to take a dramatic mnemonic form. Chapter by chapter, word by word, the novel's first part (entitled "The Dead") is dedicated to two tasks: assessing the narrator's physical condition and coping with the memories that surge from (presumably) morphine-induced dreams. The first chapter that begins with the ringing phone devolves into a dream about the narrator's father's death, and concludes with the narrator's discovery of his deafness. The ringing phone is revealed to be only a memory of a ringing phone. The successive chapters deduce and subtract the other senses. Every recovered memory - a working-class childhood in Colorado, the family's move to Los Angeles, the first job, a first romance, the love left behind - is accompanied by the discovery of another sense that has been lost and finally by the discovery that the narrator's arms and legs have been amputated. Even his face

has disappeared. He concludes that all five of his senses, and that his arms, legs, and face were destroyed in some catastrophic event. Even as he identifies himself, he cannot communicate his identity to the exterior world.

The narration turns to technological devices to elaborate this condition. It describes the subject's pain: "It was all over his body like electricity" (10). The recovery of memories is crowded with hopeful thoughts of the new communications technologies: party lines over which the narrator's father serenades his mother and airplanes that "knitted the world together so that people of the world understood each other" (20). The narrator recalls a decision to leave his first job. The decision was prompted by a dispatcher's telegraph message to the worker's camp. Finally, the narrator recalls joining thousands of other young men to fight in the war; the event is punctuated by a loudspeaker bleating the inspirational quotes of famous men over the crowds that wave goodbye to the soldiers at the train station. The line between memory and energy has been blurred; memories emanate like distant sound waves, yet they are without destination or audience. They are perfectly anonymous; they send their distress calls from the narrator's senseless torso into a narcotic, historical darkness. The investigations and recoveries of the novel's first half conclude: "You're dead mister and you died for nothing. You're dead mister. Dead." Who is speaking, and how? The narrator's body, which has evoked every mode of mass communication and electrified memory, is poised at the edge of some unprecedented transformation.

Part Two of the book, entitled "The Living," resolves the previously failed communication between a "body like electricity" and an artificial language. His shattered physical being established, the narration begins to move methodically over a nexus that will bring it to artificial language. The artificial language can supersede both the narrator's alienated historical and physical condition as well as his indeterminate geographic location. The first chapter of "The Living" begins with the following:

Two times two is four. Four times four is sixteen. Sixteen times sixteen is two hundred and fifty-six. Two hundred and fifty-six times two hundred and fifty-six is oh well that was far enough anyhow. All right then two times three is six. Six times six is thirty-six. Thirty six times thirty six is five hundred and seventy-six. Five hundred and seventy-six and hell that wasn't any good. That was as far as he could go.

That was the trouble with numbers. They got so big you couldn't handle them and even if they did they got you nowhere.<sup>486</sup>

The failed computations determine that without identity, without sense, without a location, the narration occupies a "cipher" – both a mathematical figure and a de-individuated identity. "The Dead" concluded in despair with the narrator coming to awareness of the political and military forces that caused his current condition; "The Living" opens with a mathematical equation that replaces the narrator's naïve political ideas about "words without meaning" and the futility of "fighting for a word" with a hermetic narration: "two plus two make nothing."

The narration then abandons mathematics and moves towards an elemental, kinetic mode of reasoning. It begins to calculate time by the vibration of footsteps and the passing of the sun's warmth over the only patch of exposed skin on its body. It reasons inductively that they are the steps of a nurse in a hospital. Years pass, and the new, kinetic conception of time becomes a language of heat and vibration. Kinetic time becomes narrative energy; the narration transforms motion and heat into temporal and spatial coordinates of human time and language. The calculations trigger a memory that in turn reveals the possibility for communication. The narration recalls the Morse code, a binary code of zeroes and ones, tapped out in intervals of time that correspond to letters of the alphabet. These correspond in turn with a language of presence and

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<sup>486</sup>Johnny Got His Gun. 123. There is an error that should be noted here: 36 multiplied by 36 amounts to 1,296.

absence that summarizes the narration's condition: the alternation of kinetic, organic time and human, artificial time. The narration resolves to transform its resident body into a telegraph machine. It taps a message in the lines and dots of the Morse Code with its neck and its ruined head on a pillow. A nurse eventually understands the code. Using her finger – a digit to the cipher, a positive to the negative – she responds by tapping a message on the faceless head:

“ . \_ \_ \_ . . . . . . \_ \_ \_  
 W H A T  
 . . . . . . \_ \_  
 Y O U  
 . \_ \_ . . . . \_ . \_  
 A S K  
 . . . . .  
 I S  
 . \_ \_ \_ . . \_ \_ . . . . .  
 A G A I N S T  
 . . . . . \_ \_ \_ . . \_ \_ \_ \_ . \_ \_ \_ . . . . .  
 R E G U L A T I O N S  
 . \_ \_ \_ . . . . . . .  
 W H O  
 . \_ \_ . . . . .  
 A R E  
 . . . . . . .  
 Y O U”<sup>487</sup>

The novel's repeated use of the term “cipher” to describe the narrator is significant with respect to the Morse Code. The term exploits the semantic ambiguity that a “cipher” refers to both a person and a mathematical sign (or, in the Morse Code, a zero). The two

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<sup>487</sup> *ibid* 234-235.

are increasingly blurred so as to exploit the inherited philological interest in cryptology and render it an anti-institutional style.

On one, elemental level, the “cipher” is a dramatic figure dynamically negotiating a codified system of linguistic forces. The narrator, formerly unable to release language by the force of kinetic, anatomical energy, has found a way to do so. But unlike earlier prose versions of the hermetic style in which telegraphy and thermodynamics were joined (such as Henry James “In the Cage” or Ernest Bramah’s “Tragedy at Brookbend Cottage”), the conversion of kinetic energy into language ultimately doubled in Trumbo, as it had in Faulkner, as the figural field of a historical discourse.<sup>488</sup>

The narration re-entered the historical world of human, artificial time by way of that conversion. It awaited the vibrations on the hospital floor, tapped the Morse code with its head, and received the replies with its body. In the end, the narrative telegraph machine begs the nurse not to inform his family of its survival. The doctors silence both the narrator and narration with a dose of morphine, and the narration is returned to a narcotic limbo between the abstract technical language it has articulated and the traditional organic language of the dynastic family that it has lost. In the nightmarish conclusion, the military hospital incorporates the narration into its cryptic walls, and with it an entire literary style.

The style in question spanned several genera, styles, and forms, as Trumbo’s hermetic style in Johnny Got His Gun was constantly fixated upon the elements and conventions of other literary forms. The narrator worked through each of those categories that Daniel Aaron has described as the problems that determined the literary character of

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<sup>488</sup> Richard Menke’s recent essay “Telegraphic Realism: Henry James’s *In the Cage*” offered a limited survey of the matter. Bramah’s story (first printed in

the 1930's: "technological innovation, the race question, urban problems, science, the new role of women, and trade unionism."<sup>489</sup> Trumbo engaged each by the conventions of the proletarian novel, psychological novel, mystery, and melodrama. The narration recounted (and dreamed) of youthful pre-WWI romance in which small-town family is described with Naturalist precision. It described scenes of class warfare, such as when the young narrator works in a bakery, and amplified by moments of intercultural confrontation and exchange between the narrator and his Mexican co-workers on a railroad line. It combined these social, psychological, and melodramatic elements with the conventions of the war genre and the mystery. Unlike other war novels, however, Trumbo's did not exhibit the ironies attendant to heroism such as those found in Hemingway, there are not any parades or streamers such as those that open James T. Farrell's Studs Lonigan, and the scarred veteran one finds in William Faulkner, Willa Cather, Jon Dos Passos, and Richard Wright does not return to post-bellum society. The novel rendered those others mute, and the war novel, like the other generic forms, was exposed as having no adequate language for a new institutional situation.

Trumbo's novel instead elaborated that inadequacy as a figural discourse. The novel spanned three relatively distinct epochs in American culture: 1898 (the era of the narrator's birth), 1919 (the era of the narrator's post-war awakening and transformation) and 1939 (the moment of the book's appearance in a published form). Johnny Got his Gun incorporated the generic traits distinctive to each into a hermetic style that used the Morse Code to convert and amplify its anxious discourse to the present. The central, hermetic figure of the work, a shattered human body was

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1914) offered that the culprit (Mr. Creake, an expert in electrodynamics) waits for a storm to pass. During the storm, he will try to murder his wife with a charge of alternating current drawn from the local tram wire, and explain the death to authorities as a fatal lightning strike.

<sup>489</sup> Columbia Literary History of the United States. 735.

transformed into a telegraph machine, did not produce a stylistic synthesis from the previous forms. It regarded them from a historical and institutional situation expressed in the cryptological languages of codes and ciphers that substituted human life with artificial forms.

Johnny Got His Gun incorporated the detritus of other forms in order to craft a discourse of how the modern institutions (represented as the risk-calculation of the military doctors) prevented a return to previous forms of civilian life. By the end of "The Dead" the narration was exhausted in its attempt synthesize the other forms into something new. The hermetic style achieved in Trumbo's novel a curious historical apotheosis by eliminating all other genera except for the hermetic style of the modern mystery, which it effectively displaced into a historical and institutional flux. The novel's major questions - who is the narrator? How will he solve the mystery of his own destruction? How will he communicate that mystery to the world? - were indicative of a new historical situation the modern novel was preparing to confront, and whose advance guard was preparing to rage into Poland during the period of the novel's publication and success. In the end, Johnny Got His Gun did not fully achieve the development of a new language: it had only the devices, and not the rhetorical style, of Faulkner's figural genealogies. It could not match the historical present with the configured force of its past. Trumbo's novel cannot be read, however, as a merely hopeless venture (in this respect, its dream of communication contrasts Faulkner's pessimism).

Johnny Got His Gun occupies a unique position however in U.S. literary history. Literary works often occupy multiple positions along a historical spectrum. Readers enter that spectrum as they experience the work's stylized language and history together as a polyphonic chamber of sound. Melville's Moby Dick is one such work. It begins as a heavy footed, spiritual monologue as Ishmael arrives in Rhode Island in



search of work, develops into an almost comic dialogue with exotic Queequeg's appearance, and turns to a tragic chorus as Ishmael observes Ahab's demonic possession. The novel's human sounds are modulated by other, inhuman music that occupies its spectrum's earthly ends. The rumbling descriptions of New England's geology or the high-pitched, sounding of the whales approximate the nearly inaudible, volcanic core and stratospheric limits of its sonic spectrum. Its multi-tonal composition and syncopated rhythms weave a musical scale into the earth's mantle.

By contrast, Johnny Got His Gun emitted a quiet rustle from its cryptic silence, as if the reader were listening to a monologue being recited through a dense wall. Three types of sound characterize Johnny Got his Gun. The first was the regular, almost inaudible, high-pitched beeping and buzzing of the medical techniques that have both ruined and saved its narrator. They were the intravenous drip, and its careful, timed adjustment, the regular analytic visit of a doctor or nurse, the pencil scratching on a medical chart, the changing of dressing on the patient's wounds, the evacuated bedpan, the muscles twitching spasmodically after a traumatic surgical intervention. Trumbo's novel communicated the non-verbal medical experience very effectively (for example, the blind narrator learns to tell time by the vibration of footsteps approaching the bed and, in a scene reminiscent of Mallarme's "Les Fenetres," the sunlight passing the window). The novel suggested the regular background noise of medical science in the period during and after the First World War, when new medical techniques were developed in the field hospitals. The life spans, hatching cycles, and evolution of these advancements in field medicine were arranged between the narrator's narcotic bed and its clinical other, the operating table. This was the first wavelength of the novel's spectrum.

The second sound emanated from the slightly lower wavelengths of the novel. These were the Elissonian "frequencies" where aesthetically refined human language occupied the spectrum. Trumbo's novel pulsed weakly at first on that wavelength, as if it were hesitant. For example, it surveyed all the major novelistic genera: the war novel,

the proletarian novel, the psychological novel, the family melodrama, the murder mystery, the science fiction novel, the gothic, etc. But it was an ambitious and experimental work that would not conform to generic definition. Furthermore, the sounds Trumbo attempted to render were historically distant; the book appeared twenty years after the event it was organized around, World War One, and never directly engaged the war. Johnny Got His Gun only whispered, rather than bellowing with the symphonic amplitude which other modern novels (such as Thomas Mann's Magic Mountain) recreated from the same prior historical period.

A third sound rumbled beneath these two. It was without the echo of routine, clinical step or the sublime sonority of aesthetic achievement. It was rather the low, monotonous breathing of institutional life. The sound was more extensive in time, lasting hundreds, and even thousands of years, as it lumbered across the lower frequencies of the historical spectrum. The individual novel or poem may die, or be briefly revived. A certain medical practice or technological apparatus may be modified slightly, or discarded altogether, or persist for a few centuries. But the institution – the hospital, the army field tent, the medical school – would outlast them all. The lower, institutional bars of the novel's musical scale were more extensive than its higher frequencies, and few literary works ever achieve the longevity of the great institutional beasts.

The lower frequencies often seem oblivious to the rhythms and tones that occupy the higher ends of the scale. Furthermore, readers often assume that such institutions set precedents that can determine how a work of literature is shaped in the historical world. They offer a weak determinism, as when certain institutions are simply given, a priori facts when the literary work begins. It is difficult, for example, to think about *Emma Bovary* without some preconception of the 19<sup>th</sup> century bourgeois family or marriage as a modern social institution. The lower, institutional bars of a novel's musical scale may be more extensive than the higher frequencies where a novel offers

discourse, rhetoric, and technique. Yet novelistic language or technique are linked historically to institutional entities, and may inflect them in a manner that other forms of discourse cannot. They do so by modulating the notes at other ends of the scale, not simply by representing them, but by organizing them into a human discourse that is bound to human history in a manner that an institution may not be. In short, literary language may appear on the middle frequencies of the scale in a way that alters the other sounds in vertical and horizontal sequences. Literature renders history intelligible (if not reasonable) by making it audible.

Where Johnny Got His Gun began along the wavelengths of human language, it gradually absorbed notes from other frequencies of its historical spectrum (roughly 1900-1939). The exchange was dynamic: the Morse Code wavered between human life and inanimate, electrical force. At that nexus it blurred the spectral noise of anonymous technique, institutional power, and human rhetorical achievement. The novel achieved these combinations by modulating rhetorical language that, like the novel's institutions, were historical. The novel thus offered a rhetorical discourse as a non-mimetic substitute for various entities that were assumed to inhabit other wavelengths. The substitutions might be described as tropes but for their anthropomorphic character: the novel replaced medical technique with nurses, hospitals with doctors, and joined the human body with a telegraph. Of these three, perhaps only the last is metonymical, and only partly. The distinct entities - language, institutions, and practices - score the page like notes moving across the novel's atonal scale. In their harmonies and distortions, patterns and exceptions, the notes sound a discourse. That is to say, the novel is not just an accumulation of sounds, but that their intentional motion, organized by human will and inhuman contingency, is discursive. The attempted discourse moves like an argument through the world's rival frequencies, and thus constitutes a significant and singular force.

What was most striking about Johnny Got his Gun was that its style wavered so persistently between the combined human and inhuman objects of its discourse, as if it were fearful that, when emerging again to the historical fray, the narrator would abandon some of the humanity that was recalled only by a desperate struggle in that lonely cell. Yet in the moment that the narrator's ruined body was transformed into a telegraph, the novel had found a language in which the varied frequencies could all manifest themselves, if only briefly, as the music of their hermetic age.

The slowly moving, tectonic social effects of the low, institutional wavelength of the scale did not entirely direct the movement of the modern anti-institutional style. They inflected and modulated it, forced certain parameters of exchange and motion, but the limits of their influence remained obscure. And for every institutional or technical imposition, there was the possibility that another wavelength, even the human, could impose its will upon the other as certain lines of force and exchange between the wavelengths became stronger than others, or at least more audible. The reader of Adams, Eliot, Faulkner, and Pynchon can, in looking up from Trumbo's novel, watch its constellations recede to a single note on the scale. Their pitch is only lost within others when we, like Trumbo's narrator, become deaf to their sound and blind to their form.

Johnny Got His Gun was ultimately a popular success without a critical heritage. Trumbo's novel is remarkably absent from the critical or literary history of the 1930's.<sup>490</sup>

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<sup>490</sup> That Trumbo's novel should be ignored is remarkable in light of its critical success and commercial popularity. It won the American Bookseller's Award for "the most original novel of the year" in 1940, and James Cagney recited the role of the book's narrator, Joe Bonham, in a 1940 radio adaptation. See Dalton Trumbo. 140, 300.

Literary-historical writings on the interwar period offer limited means of situating Trumbo's novel. Daniel Aaron referred to the "advent of a new communications revolution" during the 1930's, yet the relation of this "advent" to literary debates, on the one hand, and both war and the state on the other, remains uncharted ("Literary Scenes and Movements." 750). Aaron's statement resonates with a remark made by James T. Farrell, who in a 1942 essay said the following of the shift

That absence gives reason to wonder what else a critical understanding of the period has overlooked, or to ask how American literary study may still be partially held within its prosaic horizon.<sup>491</sup> But when placed in the context of other contemporary works in the hermetic style, Trumbo's novel seems both a pivot and an aberration; a heresy that admits to certain unspoken possibilities of the hermetic style that had begun to appear in both the modern U.S. novel. Their correspondents were not hospitals, but the emergent hermetic military institutions.

### **XXIX Secret Ink and Ultraviolet Light: The Big Sleep**

William Faulkner had worked in Hollywood throughout the 1930's and often adapting the works of pulp writers to the screen, but his interest in detective fiction preceded and merged with that later contracted work. Throughout the 1930's and 1940's, Faulkner

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away from ideological problems of the 1930's: "About ten years ago these questions were central to the discussion of so-called proletarian literature. Today, these same issues are being discussed in correlation with literature and democracy and literature and the war." ("Literature and Ideology." 90). Aaron noted that the "signs of the state's coercive power on the literary mind were less evident in 1941 than in 1917," but he does not describe how this influence was manifest. See "Literary Scenes and Movements." 756- 757. Other scholars of the period such as Donald McQuade and Catherine Stimpson have recognized that one of the fundamental relational schemes of the 1930's was that of the relationship between the intellectual, the artist and the nation-state ("Literature as Radical Statement." 1061).

<sup>491</sup> The scarcity of discussion in contemporary literary scholarship about the conversation between the humanist tradition of the novel and those mechanized languages is one of the more highly mediated and subtly avoided areas of literary debate among scholars who study the 1930's. More specifically, the scarcity of critical works written about Johnny Got His Gun is a sign of how literary scholars continue to limit their investigations to a limited sphere of cultural production of the 1930's, characterized by ideological debates, forming a sphere whose interests encompass only the more easily commodified political elements of literature and art. By contrast, Johnny Got his Gun appeared on the eve of the massive merging of literary and scientific forces with the bureaucratic organizational power of the nation-state during WWII, during which literary intellectuals of varied political affiliations worked within the war-intelligence apparatus of the U.S. nation-state.

combined his hermetic, genealogical discourse with the generic forms of the detective novel and mystery in such a manner that constituted, as Peter Lurie has noted, Faulkner's divided relationship with mass culture.<sup>492</sup> In that divided scheme, Faulkner's later fiction replied to both the detective story and the cinema, and Lurie and others have traced their relationship from the mystery elements of Faulkner's novels of the 1930's. Lurie, for example, cites If I Forget Thee, Jerusalem (1939) as representative of the trend in Faulkner's work, while Charles Hannon has investigated the relationship between legal discourses and the hard-boiled school in Faulkner's The Hamlet (1940) and Knight's Gambit (1949).<sup>493</sup> Furthermore, Faulkner's interest in the genre culminated when, after working with Howard Hawks in Hollywood during the early 1940's, Hawks suggested that Faulkner compose a detective story. The result was Intruder in the Dust (1948).

Yet where Dalton Trumbo's Johnny Got His Gun requires a sonic sensual apparatus for the kinetic transformation of its discourse, Faulkner's later engagement of the mystery novel assumed an increasingly visual form when he returned to Hollywood.<sup>494</sup> Beginning in 1942 (and following his rejection from the U.S. Army Air Forces), Faulkner

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<sup>492</sup> Lurie's recent book Vision's Immanence: Faulkner, Film, and the Popular Imagination also considers his relationship to the hard-boiled and pulp writers.

<sup>493</sup> Hannon's discussion of the new legal institutions and laws (51-52) holds particular interest with respect to my previous discussion of Saussure, as it summarizes a division between empirical realists (induction) and abstract positivists (deduction) in legal theory similar to that which I discussed in the previous chapter. He also discusses the influence of the hard-boiled school (65). Lurie offers readings of the relationship between hard-boiled and gangster narratives to Faulkner's police in Light in August (86), detective elements in If I Forget Thee, Jerusalem (134), and the resemblance of the character Popeye in Sanctuary to the Continental Op in Hammett's novels, most notably Red Harvest (33-37).

<sup>494</sup> Lurie notes that during the interim between this working visit and his last, "Faulkner's ideas about the film industry were sharpening throughout the period in which he worked on *Absalom*, which included the completion of *Pylon*" (106).

was under contract as a script writer and consultant for Warner Brothers, where he remained for the majority of World War Two.<sup>495</sup> He began in 1944 to transpose Raymond Chandler's popular first novel The Big Sleep to the screen for director Howard Hawks. Faulkner had first met Hawks during his working visit to Hollywood in 1932 when both men were working at the MGM film studio, and they remained collaborators and friends.<sup>496</sup> The Big Sleep followed their previous and successful writer-director collaboration, an adaptation of Ernest Hemingway's To Have and Have Not (1944).

The Big Sleep project resulted in two distinct films. The first was the 1945 'Pre-Release' version of The Big Sleep (hereafter referred to as the PR film, which Faulkner primarily scripted). Faulkner's late experiments with the hermetic style resonate clearly throughout the PR film, which, when released, was only screened to military Allied audiences in the Pacific Theater of war during 1945.<sup>497</sup> The PR film was later locked away in the Warner studio vaults after its director Howard Hawks' re-shot certain scenes and re-edited the film for a new domestic Theatrical Release, hereafter referred to as the TR film.<sup>498</sup> It was the PR film, rather than the later TR film, that constituted the

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<sup>495</sup> Dalton Trumbo was working in the story department of the Warner Brothers' studio when Faulkner returned to Hollywood in 1942.

<sup>496</sup> A great deal has been written by film scholars, biographers, and literary critics on the Faulkner-Hawks collaborations. See, for example, Kawin's Faulkner and Film.

<sup>497</sup> The military screenings of the PR version of The Big Sleep are mentioned in many places, including Walker (194-197), Kawin (113), and Thomson (44, 58).

<sup>498</sup> Gerald Mast's Howard Hawks, Storyteller and Bruce Kawin's Faulkner and Film are the only critical works that discuss the two different versions. Mast only compares the scripts, while Kawin contrasts both scripts and the finished films. The earlier 'Pre-Release' version of the film was finally issued as a DVD by Warner Brothers in 2000 together with the more familiar 1946 "Theatrical Release" version of the film (hereafter referred to as the PR and TR versions), but the edition went largely unnoticed in a

only successful attempt by any U.S. artist to translate the hermetic style from modern fiction to the modern cinema- that is to say, from a primarily audio-linguistic medium to a visual one.

Faulkner's screenplay adaptation of Chandler's source novel, The Big Sleep (1939) focused incessantly on its implied visual apparatus. The novel's protagonist Detective Phillip Marlowe discovers a code book in the novel's early pages. The encoded book ostensibly contains the names of a criminal clientele. Marlowe repeatedly attempts to decode its contents, but the reader is never told, despite Marlowe's several attempts to crack the code, if he finally succeeds in doing so. The code book is later confiscated from Marlowe by the L.A. District Attorney. The confiscation of the code book is not so much an action (such as that which permits Trumbo's narrator to communicate with the world) but a transaction; in return for the code book, the D.A.'s interest in the book (his secret intention) provides Marlowe with the ephemeral clue that permits Marlowe to decode the relations of an entire urban social order, in particular the connections between the criminal underworld, legal institutions, and Marlowe's employer General Sternwood. That hermetic situation of obscure plots, vague connections, and historical disorder exploited by corrupt civic institutions constituted the occult, evidentiary paradigm of Chandler's anti-institutional discourse.

The text's substitution in The Big Sleep constituted Chandler's reformulation of the cryptological vector of hermetic style in the modern novel. In a later novel, Farewell My Lovely, another cryptological scene framed the encounter between Marlowe and the villain Amthor:

He still tapped on the table. I listened to the taps. Something about them I didn't like. They sounded like a code. He stopped, folded his arms again and leaned back against the air (153).

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consumer market saturated with special editions, "director's cuts," and box sets of every sort (The Big Sleep. Warner Brothers 2000).



Once again, Marlowe does not break the code. As he studies the sounds, a thug strikes Marlowe on the back of the head. In retrospect, the code contained instruction to violence. But the violent transaction again set Marlowe on the track of another social plot, the crimes that hold it together, and the solution to another death. In both cases the cryptological text is abandoned for a significant action or gesture that in turn exposes a kinetic world of social connections that lie beyond the grasp of conventional literary hermeneutics. The fading empirical method of investigation, which is essentially inductive, remains the same: only the object has changed into the ephemeral visual evidence of physical motion.

Chandler's detective stories deviated from the classical parameters of the mystery form; Detective Marlowe's methods - the way that the figure interprets the signs of the world - differ from those of Poe's Dupin, Doyle's Holmes, or Christie's Poirot. He reasons inductively from a logic to which cryptology is the obsolete precursor: it must always be disposed with in order for Detective Marlowe to decipher the occult details of his urban milieu. Contrary to their function as solutions in other detective stories, codes, ciphers, and secret inks recur in Chandler's novels as obsolete artifacts that facilitate a historic transition. Cryptology thus appeared in Chandler's early novels not as a mere plot device or a ruse deployed to entertain the reader; their obsolescence was a symptom of forces that were transforming how humans communicate, think, and act. The twilight of cryptology as an element of classical ratiocination constituted, by its decay, a significant element of the historical discourse proposed by Chandler's novels. Rather than abandon the literary cryptology of the hermetic style *tout court*, Chandler's novels transposed its techniques to an immense hermetic social order. The detective and his methods likewise became historically transitional: the hinges upon which the door of the past opened to the future. "The detective story," Fredric Jameson has correctly noted, "represented something more to Chandler than a mere commercial product."<sup>499</sup>

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<sup>499</sup> 'On Raymond Chandler' 624.

Raymond Chandler's revolutionary interests in transforming the parameters and objects of the hermetic style through the generic forms of the mystery novel were not sudden, but rather the result of a long and studied technique. Indeed, Chandler - who was born and raised in England - adopted a fundamentally empirical approach to linguistic matters:

I had to learn American just like a foreign language. To learn it I had to study and analyze it. As a result, when I used slang, colloquialisms, snide talk or any kind of off-beat language I do it deliberately. The literary use of slang is a study in itself."<sup>500</sup>

Chandler's attitude towards urban, modern American English was amplified by his familiarity with codes and mathematics. The published copies of Chandler's extant notebooks confirm a rigorous and extended study of such matters in which he transformed police slang or the names for the numeric combinations of the craps game into a bilateral code, with the encoded words on the left and the key words on the right. These mathematical and precise tables of correspondence were later translated into his novels.

Chandler's biographers have dedicated considerable energy to establishing Chandler's intellectual abilities, as if these compensated in some way for the "lowly" genre in which he wrote. William Marling described the matter in the following manner:

Raymond Chandler, Assistant Store Officer, Naval Stores Branch, was to keep records on the transfer of naval supplies and ammunition from the naval depots to the fleet stations. His ability with numbers and his rigorous logical abilities made him well suited for the job, and he thought that the easy hours would let

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<sup>500</sup> See "A Letter to Alex Barris" in Raymond Chandler Speaking 80.

him develop his literary career on the side, for many poorly paid literary journalists held government sinecures.<sup>501</sup>

When Chandler later began composing his novels and stories he did not distinguish between bureaucratic statistical methods and a “literary career;” rather, he incorporated his “ability with numbers and his rigorous logical abilities” into the works in a foundational manner through the cryptological elements that the hermetic style had maintained.

Chandler scholars have often repeated the term “code” in a different, far more limited context, when they use it to describe the ethical characteristics of detective Marlowe. Sheldon Grubstein devoted an essay to the influence of Hemingway on Chandler in which it is noted that Marlowe lives by a “code” of “personal loyalty” rather than a legal or social code. And Chandler critic William Marling dedicated an entire subsection of a chapter to a similar rendition of “Marlowe’s Code.”<sup>502</sup> Carl Van Doren, in his previously cited The American Novel: 1789-1939, uses the term “code” in the same manner when he wrote of James Branch Cabell’s novels of the years 1905-1916.<sup>503</sup> In both Chandler’s recent critics and Van Doren’s work, the “code” is a synonym for a moral principle of behavior found in certain modern novels. As noted in the previous chapter, this reductive and prescriptive definition of coding was maintained in the transition from philology to professional literary criticism during the interwar period; its cryptological cousin was not maintained, nor did the institutional or historical connotations of the term define its later use. Only the genealogical historical vector of

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<sup>501</sup>Raymond Chandler 7.

<sup>502</sup> This is William Marling’s phrase. See Raymond Chandler, 83. Marling’s understanding of “code” in Chandler is behavioral, and similar to the later development of the attributes of the “tough guy” found also in Grubstein. Marling’s version of the “code” is 1) heterosexual; 2) lawful; 3) honest “in financial dealings.”

<sup>503</sup> The American Novel. 316.

the modern novel's hermetic style sustained the earlier relationship between cryptology and literary discourse, and only in a difficult rhetorical and dramatic style. In Chandler's case, innovations such as the substitution of cryptological texts for kinetic exchanges and visual gestures was rendered invisible. Their significant predisposition to modern visual media, and the cinema in particular, was lost until Faulkner captured them for Hawks to depict.

Faulkner's adaptation of The Big Sleep recognized and elaborated the confusion of conventional, linguistic cryptology with modern visual media in Chandler's prose. For example, after Marlowe finds the code book, he "dreamed about a man in a bloody Chinese coat who chased a naked girl with long jade earrings while I ran after them and tried to take a photograph with an empty camera" (42). It is later implied that code book contains the names of a clientele who purchase pornographic images from the criminal, Arthur Geiger. The novel contains later numerous settings to Hollywood and the cinema industry, and these are joined, as in Geiger's house, to repeated oriental motifs.

Marlowe's figural being is divided as a result between the empirical, materialist method of the professional detective and a hermetic spiritualism (represented most often in Marlowe's interest in eastern religions). Marlowe's figure becomes both a cipher (a mathematically inscribed, mystical identity) and a bureaucrat who must negotiate, to use Fredric Jameson's phrase, the "autonomization of ever smaller segments" of modern life.<sup>504</sup> Serial form and Marlowe's mystical clairvoyance will ultimately hide the

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<sup>504</sup> 'The Synoptic Chandler.' 33. Fredric Jameson has published two contradictory yet equally compelling essays on Chandler over the course of his career. The first argues that Chandler was the prophet of a post-WWII social order (in the later essay he argues that Chandler "cannot... be described in purely social terms"), the second that Chandler's writings constitute, in their totality, a "synopsis" of an age which leads Jameson to an ontological reading of the works.

I regard the cryptological instances in Chandler as transitional rather than components of a totalized aesthetic order; the ephemeral and unstable qualities of the worlds they configure are transposed to the moving image. "Social terms" were

method of Marlowe's uncanny "solution."<sup>505</sup> With respect to both the detective figure and its method, Chandler's work anticipated a process of re-materialization by which Faulkner and Hawks transposed the literary hermetic style to the kinetic visual surfaces of the cinema. These connections became apparent, and only for a brief instance, when The Big Sleep was transposed by Howard Hawks and William Faulkner to the cinema during WWII.<sup>506</sup>

William Faulkner recognized that Chandler anticipated how the hermetic style would be absorbed into the popular cinema, just as Faulkner himself had absorbed it from modern symbolist poetry into the novel. As Bruce Kavin noted in an essay on Faulkner and the modern cinema, the cinematic element of the "composite series" in Faulkner's prose style constituted a parallel to the montage in the films of Griffith and

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imposed on Chandler's work by the cinema; this will be apparent in the relation between the later, 1946 TR version of The Big Sleep and the earlier PR film. In short, the major critique I level against Jameson's essays is that the nation-state is conspicuously absent from their discussions of Chandler, and I argue that the intellectual formations to which Chandler, Faulkner, Bogart, and Hawks were historically bound generate meanings for which Jameson's rigorous readings of Chandler cannot always account. Jameson's arguments about Chandler are the most compelling that have been written about the author, and they deserve more than the attention that can be afforded in these pages. See "On Raymond Chandler." Southern Review. 624-50 and "The Synoptic Chandler" in Shades of Noir.

<sup>505</sup> I borrow here from The Maltese Falcon, in which the detective seeks the statue of a black bird that is stolen from the Templar Knights. The film's correlation of the religious and the secular understandings of the term 'mystery' suggest a Gnosticism that returns in Chandler's detectives (as in Hammett's); see Jonathan Arac's explanation of the etymology of "detection" in Commissioned Spirits (69-70). The theological connotations of the problem have not escaped film noir scholarship; Borde and Chaumeton's phrasing occasionally has the qualities of a religious vision: "French critics could not absorb this sudden revelation."

<sup>506</sup> I extend here the previously noted elaboration of Jameson's position that the U.S. "federal system" and the local politics of Chandler's novel "never intersect." See "On Raymond Chandler." 630.

Eisenstein.<sup>507</sup> In Kawin's reading Faulkner's "oxymorons" could be extended to images and edited for contrast.<sup>508</sup> But Faulkner did not achieve the hermetic style by the scripting a spatially defined and didactic montage in the PR version of The Big Sleep; he scripted instead a temporal and occult mis-en-scene.

The 1945 PR version featured a number of scenes that were cut from the later TR version familiar to film scholars. The earlier PR film devoted a larger portion of screen time to problems of detection. And although its running time is only two minutes longer than the TR version, the deletion and replacement of several detection scenes accounted for nearly twenty minutes of variant footage between the two films. Among these is the scene in which Detective Marlowe struggles to decode the names of Geiger's clientele. This scene (and the scenes that are consequential to its discourse in the PR film) situated the film's visual hermetic style at the intersection where military intelligence crossed paths with the cinema. William Faulkner, who had studied both topography and cryptology in his WWI aviation training, was the ideal writer for the wartime adaptation because he understood the relationship between the hermetic style and social space in a manner that other writers did not.

Detective Phillip Marlowe is played by Humphrey Bogart in the film. Bogart sits at the desk in his transient office, a hotel room, and stares at the book on his desk: he is struggling to decipher a book written in code. Perspiration beads his forehead as the rain pours down the windows behind him. His face glistens between thought and gesture, awaiting some cerebral inscription: a motion, a word, an image that will add some meaning to this rare monastic moment in Bogart's career. The mis-en-scene is in full contradiction with Bogart's screen persona: Bogart's face is the masthead of Warner

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<sup>507</sup> A fact stressed in Lurie's reading of Faulkner as well. See Vision's Immanence 107-113.

<sup>508</sup> "The Montage Element in Faulkner's Fiction." 110.

Brother's urban demographic; he is the icon of the violent, cunning, and morally supreme urban underclass.

The camera lingers on Bogart's labor. He is slightly off-center in the composition of the shot. A circle of light from a table lamp illuminates the table. He is seated just outside the circle and armed with the instruments of the modern code breaker: a pencil, notepad, and the encoded text against which he strains. The cone of light at his side contains the basic stimulants required by every sleepless code breaker: cigarettes, tea, and the unblinking bulb. A single violin holds a high, fluid note. Bogart writes something down, looks at the code book, then crumples his note in a ball and adds it to a pile of errant interpretations accumulating on the table and floor. Bogart is unable to crack the code. Revelation is postponed; secrecy must be maintained, even at the expense of narrative cohesion (despite Bogart's later success in solving the Sternwood mystery, the film will never reveal if he cracks the code).

The camera holds the shot (it has all been a single take) as Bogart is distracted by the door buzzer. The buzzer is followed in the film's score by the bellow of a horn that introduces a lowly physical counterpoint to the violin that accompanied Bogart's cerebral effort. The visitor is Bogart's former colleague, Bernie Ohls, a detective for the District Attorney of Los Angeles. Bernie crosses the room to the desk in a straight line. He looks down and says "Working on a cipher, uh?" Bogart replies "Just fooling around" to which Bernie adds "You're also working for the Sternwoods, aren'tcha?" Bogart comments that the rain interrupted his footwork for the Sternwoods, and the camera, which has filmed the entire code breaking scene and Bernie's entrance in a single take, now cuts to a shot of Bernie sitting against Bogart's desk. Marlowe asks about the rain, and Bernie responds that it is starting to clear. Bernie tells Bogart that a car belonging to the Sternwoods has washed up under a pier, and the film breaks away from the intellectual labor of the amateur cryptologist to resume the course of its narrative action: Bogart once again becomes Detective Phillip Marlowe, the socio-

economic and moral alignment of Marlowe and the decadent Victorian Sternwood family is restored, and the institutional bedfellows of crime and law begin to move them towards the negotiation table.

As I have shown, the code-breaking scenes of the novel had already anticipated their own translation to a gestural socio-kinesis insofar as they were displaced with visual rather than literary evidence (i.e. the encoded names of the criminal clientele who consumed pornographic images). Using a rare book dealership as a front, the code book's owner and author, Arthur Geiger, established an illegal pornographic library. The retired General Sternwood was blackmailed with pornographic photographs of his daughter Carmen. The General hired Detective Marlowe to ensure that the genteel Sternwood name retained its Victorian prestige against Geiger's pornographic commerce; Marlowe was, in this sense, on a crusade against illicit visual commerce and the code book was the secret lexicon of a new consumer demographic. But Marlowe could not crack the book's code, and the novel divided its concerns (and Marlowe's being) between a traditional, Victorian literary hermeneutic embodied in literary cryptograms and their visual corollary, the photogram. But the novel was always concerned with motion – of bodies, of clues, of images, and it anticipated the cinema with Marlowe perched between two distinct aesthetic orders: one static, the other kinetic.

The unique decoding sequence of the PR film presented Marlowe as seated and contemplative in his attempt to decipher and read Geiger's codebook. The mis-en-scene was quiet and without violence or sexual allusion; it suggested a clerical meditation that disrupted the anti-intellectual icon of the hard-boiled detective. Sound, silence, climate, light, motion, location, and language collapsed the figure into a "time-image." In this respect, the film's depiction of Marlowe's failed cryptanalysis captured the novel's historical argument, divided (as was often the case in Faulkner as well) between pre-modern and modern forms of kinesis: the former hermetic (yet intellectual), the latter



explicit (and merely reflective), convergent with the institutional power of the wartime cinema and security-state. The layered detail of the long, single shot that depicts Marlowe's cryptanalysis was not a representation of his occult intellectual operations; the cinema converted the intellectual operations of the amateur code-breaker into a kinetic energy (stunted in this scene by a temporal vector) that was not synonymous with the literary-cryptological operation. The PR film, using the cipher as a pretext, abstracted language into a new kinetic idiom. Marlowe's transitional cipher briefly inhabits a world in which detection, the hermetic style, and literary cryptology stood outside, yet in distinct relation to, the wartime security-state and its institutions.

The most important scene cut from the PR film, after Marlowe's attempted code-breaking, was a six minute-long sequence depicting the encounter between Detective Marlowe and the District Attorney. In the scene, Bernie and Marlowe explain the details of the murder of two blackmail suspects - Arthur Geiger and Joe Brody - to the D.A. In addition to explaining the murders, the scene derives directly from the previous code breaking sequence. Marlowe's subservient physical position is repeated from the code-breaking sequence as high angle shots reinforce the interrogative power of the D.A. and the legal institution.<sup>509</sup> Marlowe carefully negotiates the display of municipal power before him in order to protect his client, General Sternwood, from the gangster Eddie Mars. The negotiation is only a deferral - Marlowe hopes to connect a larger conspiracy orchestrated by local law enforcement and criminal elements to his employer, the Sternwood family. Geiger's code book only then assumes its proper significance (as it had in the novel, only now as a visual rather than rhetorical energy) as a figure of substitution and exchange during the transaction of evidence that takes place in the

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<sup>509</sup> The crisis in detection and ratiocination is often displaced onto the action of the male body in *film noir* and its correspondent violence is generally considered a trademark of films such as The Big Sleep (TR). The code-breaking scene reverses that order; in the PR film, the male gaze is rendered ineffectual (as opposed to the TR film, where clairvoyant sight substitutes different components of a totalized social field for the missing components of the text).

D.A.'s rooms.

The D.A. confiscates the codebook as the only physical evidence from all the other material that Marlowe offers as proof for his explanations of the previous murders. The confiscation provides Marlowe with a key to the complicity of the local authorities in the murderous schemes of the other criminal characters. The removal of the code book itself - not its contents - solidifies a series of associations that runs from Arthur Geiger to the criminal underworld, and from there to police protection that ensures the work of Geiger and the criminal empire run by Eddie Mars. The gesture itself is a kinetic substitute for the earlier failed decryption. The legal, police arm of the civilian security-state interferes with Marlowe's investigation (Bernie Ohls was in fact its messenger); by that action, the hermetic literary world of ratiocination is transposed from language to a kinetic and visual social order. The PR film imposed the social context of visual modernity upon the formal methods of cryptology in an ironic double gesture: it resisted a conventional hermeneutics yet completed the socio-kinetic exchange.

The significance of the PR film's code book scenes is manifold. The relinquishing of the codebook to the D.A. signals Marlowe's sympathies for Victorian decorum but also his willingness to abandon the intellectual rigor of the classical detective's powers of ratiocination and engage a new object: the visual society. He is not merely nostalgic for an amateur order at that moment when it enters in conflict with the corrupt forces of a de-individualized and institutional modernity, which are represented here as the bare angles of the District Attorney's home; he is concerned rather with deciphering a new, emergent order that erases the previous divisions between bureaucracy (the public sphere) and the family (the private sphere). The chiaroscuro lighting of the film noir reinforced the transitional significance of the scenes in the PR film.

The transition is complicated by a third force that exerts itself upon the kinesis of the cinema: the U.S. military. The U.S. Army Signal Corps was a branch of the U.S. War

Department until the end of WWII, when it was replaced with more sophisticated, centralized, and independent institutions such as the N.S.A. and D.I.A. The Signal Corps had several missions since its inception during the U.S. Civil War, but its primary work was the security of U.S. military communications and the analysis of the communications of enemy combatants and foreign states.<sup>510</sup> During WWI it assumed responsibility for both aerial reconnaissance photography and the transmission of encoded intelligence information derived from aerial photography and film.<sup>511</sup> The extension of the Signal Corps' mission to visual information also brought it into contact with the modern cinema, and it began to capture, develop, and produce moving images of the battle zones of WWI.<sup>512</sup> The War Department, which housed the U.S. Army Signal Corps, continued after WWI to provide material and logistical support to American films, as in the case of *Wings* (1927).<sup>513</sup> The Army Air Force was established in 1941, further separating communications from aviation, but also providing greater interaction between them. The U.S. Army Signal Corps was also more active in the production of films about the war, and commissioned several important Hollywood figures to assist in the production of propaganda films, among them Daryl Zanuck of Twentieth Century Fox.<sup>514</sup>

Both screenwriter William Faulkner and director Howard Hawks had long yet differing

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<sup>510</sup> Paul Virilio discusses the first linkage of photography and wartime intelligence in War and Cinema: the Logistics of Perception 11.

<sup>511</sup> Paul Virilio's previously cited War and Cinema: the Logistics of Perception contains the most thorough account.

<sup>512</sup> For detailed examinations of the role of the U.S. Army Signal Corps in film production, see Mould 201-213 and The Motion Picture Goes to War 76-86.

<sup>513</sup> Pisano 61.

<sup>514</sup> McAdams 31. On the relationship between Hollywood and the U.S. War Department, see Virilio 9-10.

relationships to the U.S. Army Signal Corps. Faulkner had attempted twice to enlist as an aviator in the U.S. Army Signal Corps: first in 1918 and then again in 1942 (immediately prior to his return to Hollywood). He was rejected both times, but succeeded in enlisting in the R.A.F. in Canada, where he was trained in aviation, telegraphy, and topography. Despite having never served in the U.S. Army Signal Corps, William Faulkner was versed in the growing relationship between aviation, visual reconnaissance, and military intelligence.<sup>515</sup> Faulkner's rendering of that relationship appeared both in his fiction and in his collaborations with Hawks (despite the fact that he often worked with other screenwriters who revised his work).<sup>516</sup>

Howard Hawks' military experience and artistic career paralleled that of William Faulkner. An aviation instructor in the U.S. Army Signal Corps during the First World War, Hawks later wrote and directed films about the exploits of the WWI pilots of the R.F.C. (later R.A.F.) and the U.S. Army Signal Corps. The first of these was The Dawn Patrol (1930) which, as film scholar Dominick Pisano noted (in ambiguous terms), "evolved into the conventions of the WWII air combat film and extended beyond it" (75). Hawks' early WWII war films, developed at times with Faulkner as screenwriter, included Sergeant York (1941) and Air Force (1943, on which Faulkner also briefly worked), and *Air Force* was produced with the assistance of the U.S. Army Air Corps (McBride, 90). Faulkner and Hawks shared a passion for engineering as well as aviation, and certainly regarded the two as related. Bruce Kawin described the following scene from their last collaboration on the set of Hawks' film The Land of the Pharaohs (1955):

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<sup>515</sup> Faulkner's biographer Joseph Blotner discussed Faulkner's attempts to enlist in the Signal corps and his aviation training (212-213).

<sup>516</sup> Faulkner described photographs taken by WWI aviators in his short story "All the Dead Pilots." With respect to collaborations, Leigh Brackett worked as Faulkner's assistant on the PR script of The Big Sleep. Although Faulkner is credited in the TR film, he did not participate in its revision or re-shooting.

Hawks had started out as an engineer, and he and Faulkner had a good time inventing a system of sand hydraulics to seal the pyramid and a ramp for the stones; they were even complimented on their ideas by a group of archeologists who were digging in the vicinity.<sup>517</sup>

The PR version of The Big Sleep was however unlike other wartime or war-themed films directed by Hawks or scripted by Faulkner. For example, The Big Sleep did not partake in “satire of the military bureaucracy of the military machine” that Robin Wood has noted is central to the 1949 film I Was a Male War Bride (Hawks 85); nor did it elaborate the group dynamic that was central to Air Force (1943). The code-breaking scenes of the PR film, Hawks’ profound understanding of Faulkner’s ambitions, and its singular relationships to Faulkner and Chandler respective hermetic styles inflected the movie in such a way as to render it unique. The film cannot however be entirely distinguished from Hawks’ other films on the basis of hermetic literary elements alone. Likewise, the military experiences of Faulkner and Hawks could not achieve the otherworldly, transitional images of the PR version of The Big Sleep without a combination of other external factors that were combined in the film. Those included the objects and figures from which Chandler novelistic narratives of historical transition, Faulkner’s own predilection for objectively depicting current history as a divided time, and Hawks’ expert ability as a composer of visual space and motion. It was only by the alchemy of such diverse factors and techniques that the code-breaking scenes of The Big Sleep (PR) achieved their singularity at the intersections of Hollywood war cinema, literary modernism, and the security state. Paul Virilio has described the general effect:

War consists not so much in scoring territorial, economic, or other material victories as in appropriating the immateriality of perceptual fields. As belligerents set out to invade those fields in their totality, it became apparent that

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<sup>517</sup> “Faulkner’s Film Career: The Years with Hawks.” 181.

the true war film did not have to depict war or any actual battle. (War and Cinema 7)

The cryptological sections of Chandler's novels were never explicit in positing, for example, an institution such as the Los Angeles District Attorney's office as a surrogate for federal-military institutions such as the O.S.S. and the U.S. Army Signal Corps – as Faulkner, in his novels, had rendered the War Department a surrogate of Woodrow Wilson, for example. That current in Faulkner's work returned in the PR version of The Big Sleep where the failed code-breaking scenes instructed a targeted wartime demographic. The PR film warned G.I.'s to recognize encrypted documents during the progress of the war and to turn them over to their superiors or Allied intelligence officers; this is what Marlowe reluctantly must do when he delivers the code book to the District Attorney. The PR film thus reminded, if in too complicated a manner, the soldiers and wartime audience watching the film of a rudimentary understanding of the military import, content, and context of encoded texts. That import was reinforced historically by the popular hard-boiled detective and classical mystery genera, as the detective had been connected to a popular understanding of cryptology in modern literary thought since the writings of Edgar Allan Poe.<sup>518</sup>

Marlowe's amateur cryptology and the D.A.'s office were partial substitutes for the soldier and the emergent intelligence institutions of the wartime security state. As with the aforementioned example of how Trumbo's novel absorbed Faulkner's hermetic veterans, The Big Sleep also carried the connection between martial culture and the hermetic style of detective fiction. Marlowe is described in the novel as a "soldier" in one significant passage (215), while discourses of "information" (164) and "analysis" (109) run through the novel and the film. The martial connotations, the scenes of cryptanalysis, and the uneasy institutional encounter in the D.A.'s office offered distinct

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<sup>518</sup> See for example The Cryptographic Imagination.

discursive points of contact in the transition from a Victorian-literary order of ratiocination to the present. The links haunted the PR film and suggested a nebulous future as they briefly possessed Humphrey Bogart's visage. When Bogart sits at his desk he rests at the end of the amateur age of detection; when Bernie Ohls appears, he is forced away to face the new challenge posed by new institutions. The amateur literary economy is transformed in that process to a node of exchange between the cinematic apparatus and the state; more specifically, it was emblematic in this case of a rare triangulation between a decadent (and reluctant) Victorian literary culture, the U.S. Army Signal Corps, and Hollywood. Bogart's face has been briefly transmuted into the visage of an obscure wartime security state; as the film progresses the fluctuation between the poles of the amateur and the bureaucrat (Marlowe and Bernie, the violin and the horn) is trebled by a linearity that joins them in a single movement: the encoded text passes from the criminal, through the renegade detective, and finally to the Law. Marlowe and his confidants are ultimately left outside the law's invisible walls.

Following the war, the veiled didacticism of the PR version of The Big Sleep was no longer compatible with Warner Brothers' reputation as a film studio that catered to urban and working class audiences. It no longer had to instruct its military audience of the import of the intellectual labor of cryptology – now the G.I. Bill would provide that education for them. If, as many critics have argued, the re-shot and edited TR movie's release was delayed due to the studio's desire to release its remaining "war-themed" films, it must also be considered that the military value of the code breaking scenes and "male friendship" in Hawk's work were exhausted by the PR version's screenings to Allied military personnel.<sup>519</sup>

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<sup>519</sup> The cited phrase is from Michael Walker's essay on The Big Sleep. Several critics have engaged the topic of homo-social friendship between males in Faulkner's screenplays. See, for example, Fiction, Film, and Faulkner, 13 and, more perceptively, Kawin's Faulkner and Film (94).

The PR film was unusual in that Marlowe's code-breaking scene replaced the masculine violence of the hard-boiled genre with a momentary historical discourse on the collapse of classical model of detection under the pressure of an emergent wartime security state. The codebook scenes of the PR version constituted the first, last, and only moving image of the pre-Cold War literary amateur in dynamic confrontation with his autonomization before he was permanently absorbed into the professionalized institutions of the post-WWII U.S. security state.<sup>520</sup> Only then, after the war, was Marlowe allowed to repossess the detective figure in the TR version of the film and withdraw into the adventurous city shadows that are his office.

Film scholars have noted that the TR version of The Big Sleep was consequent to the military screening of the PR version.<sup>521</sup> According to this view, the film was re-shot and edited to emphasize the iconic Bacall-Bogart couple, but the commercial star-motive does not explain the deletion of the codebook scenes (although it does explain the re-shot ending of the film, in which Bacall's character, Vivian Sternwood, is more prominent). The deletion of the code breaking scenes and the scene in the D.A.'s house from the TR version of the film shifted the TR film's visual energy from the security-state's absorption of Victorian narratives of ratiocination to the potential sexual relationship between Marlowe and Vivian Sternwood. In the TR version of the film, the scene in the DA's office is replaced with the famous encounter between Marlowe and Vivian Sternwood in a bar, where the two characters elaborate a horse racing conceit that increases the sexual tension between them. The contrast between the deleted scene and its replacement was not only cosmetic; it fundamentally reoriented the film in

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<sup>520</sup> A series of earlier films also engaged the emergent security state, but none in the style described above. See, for example, popular films such as Code of the Secret Service (1939, dir. Noel Smith), the British film The Spy in Black (a.k.a. U-Boat 29, 1939 dir. Michael Powell), Espionage Agent (1939, dir. Lloyd Bacon), as well as the high modern films Foreign Correspondent (1940, dir. Alfred Hitchcock), Saboteur (1942, dir. Alfred Hitchcock), and Cloak and Dagger (1946, dir. Fritz Lang).

<sup>521</sup> Spendo 46.



relation to social melodrama. The previous organization of the PR film around the visual problem of reading-as-detection and code breaking transmuted to a romantic chase in which Marlowe's tough-guy character and Vivian's anti-*femme fatale* character were emphasized.

The elimination of the codebook scenes from the TR version of the film re-oriented the film's cryptologic and visual problematic to a post-WWII social order. They did not eliminate, however, the Victorian techniques of ratiocination and scientific method; the shift only rendered them invisible. Visual decoding remained the operative hermeneutic principle in both films; in the PR version, the D.A.'s office was the substitute for the security-states arbitration of the film's didactic impulse, while in the TR version the state was displaced by the kinetic social exchanges of civilian post-bellum life. The later TR version of the film (in which Faulkner had no part) reduced the PR film's literary-cryptological discourses to a mimetic socio-sexual representation of the characters and their milieu. It retained the form of exchange and eliminated the temporal vector that rendered the PR film's discourse unique. It extended however that kinetic discursive energy of the hermetic style so that its social cryptograms could communicate with the masses "regardless of distance" or literary sophistication.<sup>522</sup>

The PR version of The Big Sleep marked an unconventional exchange between the wartime cinema and the nation. Faulkner's rewrite of Chandler's novel proved ultimately too complex to assimilate. In the hands of a lesser director than Hawks, Detective Marlowe's code-breaking scene would have risked becoming unintelligible, overly didactic, financially catastrophic, mere spectacle, or any combination of the above. But by a unique combination of literary rigor, historical sensibility, and cinematic genius they did not; nor could they be reproduced. The significance of the

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<sup>522</sup> The citation is from Paul Virilio's essay "The Data Coup D'Etat" (27), where Virilio argues that the kinetic energy of ancient hermetic techniques such as cryptology were absorbed into post-WWII modernity.

transition from a hermetic-historical to a socio-kinetic composition of the moving image was lost in the later TR film.

The TR version of the film was released in 1946 precisely before the reformation of the intelligence institutions of the U.S. military. The Department of Defense and its primary intelligence institutions, the NSA and CIA, were founded in 1947 to replace their predecessors in the Department of War (which housed the U.S. Army Signal Corps) and the OSS (Office of Strategic Services). In this respect, it retained one significant tendency of the hermetic style: it effectively obscured its relation to its past.

The cinematic potential of the hermetic style remained, however, a permanent feature of later U.S. fiction. The Big Sleep and the PR film posed a series of questions back to the literary hermetic style: What discourses did the cinema offer as substitutes in the absence of a visual representation of the intellectual labor of military intelligence? How did those substitutions draw upon more stable and ideologically sanctioned discourses of social identity and agency (such as those offered in the TR film)? How did the substitution of the kinetic gesture for the hermetic literary act anticipate how the U.S. cinema used the history of military intelligence to respond to the market demand for genre innovation in the American war cinema?<sup>523</sup> And finally, did the kinetic social gesture render the literary and historical discourses of the hermetic style obsolete?

William Faulkner's novels combined anti-institutional, historical discourse (whose beginnings were in Henry Adams' entropic style) and the hermetic style (whose beginnings were in Poe) in genealogical forms. He rendered those forms in novels of tremendous originality that dramatized occult historical forces with rhetorical figures

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<sup>523</sup> Due to space constraints, I must only offer this question for future consideration and draw the reader's attention to a cluster of recent films – for example, U-571 (dir. Jonathan Mostow, 2000) and Windtalkers (dir. John Woo, 2002) that apply the social strategies of the later TR film to the history of military intelligence.

and dynamic characterizations. Faulkner shaped those forces so as to render them not only dramatic but discursive – so that the novel could offer a discourse about languages, institutions, and nations. These were configured in fluctuating and conflicting energy fields that offered a pessimistic discourse on human history. Faulkner’s most commonly known “field” was the “fictional” Yoknapatawpha County where Faulkner, as Sacvan Bercovitch has noted, “localized” his work.<sup>524</sup> But Faulkner also occasionally transposed that work to other settings. During the 1930’s and 1940’s, these alternate settings were often the urban California milieu that imposed itself upon his Southern genealogies or vice-versa. During that period he elaborated in fiction, and in one exceptional film (the PR version of The Big Sleep), the hermetic style that had been the first to conceive in the U.S. novel, and his style was adopted, its anti-institutional edges sharpened, by more generic novelists such as Chandler and Trumbo.

Faulkner’s later WWII-era writings can be read, in this context, as a reply to the infusion of new ideas that he had inspired among that California school of pulp writers. Peter Lurie noted that “Faulkner offers in his variations on the materials [of detective fiction] he took up that unmistakably question those models’ formulae and patterns” (33). The variations were not merely critical – they formed an extensive historical discourse that elaborated cryptological languages, institutional genealogies, and dramatic rhetorical figures into a novel version of the hermetic style: as a genealogical field dramatizing historical forces. When Edmund Wilson noted in his letters in 1950 that Faulkner’s “impressive” detective novel Intruder in the Dust was a “sequel” to Go Down, Moses, Wilson alluded to Faulkner’s late (though not always successful) elaboration of the hermetic style.<sup>525</sup>

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<sup>524</sup> “Culture in A Faulknerian Context” 285.

<sup>525</sup> Wilson’s quote is from a 1950 letter to the novelist John Dos Passos (Letters on Literature and Politics 490). Wilson’s opinion was not uniform; he was disappointed by Faulkner’s Knights Gambit the previous year (From the Uncollected Edmund Wilson 302-304).

Faulkner's style had produced its desired effect: it had become a dynamic conduit for a new prose style. Later works often developed certain elements of his style. For example, Raymond Chandler's The Big Sleep appeared in 1939 as a generic, loosely plotted mystery novel that raised also sober questions about the way in which the human mind could organize language, evidence, or historical experience into a coherent narrative form. And what game could be more apt for Marlowe than chess (in later novels he replays the games of the chess masters): the calculus of the chess board, with its rigid strategies and regulations appeared against the novel's institutional confusion and historical disorientation as the ordered antithesis of Marlowe's chaotic situation. Where Edmund Wilson had argued that Symbolist poetry (the hermetic style) would not be reduced to the "status of an intellectual pastime like anagrams or chess," it seemed, in Chandler at least, that the hermetic style dragged also "anagrams and chess" to be "absorbed and assimilated by the general literature and thought" in such a way that the dynamic, Faulknerian hermetic style assumed discursive priority over the static, professional, and modular institutional world that emerged during the 1940's (and to which the New Criticism provided a literary complement).<sup>526</sup>

The hard-boiled hermetic style provoked disorientation. The internal inconsistencies and random connections of Chandler's works offer a classical example. The Big Sleep is

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<sup>526</sup> Sacvan Bercovitch's previously cited essay on Faulkner contains an insightful account of the contrasting deductive logic of Faulkner's writing and the inductive method of Wittgenstein's thought. Bercovitch argues that Faulkner works deductively towards a common "culture." The argument, which is crafted skillfully from an extended chess analogy, does not allow that Faulkner constitutes "culture" as a discursive and historically charged energy field defined by genealogical relations of force. Faulkner's model stands against the strictly deductive reading in that its thermodynamic model moves both inductively and deductively between part and whole, and that Faulkner's figures capture that motion (and its collisions). Otherwise, Bercovitch is correct in noting that Faulkner posits an "open" narrative system against Wittgenstein's closed model - he only fails to recognize the thermodynamic source for the genealogical field model.

notoriously riddled with logical gaps and discrepancies. Why, for example, did Marlowe permit the D.A. to obtain the only piece of concrete evidence in his keeping? Why did Chandler fail to invoke his “rigorous logical abilities” when he allowed the police to remove the only object that promised to make the narrative cohere? The action of the police at that moment (and the subsequent mystical turn of Detective Marlowe’s method) introduced a tension that hovers over all of Chandler’s work like smog: the national institutions receded and occupied a new, forbidding, and hermetically concealed space. The series of cause and effect, or the motion from empirical evidence to a coherent whole, was broken. The codebook in PR version of The Big Sleep would have ostensibly allowed Marlowe to connect the D.A. to the crime boss Eddie Mars (who has apparently learned from a spy or ally in the D.A.’s office that Marlowe did not mention his name in relation to the Geiger case), and finally back to the mystery of Rusty Regan, who was killed by the young Carmen Sternwood. In the end, random and improbable connections succeeded the empirical organizations of inductive method. Just as Marlowe cannot crack the code of Geiger’s clientele book, the hermetic style cannot be entirely decoded by the reader. Some ineffable reticence remained impishly concealed and frustrating in the secret logic of this new hermetic style.

### **XXX The Bridge/ Die Brucke**

In 1961, Jacques Barzun could write that:

What happens in modern detective fiction is that objects ....are taken literally and seriously. They are scanned for what they imply, studied as signs of past action and dark purpose. This search for history in things is anything but trivial. It reflects the way our civilization thinks about law and evidence, nature and knowledge.<sup>527</sup>

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<sup>527</sup> “Detection and the Literary Art” 11.

Barzun argued that modern detective fiction was constituted of distinct elements (the criminal event, the explanatory hypothesis, the empirical investigation, etc) whose accumulation proved that “order [could] grow out of confusion” (17). He concluded that although the form “has more to offer the reader than an incomplete Baedeker to some unfamiliar region of the world,” it was also perhaps approaching its historical end: “all forms,” he wrote, “eventually die” (18). Nonetheless, Barzun’s inductive analysis bestowed modern detective stories and novels with the air of intellectual authority, where before the form had been neglected, even mocked (Edmund Wilson was perhaps its greatest antagonist).<sup>528</sup>

Thomas Pynchon composed the novel The Crying of Lot 49 during the early 1960’s (it was published only later, in 1966). In a direct elaboration of the hermetic style, The Crying of Lot 49 elevated the post-WWII U.S. network of military/civilian corporate institutions to a more significant role in the mystery.

The hard-boiled novelists had amplified the detective’s ability to induce a solution by organizing evidence with other kinetic instruments; now Pynchon returned the varied forms to the novel and presented his detective, Oedipa Maas, with a situation in which the link between kinetic or empirical evidence and institutions was broken, or at best, outrageously implied. Pynchon thus elaborated the “kinetic” evidence of the hard-boiled school on a larger scale so that like Faulkner’s Yoknapatawpha County, Pynchon’s “San Narciso” did not represent the ‘real,’ but rather replicated, in poetic figures, its varied lines of force. The Crying of Lot 49 resembled an energy field organized to produce a counter-discourse to a hermetic, institutional situation that forced the literary-historical tradition of the anti-institutional style into a new mode of

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<sup>528</sup> See, for example, Wilson’s essay “Why Do People Read Detective Stories?” 595-598.

discourse.<sup>529</sup> In this respect, it imparted to the “California” Faulkner of the hard-boiled hermetic style the positive, rhetorical figures it had lacked.

The Crying of Lot 49 began with a genealogical premise. Its protagonist, the recently married Oedipa Maas, was declared executrix of her former lover’s estate. The ex-lover, Pierce Inverarity, was a post-WWII investor, real-estate developer, and market speculator whose holdings spanned dozens of industries, the most important of which was the Yoyodyne Corporation. The premise of the novel’s first chapter is simple and direct: Oedipa must move from her new domestic life towards another, surrogate family of institutions. The path runs directly from the institution of the family, through the institution of the law, and finally to that extra-legal institutional space of the “military-industrial complex,” of which Pierce was a “founding father” (15).

Pynchon developed the arc-like “bridge” for this new discourse. The “bridge” appeared when the novel’s protagonist, Oedipa Maas, received a phone call from her psychotherapist Dr. Hilarius late one night:

The bridge, die Brucke, being his pet name for the experiment he was helping the community hospital run on effects of LSD-25, mescaline, psilocybin, and related drugs on a large sample of suburban housewives. The bridge inward. (7-8)

The bridge assumes several forms over the novel’s development. These comprise both intangible and tangible examples that include “a musical bridge,” a “cash nexus,” and the “bridge’s arc” of the Golden Gate. And from the end of the first chapter, and increasingly throughout the novel, the figural bridge most often takes a cinematic form.

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<sup>529</sup> Douglas Folwer described this field as constituted by “magical forces” in his study of the later novel, Gravity’s Rainbow (55).

Oedipa's motion between institutions is repeatedly associated with modern films, diegetic music that accompanies her actions, and cinematic techniques ("a cut to a scene where the camera is already moving"). The techniques joined the narration with the California mis-en-scene, modulated by a distinct figural discourse – the bridge – in which Oedipa's intelligence would engage a new institutional order and "measure its field strength, count its lines of force" (12). The bridge in The Crying of Lot 49 configured the centripetal and centrifugal forces of the earlier V-structure in a more concise style. The resulting figural form complemented both the novel's genealogical discourse and its dramatic characters in such a way that earlier novel V. had not. It linked, for the first time, both human characters and institutions with a single figure. And it extended the figure through a historical "gap" (prominent in the earlier V.) in order to elaborate a more distinct genealogy. It is a matter to which we must now turn in order to understand how the later novel's discourse joined genealogy with *figura*.

The 1930's appeared in Pynchon's V. as an inter-regnum. In historical terms, the decade was that to which Pynchon paid the least descriptive attention in the dramatic counter-mimesis of that novel. Fragmented references to it (almost always projected backwards from the 1950's) were associated with the younger Stencil and Benny Profane. For example, the novel configured Benny's boss at the New York alligator-hunting operation as a frustrated labor organizer. Benny's colleagues were depicted as a ragged continuation of the destitute unemployed classes of the Great Depression. Later, at a



party, a folk singer inspired by Joe Hill, the prototype of the proletarian minstrel, appeared. Benny Profane was the “Depression Kid” who “became an awareness on the floor of one old Hooverville Shack in ‘32” (385). Benny Profane’s character embodied, by his mixed ethnicities (he is both Jewish and Italian), labor, and birth, the economic and demographic types and settings of the 1930’s. Benny’s character was not however rooted in that socio-economic ambient, nor did his relationship to the V-structure conform to the realist and naturalist modes associated with that decade. As I noted in chapter four, Benny and the “V-structure” appeared simultaneously on the Norfolk waterfront at the intersection of geo-linguistic and institutional forces:

Underfoot, now and again, came vibration in the sidewalk from an SP streetlights away, beating out a Hey Rube with his night stick; overhead, turning everyone’s face green and ugly, shone mercury-vapor lamps, receding in an asymmetric V to the east where it’s dark and there are no more bars.(V.2)

The figural V-structure contained within it a chemical reaction. The reaction was similar that commonly used during the First World War by intelligence agencies, by which a “mercury-vapor” was applied to a blank page in order to reveal writing inscribed with invisible ink. Historian David Kahn noted that during WWI, Herbert Yardley’s MI-8 cryptological team hired the American chemist and Nobel Laureate, Theodore W. Richards, to experiment with solutions for invisible ink; one method required “exposing the writing to vapors of mercury” (Reader of Gentleman’s Mail 32). Benny Profane appeared from within the V-structure by a chemical reaction of the historically attuned, rhetorical discourse rather than from any mimetic strategy particular to previous literary forms. The chemical figuration would continue through the pharmaceutical “bridge” experiment of The Crying of Lot 49.

In the later novel, the genealogical relationship between dramatic characters and institutions was rendered more intimate and collapsed, as it were, into the novel's central figure so as to emphasize a centripetal organization. For example, the Yoyodyne Corporation that had combined cryptology with thermodynamics in V. was elaborated in The Crying of Lot 49 in relation to chemistry and psychology. The hermetic style of cryptology was transformed in relation to the new, psycho-reactive figure of "the bridge." Yoyodyne now occupied the institutional space reserved in actuality for the C.I.A.'s experiments with LSD as a truth serum (rendered famously during the same period by Ken Kesey in One Flew Over the Cuckoo's Nest and infamously by Dr. Timothy Leary's scandal).<sup>530</sup> The "two sixty foot missiles" that graced the entrance to the Yoyodyne Corporation as Oedipa arrives to execute Inverarity's estate became the strands of a genetic double-helix across which the novel's many historical repetitions and musical variations mutated into arcing, bridge-like vortices.

Those varied patterns joined two institutions - Yoyodyne and The Tristero - in a genealogical arc, "the bridge." Yoyodyne was a more extensive version of the institution that Pynchon had first introduced in V., but it was joined now to the alternate postal system called "The Tristero." The relationship between Yoyodyne and Tristero had a specific role: it extended the figural discourse about modern intelligence and cryptology in Pynchon's novels through the present.

Pynchon most likely drew upon an extensive historiography about modern institutional systems of communication and their technologies that had appeared during the 1950's. The result was a dynamic genealogy configured as the novel's figural discourse. In particular, that discourse drew upon a number of British studies published during the 1950's that located the origins of the modern postal systems as the institutional models

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<sup>530</sup> Ken Kesey's later novel Demon Box is an extended rumination on thermodynamics, and in particular Clerk Maxwell's "sorting demon," which also appears in The Crying of Lot 49.

in which mass communication and state intelligence were first combined. These works included Howard Robinson's Britain's Post Office: A History of Development from the Beginnings to the Present Day (1953) and, more importantly, Kenneth Ellis' The Post Office in the Eighteenth Century (1958).

Robinson's book discussed the history of the British postal system in a popular style. It offered a general background for how the postal service mediated the relationship between the British monarchy and an emergent civil society. The relationship was accelerated with the formation of the Post Office in the fifteenth century under Henry VIII and proceeded through the various legal and political changes that regulated its national and international growth. In terms of the latter, Robinson's book argued that the British postal service and in particular, its early 17<sup>th</sup> century postmaster general Thomas Withering (appointed by Charles I, a Hanoverian) engaged the mainland postal services:

He seems to have been in close touch with the chief continental postal service of the time – that carried on by the Thurn and Taxis family for the Emperors of the Holy Roman Empire; it stretched across central Europe to the east and north of France. (11)

Robinson proposed that the British system eventually provided the template for European postal reform in the early 19<sup>th</sup> century, when

The Italian states [following Switzerland] adopted stamps in the fifties, though the kingdom of Sardinia had used a form of stamped paper as early as 1818. The mosaic of states in central Europe had been served for centuries by the Thurn and Taxis posts, but they ceased in 1867 with the creation of the north German federation grouped around Prussia. (159)

Kenneth Ellis' sequel to Robinson's work was, however, the more significant study. A rigorous archival study of the British postal system, it presented itself in opposition to the popular works of Robinson and others by arguing that "certain aspects of its work

[that of the Post Office], however, especially in the sphere of intelligence and propaganda, have been either minimized or overlooked” (vii). Ellis outlined the institutional “structure” of the British Post Office as it was organized under the wing of the Treasury Office, which was situated in turn under the military and parliament (and divided between them) that were subordinate to the monarchy. Within that structure,

The office, however, was not merely a branch of the revenue. It was in addition the centre of imperial communications, controlling a large fleet of packets; a propaganda and intelligence organ, serving as the government mouthpiece, eyes, and ears, and an important source of patronage, employing hundreds of officials, postmasters sailors. (viii)

Ellis provided a careful institutional study, rife with anthropomorphic rhetoric, for Pynchon to elaborate. The book studied, for example, the system’s development under the Hanoverian kings that linked the monarchy to the continent, its naval and military capacities (in particular “Lloyd’s list,” the intelligence provided to the monarchy by Lloyd’s Bank), and the rival courier systems that the Post Office banned or absorbed. All of these elements appeared in some transmuted form as elements of the Tristero counter-institution and its history. Most importantly, however, Ellis’ study linked modern Anglo-American intelligence systems (and cryptology in particular) to the institutional structure of the British Post Office:

During the eighteenth century, the Post Office transmitted, collected, and created intelligence. Lacking a centralized agency, the government used various organs, the [post] office being the most important. (60)

Ellis attached an appendix to the work that described the “Secret Department of the Secretaries of State, or Deciphering Branch, responsible for cryptography and translation until 1762, and thereafter a share of the experimental work” (127).

Ellis traced the departments beginnings from the Tudor period through 1844, when the Italian republican revolutionary Giuseppe Mazzini (then living in exile in London) initiated a protest against the “Secret Office” that led to its closure.<sup>531</sup> The Post-Office in the Eighteenth Century provided a precursor for the argument, offered to Oedipa Maas in The Crying of Lot 49 by the character Mike Fallopian, for the origins of The Tristero (whose U.S. beginnings coincide with the period of European postal reform cited above).

The Crying of Lot 49 proposed that the Tristero counter-system of postal communication had emerged in opposition to the mid-19<sup>th</sup> century postal reforms described in Robinson’s book. The Tristero retreated, following the tumult of 1848-49, to the United States, where it prospered during the U.S. Civil War. Pynchon dramatically reconstructed a pre-history - a genealogy - of the Tristero as a counter-institution for modern intelligence and secret communication that emerged during the post-bellum transformation of the United States (precisely the period of institutional growth that had interested Henry Adams).<sup>532</sup>

The Post Office in the Eighteenth Century offered to Pynchon also a sober historical precedent for the institutional component of the novel’s figural discourse. When read through Ellis’ study, the institutional matrix that linked state intelligence institutions - “people like the State Department and NSA” - with private institutions such as the Yoyodyne Corporation had resulted from a long process of institutional consolidations that were modulated during the nineteenth and twentieth centuries into radical new

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<sup>531</sup> See Ellis 140. Mazzini protested that British authorities were reading his correspondence. The Italian Risorgimento plays an important role in Pynchon’s novels; see, for example, the contrast between the caricature of Garibaldi and V’s association with fascist irredentism in V.

<sup>532</sup> J. Kerry Grant has discussed the U.S. postal reforms of this period in A Companion to The Crying of Lot 49 54-55.

forms. The Crying of Lot 49 argued that the new state-sponsored intelligence agencies had been divided from the previous, postal intelligence agencies; the Tristero was a vestigial remnant of the renegade postal services that had separated, like cells, from their sponsors and formed counter-institutions to the state itself (the historical trajectory suggested by Ellis also continued the post-WWII transition from the United Kingdom to the United States that Pynchon had already developed in V.).

The Crying of Lot 49 thus returned figural discourse to the problem of an aggregate, embodied intelligence, which is rendered more distinct in The Crying of Lot 49 by the concentrated figurations of “the bridge.” The figure connected the historical, genealogical intelligence of the hermetic style with the disparate institutions. True to the hermetic style, Pynchon elaborated the exchange between the institutions according to a thermodynamic model, that of “Maxwell’s Demon,” in which a theoretical being sorted hot and cold molecules without expending energy itself (only “thinking”) in direct refutation to the second law of thermodynamics. A dramatic character, Oedipa Maas, occupied their convergent point at the middle of the mercurial bridge.

The novel situated Oedipa’s intelligence at the intersection where the aggregate intelligence of the counter-institutions collided. The encounter depended on another strategy that Pynchon elaborated from the suggestive chronological “gap” of the earlier novel V. The only other character associated over the course of V. with the 1930’s was Herbert Stencil. Stencil played the role of the hard-boiled detective in the earlier work, where he was compared to the Continental Op of Dashiell Hammett’s novels, replete with Faulkner’s genealogical style: Stencil sought V, his distant mother, in order to learn of his father’s fate. Although Stencil’s familiar genealogy extended later through V’s continuation in Paola Maijstral (his half-sister), Benny remained at the margins of Stencil’s genealogical investigations (in one comic scene, during an alligator hunt, their roles were reversed and Stencil became Benny’s prey). Stencil quite simply overlooked Benny’s significance, and repeatedly. His powers of detection appeared instead as a

bumbling, prejudiced force in history that desired to confirm, erroneously, the continuation of the British Empire. Like his exaggerated empirical and inductive methods, Stencil's discourse was historically naïve: it simply could not account for the deviation that, through Benny, was the future course of institutional power; as a result, his empiricism was naïve before the genealogical line that extended through Mondaugen, Chiclitz, and Yoyodyne.

Such was not the case with Oedipa Maas in The Crying of Lot 49. The novel repeatedly compared Oedipa with the hard boiled detectives, "the private-eye in any long ago radio drama" (100), who are her California forbears. And as in Chandler's The Big Sleep, she struggles to solve the mystery when she learns that each witness or source has "taken a Brody" (126) and been killed.<sup>533</sup> The character's unique status lies not with the precedents, however, but with how they are configured. Where Benny (rather than the detective, Stencil) was joined in the earlier novel with the figural V-structure, Oedipa was merged with the rhetorical figure of the bridge. As a result, Oedipa was incorporated into the figural discourse in a manner which Stencil's character could not sustain.<sup>534</sup>

Oedipa was also situated in relation to a vital series of figures in U.S. literary history. The more significant dramatic precedents for Oedipa Maas, in addition to Benny Profane and Stencil, were Aubade in Pynchon's "Entropy" and Mrs. Lighfoot Lee of

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<sup>533</sup> Countless commentators have discussed Oedipa in relation to Chandler's work. For a recent example, see Negative Liberties 112-115. The canonical essay, and the most incisive, is Catharine Stimpson's "Pre-Apocalyptic Atavism: Thomas Pynchon's Early Fiction."

<sup>534</sup> Furthermore, Pynchon's V rendered the V-structure in the geo-linguistic figures of the "street" to a figural discourse of history. Now the figure was repeated in the infrastructure of an emergent and anticipated post-WWII nation-state (effectively prefigured by Kurt Mondaugen and the Yoyodyne Corporation) whose architectural form, the "printed circuit," displaced the chess boards of the earlier hermetic style.

Henry Adams' Democracy. With respect to the former, the partitioned spaces of 'Entropy' (the party and the greenhouse) were effectively joined when Aubade smashed the window of Callisto's apartment. Aubade's action opened the story's potential figurations to an indeterminate historical outside. The intelligent historical actions of Aubade were later partly developed in V. with Paola Maijstral, but it was with Oedipa that the character achieved its most important form. Nonetheless, all three characters - Aubade, Paola, and Oedipa - responded to the blind anthropomorphic force of the security-state with singular dramatic actions.<sup>535</sup> Only with Oedipa, however, were those dramatic actions joined with the discursive rhetorical figure of "the bridge" but also complicated by her political affiliation (she is a self-avowed "Republican") and her dedication to the New Criticism as an interpretive style.

The influence of Mrs. Lightfoot Lee in Henry Adams' Democracy must also be stressed. Mrs. Lightfoot Lee was the prototype for the historically intelligent actions and radical individualism of Pynchon's major woman characters. These characters provided intelligent respite from the domineering male officials that inhabited the new institutions. The character's subtle development in the figural discourse of Pynchon's work contrasts the standard interpretation of Henry Adams' Democracy in U.S. intellectual history. Neo-liberal historians, and in particular Richard Hofstadter and Christopher Lasch, looked to Mrs. Lightfoot Lee as a respite from Adams' later

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<sup>535</sup> The relation between the human and inhuman is often developed most effectively through the women characters in Pynchon's work. Veronica, the title character of Pynchon's first major novel, V., follows the spread of modern politics (and fascism, in particular), replacing human body parts with prostheses along the way and leaving parts of that body scattered across the earth. The same principle governs Oedipa's search for the scattered clues in The Crying of Lot 49, and examples abound of similar dispersions and gatherings in later works. What they have in common is that they share a particular and historically specific response to the limits of human action and the understanding of the inhuman in a historical register. It is perhaps to allow this freedom of discursive movement that Pynchon locates these characters outside the parameters of institutional discourse.



pessimism. Richard Hofstadter's canonical Social Darwinism in American Thought often situated Adams within a conservative, Social Darwinist lineage (but failed to recognize that Adams' develops the common use of the scientific language of "force" in a literary-historical rather than social-scientific register).<sup>536</sup> This misunderstanding of Adams' "pessimism" as a social attitude rather than a basis for a new style of history conceded to the neo-liberal historians a point at which to reconstitute the social sphere as the grounds of history at the expense of other competing models of national history and, for that matter, intelligence.

Mrs. Lightfoot Lee thus became an exception in Adams' work: a shining example of the possibilities available to social reform.<sup>537</sup> Both Lasch and Hofstadter represented Mrs. Lightfoot Lee as an optimistic and intelligent character who embodied the social commitments and principles of the Reformist era. They regarded the character as a summation of the applied public virtue that could result from the relationship between social reform and realist literature. Mrs. Lightfoot Lee represented to these historians the early incarnation of those social forces that would later be manifest in Jane Addams, Margaret Sanger, and other key figures of American social reform. Their archetypal

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<sup>536</sup> Adams would seem according to Hofstadter to be almost a follower of Herbert Spencer, who also drew heavily upon the language of "hydrotechnics and population theory" as well as thermodynamics to reinforce the optimism of his Social Darwinist theories (35). Mrs. Lightfoot Lee reads Spencer in Adams' Democracy, but her final act is decidedly non-Spencerian, as she refutes the competitive brutality of Ratcliffe's social vision.

<sup>537</sup> As I noted in chapter two, the reform of American intelligence was actuated in dialogue with the reformist era. The period that spans Adams' Democracy (1880) and The Education of Henry Adams (1918) was the period during which the generation of John Manly, William and Elizebeth Friedman, and Elizabeth Gallup revived U.S. cryptology and its institutions. The amateur cryptologists would abandon the early social reformist tendencies of their work for more scientific and institutional techniques. These, in turn, motivated the U.S. cryptological revolution of the First World War and the development of a professional class that operated with missionary zeal in the interest of the new intelligence institutions.

reading of Mrs. Lightfoot Lee was achieved however by completely ignoring Mrs. Lightfoot Lee's actions following her encounter with the anthropomorphic substitutes of national institutions and their disembodied "cipher" in Adams' novel. The "cipher" passage in Adams' Democracy was an early version of how ciphers developed at the intersection of new commercial institutions with state power. In rhetorical terms, Mrs. Lightfoot Lee's reply to the cipher and its agents was a distinct continuation of the literary use of the term "cipher" in the American Renaissance.<sup>538</sup> The cipher section of Democracy anticipated Adams' later *poesis* of the new diplomatic and bureaucratic classes to the new institutions insofar as Mrs. Lightfoot Lee vanished from the social scene, becoming a cipher - a non-identity- who could produce a specific, institutional analysis from her invisibility.

The neo-liberal historians' focus on individual agency rather than institutional power in Democracy precluded the importance of Adams' late works to U.S. literary thought that followed them. Their line of analysis exposed an inability (both inherited and disciplinary) to formulate a model of U.S. history or intelligence on anything but the ambivalent socio-individual basis of an earlier Reformist orientation.<sup>539</sup> The important causes for Adams' shift to anti-Reformism (and Ms. Lightfoot Lee's) were subsequently overlooked in their social optimism. Where Adams' Mrs. Lightfoot Lee appeared to the neo-liberal historians as an optimist against the determinism of the Social Darwinists,

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<sup>538</sup> See, for example, American Hieroglyphs.

<sup>539</sup> Among its many faults in the study of Henry Adams, Hofstadter's study often confuses Henry Adams with his brother Brooks (186). Hofstadter also misplaces Adams' studies of Anglo-Saxon law and history at Harvard during the mid-1870's, projecting them forward into the racist debates of the late 1890's (173). The study is nonetheless insightful, as it correctly situates Adams within the context of the Social-Darwinist and Reformist debates, albeit without recognizing his critique of the movement or the reaction against it. Hofstadter draws upon the correspondence Henry Adams to unusual effect. For its proper context, see Adams' 'Social Darwinist' letter on page 197 of the Letters.

she was transformed in Adams' later writings into a pessimist against William James and the Pragmatists who were convinced in the possible "human betterment of life" through spiritual and individual reform.<sup>540</sup> Adams shifted the emphasis from action to intelligence in direct proportion to the increasingly powerful role of emergent institutions; Pynchon's *Oedipa Maas* works towards the same position, albeit from a different political orientation.

The neo-liberal historians insisted upon the primacy of human effort and experience as the grounds of history. Beginning with "Entropy," Pynchon's novels abandoned such pretense in the interest of a more dynamic, historically extensive (and sometimes bleak) model of human history. The Crying of Lot 49 continued the inquiry, after Henry Adams, that asked instead whether intelligence remained the exclusive province of the human mind - a possibility that the cybernetic theorist Norbert Wiener hopefully anticipated in his discussions of entropy and information theory (as did I.A. Richards) in the 1950's and 1960's, a discourse that was effectively absorbed into the novel's figures.<sup>541</sup>

Mrs. Lightfoot Lee in Adams' Democracy prefigured Oedipa's encounter with the new U.S. institutions but she was not the only dramatic precursor to The Crying of Lot 49. The other unspoken presence was that of Gertrude Stein, whose Wars I Have Seen (1945) provided several new convergent points for Pynchon's elaboration of the hermetic style. Edmund Wilson had included Gertrude Stein, as noted in the previous chapter, as one of the key figures in modern Symbolist writing. He later reviewed Wars

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<sup>540</sup> Adams' shift culminated with the critique of those intellectuals who replaced the Reformists and Social Darwinists at the vanguard of U.S. thought. The Pragmatists, and in particular Adams' friend William James, were foremost among these.

<sup>541</sup> Peter Freese cites this tendency as Wiener's optimism about the prospects for 'human beings and life-imitating machines' (194).

I Have Seen for *The New Yorker*, where he described it as an “exhilarating” book; the work of a “sensitive subterranean intelligence” whose mode of expression betrayed that her “shrewd comment has a wide knowledge of the world behind it.”<sup>542</sup>

Pynchon’s figural discourse shares several connections with Stein’s book. The first, and most significant, is that Stein’s narration focused on the cryptic relations that connected modern military intelligence with other forms of life. Wars I Have Seen contains tangential discussions of the Secret Services, the relation between science and war, and alternate military systems such as the French partisans. These are understood primarily in relation to parallel literary styles and figures: James Fenimore Cooper’s The Spy, the technological amplification of human language, and the “crossword puzzles that had a lot to do with [the new U.S. Army]” (256). Stein connected these in a varied historical discourse whose form differs, as it had in Wilson’s Axel’s Castle, from standard histories of the war by virtue of a “serial difference.” The differences were not constituted, however, by relative oppositions between identities; rather, by the repetitions and variations that begin with the book’s opening figure, that of a lost origin, irretrievable by memory, but accountable to history and evident in the crests and valleys of its permutations.

Wars I Have Seen organized historical evidence and perception in this distinct manner. The narrator’s relation to the world is not unilateral; little divides Stein’s subjective narration and an external world of objects. Pynchon’s figural “bridge” performed a similar function so that objects blurred into subjects and vice-versa. The two books converge in a specific example. In Wars I Have Seen Lake Trasimena is near the Italian city of Perugia. Stein writes that she and her brother passed a vacation in Perugia during their youth:

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<sup>542</sup> “Gertrude Stein’s *Wars that I Have Seen*” 349, 351.

And one days some of us went off to see Lake Trasimena because there was supposed to be a whole army at the bottom well an army of ancient days naturally with gold chariots, and we thought we would like a swim in the lake, and the young men took the boatmen with them at one end of a little island in the middle of the lake and we girls went to the other end to swim, and we swam without clothe sin the sunset in Lake Trasimena, and I have swum in lots of lakes and oceans but there was something special about that and now well it is being mentioned almost everyday. (205)

In Pynchon's re-telling, Lake Trasimena was divided between two lakes. The first was a lake, somewhere between the Renaissance Duchies of "Faggio" and "Squamuglia," where the Faggian Lost Guard were murdered in the mock-counter-reformation play "*The Courier's Tragedy*." Their bones were removed and ground to dust, which became the base for the ink in which the play's arch-villain, the usurper Angelo, composed the correspondence relayed by his couriers between allies and conspirators. Against this guilty official courier system stood another, the Trysterio, aligned with the Thurn and Taxis system of the German Holy Roman Empire. This second system was run by the heir to the Duchy, the innocent Niccolo`.

The second lake in The Crying of Lot 49 repeated both Stein's Trasimena and that of "*The Courier's Tragedy*." It is the "Lago di Pieta`," on the Tyrrhenian Coast. The Lake contains the bones of U.S. soldiers killed during the Allied invasion of Italy, which were in turn salvaged by a former Italian fascist soldier after the war and sold to the Beaconsfield Cigarette Company for research (also owned by Pierce Inverarity). Pynchon's re-telling situated the "ancient army" story told by Stein in relation to the more recent WWII version.

Oedipa and other characters interiorize the "ancient" dead of Lago di Pieta`/Trasimena by inhaling their bones through the Beaconsfield Cigarettes manufactured by a

subsidiary of the Yoyodyne Corporation. Pynchon's bridge through Oedipa is rendered grotesque, not unlike the woman who births a litter of pups in Wars I Have Seen (which resonates with Stein's own account of her birth on the book's first page), emphasizing that the consequences of war constitute a poisonous and elemental, chemical exchange.

The lines that connect The Crying of Lot 49 to Wars I have Seen were historically discursive as well as rhetorical. Pynchon, like Stein, based the historical discourse on certain lines of continuation from the 1930's to the 1960's (Oedipa, like Benny - and Pynchon - was a child of the Great Depression). Those continuations were military and geo-political (as well as indebted to popular culture) in Stein's book.<sup>543</sup> By contrast with Stein's more accessible, journalistic style, Pynchon elaborated them as a figural discourse. For example, The Crying of Lot 49 developed the exchange between the hermetic and the cinematic modes, both of which had their beginnings for Pynchon with the detective fiction of the 1930's in the fiction of West, Chandler, and others. In Stein's book, popular cultural media such as the cinema (and radio) were merely a confused repository for social changes. Pynchon demonstrated that the hermetic style's novelistic form was flexible enough to absorb varied ruminations on popular music, film, and literature and configure them as a figural discourse.<sup>544</sup> The figures only achieve a discursive form when the varied figural elements converge with Oedipa. These drive Oedipa to a stockholders' meeting of the Galactronics Division of the Yoyodyne Corporation. Yoyodyne is figured, along with Grumman, Bendix, and other U.S. corporations, as one of the primary recipients of U.S. Department of Defense contracts for aerospace technologies. The force that propelled Oedipa to the institution

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<sup>543</sup> Wars I Have Seen, 252. Stein discusses the transformative effect of the Great Depression on the U.S. Army.

<sup>544</sup> As Bruce Kawin has noted, Pynchon's later Gravity's Rainbow belonged to the modern literary tradition of the "ideal cinema" that included Faulkner, Joyce, Dos Passos, Stein, and others. The Crying of Lot 49 may be the stronger example. See "The Montage Element in Faulkner's Fiction" 104.

during her research of the Inverarity estate was a growing sense that human “Meaning” was displaced by a vast array of institutional forces that threatened even humanism itself. Oedipa tried to imagine herself an anthropocentric figure, able to “project a world” from her cosmological situation (64). What she discovered, behind the human façade, “pulses” instead with what Henry Adams’ described as the “supersensual forces” of a new, aggregate power: the Yoyodyne Corporation’s monopoly of the atmosphere and, extending from there, the cosmos. She cannot mimetically “project a world” – only her doubtful discourse.

Pynchon provided for the hermetic style not only a genealogy (as Faulkner had), but a figural style and pursuant discourse, a *poesis* of the post-WWII era and its institutions. The novel’s genealogical discourse united Oedipa’s post-dynastic genealogical situation with that of the post-WWII institutions by the more concentrated figure of the bridge. The Crying of Lot 49 elaborated the hermetic style of the hard-boiled mystery, the “Clausewitzian” discourse, and genealogy along the arcing trajectories of another, more refined figural *poesis*. The *poesis* makes an argument that the characters do not, and it is with this distinction that Pynchon’s more mature and objective discourse lies.

Oedipa Maas often used the institutionalized jargon of modern cryptology and intelligence to engage her new institutional situation. She understands the situation in terms of codes, ciphers, and hieroglyphs (and later, in the binary computer language of zeroes and ones); her estranged husband Mucho begins to analyze the word through the methods of spectrum analysis. Oedipa and Mucho inherited the terms from the long, historic exchange between philology and cryptology, but they are rendered useless in the novel. Their corresponding forms – their “meaning” – is never revealed. The novel’s discourse emanates entirely from the figural discourse and it is not manifest through the technical jargon of cryptology. To borrow a phrase from Edmund Wilson, Pynchon’s discourse was one of the “hopeful signs of a contemporary American

consciousness that is finding itself at home in a larger world and bringing to it a new intelligence.”<sup>545</sup>

Again, Pynchon ventured into hubris: by what inhuman effort could *poesis* re-absorb such problems into an intelligent and historical discourse on human life, as V. and The Crying of Lot 49 attempted to do? Rather than ask how the general culture absorbed ‘the chess game and the anagram,’” Pynchon asked (following Faulkner’s Clausewitzian discourse): how did “the chess game and the anagram” incorporate the “general culture,” of which the popular mystery novel was a long-standing institution? The problem, then, was not only to understand how the “new intelligence” of Pynchon’s hermetic style could absorb other institutions (the opposite of what Trumbo had imagined in Johnny Got His Gun); rather, his configuration of the exchange between literary-hermetic and kinetic evidence rendered human intelligence (as figured by Pynchon) an ambivalent figure, a messenger who crosses the nexus of history with language as a double agent.<sup>546</sup>

Faulkner, Trumbo, Chandler and others elaborated the hermetic style in the modern U.S. novel. The style, replete with its institutional anxieties and cryptic genealogies,

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<sup>545</sup> The quote is from Wilson’s 1961 essay on the diplomat and historian George Kennan “George Kennan” 501. Wilson’s review of Kennan’s lectures on the Soviet Union share in several points made about Adams in the previous chapters. Wilson speaks highly of Kennan’s proposals for the training of a new diplomatic class in the United States, as well as Kennan’s pessimism with respect to such a project. The specific example of diplomatic intelligence is offered by Wilson in the service of what he later calls a “relativistic” intelligence. The term relativism is posed against the “moral absolutism” of Cold War ideologies and their binary formulations of history. It is an ethical problem, and aligned with a political ‘intelligence’ that has little, if anything to do with the current usage of ‘relativism’ as a tool of cultural analysis.

<sup>546</sup> This final phrase is borrowed from R.P. Blackmur, who positioned himself as a “double agent” between the forces of social critic and formalism in American literary criticism of the 1930’s. See The Double Agent: Essays in Craft and Elucidation 178-179.



could not have been produced without that prior long and marginal osmosis, recounted in previous chapters, between literary studies and cryptology during the interwar period. The dense hieroglyphs and codes of The Crying of Lot 49 extended that style to a new institutional era and elaborated the hermetic style with extraordinary rhetorical innovation. V. had crossed the 1930's too quickly, and Pynchon returned to the decade in The Crying of Lot 49 through the temporal vector of Faulknerian genealogy; but the combined rhetorical innovations of both The Crying of Lot 49 and V., filtered and distilled through Pynchon's seemingly endless study of modern history, science, and literature, would embark on one final genealogical venture that would define Pynchon's mature style.

Pynchon developed a singular, arcing figure as the hendiadys/V-structure/bridge until it arrived at a moment of tremendous tension in The Crying of Lot 49. The novelist had configured from them a discourse about a new world of institutions capable of producing intelligent machines, simulating life, and concentrating it at points where it merged with human life, labor, and language. For their hermetic remove from the actual world - their pseudonyms and subterfuge - the characters and institutions animated as Pynchon's dramatic figures forged a new relationship to the secular world. It was an occult bond, suited to the hermetic style, whose beginnings remained obscure, even to Pynchon, at this critical point in his early *poesis*. The figural discourse had not yet located the moment at which all the later possibilities had been born, and produced fragments, instead, of the intelligence that joined institutions and machines to human beings and their minds in a sprawling new system of markets, governments, and lesser assemblies. When had it begun? And how had it survived? Could the figure transport one from the present to the past and arrive there at some genealogical pivot with the present once again? Thomas Pynchon's third novel, Gravity's Rainbow, completed the dynamic figural discourse begun with the Yoyodyne encounter in V. and refined with the convergent "bridge" in The Crying of Lot 49, and in doing so Pynchon concealed the hermetic style in plain sight, like Poe's Purloined Letter, in the mercurial sky.

## 7. A VOCABULARY OF CURVES: GRAVITY'S RAINBOW

### XXXI: Signals and Figures

It was not inevitable that the wave would crest, yet it did. Thomas Pynchon signed a contract in 1967 with The Viking Press to publish a new novel. Several deadlines passed until finally, in January, 1972, Pynchon delivered the manuscript of a new work, tentatively entitled Mindless Pleasures, to the publisher. The novel was issued slightly over one year later as Gravity's Rainbow to tremendous critical and commercial success.<sup>547</sup>

Gravity's Rainbow shared the 1974 National Book Award with Isaac Bashevis Singer. The novelist Ralph Ellison was among those in attendance at the awards reception at Lincoln Center and charged with delivering the prize. Matthew Winston described the chaotic autumn reception:

Pynchon, of course, did not appear at the award presentation. In his place, his publisher provided "Professor" Irwin Corey, a master of comic double-talk, who accepted the prize amid considerable confusion in the audience.<sup>548</sup>

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<sup>547</sup> The information about the novel's publication history in this paragraph is cited from Gerald Howard, an editor at Doubleday, who published the article "Rocket Redux" in the June-September issue of Bookforum.

<sup>548</sup> 261. The full text of Corey's speech, with Ellison's preface, was published as "Professor Irwin Corey accepts the National Book Award for Thomas Pynchon" in Pynchon Notes (1995-1996).

Gravity's Rainbow was later awarded the Pulitzer Prize for fiction only to have it revoked by the Columbia University Prize Committee's advisory Board, who deemed the work unfit. And in 1975, Pynchon refused the Howells Medal for Gravity's Rainbow. Pynchon's career proceeded thereafter at a leisurely pace, as he published the occasional review or foreword, two essays (both, again, in The New York Times), and two novels (Vineland and Mason & Dixon). These were punctuated by flirtatious "appearances" in the mass media and the acceptance of a MacArthur Genius grant.<sup>549</sup> Biographical detail or the lesser writings that followed, however compelling, would matter little before the elaborate figural discourse that Pynchon crafted in Gravity's Rainbow.

As with previous works, Gravity's Rainbow would engage modern intelligence in both its institutional and literary-humanist traditions. V. had used ciphers and codes to render the figures of a modern, geo-linguistic order; likewise, The Crying of Lot 49 had used hieratic designs to reconfigure a later institutional world. Pynchon would adopt a different approach with Gravity's Rainbow. He would emphasize the convergence of philology's step-child - signals intelligence - with a new machinic intelligence. It was the latter that absorbed U.S. cryptology, while the former appeared, for the first time, in an institutional form in the United States.

Pynchon composed Gravity's Rainbow along two lines. The first was retroactive: that is to say, it invited reading and interpretation by absorbing the epistemological claims of the historical novel, a form dominated by realist scientific propositions since the 19<sup>th</sup> century. This vector was already apparent in the prior geo-linguistic design of V., yet it is subdued in GR by a second discursive line. This second line organized the bifurcated

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<sup>549</sup> Pynchon has since playfully extended Professor Corey's comic acceptance speech, "appearing" in a crowd scene on CNN in the early 1990's and again, more than one decade later, as a caricature of himself on the long-running animated television program *The Simpsons*.

relations of that prior, realist discourse in such a way that eliminated the ontological divide between subject and object that Henry Adams had sought to overcome with an entropic style. This second line would configure those divisions into a discursive process so that the novel's unfolding was both a retrocessive historical motion (towards the realist historical object) and at the same time the incessant motion, or propulsion, of matter channeled through the discursive, figural arc. In this respect, the process of reading constituted the reading subject's motion toward unification with an object (itself an allegory of realism's demise in the novel), which "ascending, programmed in a ritual of love" reached the "zero-point at the center of its target" (GR 223).

In this respect, the rainbow/arc reconfigured a post-WWII geo-linguistic order as a bio-linguistic design. Pynchon combined in that design the behavioral, anthropomorphic intelligence of U.S. cryptology after the Friedmans with inanimate yet intelligent machines. The figural discourse of Gravity's Rainbow rendered them inseparable in the V-2 rocket, over which the figural discourse and its human agents would converge.

William and Elizebeth Friedman were courted by several potential institutions following the end of WWI. William Friedman's biographer Ronald Clark has noted that Herbert Yardley, who was creating the first American peace time code-breaking service in New York, had hoped to hire them "to a permanent organization which was not specified" (78). The Friedmans decided however to return to their pre-WWI employer Colonel Fabyan at the Riverbank Estate in Geneva, Illinois. They quickly became despondent about their prospects at Riverbank as a power struggle ensued over the matter of why Colonel Fabyan would not print the Friedmans' names on cryptological studies they had composed in that idyllic place.<sup>550</sup> The couple then engaged their suitors.

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<sup>550</sup> Ronald Clark detailed both Fabyan's refusal and the Friedmans' hiring in The Man Who Broke Purple, 77-80.

Sensing opportunity, the U.S. Army Signal Corps intervened. Captain Joseph Mauborgne and General Churchill, both of whom had overseen much of MI-8's cryptological work during the war, solicited commendations and advice from William Friedman's correspondents. These included Dr. John Matthews Manly and Herbert Yardley.<sup>551</sup> The U.S. Army Signal Corps then convinced the Friedmans to relocate to Washington D.C. William Friedman left a manuscript copy of his groundbreaking cryptological study, "The Index of Coincidence and its Application to Cryptography," with Colonel Fabyan at Riverbank and accepted with his wife in November, 1920, a six-month contract "to work as civilian cryptographers" for the U.S. Army (Clark 79).

The Friedmans moved to Washington, D.C. while the wartime U.S. intelligence offices were reorganized. Herbert Yardley's MI-8 was dissolved and its officers placed on reserve while Yardley formed the new post-war Black Chamber in New York City.<sup>552</sup> Yardley's Black Chamber was a joint military-diplomatic venture, funded by the Departments of State and the Army, but in peace time it favored the former institution's diplomatic cryptanalysis. William Friedman, who had not worked at MI-8 but had served during the war in the Radio Intelligence Section under General Pershing's command in France, was retained exclusively by the U.S. Army Signal Corps.

William Friedman was assigned to "a two-man cryptographic bureau in the War Department (The Codebreakers 678) upon his arrival in Washington, D.C. The office's nearly invisible status permitted Friedman to experiment and analyze emergent technologies, and in this manner he rekindled his passion for electrical engineering (an interest that he had nurtured also in radio intelligence during the war).<sup>553</sup> From 1921

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<sup>551</sup> The long correspondence between Churchill and Manly is housed at the Manly Archive at the University of Chicago.

<sup>552</sup> See The Man Who Broke Purple 81.

until his retirement, Friedman would divide his work between cryptology and its mechanical applications (a habit shunned by Yardley). Friedman's expertise grew over the course of the first post-war decade as he performed security controls on new devices such as cipher machines and communications technologies for firms such as AT&T and at the Bell Laboratories.<sup>554</sup> He was also designated an official U.S. representative to several international conferences on communications technology and telegraphy during the period 1927-1932.<sup>555</sup> As William Friedman analyzed the security of cryptological devices and transmission technologies for the U.S. Army, Elizebeth Friedman gained a similar experience working for the U.S. Navy and Coast Guard in their war against the rum-runners who used increasingly mobile communications technologies in order to evade the federal government.<sup>556</sup> The possible technological and institutional development of cryptology were not at first apparent to the Friedmans or the U.S. Department of War. Their potential would develop slowly during the interwar period, however, and become of tremendous tactical value to the Allied military campaigns when Friedman's Signals Intelligence Service bore its fruits in the early years of WWII, and again when Elizebeth was asked during World War Two by the Department of War to design the codes for the Office of Secret Services (O.S.S.) - the institutional precursor of the C.I.A.<sup>557</sup>

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<sup>553</sup> See The Man Who Broke Purple 17, 94, on his engineering interests and skill.

<sup>554</sup> See The Man Who Broke Purple 60, 94.

<sup>555</sup> See The Man Who Broke Purple 107-112.

<sup>556</sup> David Kahn provides a detailed account of her activities in The Codebreakers 802-853.

<sup>557</sup> I will return to the history of the OSS within WWII human intelligence operations in a later section, but it is important to note that where the University of Chicago and the Chicago area were generally the region from which U.S. cryptology had its start, Yale University (including its English Department) was the institution that provided many personnel for the O.S.S. See, for example, R. Harris Smith's study O.S.S.

The institutional divide between military and diplomatic cryptology would prove as consequential as had the divide between professional philology and cryptology begun during WWI. Indeed, the former was consequent to the latter as humanists returned to the universities and left the collection, analysis, and creation of signals intelligence to a small and emergent group of professional military cryptologists led by the Friedmans. At its inception in the United States, Dr. John Matthews Manly and others in MI-8 had imposed the linguistic rigor of philology on nascent U.S. cryptology (and vice versa) during WWI and the period thereafter; during the 1920's Herbert Yardley had imposed upon cryptology the institutional organization of the French *Bureau du Chiffre*. Beginning with the centralization of U.S. cryptology in William Friedman's U.S. Army Signals Intelligence Service (S.I.S.) in the early 1930's, philology was slowly displaced as the parent science of cryptology. Unlike Yardley, the Friedmans joined military cryptanalysis to emergent technologies, thus accelerating the break with the science's philological beginnings. This displacement resulted from the technological shift whereby theoretical and applied sciences converged with new institutional alignments and practices. Under William Friedman's tutelage the S.I.S. recruited young students of "mathematics, oriental and classical languages, statistics, mechanics, or philology."<sup>558</sup> The Friedmans' incorporation of new mechanical encryption devices and wireless communications for their transmission transformed U.S. cryptology as both a science and institution. Similar developments occurred in Europe. First the Polish cipher bureau, then later the German and British intelligence agencies began training linguistically inclined mathematicians and engineers to work as cryptologists. But while the European cryptologists competed with one another, the U.S. cryptologists worked in relative isolation.

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<sup>558</sup> Ronald Clark [The Man Who Broke Purple](#) 120. Clark cites a U.S. government study, [The U.S. Army in World War Two: The Signal Corps](#). A similar hiring scheme was implemented by Elizebeth Friedman at the U.S. Coast Guard in the 1930's (103).

William and Elizebeth Friedman seem in retrospect the Edenic pair of U.S. cryptology. Yet cryptology had emerged in haphazard fashion from the human sciences (linguistics, philology), was absorbed by the unprepared U.S. state during the intelligence crisis of WWI, and drifted thereafter from institution to institution, often torn by inter- and intra-institutional rivalry, deplored with chivalric opinions of honesty among soldiers, or simply hidden away in small offices because its use was not apparent. Divided between the U.S. Army, Navy, and State Department between the two world wars, the new U.S. cryptology subsisted, as did the Friedmans, as much by chance as by design; the couple was like Sancho Panza to cryptology's Quixote.

Gravity's Rainbow continues the genealogical promise, articulated already in both V. and The Crying of Lot 49, that poesis could organize this institutional coagulation into a figural series. Labor, and in particular intellectual labor, had been a central problematic of that discourse from the beginning of Pynchon's career when the employees of "people like the State Department and NSA" had gathered in "Entropy." Gravity's Rainbow would gather them again into poesis by situating them as intermediaries between the anthropomorphic intelligence and its emergent, institutional aggregate.

The Friedmans typified that movement. They worked within an emergent bureaucratic order that favored specialization. The historian George Kennan offered the most incisive account of the new intellectual labor fostered by the modern nations in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. Kennan described its rise after the European wars of the latter half of the 19<sup>th</sup> century:

The industrial revolution and the rapid rise in populations that accompanied it had played a major part in making possible the maintenance in peacetime of great standing armies. These armies were not only numerically greater than anything ever known in the preindustrial era, but they were rapidly acquiring technological capabilities, particularly in point of firepower and mobility, that gave them the possibility not just of inflicting massive and devastating damage



on the armed forces of another country but also of threatening the integrity of its political system, and sometimes even its very identity as a sovereign member of the family of nations. And along with these developments went the rise of a new military professionalism accompanied (in a manner not unknown in other professions as well) by a narrowing rather than a broadening of the field of vision. Precisely because of the higher degree of specialization and professional concentration to which he was subject, the senior military figure of the new era tended to have his eyes riveted more exclusively on the technical-military aspects of his dedication than were those of his counterparts of earlier ages, and to be less familiar and less involved with the wider political interests military forces were supposed to serve.<sup>559</sup>

Kennan included the European cryptologists as minor players in his work - especially the French military who Henry Adams had criticized during the Dreyfus Affair.<sup>560</sup> Kennan counted them among the anonymous, myriad bureaucrats whose specialized and myopic labor marked the threshold of their power. Kennan's critical account - rendered, it should be noted, when U.S. intelligence was at its Cold War apotheosis - addressed the general political consequence but it did not distinguish between nations, or, more specifically, the emergence of U.S. institutions from the belligerent fin-de-siecle or post-WWI European situation.

U.S. cryptology had emphasized prior to and during WWI the development of ciphers and codes and the analysis of their security. With William Friedman's appointment as

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<sup>559</sup> Fateful Alliance. 254-256. The contrast between Kennan's writing and the social historian Christopher Lasch's examination of the growth of "specialized knowledge" within the context of the social reform movement in the early twentieth century is striking. See The New Radicalism in America 1889-1963. 174.

<sup>560</sup> Kennan refers to both the French and Russian Black Chambers, as well as the intrigues of telegraphy in diplomatic correspondence. See The Fateful Alliance: France, Russia, and the Coming of the First World War. 58, 90, 114, 117, 146, 167.

director of S.I.S., however, a new bureaucratic order was formed in U.S. intelligence that would sustain its future development. The S.I.S. mission was to sustain the creative, individual energy required of cryptologists while they were simultaneously compelled to cooperate in technological research and development with other, non-military institutions. Cryptology was thus transformed into a professional vocation shaped by both external and internal pressures; the internal pressures resulted from the continued impetus of social reform and its social scientific component on U.S. institutions while the external factors arrived from convergent sciences and technologies that modulated the intellectual labor of the cryptologists. It was not that a new class of intellectual laborers simply emerged, but that a series of new discourses were organized within the parameters of an inter-institutional realignment within and without the U.S. government. These shifts later propelled the handful of eccentric cryptological amateurs to institutional prominence during World War Two.

The small group of highly specialized American literary intellectuals competed with England, France, and Germany, at an accelerated speed only during the two World Wars. Before them, and between them, the Riverbank Laboratories, Yardley's Black Chamber, and later Friedman's S.I.S., existed at the margins of both civil society and the bureaucratic state. In the absence of consistent rival powers, the significant changes that shaped the institution resulted mainly from internal, domestic factors.<sup>561</sup>

First among these were the accelerated relations between small-scale institutions such as the intelligence agencies and other large-scale institutions, most notably in American industries dependent on electro-mechanical science for telecommunications. President Woodrow Wilson's emergency powers accelerated the development of the U.S. intelligence apparatus during WWI. The institution took its form because of its relationship to other institutions such as telecommunications industries and

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<sup>561</sup> The exception is Japan, whose naval codes proved central to the work of both Yardley's Black Chamber and Friedman's S.I.S.

universities. The effects of that realignment extended long after the war had ended. The National Research Council and other entities stimulated increased collaboration between government agencies, public institutions such as universities, and the industrial sector. This inter-institutional exchange stimulated new sciences and with them ancillary theories of labor management. As David Noble has noted in America by Design, firms developed advanced management strategies and schools for managerial training, the humanities were brought into dialogue on subjects such as managerial education, and a general “militarization” of professional life occurred that extended far beyond local examples such as the exchange between the U.S. Army Signal Corps and private corporations.<sup>562</sup> As Noble correctly notes, the social sciences, rather than Taylorist production methods, provided the scientific foundation for these institutional reforms.<sup>563</sup>

A secondary shift that cannot be attributed to “positivist social science” (Noble 259) occurred as a result; small scale U.S. institutions such as military intelligence retained their eccentric, creative roles as innovators within a broader and more integrated institutional context. Friedman’s S.I.S. developed as a result in a manner that European intelligence agencies could not. Their survival was assisted by the relative weakness of U.S. national security concerns. Where the European nations classified publicly available cryptological works following WWI, the rates of publication on the subject expanded in the United States in the inter-war period. Where approximately fifty articles and books appeared on the subject of cryptology in the United States during the years 1890-1917, over one hundred and fifty articles and books appeared between the years 1918-1939. The growth in domestic publication was mirrored by a decrease of foreign works published or purchased by U.S. libraries in this period. A record 130

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<sup>562</sup> See American by Design 171, 175, 206 -07, 213-14, 226.

<sup>563</sup> America by Design 259, 274.

patents for “cryptographic devices or machines” were granted by the U.S. patents office in the years 1914-1939.<sup>564</sup> The increased domestic rates of publication and device production were concurrent with lessened availability of international material on the subject, thus forcing S.I.S. into more rigorous relations of technical exchange and operational analysis with large scale domestic institutions and their reform. These were stimulated in turn by cultural trends, and especially literary tastes, that drew both eccentric amateurs and serious professionals to the science. As a result, a State Department mail-clerk, Herbert Yardley, became in only four years the director of the most important cipher bureau in the United States, and William and Elizebeth Friedman had been hired away by the U.S. Army from a provincial laboratory convinced that Francis Bacon had written the plays of Shakespeare.

The new and loosely organized inter-institutional context shaped the rough outline of S.I.S. as Friedman’s office assumed a composite form that engaged the increased variety of its institutional relations. Under Friedman’s direction S.I.S. during the 1930’s pursued technological innovation and cryptological experiment at an accelerated pace. William Friedman’s diverse and specialized S.I.S. employees (most of them hired as civil servants rather than military personnel) were driven by necessity, and sometimes even lack of funding, to improvise machines, refine cryptanalytical techniques, and invent new methods for the training of intelligence workers. Friedman’s small work force developed cipher machines that could operate using the latest computational technologies offered by firms such as I.B.M.<sup>565</sup> The new cipher devices were integrated during the 1930’s into a network of new radio listening posts that were constructed in the United States and its territories for wireless detection training and decryption.<sup>566</sup>

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<sup>564</sup> See An Annotated Bibliography of Cryptography. 216-276.

<sup>565</sup> David Kahn discussed the importance of I.B.M. technology in The Codebreakers 576, while Stephen Budiansky discussed the limits of the firm’s technology in Battle of Wits (243-246).

The large-scale centralization and subsequent division of labor spurred by World War Two expanded and consolidated the varied S.I.S. interests (and their rivals in the U.S. Navy) into a single network of specialized intelligence branches, agencies, and subdivisions. Where William Friedman's S.I.S. had in its ranks less than one dozen employees when it was formed, the agency had grown to include several radio interception facilities immediately prior to WWII and a staff of several hundred personnel.<sup>567</sup> By the end of World War Two (during which time it had moved its headquarters into a former junior college for women in Arlington, Virginia) S.I.S. numbered several thousand civilian and military personnel; these in turn were only a fraction of the U.S. Army Signal Corps' aggregate force.<sup>568</sup>

U.S. intelligence capability was quietly integrated prior to WWII within a larger system of industrial and military institutions. It developed from Friedman's tiny office along the horizontal vectors of an expansive inter-institutional network that included training facilities and research centers (such as those clustered in the Fort Monmouth/Bell Laboratories area in New Jersey). During World War II the network was so extensive that it could issue contracts to large private commercial firms such as I.B.M., AT&T, National Cash Register, and Smith-Corona that mass produced and maintained new cryptological machinery.<sup>569</sup> These machines, and the advanced cryptographic systems

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<sup>566</sup> See Battle of Wits 70, 82, in which the author discusses how radio intelligence was relayed from listening posts to S.I.S.

<sup>567</sup> For the actual number of employees and the budget of S.I.S. in the period 1930-1941, see William Dick "Expansion of the Signal Intelligence Service from 1930 to December 7, 1941" in U.S. Army Signals Intelligence During World War Two: A Documentary History. 26-33. William Friedman's varied reports, all of which are reprinted in the same volume, are also of note.

<sup>568</sup> For a more detailed account of its wartime structure, see The Codebreakers 576.

<sup>569</sup> See The Man Who Broke Purple 149 and Battle of Wits 241-3, 297, 359. Germany also used I.B.M. machines, as well as new devices manufactured by firms such as Lorenz

they were built to encipher and decipher, were the means by which the United States military, industry, and diplomacy communicated prior to and during WWII, and most often by means of wireless telegraphy, along a proliferating global network of military bases.

At the same time, and with increasing efficacy, U.S. intelligence crept upward along the institutional chain of command. As in the United Kingdom, military intelligence became an integral component of Allied wartime operations with each victory it recorded, and as a result it slowly eroded the old chivalric attitude that regarded cryptology as a black art or a dirty sport. Franklin Delano Roosevelt, who since his work in the Office of Naval Intelligence during WWI had a predilection for human intelligence over signals intelligence, came to recognize its worth, while Winston Churchill – who devoured signals intelligence transcripts – poured funding into the famous Bletchley Park cryptological work.<sup>570</sup> Even former Secretary of State Henry Stimson, who had closed Herbert Yardley’s Black Chamber in 1929 with the statement that “gentlemen do not read each others’ mail,” had by 1941 come to accept the work of Friedman’s S.I.S. as integral to Allied success – and his own as U.S. Secretary of War during World War Two.<sup>571</sup>

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and Siemens; see Battle of Wits, 287, 312, and I.B.M. and the Holocaust 207, 344. For the Lorenz firm’s manufacture of V-2 guide beams, see The Rocket and the Reich 105. David Kahn provides the most detailed account of the Smith-Corona machines in The Codebreakers, 427.

<sup>570</sup> Popular historian Joseph Persico argued that F.D.R. favored spies over cryptology during his work as Assistant Secretary of the U.S. Navy during WWI, and that this habit re-emerged during WWII. See Roosevelt’s Secret War, 7.

<sup>571</sup> David Kahn relates the story of how Parker Hitt, perhaps the lone expert cryptologist in the U.S. Army prior to WWI, became friends with a young lieutenant named Dwight Eisenhower during WWI. Chance, as well design, contributed to the later successful acceptance of cryptology in the U.S. military during WWII. See The Codebreakers 325.

The prominence of cryptology in WWII U.S. military institutions resulted from several factors. First, cryptology had emerged in a period of tremendous development and interest in the sciences of language and heightened experiment in their aesthetic forms. The cryptological labor force during World War One was comprised of literary intellectuals who excelled in both or at least one of those areas. These had merged with the military during a crisis that was stimulated by both the war and also a general tendency towards social and institutional reform. As a result, the potential intelligence work force was slowly standardized and rendered professional with respect to the Civil Service examinations during the post-WWI era. The result was that Jewish-American civilians, who would otherwise have not been advanced through military careers (or, like the professional philologists, in University posts) prospered alongside Jewish military intelligence specialists such as William Friedman and two of his three most important assistants (Abraham Sinkov and Solomon Kullback).<sup>572</sup>

But one vector is impossible to attribute to any specific social or institutional factors. Cryptology had combined an obscure, marginal tendency in philology with advanced electro-mechanical engineering to render the earth's atmosphere a constant stream of occult information (and disinformation). Cryptology and thermodynamics - language and energy - had in a single generation converged as a single, global presence on the wireless radio frequencies. Language had been converted into electro-magnetic force. Conversely, Gravity's Rainbow transformed them into a figural discourse. Working from Adams through Faulkner, it offered a counter-genealogy to the institutional history of that conversion, dragging, as it were, energy into the matter of human

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<sup>572</sup> The third assistant was Frank Rowlett. For a discussion of anti-semitism in the U.S. military during this period, see Battle of Wits 161, 228-229. Friedman's biographer Ronald Clark also discussed Friedman's ethnicity and its effects on his prospects in education and government in The Man Who Broke Purple 10. In 1947, a two volume study was published entitled American Jews in World War II. It provides a more thorough contextual account of how American and émigré persons of Jewish heritage were integrated into the U.S. military and wartime civilian institutions.

discourse in such a way that the two inter-animated one another, forming a single, bio-linguistic process.

That process was embodied in the tension between language and energy, which made possible an unprecedented institutional integration that reversed what had once been the centripetal force of U.S. cryptology. The science invisibly exploded outwards as the array of devices amenable to cryptological functions multiplied during World War Two. Those new devices included mechanical means of encrypting and sending secret communications (new typewriters and telex machines, for example, such as the infamous German Enigma and the less known, yet more effective, American SIGABA machine). These communications platforms were gradually integrated during the war into the communications systems of a new generation of secret weapons. They included a host of new technologies (radar, sonar, and microwave communications) and sciences (ballistics, jet engine technologies): machines that detected one another by sound wave or microwave and communicated by secret signal.<sup>573</sup> David Kahn would later describe these as “machines talking to machines – the self-interrogations of radar, the remote-control systems of guided missiles, the telemetry of artificial satellites, the I.F.F. or identification-friend-or-foe systems.”<sup>574</sup>

Having laboriously studied their history and worked in their manufacture, Pynchon understood that modern rocket science proved the nexus of the lot. Modern rocketry

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<sup>573</sup> The history of radar from its scientific foundations in electrical engineering and physics, as well as its institutional history during WWII, has been described in various works. Jennet Conant’s recent book Tuxedo Park offers a biographical account of the wealthy Wall Street energy financier, Alfred Loomis, and his work as an organizer of the M.I.T. radar project during WWII (Loomis was a first cousin of Henry Stimson). Louis Brown’s A Radar History of World War Two offers an international perspective. Guy Hartcup dedicates two chapters to the subject in The Effect of Science on the Second World War.

<sup>574</sup> The Codebreakers 718.



relied on technological insights provided by thermodynamics as well as new communications technologies that included microwave transmission, radar, and guidance systems directed by light beams.<sup>575</sup> And like cryptology, rocketry had drawn an eclectic and international group of scientists and amateurs during the inter-war period, providing Pynchon with the opportunity to extend the discussion of intellectual labor in his novels to their newest generation of institutional employees: intelligent machines. By their example and result, Pynchon recognized that only Henry Adams' genealogies, posed against the evacuated form of the Romantic hero, could sustain a proper discourse on the matter.

The rocket scientists had initially dreamed, as did the cryptologists, of cultivating the image of the heroic inventor; as Michael Neufeld noted in his study of the German rocket program, their models were "Edison, Diesel, and Ford" (10). They were also more publicity-hungry than their hermetic, cryptological cousins; they also languished in both the United States and Germany. As several historians have noted, the pioneer German-Romanian rocket scientist Hermann Oberth worked as an advisor on Fritz Lang's 1928 film Frau im Mond and he and others coordinated public stunts (most of which failed) in order to attract attention and funding to the science.<sup>576</sup>

Small, eccentric groups of amateur rocket scientists had also flourished in the United States during the 1920's and 1930's. These were scattered in small pockets across the country. They included the hermetic Clark University physicist Robert Goddard, the New York group known as the "American Interplanetary Society," and a group of

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<sup>575</sup> Peter Wegener, a scientist who worked in the German rocket program during WWII (and later in the U.S.), described in detail how engineers studied thermodynamics and aerodynamics in wind tunnels with the assistance of photography, which recorded fluctuations in air and temperature flow by capturing the movement of the light produced from a mercury-arc. See The Peenemunde Wind Tunnels 20, 25-26.

<sup>576</sup> Neufeld's account of the Lang film in The Rocket and the Reich is the most authoritative (5-11). See also The Peenemunde Wind Tunnels 38-39.

graduate students and amateurs that formed around John Whiteside Parsons and the “Rocket Group” at the newly reformed California Institute of Technology.<sup>577</sup> While the Caltech group would later develop the U.S. rocketry and jet aviation program during WWII, it was the solitary Goddard “who gave mathematical form to space flight for the very first time.”<sup>578</sup> The U.S. rocketeers avidly followed the work of their European counterparts; a group known as Verein für Raumschiffahrt (VfR) formed in Germany during the late 1920’s. It included the Romanian scientist Hermann Oberth and a young acolyte named Werner Von Braun.<sup>579</sup> As in the United States, it was only one of several competing groups, but to its advantage it included the top rocket scientists in Europe who convinced the military of the Weimar Republic to fund its work.<sup>580</sup>

The institutional history of German rocketry in the 1930’s differed from that of U.S. rocketry. Von Braun and his team developed the first generation of functional liquid fuel rockets within a generous but increasingly rivalry-torn institutional environment. The VfR’s most capable scientists, including Von Braun, were eventually consolidated

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<sup>577</sup> Chapter Two of Pendle’s book Strange Angel recounts the history of these small groups. See esp. pages 50-55. Where the U.S. cryptologists had their literary doubles among crime novelists, the U.S. rocketeers, and in particular the Caltech group, frequented a circle of Los Angeles science fiction writers that included Robert Heinlein, Isaac Asimov, and L. Sprague De Camp (himself a Caltech engineer, who would later co-author a science fiction novel with the cryptologist Herbert Yardley). See Strange Angel 230-231.

<sup>578</sup> Strange Angel 52. Willy Ley elaborated one of the better accounts of Godard’s career in Rockets, Missiles, and Space Travel. See also The Peenemunde Wind Tunnels 35-37.

<sup>579</sup> Pendle notes that the American and German groups exchanged information, and that the young Parsons would call Werner Von Braun by telephone (Strange Angel 55)

<sup>580</sup> As Ordway and Sharpe noted, the VfR “was not the only amateur rocket group active in Germany during that time” (The Rocket Team 16). British historian John Cornwell provides an overview of cultural interest in rocketry in Hitler’s Scientists 146-148. See also Rockets, Missiles, and Space Travel 131-139.

under German Army control in the Research Branch of the Army Weapons Department in the early 1930's, with the military official Walter Dornberger as the group's administrative leader and Werner Von Braun its top scientist.<sup>581</sup> The group's competitors were largely eliminated by Hitler's military officials following the Nazi seizure of state power in 1933 and some were later secretly reintegrated into Nazi Germany's rearmament and war plans during the 1930's and 1940's.<sup>582</sup> In the words of British historian John Cornwell, in "1935 the Luftwaffe under Goering forged an alliance with the rocket programme, bringing in massive new funding and mutual technology gains from work such as rocket assisted aircraft take-off" (Hitler's Scientists 150). The funding included the program's eventual relocation to a state of the art facility in the north of Germany at Peenemunde on the Baltic Sea, where it flourished for the majority of World War Two (and with slave labor provided from the Nazi concentration camps).<sup>583</sup> The cooperation in research and development between the German Army and Air Force ended in the late 1930's.<sup>584</sup>

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<sup>581</sup> Dornberger, who was later a Colonel in the Nazi Army, had already read Oberth's work in 1929 (The Rocket and the Reich 9). Neufeld cites an essay written by Von Braun on pre-Nazi rocket research in the German Army. See The Rocket and the Reich 22.

<sup>582</sup> The ethical questions pertinent to Von Braun's enlistment by the Nazis have often attracted apologists among historians of the subject. Ordway and Sharpe present the matter as one of necessity (see The Rocket Team 94), yet within a broader context, wherein scientists and intellectuals fled Nazi Germany and Fascist Italy, it is difficult to exempt them from complicity in the terror the rockets would unleash on England and other parts of Europe. For example, historian Willy Ley cited Von Braun's arrest by Heinrich Himmler (chief of the SS) as a reason to exculpate him (see Rockets, Missiles, and Space Travel 233-234).

<sup>583</sup> John Cornwell details the history of the V-Weapons program's use of slave labor in Hitler's Scientists (341). Neufeld's The Rocket and the Reich offers the most extensive commentary on the rocket program's use of slave labor.

<sup>584</sup> See The Rocket and the Reich 24-25, 28, 45. See also *V-2* 71, 91.

The split between the rival armed forces led however to the former's deployment of the world's first guided missile, the A-4 (later renamed the V-2 by Hermann Goering), and the latter's development of the V-1 flying bomb. The V-2 was developed by Dornberger and Von Braun and finally unleashed as a weapon against England during the Blitz of 1944. The V-2 missile was the fifth in a series of designs that had been conceived beginning in the early 1930's. These were known as the A-1, A-2, A-3, and A-4 rockets (the "A" was an abbreviation of "aggregate").<sup>585</sup> By contrast, the U.S. Rocket group at Caltech had only been granted a total of one thousand dollars in funding as of 1938, and they were repeatedly denied funding by university and federal agencies.<sup>586</sup>

The scientific problems confronted by the German Army rocket scientists were complex and without precedent.<sup>587</sup> These included theoretical questions pertinent to thermodynamics, mathematics, engineering, and chemistry in their applied forms as the analysis of a rocket's heat distribution and cooling systems, propulsion, fuel, aerodynamic properties, and flight trajectories. The pace at which the problems were resolved was determined during the 1930's, as in the case of U.S. cryptology, by the ability of German scientists to convince state institutions of the military potential of the science and integrate it into available institutional networks (though both Dornberger and Von Braun repeatedly denied in later years that the A-4 was intended solely as a weapon).<sup>588</sup> Unlike U.S. cryptology, and in particular Friedman's S.I.S., the German

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<sup>585</sup> As Willy Ley noted, an experimental A-5 rocket preceded the A-4. See Rockets, Missiles, and Space Travel 208.

<sup>586</sup> See Strange Angel 128-129. See also JPL and the American Space Program: A History of the Jet Propulsion Laboratory. Michael Sherry's locates the Caltech group within the context of U.S. bombing strategy during WWII in The Rise of American Air Power 200.

<sup>587</sup> And, to a lesser extent, the research of American scientist Robert Goddard (see The Rocket and the Reich 67). The Germans were most likely unaware of the Rocket Group at Caltech.

<sup>588</sup> See V-2 65.

rocket scientists often frowned upon cooperation with private industry; as Michael Neufeld noted, they worked within the Nazi military between “a collection of warring bureaucratic empires” and only occasionally sought assistance from private firms.<sup>589</sup>

Two basic areas of scientific research determined the success of the Peenemunde innovations in missile technologies. The first was the development of liquid fuels and engines for multi-stage rockets.<sup>590</sup> The second area, which would ultimately link the new missiles to modern cryptology, were the guidance and control systems, and in particular the gyroscopes used to stabilize a rocket’s flight and trajectory. Unlike naval vessels or aircraft, modern rockets were not controlled by pilots. The German V-1 flying bomb and the A-4/V-2 rocket were each “in effect a pilotless aircraft controlled entirely by a gyroscopic automatic pilot, with compass and altitude control monitoring.”<sup>591</sup>

Gyroscopic science had developed from modern astronomy but it only became the subject of applied science during the mid-19<sup>th</sup> century, when the device was named by Leon Foucault, “who in 1851 had convincingly demonstrated the earth’s rotation with his pendulum” (The Gyroscope Applied 37). Foucault was followed by others, among them Lord Kelvin, who became interested in the physics of such devices. In its simplest form:

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<sup>589</sup> The Rocket and the Reich 24. David Kahn similarly stresses the detrimental effect of the competing institutional arrangements on German military intelligence throughout his study Hitler’s Spies. For Von Braun’s opinion of private industry, see also 46. Dornberger proved a glowing self-assessment of his refusal to accept the proposed commercialization of the rocket research in *V-2* 82.

<sup>590</sup> See, for example, Rockets, Missiles, and Space Travel 213-218. Ley emphasizes engine and fuel research over other factors. Neufeld’s account in The Rocket and the Reich is more balanced, as it is divided between fuels/motors, aerodynamics, and guidance systems.

<sup>591</sup> The Gyroscope Applied 349. The V-1 was not necessarily pilotless; it could seat a pilot, and often did for test flights. See Rockets, Missiles, and Space Travel 225.

The gyroscope....comprises a wheel or rotor spinning about its axis and supported in bearings so that its axis is free to rotate in one or more phases at right-angles to its plane of spin. It is essentially a mechanical device in all its varied applications, although in practice it is allied to many other branches of engineering, electrical, electronic, pneumatic and hydraulic. (The Gyroscope Applied 15)

The gyroscope developed in various phases during the industrial age. Its development was accelerated by advances in ship-building technology, in which ship's compasses were wired to gyroscopes in order to maintain a ship's course as well as its balance (key among these was the Sperry Gyroscope, first produced in the U.S. in 1911). With increased funding, and often with technologies stolen from American firms such as Sperry Gyroscope and Bendix Aviation, German rocketry and aviation of the 1930's and 1940's innovated integrated new gyroscope technologies into rocket guidance systems.<sup>592</sup>

The first German rocket gyroscopes were developed from those used in the German Navy. The most important figure in the early stages of the German rocket program was a former stage actor and officer in the Austrian navy named Maria Boykow who worked for Kreiselgerate, Ltd., a Dutch firm owned secretly by the German Navy to avoid the restrictions of the Versailles Treaty. Werner Von Braun, who later called Boykow "The German Navy's No. 1 expert in gyro compasses," approached him in 1934 to develop new gyroscopes for the guidance and control systems of the rocket program.<sup>593</sup> The early A-1 rocket had

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<sup>592</sup> David Kahn provides a detailed account of German Nazi industrial espionage in Hitler's Spies, with specific accounts of how German firms such as I G Farben, Siemens and others (as well as the Luftwaffe) used U.S. patents (86-88).

<sup>593</sup> Cited in Neufeld, 66.

an 85-pound flywheel [built] into the nose section. This heavy chunk of steel was to rotate on ball bearings during flight and, like a gyroscope, resist forces that would swing it and the rocket off course.<sup>594</sup>

The A-1 rocket “had blown up on take-off” during tests in 1932, but it stimulated Von Braun and his colleagues to re-design the rocket. The A-1 was followed in 1934 by the A-2, “the precursor of the guided missiles of the future” (Hitler’s Scientists 149). Using Boykow’s gyroscope designs, the A-2, had its “gyroscopic stabilizer....moved to the middle of the rocket’s body, between the oxygen and the alcohol fuel tanks” (Nazi Rocketeers 37). By 1937 Von Braun and his team at Peenemunde had already tested the A-3 rocket and designed the later A-4 model. Each was a turning point in the history of modern rocketry because it focused the German efforts on the rocket’s guidance system which included advanced gyroscope technologies that communicated flight information to the scientists who monitored from the ground as the rocket cut through the atmosphere.<sup>595</sup> The A-3 could also be controlled from the ground by the Peenemunde scientists during tests.<sup>596</sup>

Walter Dornberger later described the multiple gyroscopes used in the guidance and control system of the intermediary A-5 missile that preceded the A-4 rocket in the following terms:

[In flight] the axis of the gyroscope, which had hitherto kept the rocket vertical, was to be slowly inclined in the target direction by a pre-set clockwork mechanism. The control equipment was designed to compensate any tendency to deviate from the direction steadily maintained in space by the gyroscope axis.

This procedure, which produces the tilt needed for firing over great distances, may be visualized as about as follows. The axis of one gyroscope is

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<sup>594</sup> Nazi Rocketeers 33. See also The Rocket and the Reich 35.

<sup>595</sup> See Hitler’s Scientists 257 and The Rocket and the Reich 70.

<sup>596</sup> Peter Wegener describes the first successful A-4 launches in The Peenemunde Wind Tunnels 17. Willy ley’s account in Rockets, Missiles, and Space Travel is exhaustive.

tilted by mechanical or electrical means in the direction of the target. The control mechanism of the rocket then seeks to by means of the vanes to keep the rocket's longitudinal axis parallel to the axis of the gyroscope. Therefore the rocket does not continue on its vertical path but moves in the direction "prescribed" for any moment by the slowly moving axis of the gyroscope. The result is movement along a curve. (V-2 62)

The German Army rocket program assembled at Peenemunde eventually engaged German industry in order to secretly produce the necessary guidance systems. While Krieselgerate, Ltd. designed gyroscopes for the Navy, the Siemens Corporation (which had purchased Boykow's gyroscope patents in the early 1930's) was contracted to manufacture the A-5 guidance system in 1938.<sup>597</sup> Since both the Luftwaffe and the German Army shared Peenemunde, limited cooperation was restored as private industry began to mass produce gyroscopes for the respective V-1 (Luftwaffe) and V-2 (Army) rocket programs.<sup>598</sup>

The technical innovations in the gyroscopic technology of the guidance and control afforded to the A-4 rocket an unprecedented stability in flight and a greater precision in its point of impact. When the V-2 rockets were finally launched against London during the Blitz of 1944, they followed automatic, self-stabilizing flight paths that resulted from the gyroscopes used in the new guidance systems.<sup>599</sup> A secondary effect was that its "movement along a curve" made it possible to plot target areas. The rocket's

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<sup>597</sup> The Rocket and the Reich 99-100.

<sup>598</sup> The Rocket and the Reich 149. Neufeld's account of the rocket's guidance system begins on page 94.

<sup>599</sup> For a detailed technical account of the A-4 rockets gyroscopes, see The Gyroscope Applied 350-354. Willy Ley discusses Boykow's work in Rockets, Missiles, and Space Travel (206).



gyroscopes traced a curve in flight; the curve of that flight produced a secondary, statistical curve: the density of impact points in a target area. As Dornberger later noted, the dispersion – that is, the distribution of 50 percent of the impact points around the target point – should be two or three miles both longitudinally and laterally. This means that for every 1000 feet of range a deviation of only two or three feet too far or too short was acceptable, and the same for lateral deviation. This was stricter than is customary for artillery, where 50-per-cent dispersion of 4 to 5 percent of the range is considered acceptable. (V-2 48)

The A-4/V-2 rocket was transformed in this way from a terrible weapon and technological achievement into a statistical entity. That entity was subject to the mathematics of ballistics as well as the demographic calculation of casualty rates. Due to the fact that its target areas were densely populated European cities, its statistical accuracy and predictability made possible higher casualty ratios, and thus had this tertiary demographic statistical effect.

Allied forces were largely unaware of the Nazi V-weapons program until it was already well-advanced, and it was not until August 1943 that British bombers raided and largely destroyed Peenemunde.<sup>600</sup> The successful raid, which nearly killed Von Braun, only delayed the Nazi V-weapons attack. Peenemunde's essential manufacturing capability was moved underground to the secret Mittelwerk factory burrowed into the Harz Mountains. The V-2 (A-4) rocket, with its complex guidance system,

went into production in May 1944 at the underground Mittelwerke plant in the Harz mountains supported by slave labour. The missile, which was supersonic and against which there was no defense, was ready for launching in September 1944 during a lull in the flying bomb [V-1] attacks.... Each missile carried a payload of a ton of explosive.... Between that date [September 8, 1944] and 27

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<sup>600</sup> For an account of British intelligence operations to ascertain the function of Peenemunde, see The Rocket Team 91-110.

March 1945 some 1,054 rockets fell (about five a day), killing 2,700 Londoners. More than 900 were fired during the last quarter of 1944 at Antwerp.<sup>601</sup>

There was “no defense” against the V-2 because of the gyroscopes used in its guidance system. Radio-control signals had been discarded from the A-4’s design because an enemy could interfere with their transmissions. As a result,

The alternative was an inertial system, in which everything needed to obtain the required impact accuracy would be within the missile itself. It utilized gyroscopes, accelerometers, and an analogue computer to furnish data to position the jet vanes during powered flight for maintaining trajectory control. (The Rocket Team 40)

While Allied science lagged behind the Nazi V-weapons (Vergeltungswaffen, or “vengeance weapons”), British intelligence responded to the V-1 and V-2 attacks with a counter-espionage program based on disinformation. John Masterson, a former WWII era British spy, described the plan

It was, in brief, to attempt to induce the Germans still further to shorten their range by exaggerating the number of those bombs which fell on the north and west of London and keeping silent, when possible, about those in the south and east. The general effect would be that the Germans would suppose that they tended to overshoot and would therefore shorten their range, whereas in reality they already tended to undershoot. (The Double-Cross System 179)

Masterson described how the enemy could time the arrival of the V-2 rockets on their targets, and how the geographic “mean point of impact,” a spatial coordinate used by the British to identify (or misidentify) impact zones, was thereafter integrated with chronological coordinates that specified when the V-2 rockets had landed, as well as

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<sup>601</sup> Hitler’s Scientists 387. Will Ley compared and contrasted the V-1 and V-2 weapons in Rockets, Missiles, and Space Travel (227).

where. London and its outskirts were thus transformed into a space-time grid with actual and false points of impact.<sup>602</sup> While the British counter-intelligence strategy reduced the number of missiles landing in densely populated areas, it did not reduce the probability that “everyone in the vicinity of London, Antwerp, or any other major city had an equal chance of being hit” (Science with a Vengeance 45).

Using double agents to broadcast misinformation, British counter-intelligence successfully manipulated the V-2 flight paths in order to make them fall short of their targets, thus minimizing their intended lethal effect. They did not, however, attack the V-2 rockets, but rather their statistical curves. As Michael Neufeld demonstrated in his study, the A-4 rocket program launched 3,200 missiles against civilian targets in Europe during 1944-1945, killing over 5,000 persons; in sharp contrast to the destruction of Allied bombing raids, the V-2 - one of the most expensive weapons designed during the war - produced less than two fatalities per strike.<sup>603</sup>

The V-2 missile’s relative ineffectiveness as a weapon during World War Two did not however lessen its potential integration into the mathematically and technologically advanced communications and weapons systems of the United States during the post-WWII period. The United States government had largely ignored the military potential of modern rocketry during the interwar period (for example, it had abandoned an experimental WWI rocket program developed by the U.S. Army and the Sperry Gyroscope Company).<sup>604</sup> As in cryptology, World War Two prompted a sudden

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<sup>602</sup> Masterson’s book, which was published in 1972, contains a preface by Norman Holmes Pearson, the Yale English professor who later became a renowned C.I.A. officer.

<sup>603</sup> The Rocket and the Reich 274-274. Sherry’s study of Allied bombing strategy during the war also provides perspective on the matter of casualty rates.

<sup>604</sup> See Rockets, Missiles, and Space Travel (225). The rocket was in effect a flying bomb, and not unlike the later German V-1. It was later brought back, late in the war, as a counter-weapon to the V-1 attacks. See Roosevelt’s Secret War 338.

acceleration in development, with the Caltech group at the vanguard of rocket experiment and design. Their only significant success however was in the field of jet-propulsion technologies for aviation, while their research in guidance systems and telemetry lagged far behind that of the Germans. Gyroscope technologies played a more important role at M.I.T., however, in the group led by Alfred Loomis (and supervised by Vannevar Bush), where they were applied to new technologies such as combined radar and aviation systems.<sup>605</sup> In radar, as later in rocketry, signals intelligence could be transmitted, concealed, and stolen from the longer frequency cycles of radio waves and the shorter ones of microwaves.<sup>606</sup>

The V-2 weapons that were launched against England in 1944 during the Blitz were quickly absorbed as prototypes into the arsenals of the United States and Soviet Russia following the post-war occupation of Germany and the capture of its scientists. The United States was particularly aggressive in pursuing and extracting German rocket engineers from the war zone, and named the plan for their evacuation “Project Paperclip.”<sup>607</sup> In 1945, two V-2 missiles were brought to California and publicly displayed before being examined at Caltech, where the U.S. rocket program had largely floundered during the war.<sup>608</sup> Von Braun’s engineers were brought to the United States, where

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<sup>605</sup> On Vannevar Bush, see Strange Angel 68. The M.I.T. group received funding from the Sperry Gyroscope company, among others. See Tuxedo Park 129.

<sup>606</sup> For a definition of radio wave frequencies with respect to radar, see Cornwell Hitler’s Scientists 264. For further sources on radar intelligence, see those cited by Devorkin in Science with a Vengeance 130.

<sup>607</sup> Petere Wegener, a research scientist in the Nazi V-weapons program, described the extradition process in his memoir The Peenemunde Wind Tunnels.

<sup>608</sup> See Strange Angel 243, 251. The Rocket Team 344-404.

their mission was largely one of technical exploitation and assistance to others. They were there for three purposes: to serve as consultants to American industry and research institutions involved in guided missiles research, to assist in the assembly, checkout, and launching of the V-2's sent over from *Mittelwerk*; and to conduct studies and propose new guided missile projects. (*The Rocket Team* 349).

Post-WWII U.S. missile technologies were guarded carefully for national security reasons. The most important of these bridged the gap between cryptology and rocketry. Increasingly sophisticated communications technologies were integrated into the new U.S. missile guidance systems during the 1940's and 1950's. As a result, cryptology was fused to rocket telemetry. Rocket flight data transmitted from a rocket's guidance system to earth could be encoded, and encoding the data protected the rocket's telemetric designs from observation, a practice that was critical during the arms and space races during the Cold War.<sup>609</sup> Cryptographic signals were concealed within short bursts of energy and scattered over various wavelengths:

Such techniques included frequency hopping, where messages are bounced from frequency to frequency at more than a thousand times a second; burst communications, where a message is supercompressed into a brief "squirt;" and spread spectrum techniques, where a signal is first diluted to a millionth of its original intensity and then intermingled with background noise. (*The Puzzle Palace* 448).

Rocket guidance systems that had been derived from the original German V-weapon designs were integrated with new cryptological and communications technologies. U.S. cryptology had been prepared to adapt to this situation as a result of its integration in pre-WWII institutional networks. Following WWII, more than one dozen new

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<sup>609</sup> James Bamford describes the Cold War battle over intelligence telemetry in *The Puzzle Palace* 255.

intelligence agencies were formed in the U.S. government. The National Security Agency, which had grown directly from Friedman's S.I.S., eventually also contained research and engineering offices that specialized in developing new telemetry and radar communications and tracking technologies.<sup>610</sup>

U.S. cryptology was transformed after WWII as would a natural element in the transition from a solid to a gaseous state. Simultaneously, the objects of military signals intelligence would no longer be the exclusive codes and ciphers of generals, spies, and ambassadors: they would include the ephemeral machinic languages, emitted in impossibly brief, compressed bursts, by intercontinental missiles, supersonic jet aircraft, and spacecraft launched into extra-terrestrial orbit. These added a third statistical curve to the rocket's flight trajectory and the density of its impact points: the statistical behavior of encrypted languages and signals. The amateur cryptologist, like the amateur rocket scientist, evaporated in the wake of the new institutional order.<sup>611</sup>

The inter-relationships between the emergent intelligence institutions, missile and communications systems, and related corporate-industrial economies were rarely elaborated during the first post-WWII generation. Willy Ley, who had fled Nazi Germany into exile, offered the first sober historiographic account in his 1944 book

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<sup>610</sup> The Puzzle Palace 131-135. See also David Kahn, The Codebreakers 718-720.

<sup>611</sup> Contrary to the Gramscian definition of the organic intellectual who speaks for institutions, figures such as the Friedmans were increasingly silenced by the institutions they served. This silence around Friedman's work was maintained by the NSA after World War Two, and Friedman's personal files were eventually confiscated by the Agency for fear of a security breach. Like Alan Turing, his famous British counterpart, Friedman's authorial business remained a state secret for the better part of the Cold War. (See The Cryptographic Imagination 168). They were amateur and organic intellectuals but not public intellectuals. The Friedmans modernized American cryptology but also separated it from the public sphere. New rules governed the reformed cryptographic science and its intellectuals and institutions: secrecy, convergence, and an erudite quietism. The same was true of amateur rocketry. See Strange Angel 241.

Rockets; the future of space travel beyond the stratosphere.<sup>612</sup> Ley detailed the publications, many of them technical, on the V-2 rocket in the decade that had passed since the end of the Second World War in his later introduction to the German scientist Walter Dornberger's book *V-2*. Technical studies, historical works, and memoirs followed in the 1960's; they became themselves targets of parody, prompting Norman Mailer to write of NASA's moon launch in 1969 that Von Braun was "the heat in rocketry, the animal in the program."<sup>613</sup>

Thomas Pynchon's early fiction, beginning with "Entropy" and extending through V. and The Crying of Lot 49, was alone in how it oriented the American novel toward this situation. Pynchon's novels gathered the varied strands of modern U.S. fiction and scientific thought into a coherent figural discourse. The figural discourse effectively reinvented the relationships between modern literary movements with respect to the post-WWII U.S. institutions, and in particular that vast institutional system that was mandated by the National Security Act of 1947. The novel did not merely expose or filter the historical traces of those other forces: it imposed new forms upon them. Of those, the "arc," I have argued, is Pynchon's singular contribution to U.S. literature, and Gravity's Rainbow brought the figure's discursive potential to its most ample and mature form.

Gravity's Rainbow offered a singular discourse of the institutional and scientific convergence between cryptology, thermodynamics, and rocketry. Once again, its central figure was the arc – the "rainbow" – that resembled the multiple curves

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<sup>612</sup> The book was later revised and published in several editions as Rockets, Missiles, and Space Travel. Devorkin provides a short biographical account of Ley in Science with a Vengeance 45.

<sup>613</sup> Of a Fire on the Moon 67. Mailer's irreverent account of Von Braun merely satirizes the standard historical account of Von Braun's career.

(statistical, informational, aerial) of the V-2 rocket, an “object moving at supersonic speed [that] outraces its own sound.”<sup>614</sup> Yet the discourse generated by Pynchon’s figure was not merely a representation of this new technology but rather a discourse of its becoming. To this end, it again deployed the genealogical style that extended from Henry Adams through William Faulkner in modern U.S. writing to Pynchon’s own work, but with a series of figurations that were unlike anything attempted by his predecessors.

Gravity’s Rainbow begins with the modulation of a line from William Faulkner’s first novel, A Soldier’s Pay. The scene is a post-WWI dance in the Georgia town where the novel is set. Madden, an officer, is introduced to Margaret, who is the widow of one Richard Powers. She had married Richard Powers three days before he left for war, and to her later regret. Madden was the late Powers’ commanding officer at the front, and witnessed his murder by a traumatized and terrified fellow soldier. He recalls, in the same moment (and following his introduction to Donald Mahon), a plane falling from the sky. Madden greets Margaret:

“Good evening, ma’am,” Madden said enveloping her firm, slow hand, remembering a figure sharp against the sky screaming, You got us killed and firing point blank into another man’s face red and bitter in a relief of transient flame against a sorrowful dawn. (167)

Faulkner’s prose contrasts the exterior dialogue between Madden and Margaret with Madden’s eventful memory. The former is merged with the latter in the handshake as a temporal movement whose dramatic form inscribes the significant action; yet the joining of the hands, for example, has no necessary causal relation to Madden’s ensuing and cinematic memory. Margaret and the dance remain as Madden dissolves into the layered wartime scene: the murder is near, the falling plane behind it. The temporal

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<sup>614</sup> The Peenemunde Wind Tunnels 19.



moment is divided and remains unresolved in a classical Faulknerian “paradox.” Yet the passage’s impressionistic energy is not purely ambiguous or subjective; rather, its layered temporal and spatial forms replicate the human actions and historical forces that constitute Clausewitzian discourse of Faulkner’s novels discussed in the previous chapter. It is a conflicted instant and one among many in the work in which the historical continuities and conflicts are contrasted with the psychological drama.

The opening sentence of Gravity’s Rainbow reconfigured the Faulknerian sequence: “A screaming comes across the sky. It has happened before, but there is nothing to compare it to now” (1). There is no dramatic human agency to propel the monologue, the setting, or even the language. The reader soon learns that a British intelligence officer, Pirate Prentice, is dreaming of London’s evacuation (the evacuation resembles more the insurrection that begins Faulkner’s post-WWII novel A Fable). But unlike Faulkner’s scene, where a contrast triggers a memory, the V-2 rocket has already landed, followed by its sonic arc – that is, by Pirate’s dream of the evacuation. The preterite tense implies continuation and the narration unfolds as a series of variations on that initial figure, the “rainbow” nexus between the event and the reaction, effectively absorbing Faulknerian paradox into its singular design, erasing its paradoxical, static form, and integrating subject and object into the singular rhetorical figure. Indeed, the dreamed evacuation takes place inside the gigantic cars of an immense train, precisely the word that is used later to describe the V-2 missile’s curving sonic trail, and, as Prentice awakens, he looks out upon the London power grid’s landscape of “power stations” and “gasworks.”<sup>615</sup>

The novel begins with this convergence “during a gestative nine months at the end of the Second World War” and amplified as a series of variations on the figure.<sup>616</sup> These

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<sup>615</sup> See “the invisible train” (59).

include the “final arch” under which the refugees pass, the rainbow that forms behind the missile, the spiral stairs of Prentice’s residence, and a “progressive knotting into,” to mention only a few. The variations and modulations of the initial figure dissolve the stasis of Faulkner’s “paradox” into a dynamic temporal movement. While the rainbow/arc would have been impossible to conceive without the hermetic innovations of Faulkner’s prior Clausewitzian discourse, its aviators, or their genealogical apparatus, Gravity’s Rainbow erased the institutional boundaries that determined Faulkner’s style. The Faulknerian division between peoples and institutions vanished in the integrated complexity of new institutional networks, wherein target coordinates, institutions, and populations occupied different currents along an immense statistical curve. The reversal suggests a temporal discontinuity central to the genealogical argument: the dynamic processes are confused continuations rather than dramatic conflicts of causes or effects (the latter being Faulkner’s preferred mode). The novel shaped these variations into a figural discourse. The discourse is, as noted earlier, concerned with how “human intelligence” and the emergent institutional orders were being integrated into a singular design that indefinitely extends the energetic temporality of novel’s opening sentence.

While previous novels had emphasized human intelligence (the British Foreign Office, or “F.O.” was central to V.), it assumed a new priority in Gravity’s Rainbow. As a result, Pynchon divided “Intelligence,” as it is in the actual U.S. institutions, between Human Intelligence and Signals Intelligence. U.S. cryptology, after it had parted with philology, proceeded to develop into the varied branches of Signals Intelligence operations.

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<sup>616</sup> “Gravity’s Encyclopedia” 163. While Mendelson’s phrase captures the book’s biological sensibility (even if it is excessively anthropomorphic with respect to that science), he argues further that this period is “an originating instant of contemporary history” (163). Against this last point I will argue that the logic of cause and effect is inverted and disrupted by the genealogical figurations of Pynchon’s novel. The figure’s develop a logic of their own that, while not always apparent or consistent, determine the novel’s discourse.

Pynchon initially favored Signals Intelligence over Human Intelligence for several reasons in his earlier works. First and foremost was that it had grown from the mid-19<sup>th</sup> century tradition of U.S. fiction, described by John Irwin in American Hieroglyphics. It thus offered the possibility of a continued engagement of the historical processes that had shaped both U.S. language and institutions. Secondly, cryptology would have remained important because Pynchon had studied American literary formalism, in particular that of the New Criticism, which sustained an extensive dialogue with U.S. cryptology. Finally, Pynchon had most likely worked with military communications while in the U.S. Navy during the 1950's and later had worked writing technical manuals for Boeing's military-contracted missile program.<sup>617</sup> Given Pynchon's expertise in crafting figures of convergence and divergence from rhetoric, combined with the tremendous innovations of the modern hermetic style as well as the genealogical and anti-institutional style of Adams/Faulkner, modern U.S. cryptology posed a dense web of connections and questions that Pynchon recast in his figural discourse. They remain an occult force in Gravity's Rainbow, but they would also come to life, as if by necromancy, through its figures.<sup>618</sup>

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<sup>617</sup> Adrian Wisnicki has offered the most detailed account of Pynchon's work for Boeing in "A Trove of new Works by Thomas Pynchon? *Bomarc Service News* Rediscovered."

<sup>618</sup> Pynchon's unique figurations of cryptology were accomplished however in the absence of proper historical accounts of modern American cryptology, or perhaps in spite of them. There remained a significant historiographic gap between the early twentieth century reform of U.S. military intelligence institutions and the expansion and apotheosis of those institutions during the post-WWII era. While the Friedmans' book on the Bacon-Shakespeare debate had been printed already in 1957 (the same year in which Pynchon's story "Entropy" was set), a more ample discourse of thermodynamics and information theory overshadowed the extremely limited sources that linked U.S. literary intelligence to the massive intelligence community and industry of the Cold War. No major work on the history of cryptology would appear in the United States until 1967 when David Kahn's The Codebreakers was finally published. The force of Pynchon's technique resides however in the absence of such detail, which allows for a dramatic figuration of history rather than the accumulation and distortion of fact (a matter in which Pynchon is also prolific).

The majority of the novel's characters work in the wartime human intelligence agencies. These are later described as the "War-state," which include:

Colonies of the Mother City mapped wherever the enterprise is systematic death: P.W.E. laps over onto the Ministry of Information, the BBC European Service, the Special Operations Executive, the Ministry of Economic Warfare, and the F.O. Political intelligence Department at Fitzmaurice House. Among others. When the Americans came in, their OSS, OWI, and Army Psychological Warfare had also to be coordinated with. (76)

The passage draws on an ample history of human intelligence – the work of spies, double agents, and architects of psychological warfare – that had already been widely discussed and documented, and even in major literary-critical works (for example, I.A. Richards' and C.K. Ogden's writing on WWI propaganda in The Meaning of Meaning). Common knowledge about WWII human intelligence institutions, such as that described by Pynchon as the division between "the New Dealers of OWI and the eastern and moneyed Republicans behind OSS" (77), formed a significant part of Cold War U.S. political lore. F.D.R. formed the C.O.I., or the Office of the Coordinator of Information, in 1941. The C.O.I. had seven layers, beginning with "Research and Assessment" units manned by University scholars who researched enemy industrial potential, psychological characteristics, etc. These in turn provided the basis for writers and other intellectuals who worked in "Morale Operations" division, generating propaganda and misinformation that would be coordinated with the work of another section, the Office of Strategic Services (OSS). F.D.R. had appointed William Donovan, a Wall Street lawyer, Republican, and decorated WWI veteran, to head the OSS, a department of the COI. Where OSS was charged with espionage and coordinating resistance behind enemy lines, the Office of War Information (OWI) produced propaganda and misinformation to be broadcast on the radio or produced as film.

Pynchon's description of the "New Dealers" refers to how the O.C.I. integrated the Popular Front intellectuals that worked in federal programs that constituted what cultural historian Michael Denning noted was "an aspect of state culture" during the New Deal ( The Cultural Front 64). The designation extended from federally funded artistic and ethnographic programs through World War Two, when "a number of Popular Front and émigré anti-fascists were brought in to mount the wartime propaganda effort, particularly under Archibald MacLeish, director of OFF [Office of Facts and Figures], and Robert Sherwood, director of the OCI's...Foreign Information Service" (The Cultural Front 81). In addition to literary figures and artists such as the poet Stephen Vincent Benet and the film director John Ford who worked there, the latter also included the contributions of psychologists and sociologists who worked in covert and overt propaganda.<sup>619</sup>

Gravity's Rainbow emphasizes psychologists' contribution to the new human intelligence institutions. In contrast to cryptology, which brought the sciences of hermeneutics and language into the new intelligence institutions, human intelligence drew more heavily upon the social sciences such as sociology and psychology. To expand upon this new institutional phenomenon, Pynchon drew in Gravity's Rainbow upon the works of Weber, Pavlov, and other major European social scientists to amplify and parody the theoretical foundations of human intelligence.<sup>620</sup>

Since the majority of characters in Gravity's Rainbow work in human intelligence agencies (both real and fictional) charged with gathering intelligence about the German V-weapons program, they must be understood as occupying a historical vector that is

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<sup>619</sup> Mapping World Communications 86, 88. Mattelart's discussion also details how these agencies evolved into the CIA and NSA following World War Two, and drew their intellectuals from fields as diverse as mathematics and anthropology.

<sup>620</sup> Weisenburger explains several references to Pavlov and Weber, where Mendelson's discussion of Weber in the novel is both extensive and excellent.

convergent with that of cryptology and telemetry in the V-2 missile. The latter trajectory will emerge when the institutional histories of the V-weapons program are amplified with the return of Pynchon's familiar characters such as Mondaugen and Chiclitz from previous novels. The matter of human intelligence, however, is that which first designates the figural arc, and in an unprecedented style.

Pirate Prentice, upon waking from his evacuation dream, witnesses the deadly launching and arrival of the first V-2 missile in London. Prentice is a psychic medium who works for the Special Operations Executive (SOE), which, as Steven Weisenburger has noted, was the "British equivalent of the U.S. Office of Strategic Services (OSS)...charged with gathering strategic and technical intelligence" (17). The behavioral psychologist Dr. Pointsman and his statistician, Roger Mexico, work for the "Psi section," or PISCES section, of SOE, to which Prentice is also affiliated. Pointsman discovers however that the V-2 missiles have the uncanny habit of landing precisely wherever an American, Tyrone Slothrop, sleeps with his lovers. Slothrop works also in the Allied intelligence system, for "ACHTUNG," or "Allied Clearing House, Technical Units, Northern Germany" (17), and which is later described as "the poor cousin of Allied intelligence (20).

But Slothrop keeps a map of London in his office, where, with push-pins, he marks the locations of his romantic encounters. These correspond to a grid of the city kept by the SOE that details the pattern of V-weapon landings. An agent, Teddy Bloat, is sent to take photographs of Slothrop's map, and when these are placed over the SOE grid of V-weapons explosions Dr. Pointsman and his colleagues come to suspect that Slothrop is a "sensitive" - a medium who can predict or even alter the flight paths of the V-2 missiles.<sup>621</sup> Having discovered the link, Pointsman and Mexico debate whether the

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<sup>621</sup> The sections about Slothrop's being a "sensitive" elaborate upon Oedipa's failure to communicate with Maxwell's Demon in The Crying of Lot 49. It should also be noted that Slothrop's "sensitivity" applies only to the V-2 missiles, and not the V-1.

coincidence is entirely random or conditioned by some environmental factor or mystical force. Pointsman, the behaviorist, takes the latter position, while Mexico applies statistics to the coincidence and regards it as an entirely secular matter. Their debate, summarized by Roger Mexico in a lengthy discussion of the Poisson curve's statistical properties, constitutes the first elaboration of a binary pattern of alternation and collapse that recurs throughout the novel.<sup>622</sup> The pattern takes its form most often as the alternation between cryptographic zeroes and ones that are reconstituted from the statistical curve as the figural arc.

The dynamic, historical convergence between human intelligence and signals intelligence occurs primarily along four trajectories. The first is through the dramatic introduction of an unprecedented form of human intelligence, refined by modern sciences and embodied in its workers. The second is at the points where thermodynamics and cryptology merge with chemistry and psychology. The third is through the engineer Kurt Mondaugen's genealogical role in the German V-weapons program, and the last is by a genealogy of the emergent institutions.

Both Kurt Mondaugen and the V-weapons had made a prior appearance in the earlier, geo-linguistic order of V. In that novel, Mondaugen recounted that "he worked, yes, at Peenemunde, developing Vergeltungswaffe Eins and Zwei. The magic initial!" (241); "Vergeltungswaffe Eins and Zwei" were the V-1 and V-2 rockets.<sup>623</sup> Mondaugen is present in Gravity's Rainbow during the first rocket fuel tests near Berlin at

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<sup>622</sup> Mexico's discussion of the Poisson curve takes place on pages 54-56. Weisenburger offers several explanations of the Poisson curve in A Gravity's Rainbow Companion that include its originator (40-41), Pynchon's statistical sources and their V-weapons examples (83), and the function of a Poisson curve in gauging the thermodynamics of rockets and rocket fuel (119).

<sup>623</sup> Mondaugen could not have worked on them both, however, as they were separate research projects under the Luftwaffe and Army, respectively.

Kummersdorf West, the precursor to Peenemunde (GR 161, 402-403). In a flashback, the story of his sojourn collecting “sferics” in southern Africa is retold, only to end in this version with his transformation into a cipher: a mathematically inscribed, mystical identity striving for dissolution into “the informationless state of signal zero” (404). Pynchon’s rhetoric does not render language as a spatial effect, as in V., but as a series of energetic chemical combinations that reconfigure historical life. The new design absorbs the previous spatial one:

Once again it was the influence of Liebig, the great professor of chemistry....[who] seems to have occupied the role of a gate, or sorting-demon such as his younger contemporary Clerk Maxwell once proposed, helping to concentrate energy into one favored room of the Creation at the expense of everything else.<sup>624</sup>

The previous geo-linguistic order of V. continues within this new bio-linguistic regime. It is as though the post-WWII bio-morphic architecture of Saarinen had absorbed the hard lines of the International style and Corbusier. Indeed, the character in question in the passage cited above, Pokler, brings “the mind’s eye of an architect over into chemistry,” and the later rocket research facility at Nordhausen will resemble the V-2’s guidance circuitry (GR 411).

Languages are also absorbed into the new historical possibilities proffered by the bio-linguistic design. As Edward Mendelson noted of the “New Turkic Alphabet, or NTA”:

whole systems of committees, subcommittees, various divisions of labor and authority now organize and reticulate themselves over the buried strata of the local folk culture... the NTA does not develop according to an organic model, but is shaped deliberately by the forces of government, forces which are

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<sup>624</sup> GR 411. Pynchon’s interest in Liebig was motivated in part by Richard Sasuly’s genealogical account of German chemistry in IG Farben 20-22. See also A Gravity’s Rainbow Companion 95.



themselves directed and initiated by the cartels which organize the book's secular world. ("Gravity's Encyclopedia" 168)

The NTA's institutional emergence is identical to that which absorbs the engineers Mondaugen and Pokler into Peenemunde. The characters and languages are not beholden to an organic model of culture but rather they become nodes in a discourse on how such figures were integrated into the new institutional systems. Pynchon portrays them in dramatic form, as he had earlier in V., but their role within the figural discourse (rather than actual history) is organic: they are also inherited components of the historical tradition to which the modern novel belongs. But just as the line between institutions and peoples will vanish, the contest between organic and inorganic (conceived previously in V. as the "animate/inanimate"), is also joined in the V-2 missile's statistical curve, making possible a novelistic discourse that is not grounded in naturalized paradigms of human culture, but rather as their conversion into some unprecedented and vital organization.

The shift from a geo-linguistic order to a bio-linguistic one necessitated that Pynchon also engage a set of institutions – petro-chemical companies, for example – that will be converted from Peenemunde into "people like the State Department and NSA." The transformation's implied form is that of a chemical reaction as the Yoyodyne cartel becomes the future residence of that inherited scientific momentum.

Pynchon had elaborated the historical style and anti-institutional thought of Henry Adams in previous novels; the style remains in Gravity's Rainbow, but it vanishes into the new institutional designs. Where previously in V., the "Dyne" in Yoyodyne is explained "as a unit of force" (241), the convergent sciences and their institutions are joined in the arc's discursive chemistry. The term entropy, which had appeared throughout the previous novels, appears in Gravity's Rainbow only in its plural form, as "entropies." The figural discourse correctly begins then with the multiplicity and

“knotting into” demanded of the new historical situation and its unprecedented confusion of peoples, machines, and institutions rendered along the figural arc. Yet Yoyodyne of Nutley, New Jersey is mentioned only indirectly in the novel; its German predecessor, IG Farben, assumes a genealogical priority.

The German industrial chemical cartel IG Farben provided the model (the vertically organized transnational corporation) and the science (chemistry) for the bio-linguistic shift. As Pynchon scholars have noted, Richard Sasuly’s 1947 study IG Farben, was the source for much of Gravity’s Rainbow.<sup>625</sup> Sasuly, who was a post-war expert in financial intelligence for the Finance Division of the United States Military Government, argued that IG Farben was the catalyst of German militarization during the inter-war period, providing new materials – plastics, dyes, explosives, refining techniques – to the German, and later Nazi, military. It drew its organizational form, however, from a forerunner, the Siemens Corporation, which was the first major post-WWI German industry to integrate its supply chain into a vertical, self-sufficient order of manufacture (43). By the war’s end IG Farben controlled interest in over eight-hundred industrial firms, more than half of them outside of Germany.<sup>626</sup>

IG Farben occupies a unique position in the figural discourse of Pynchon’s novel. It is the conduit between German industry and the German military, the source of materials that make possible the V-weapons, and the model for international post-WWII institutional reforms. While it was known primarily as a producer of dyes, the cartel also produced chemical weapons during the two world wars (such as the notorious Zyklon-B used to gas inmates in Auschwitz).<sup>627</sup> In order to circumvent the disarmament

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<sup>625</sup> A Gravity’s Rainbow Companion 48.

<sup>626</sup> IG Farben x, 9. See also Hitler’s Scientists 54-56.

<sup>627</sup> See IG Farben 33 on gas warfare in WWI, and Hitler’s Scientists 364-365 on Zyklon-B.

treaties signed by Germany following WWI, IG Farben also secretly owned firms that supplied materials and technologies to the German military, including the “shadow firm in Holland” that designed German submarines (IG Farben 78), most likely the same interest from which Maria Boykow’s gyroscopes were patented by the Siemens Corporation and later integrated into the V-2 rocket. The IG Farben cartel’s work was facilitated by a network of industrial spies who forwarded industrial intelligence to the German military; these are dramatized in Gravity’s Rainbow by “Wimpe, the IG man.”<sup>628</sup> Wimpe’s home office is NW7, the corporate code name for the intelligence branch, “the largest section of which was innocently abbreviated VOWI, the statistical department of IG Farben.”<sup>629</sup>

The actual American competitors of the Siemens Corporation and IG Farben appear in the novel as General Electric (which, with Project Hermes, extracted V-2 missiles from post-war German to the U.S.), the Dupont Chemical Company, and Standard Oil of New Jersey.<sup>630</sup> Various sources have documented how IG Farben competed and collaborated with U.S. industry, even through WWII.<sup>631</sup> Of these, some of the more relevant to Pynchon’s novel are IG Farben’s firms that manufactured film stock. These included Agfa, the German firm, and General Aniline and Film, an American-based, IG Farben-owned company, as well as fictitious company’s such as Spottbillig-Film AG.<sup>632</sup> Because the V-weapons were thoroughly documented in research and development as

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<sup>628</sup> IG Farben 15. See also A Gravity’s Rainbow Companion 173-174.

<sup>629</sup> A Gravity’s Rainbow Companion 271.

<sup>630</sup> Weisenburger discusses the references to U.S. companies in A Gravity’s Rainbow Companion 133, 151-152, 242.

<sup>631</sup> See, for example, Edwin Black I.B.M. and the Holocaust 337-338 and A Gravity’s Rainbow Companion 271.

<sup>632</sup> See War and Cinema 8.

well as wartime launchings against Britain, the visual component of their history mattered as the film stocks integrated the weapons system and its communications platform into a visual economy – the relationship is also reversed, given the priority of cinema in the novel, as the rocket’s were an extension of the cinematic-sensory field. Pynchon’s lengthy tangential discussions of the international genealogy of IG Farben and its chemical engineers, as well as the rhythmic recurrence of coal derivatives, plastics, and other materials, are the chemical precursors of the bio-linguistic order that, unlike that of the novel V., will become a distinct life-form. It will take shape as an emergent institutional order.

As I noted in Chapter Five, Pynchon’s V. referred indirectly to the ITT Corporation’s former campus in Nutley, New Jersey as the model for Yoyodyne.<sup>633</sup> ITT, a major producer of technologies for integrated weapons systems during the Cold War, was also a hub of cryptological research (Parker Hitt, one of the U.S. Army’s top cryptologists during WWI, was the “vice president of its “cryptographic subsidiary, International Communication Laboratories” during the inter-war period).<sup>634</sup> I.T.T. was the precursor to the integrated weapons-communications and institutional systems of the post-WWII U.S. state, and the geographic area where ITT was located also housed the Bendix Corporation that appears on occasion in Pynchon’s work (the town of Teterboro, New Jersey, only a few miles north of the ITT campus, was once a company town, called simply Bendix, New Jersey). These facilities were in turn nodes in a larger regional network of corporations that designed aerospace and communications

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<sup>633</sup> Indeed, there was once a monument on the grounds of the Nutley, N.J. ITT industrial park. The monument occupied a shaded green lawn on the eastern side of the park overlooking Route 21 and the Passaic River. It had two components. The first was a metal arc, two, maybe three stories in height. The second was a metallic ball, hung from the apex of the arc so as to resemble a pendulum or, more appropriately, a gyroscope. See also Strange Angel 109.

<sup>634</sup> The Codebreakers 404 (see also 716). Parker Hitt composed the first modern U.S. Army crypto manual immediately prior to WWI.

technologies that included Northrup Grumman, I.B.M.'s New York campus, and the AT&T Bell Laboratories (as well as the Fort Monmouth U.S. Army Signal Corps facilities).<sup>635</sup> Their roles as catalysts of new technologies in the post-war era were extensive; for example,

In 1947, AT&T Bell Laboratories invented the transistor, a cheap alternative to the electronic valve.... In 1953 IBM launched its first computer, and four years later it introduced Fortran, a programming language that allowed "ordinary" people to write computer programs. (The Code Book 247-48)

These innovations would stimulate the manufacture during the post-WWII era of the multi-spectral and microwave devices for the NSA's radar antennae farms, its extra-terrestrial satellites, and its increasingly spatial and aviaional, rather than naval, relationship to U.S. military institutions.<sup>636</sup> As Manuel DeLanda has noted, the networks emerged from WWII military sciences:

The routinization of production and the internalization of markets are carried on at a global level, while powerful computers allow the centralized control of geographically dispersed activities. According to some analysts, the internationalization of antimarket institutions (or at least the intensification of the process) was indeed brought about by advances in the science of centralization (for example, in operations research, which was developed by the military during World War Two) and by the use of large computers to coordinate and monitor compliance with central plans. (One Thousand Years of Non-Linear History 98-99)

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<sup>635</sup> The historic relationship between ITT and AT&T is recounted in The Bell Telephone System 134-135. The author of the aforementioned study notes that a nephew of Henry Adams, one Charles Francis Adams, was a trustee of AT&T (105).

<sup>636</sup> For an account of the shift from naval to aerial and spatial technologies, see Inside the Puzzle Palace 294-301.

In this post-war economic order, “antimarket institutions” are the large, hierarchically organized transnational corporations that dominate the horizontally arranged local markets. De Landa’s language attributes the shift towards antimarket institutions to cybernetics by repeatedly invoking its language (“control,” “centralization”) and affiliates (“operations research”). In a different register, Pynchon situates his dramatic genealogical figures such as Mondaugen and Yoyodyne as precursors to this shift. They are the analogs of Werner Von Braun and IG Farben: forces who emerged from local markets and were absorbed by transnational or national institutions. Yoyodyne is Pynchon’s figural version of such institutions. He described it in V:

In the late 1940’s Yoyodyne had been breezing along comfortably as Chiclitz Toy Company, with one tiny independent-making shop on the outskirts of Nutley, New Jersey. For some reason the children of America conceived around this time a simultaneous and psychopathic craving for simple gyroscopes, the kind which are set in motion by a string wound around the rotating shaft, something like a top. Chiclitz, recognizing the market potential there, decided to expand....Chiclitz remembered vaguely from a trade magazine that the government was always in the market for these [gyroscopes]. They used them on ships, airplanes, more lately, missiles. Small business opportunities in the field at the time were being described as abundant. Chiclitz started making gyros for the government. Before he knew it he was in telemeter instrumentation, test-set components, small communications equipment. He kept expanding, buying, merging. Now less than ten years later he had built up an interlocking kingdom responsible for systems management, airframes, propulsion, command systems, ground support equipment. (240-41)

The passage is a near-perfect microcosm of Pynchon’s whimsical version of the genealogical style. Market forces eventually outgrow even the local vertical institutions, becoming the horizontal transnational “kingdoms” such as Yoyodyne. The comic tone underscores the sober contingency of history and its actual genealogies, as when, in a

passage describing how the IG Farben “super cartel” was formed, Pynchon replicates the language of vertical and horizontal institutions directly from Richard Sasuly’s study of the corporation.<sup>637</sup>

Gravity’s Rainbow did not, however, focus only on tracing Yoyodyne from its prior form in IG Farben. The genealogies of artificial new institutions, languages, and laborers are not the ends of the figural discourse. Nor were they the scientific processes that were integrated into the gyroscope within the V-2 missile’s guidance system. The limit of the discourse is instead the arc’s becoming as the curving, figural arc achieves a sentient, if invisible authority that is contrasted by the figural discourse and absorbed into its genealogical design. The movement resembles an extensive counterpoint. First, the rockets explode in London; second, Slothrop departs on a genealogical mission through post-war Europe to locate the first prototype of the S-Gerat, a mythical black box made of an unprecedented plastic and the vessel that houses the missile’s guidance system (like those produced by Lorenz for the Luftwaffe), and the novel traces the rocket’s Lorenz guidance beam in reverse.<sup>638</sup> Pynchon’s Schwarzgerat, or “S-Gerat, 11/00000,” is the first of its kind, a mythical cause, that stimulates a “grail quest” in its pursuit. It is never located by the host, which includes Slothrop, who pursue it. As in Faulkner’s “The Bear,” Slothrop becomes a cipher as the arc him into its immense hieroglyph, constituting a positive contrast to Slothrop’s cipher. The “gestative nine-month period” during which the novel is set concludes with this new entity, that Erich Auerbach might have called “the first forewarnings of the approaching unification and simplification” to which the figural discourse is the complex and historically resonant counterpoint.<sup>639</sup>

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<sup>637</sup> In Sasuly’s book the German Siemens firm is the vertical precursor to IG Farben because it is the first to control its entire chain of supply. See IG Farben 43.

<sup>638</sup> On the Lorenz guidance beam devices, see The Rocket and the Reich 105. See also Ultra Goes to War (98) on the X- and Y-Gerat systems produced by Nazi Germany. See also Weisenburger 134.

Pynchon's figural discourse is, in this respect, also a discourse of secular anticipation. The figural form was, as Auerbach notes, a prefiguration whose origins could be traced from Christian thought, and in particular Christian eschatology. Pynchon's figural discourse reconfigured the mystical, however, in secular form, a style that runs counter to the majority of criticism that has attacked an alleged "apocalyptic" tendency in Pynchon's work. No less an authority than Harold Bloom has deemed that "For Pynchon, ours is the age of plastics and paranoia, dominated by the system" and that Pynchon's approach to these "Gnostic systems" of the modern era render him a "Christian eschatologist." Pynchon is rendered by Bloom and others as the narrator of a theologically motivated and ever-imminent apocalypse. What Bloom's canonical argument lacks, despite its ornate metaphysics, is the proper and evident reading of Pynchon as an artist whose discourse is profoundly concerned with actual human history, its persons, its art, and its institutions. The figural discourse is a process to understand the relation between the human past and what is to come: a bridge, an arc, a figure to be thought. Pynchon would later describe its possibilities:

The next great challenge to watch out for will come – you heard it here first – when the curves of research and development in artificial intelligence, molecular biology, and robotics all converge.<sup>640</sup>

In this historical sense, the figural arc spanned an inter-regnum whose book-ends were the decaying, dynastic order of "energy" summarized as the fading geo-linguistic space of pre-WWII modernity and the emergent bio-linguistic design, anticipated as that which would form after WWII. The figure's modulations anticipated the transition from energy and cryptology to the intersection of biology and information theory. In her

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<sup>639</sup> Mimesis 553.

<sup>640</sup> "Is it O.K. to be a Luddite?" 41.



excellent history of the genetic code, Lily Kay cites the transition as it appeared in the works of Norbert Wiener and Francis Crick, she noted:

Echoing Wiener's writings of a decade earlier, in which Wiener set forth that representations of organisms were shifting from the materialistic and energetic to the informational, Crick asserted that the essence of protein synthesis was flux: flow of energy, flow of matter, and principally the unidirectional flow of information....<sup>641</sup>

The transition from energy to information was of course central to Pynchon's interest in shaping figural discourse in the wake of the V-weapons. Pynchon had either read or inferred that there existed a series of links between pre-WWII thermodynamics and cryptology; likewise, he had studied those that joined thermodynamics to information theory, and learned that the V-missile had also traversed them. Kay noted in her study a 1954 correspondence between the British bio-chemists George Gamow and James Watson that underscores the point:

When Germans bombed London by V1's and V2's, British Operational Annalists tried to find out whether or not the Germans were *aiming* at some particular spots in the city. To do this they overlapped on the map of London a square lattice, and counted the number of hits within each square....I do not know what was the result of the Poisson analysis in that case, but our problem is exactly of the same nature...protein synthesis "aims" for definite amigo pairs.<sup>642</sup>

Gravity's Rainbow summarized Pynchon's long elaboration of a singular figure as a *poesis*, or figural discourse. The project emphasized, by rhetoric and genealogy, the

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<sup>641</sup> Who Wrote the Book of Life? 29. Kay's book could almost read as a postscript to the current study, as it masterfully details the transition from thermodynamics and cryptology to cybernetics and biology. Kay's book outlines, among other relevant points, the emergence of what David Kahn recently noted as a bio-cryptological impulse in the interest that William Friedman demonstrated in both genetics and cryptology early in his career (The Reader of Gentleman's Mail 24).

<sup>642</sup> Cited from Who Wrote the Book of Life? 149-150.

historical processes that gave shape to the secular world. Without the figures, there could be no discourse, however complete.

Pynchon combined this pattern of anticipation and hindsight, central to modern humanism since Vico, as a dynamic problem of contemporary secular history. Pynchon's figural discourse, like that of his predecessor Faulkner, emphasized the hermetic in its elaborations of classical figuration, but without reverting figuration to a pre-modern rhetorical style. In Pynchon the line between the vestigial traces of earlier mysticism and modern history is strong; it is even more so than in Henry Adams' difference between the "Virgin" and the "dynamo." For even narratives of apocalypse change in their manifestations, by the work of human will and invention, and may be transubstantiated as merely historical. The apocalyptic pessimism inspired by thermodynamics was not a ghost in the machine of its discourse, but the continuation of a historical style of intelligence, that intangible quality inaugurated in American prose by Henry Adams, and continued through Pynchon as the rhetorical materiality of the figural arcs.

When set in a chronological order according to the historical development of the figures in the respective novels, Gravity's Rainbow formed a pre-history to the post-WWII centered works. The Crying of Lot 49 was the latest of the four in terms of its historical setting, and preceded by the short story "Entropy," V., and then finally Gravity's Rainbow. In a reverse chronology the bio-morphic design of Gravity's Rainbow prefigured the Yoyodyne Corporation and "people like the State Department and NSA." These were all shaped by Pynchon's extensive study of modern U.S. fiction.

Henry Adams was the most important precedent for the new *poesis* announced by "Entropy." The short story replicated the comedy, misanthropy and discretion, as well as the historical style and care, of Adams' later works. The writings of Henry Adams, and in particular The Education of Henry Adams (1918), provided a rare example of

how to think through tremendous historical transformations in a poetic register. “Entropy” achieved its unique style by its poetic transformation of a specific historical situation. Its style began with the encounter between historical *poesis* and a new anthropomorphic, institutional sentience. The new situation outlined in Adams’ writings as the aggregation of intelligent “inanimate” forces in human institutions (i.e. the security-state, corporations, etc) suggested a genealogical precedent for Pynchon’s new figural discourse.

But the subordination of *prosopopeia* to *poesis* in Pynchon’s “Entropy” was related, among other things, a historical shift towards the institutional centralization of intellectual labor. The term “entropy” was derived from the writings of the 19<sup>th</sup> century physicist Clausius, who defined it as the transformation of energy, the latter of which has as its root the Greek word for work (‘ergon’).<sup>643</sup> The “ergodic” redefinition of intellectual labor was achieved partially through the writings of Henry Adams, who elaborated entropy against the 19<sup>th</sup> century positivist, materialist, and idealist conceptions of labor. The strategy for Adams was to reconfigure the relations between intellectual labor and its objects. One had to reject the previous models and understand the new order of social and historical relations that inflected intellectual labor and institutions in terms of dynamic fields.

Pynchon’s story returned to the problem of intellectual labor inherited from Adams and distinguished between the intellectual labor of the institution (*prosopopeia*) and the intellectual labor of the individual (*poesis*). “Entropy” proposed a discourse from the nexus of entropy and labor that was renewed in the mid-20<sup>th</sup> century by the unprecedented institutional transformation of the United States government (the term “entropy” was increasingly common in U.S. writing during that period).<sup>644</sup> Its renewed

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<sup>643</sup> Freese provides an excellent summary of the history of the term (96).

<sup>644</sup> Hans Meyerhoff’s 1955 book Time in Literature is one example (Freese 308).

presence in American scientific thought of the 1950's was distinct however from Pynchon's rendering of the word within the figural discourse.<sup>645</sup> Pynchon's *poesis* reconfigured the matter as a historical process rather than something pertinent to former models. As such, it engaged a multiple series of questions: Is it the same as the Vichian labors of the gods? Does it conform to the Marxist model of labor and its attendant properties of production, profit, and alienation? How do the collective demands of institutional labor inflect its historical becoming or the work of individuals? Pynchon's figures constitute a poetic discourse rather than a historiographic one, and the two must always be distinguished lest the properties unique to the figural discourse be lost.

Pynchon thus followed Adams into the vault of that hermetic, institutional modernity. It was not a modernity defined exclusively by cultural consumption - what Callisto's third person narration describes as "Madison Avenue consumerism" - but an occult modernity shaped by arcane new forces. The *prosopopeia* of the institutions in "Entropy" suggested the paradox of a satanic and earthly new power: a scientific and technological bureaucracy with a public form ("people") that obscured its operations from public sight. Pynchon would maintain his interest in the genealogy of such institutions throughout his career. He later noted that:

By 1945, the factory system - which, more than any other piece of machinery, was the real and major result of the industrial revolution - had been extended to include the Manhattan Project, the German long-range rocket program and the death camps.<sup>646</sup>

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<sup>645</sup> Peter Freese provides an excellent summary of this influence, which spans genetics, anthropology, economics, and literary criticism. See Freese 218-234.

<sup>646</sup> "Is it O.K. to be a Luddite?" 41.

Yet the institutional process did not have a figural form; Pynchon would invent one. "Entropy" had proposed a figural discourse in reply to the anthropomorphic energy of the new post-WWII U.S. state, and in particular, its intelligence institutions. To that end, it suggested a style that absorbed institutional intelligence into a figural discourse, thus elevating history to *poesis*. *Poesis*, which took form as a weak hendiadys in "Entropy," was transformed into the prolific forms of the geo-linguistic historical design in his first novel V. as both the variations of the "V-structure" and the extended *prosopopeia* of "people like the State Department and NSA" were elaborated, in a figurative, poetic style, as they proliferated across high modern literary and scientific language. This proliferation created for the first time that strange effect which Fredric Jameson noted allowed modernist literary formalism to "suspend the common-sense view of the work of art as mimesis."<sup>647</sup> Pynchon would however break with the static rhetorical figures of literary modernity as his rhetorical figures became historical as a result of their genealogical force.

V. was the first major elaboration of the figural discourse. It framed the emergence of new institutions within the dramatic conflict between Henry Adams and his most important post-war heir, T.S. Eliot. The dramatic confrontation of the two thinkers was composed as the tension between a monumental poetics of history and the less tangible poetics of entropy. These were crafted in the historical space as a geo-linguistic contest unfolding in the transition from a collapsing British imperial and bureaucratic order of colonization to a less tangible U.S. model of geo-political institutions. "People like the State Department and NSA" were prefigured in V. characters who worked for the institutions of the falling empire, such as the British Foreign Office. Thus the problem of an institutional intelligence, which had first appeared in the short story, now resurfaced in genealogical form.

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<sup>647</sup> The Prison-House of Language 83.

But the dramatic conflict overwhelmed the figures, and Pynchon turned to Faulkner and the hermetic style for a genealogical style that could sustain their historical elaboration through the present. The connection was furthered by the shared interests of both novelists in certain authors; both Pynchon and Faulkner had obviously, and carefully, studied T.S. Eliot and Henry Adams.<sup>648</sup> Yet Faulkner's posed a problem to Pynchon's early style: could figural elaboration sustain a complex genealogical discourse? The hermetic style was occasional and inconsistently evident in Faulkner's writings, yet his historical polemic, his Clausewitzian discourse, and his hermetic style were central to Pynchon's later innovations, and in particular his institutional genealogies. And while the institutional genealogies of Pynchon's novels resemble Faulkner's Clausewitzian discourse, they do not follow the dynastic narrative of the paternal Southern bloodlines. They do not develop, that is, as narratives of descent, but rather of ascent (descent is reserved in Faulkner for the old landowning families or, in Pynchon's case, scientists and citizens – such as Slothrop).<sup>649</sup> Yet historical motion (whether descendant or ascendant) is not defined by causal terms but as a mass of convergent energies. In the institutional register, for example, the Yoyodyne Corporation was a complex entity, a clone, a continuation, and a modulation of ITT. Yet the figural discourse rendered it a node within a more expansive (and at times, more intimate) series of configurations, each a vital variation on the other. If the V-weapons and their institutional infrastructure were engines of death, the figural discourse became an engine of life, defined as the careful work of a historical intelligence captured in rhetoric, as genealogy.

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<sup>648</sup> In his study of Faulkner's library, Joseph Blotner lists The Education of Henry Adams among the titles ordered for Faulkner by his friend and mentor Phillip Stone. The book's influence is apparent in Faulkner's first novel, Soldier's Pay, in which Adams' great historical foil, Edward Gibbon, is cited extensively (Blotner 123). Faulkner's fascination with dynamos is subsequent to Adams.

<sup>649</sup> Slothrop's New England genealogy is detailed in Gravity's Rainbow (26-29).

The general movement of the “arc” of Pynchon’s historical discourse from “people like the State Department and NSA” to the “inanimate V-Structure” achieved a concentrated form in the “bridge” figure of The Crying of Lot 49. The novel’s protagonist, Oedipa Maas was not absorbed into the genealogical design but other characters (i.e. Mondaugen and Chiclitz) became aggregations of historical energy that took human and institutional forms. The hermetic style rendered them obscure, however, and like Adams’ Garibaldi, only a silhouette – the temporary figuration of a discursive force. Oedipa, a character unique in Pynchon’s writings, was the first to achieve an objective distance from the design.

The diplomats, spies, cryptologists, computer analysts, civil engineers, doctors, military officials, politicians, and technicians of every sort that populated Pynchon’s fiction in the first two novels were always at a certain remove from the new institutional order that housed them. They belonged to a Faulknerian dying race, captured most eloquently by the engineer Stanley Koteks in The Crying of Lot 49 when he discusses the historical irrelevance of the individual “inventor” and engineer within the emergent corporate structures of science (67-69). The figures and characters that inhabited Pynchon’s later writings stood however in a consistent genealogical line with their earlier figuration as the amorphous, new intelligence of “people like the State Department and NSA.”<sup>650</sup> These culminated with Gravity’s Rainbow when, for the first time, Pynchon’s dramatic protagonist Slothrop emerged from their very ranks in the WWII intelligence institutions to be unified with that which his antecedents had

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<sup>650</sup> As I noted in Chapter Three, Pynchon himself belonged to their lineage early in his life. He briefly studied engineering at Cornell University, one of the ur-institutions of post-WWII U.S. state power, prior to changing his major to English. He inherited the storied Cornell University proficiency in science and, like William Friedman before him, transferred the Cornell expertise in engineering to the study of language. But Pynchon inherited a different literary tradition than that which compelled Friedman’s studies of Poe, Jefferson, and other major writers - he inherited from Henry Adams the “pessimism [that is] the logical foundation of optimism.” Henry Adams. “A Letter to American Teachers of History.” 258.

resisted - the bio-linguistic design of the “brave new world” to come.<sup>651</sup> It is perhaps fitting that the National Security Agency’s European headquarters were located in the IG Farben complex in Frankfurt, Germany.<sup>652</sup>

Gravity’s Rainbow ruminates on the limits of genealogy at the point where prior configurations are merged by Pynchon into some new form. Where genealogy fails with the quest for the mythical S-Gerat, the failure is secondary to a success: the figural discourse that amplifies its becoming. Genealogy is not a question of mere anxiety or derivation but a process which demanded that Pynchon reconfigure genealogy. With respect to Henry Adams, Pynchon attempted a historical style as a *poesis* that was not however equivalent with Adams’ “degradationist” model of history but rather its supercession. Supercession was precisely that: the overcoming of a conclusion, as when the disembodied polyphony of “Entropy” was transformed in V. into figural discourse. The reinvention of that style as a figural discourse was a critical and historical act as well as an aesthetic one; it rendered genealogy vital to the present. And it stands also in contrast with T.S. Eliot, who elaborated another sort of genealogy - the “Tradition and the Individual Talent” - after he was disowned by his family after his marriage to Vivien. In Eliot’s case, isolated poets strove to attain another order, a promised and eternal affiliation with poetry. It was the International style, uprooted, and alone. Against Eliot, Faulkner had reacted by returning genealogy as the continuation of paradoxical relations in history, and always firmly rooted in a place, distant in time. And Faulkner had drawn on another tradition, the decadent order of the gothic novel, to elaborate his more provincial genealogies in the hermetic style.

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<sup>651</sup> Pynchon cites Huxley - who cites Shakespeare - in Gravity’s Rainbow (132).

<sup>652</sup> James Bamford noted that the NSA shared a building with IG Farben in Germany. The Puzzle Palace 217. Sasuly provides an excellent description of how post-war refugees, many of them former slave-laborers in the German camps and industries, occupied the IG Farben building in Frankfurt after the war. See IG Farben 12.



Pynchon's genealogies did not sustain the divisions of his predecessors. The endless disintegration of binary oppositions that collapse throughout Gravity's Rainbow does not result in an empty, nihilistic order but in certain intimate continuations. Slothrop's family and IG Farben are one and the same, as Slothrop later discovers.<sup>653</sup> They are Faulkner's families, Eliot's dispersed international style, and Adams' relations of force, but they are also something more, multiplied and reconfigured, along the dramatic and polyphonic style of Pynchon's *poesis*. In reconfiguring the arc's sound wave so as to emphasize a series of variations (the vapor trail, the behavior of the statistical curve, the convex surface of the optical device, etc.), the figural discourse also organized the tangled bloodlines of the IG Farben cartel as a rudimentary nervous system for an emergent post-WWII institutional meshwork. The broken, alembic vessel of one order (embodied in the union of Slothrop and the S-Gerat) has been reassembled by the next.<sup>654</sup> The genealogical apparatus of the figural arc becomes the ultimate form of secular preterition: it is left behind to trace the beginnings of a historical situation in a manner that the situation – its agents, its institutions – cannot.

Pynchon's early novels were not planned, however, in such a schematic manner. Rather, Pynchon circled back, continually elaborating new areas as his style intensified, and discarding others. Pynchon's work cannot be reduced to a mathematical system – the very notion that Edmund Wilson had warned against in writing on the hermetic style in Axel's Castle. The hermetic style holds a particular prominence nonetheless,

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<sup>653</sup> See Gravity's Rainbow 286-287.

<sup>654</sup> I discussed Pynchon's use of the word "alembic" in Chapter Four. It recurs again in Gravity's Rainbow (264), and broken vessels appear in varied forms throughout the novel, referring to rockets, persons, and nations. Weisenburger offers extensive commentary on the vessel's occult sources in A Gravity's Rainbow Companion (87, 110).

even if Pynchon did not apply it as if to merely “decode” history in some rigid scheme. Rather, Pynchon’s figural discourse demonstrated that the hermetic style, which also deviated into the analytical and mechanical sciences of U.S. intelligence institutions, remained strongest in its literary-discursive form. That is to say it was the most difficult to master, the most insightful in its inquiry, and the best suited to explain, despite its tremendous complexity, the historical transformation taking place.

Thomas Pynchon’s early fiction draws from both the classical and modern traditions of figural thought. The figural style sustains in his work both a re-thinking of the dynastic trajectory of the modern novel and a genealogical account of the private corporations, federal institutions, and professional intellectuals of an emergent post-WWII U.S. state intelligence. Pynchon’s style sustains another genealogy that includes Henry Adams’ historical thermodynamics, T.S. Eliot’s reformist and monumental theory of poetry, or Faulkner’s dying neo-classical dynasties. But where Adams had anticipated them, and Eliot and Faulkner replied to the WWI institutions in distinct ways, Pynchon was alone in his rendering of that stylistic genealogy in its maturity during the post-WWII era. These three elements – the figural, the historical style, and the institutional, secular world – converged as what I have broadly defined, after Vico, as the *poesis* of Thomas Pynchon’s fiction. The result was a singular figure – the arc – and its many incarnations, each an elaborate instrument for the execution of a discourse that resonates, a few cycles sharp.

## APPENDIX A

### CONCLUSION

Gravity's Rainbow continued the millennial tradition of Western realism described by Erich Auerbach in Mimesis. Indeed, one can hear the distant tumult of Auerbach's discussion course through Pynchon's style. Gravity's Rainbow uses figural incarnation as a bridge between present and past – indeed, figuration itself becomes the bridge – thus centralizing aesthetic achievement as the stabilizing instrument of an entire world, its effects reproduced in a multitude of forms (again, the ubiquitous “V”). There is a critical difference: where in the classical tradition the anthropological horizon of humanism emerged from divinity, now, with Pynchon's figural discourse, some new force, whose institutional form is not wholly understood, has emerged from within humanism. The achievement is ironic, as is appropriate to modern consciousness; yet Pynchon's aesthetic discourse, predicated upon a tempestuous, anthropomorphic energy, will not relinquish the very processes that, loosened from humanism by modern institutions, threaten to destroy human life. The humanist impulse of Pynchon's figural discourse, strengthened by a genealogical style, refuses to grant them historical autonomy.

Humanism sustains the “pendulation” that Auerbach described in his discussion of Paul’s role in Christian scripture. For example, Pynchon does not oscillate between human history and the divine (even the angels were astonished when they gazed upon Peenemunde); rather, he restored the radical subjectivity with which Auerbach had closed Mimesis in relation to historical phenomena. Where Auerbach defined Virginia Woolf’s narration according to its multiple perspectives, Pynchon proceeded from a similar point and dissolved narration and subjectivity into figures whose form entered in a reciprocal relationship with the human. This coital style returned to aesthetic language a generative historicity that at the same time required the dissolution of the subject into discourse. How else is Slothrop’s disappearance over the course of Gravity’s Rainbow to be understood, but as a prospective encounter with the end of “man?” Much of Pynchon’s writing points to this eschatological problem, yet nowhere is its figural discourse so well-conceived, or more engaged in the problem’s historicity, than in Gravity’s Rainbow. But the carnal union of the macrosmic force and microcosmic unit, splayed over the London grid along a Poisson curve, reveals “the end of history” to be a false conclusion. The “end of history” hermetically conceals another opening, or beginning.

Two lines of modern thought have seriously engaged the relationship of humanity to the potential end of human history. The two are in agreement over a fundamental separation that has taken place whose motion resembles the very fluctuation – “pendulation” – that sustains the figural discourse of Gravity’s Rainbow.

Edward W. Said's writings on genealogy, *figura*, and exile (a term that must always be understood with respect to Nietzsche's "*unheimlich*") maintain that humanism and its figures must be achieved: they are never something, no matter how difficult the task may be, to simply reproduce. I would quote a passage at length from Edward W. Said's final work. It offers the opportunity to begin to distinguish between two types of humanism, one achieved, the other static and degraded, or fatal:

Auerbach contends that the very concept of *figura* functions as a middle term between the literary-historical dimension and, for the Christian author, the world of truth, *veritas*. So rather than conveying only an inert meaning for an episode or character in the past, in its second and more interesting sense *figura* is the intellectual and spiritual energy that does the actual connecting between past and present, history and Christian truth, which is so essential to interpretation....Thus for all the complexity of his argument and the minuteness of the often arcane evidence he presents, Auerbach, I believe, is bringing us back to what is an essentially Christian doctrine for believers but also a crucial element of *human* intellectual power and will. In this he follows Vico, who looks at the whole of human history and says "mind made all this," an affirmation that audaciously reaffirms, but also to some degree undercuts, the religious dimension that gives credit to the divine. (Humanism and Democratic Criticism 103)

Said's careful use of the adverb "audaciously" literally resonates with the entire Vichian discussion of metaphor and its corporeal being; the thunder crashing around primitive humans prompted them to render the sky as an angry god. The metaphorical and physical *figura* thus embodies a specifically human beginning and repeats it in a temporal register as a sound. The sound emanates, however, regardless of the divine threat.

The divine threat has also its secular form (which is often expressed, rather thoughtlessly, in alleged religious terms). Looking past Auerbach to contemporary challenges to humanism, Edward W. Said also recognized “an overall pattern in which such threats to humanistic culture seem to be ingrained in the very nature of thought about the human situation in general....”<sup>655</sup> He carefully avoided the term “structure” in this passage and used the more benign “pattern” in its place, and in doing so left open the possibility that thought was not governed solely by discourse. Said’s own institutional situation was exemplary: he wrote from within the very discipline, philology (and its descendants) that has often been, as it is now, a target of attempts to destroy human culture. He did so in such a way that invited a continual engagement with the institutional situation of literary studies and a fearless discussion of its importance. The point was to overcome the limits of discourse. Yet the two – humanism and the institution – could be separated only at the risk of catastrophic irresponsibility. At the same time, they could never be entirely conjoined in a seamless relationship of part to whole. Indeed, the historical truth of humanism lies in its consistent contentiousness, its commitment to the individual detail, and its refusal to be wholly absorbed into abstract systems – its “pendulation.” Edward W. Said demonstrated against the structuralists and post-structuralists that the human must cross into the world of living history by tremendous effort from such inhuman “patterns.” This is the domain of the exile – simultaneously an ontological separation from its beginnings and

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<sup>655</sup> Humanism and Democratic Criticism 36.

also an intensified historical attachment. Like the operatic singer whose rendition continues after the orchestra has stopped, this division is the premise from which the human must perpetually begin again, not only as an improvement or advancement, but as a renewed and dramatic commitment to continued human historicity.

The post-structuralist line that Edward W. Said engaged with such vitality has produced another contemporary thinker, the philosopher Giorgio Agamben, who has recently engaged the same division that haunts Said's work. Agamben has asked, following Heidegger:

What is man, if he is always the place – and, at the same time, the result – of ceaseless divisions and caesura? It is more urgent to work on these divisions and understand in what way – within man – has man become separated from non-man, and the animal from the human than it is to take positions on the great issues, on so-called human rights and values.<sup>656</sup>

There are points of contact between the two. For example, both Agamben and Said the ontological situation of the human occurs in a discursive, genealogical register; both oppose such a project to the politics of difference. Agamben and Said both have wrestled with post-structuralism (and Foucault in particular), and dragged the challenge to humanism back into the domain of historical, human life. They have, in short, elaborated a possible humanism that is discontinuous – divided, yet painfully

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<sup>656</sup> The Open: Man and Animal (2002) 16.

necessary, and without which thinking (or in Agamben's case, life itself) becomes impossible.

Yet in Agamben's case the ontological project must overcome what Foucault described as the bio-political regimentation of life that has reduced man to animal. That is to say, Agamben concedes the point that Said attacked and defeated: that discourse determines life. Said's work situated philology critically with respect to such a project. Only philology was capable of situating the disparate elements involved in such a battle so as to

open them all, or as many as possible, to each other, to question each of them for what it has done with the others, to show how in this polyglot country in particular many traditions have interacted and – more importantly – can continue to interact in peaceful ways....<sup>657</sup>

I have offered in the preceding chapters to understand how the philological apparatus of humanism was divided and reconfigured in the historically blind institutions of a new security state. By filtering philology and cryptology through the Adams-Pynchon line, I have stressed how the Adams-Pynchon genealogical line invented a literary rhetoric and tradition that repeatedly dragged the new institutions back into the realm of human history and its making.<sup>658</sup> I did so until I arrived at the doorstep of the bio-

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<sup>657</sup> Humanism and Democratic Criticism (2004) 49.

<sup>658</sup> As I noted in the seventh chapter, Lily Kay's study Who Wrote the Book of Life? introduces the next phase that begins as Gravity's Rainbow "concludes." It is the phase



political – where the anthropological machine was revitalized by what Agamben calls “genome, global economy, and humanitarian ideology” (77) – and left them knocking, refusing to leave until someone answered. Pynchon’s challenge seems particularly audacious in that context because it commands the entire discourse: as in Auerbach’s analysis of Dante, in which the afterlife was repopulated with historical human beings, Thomas Pynchon reversed Dante’s secular momentum, pulled his angels from the celestial firmament, and placed them alongside the aviators and missiles of the largest-scale war (and institutional system that followed) in human history. This too, was heresy – not against the Vatican (as it was in Foucault), but against the bureaucratic hierophants who would abandon history to fatal forces, or allege that such transformation was inevitable rather than a new oscillation from the anthropological machine.

I have situated that oscillation in the early twentieth century, but there is clearly work to be done with respect to its 19<sup>th</sup> century beginnings. For example, how did the force that carried John Matthews Manly to endow a new institutional system with the austere rigor of 19<sup>th</sup> century philology emerge, and where? And what sustained it? Donnelly’s Populism does not suffice to explain the technical-hermeneutic shift of the early 20<sup>th</sup> century U.S. security state, or how this shift proliferated in various forms during the Cold War. In this later phase the formalist impulse of cryptology was sustained by the

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that Foucault describes as the bio-political and which I have called the “bio-linguistic order” of Pynchon’s figural discourse so as to emphasize its primarily biological figuration of discourse.

New Criticism, while in its political phase it was transmuted into the Straussian intellectual vanguard of the U.S. elite. Yet where did they stand in relation to Pragmatism, rather than Social Darwinism, at their beginnings?

John Matthews Manly was not a point of origin, but of transition. For Manly, born in Alabama in 1865, the U.S. Civil War marked the beginning of a Faulknerian age. His family had all been important Confederates – his own grandfather, Basil Manly, had delivered the prayer at the 1861 inauguration of Jefferson Davis. Born to the pastor Charles Manly (later President of Furman University), John Matthews was the eldest of three brothers. The three brothers all made their careers in the north, and each worked or had business with the U.S. military at some point. The youngest, Charles Matthews Manly, became a famous mechanical engineer and aviator. He died in Kew Gardens, New York, at age 51 – a true Sutpen. The Manlys lived and died during what Michael Denning recently defined in The Cultural Front as the “Lincoln Republic” that ended largely with WWI, the war that marked the transition from nationalist populism to idealist internationalism in U.S. institutional life.

Henry Adams, born in Massachusetts in 1838, understood the U.S. Civil War in an international key. Freshly returned from his 1860 visit to Sicily at the Risorgimento’s decisive moment, he followed his father, who was U.S. Ambassador to England, to work in London as his aide. Adams studied the realignments that shattered the long peace of Westphalia as the varied wars forged unprecedented aggregations. In the years that

preceded the Civil War, Adams watched as the House of Savoy drove Austria-Hungary from the plains of Lombardy, and Garibaldi – with Cavour’s tacit consent – defeated the Spanish royalty and expelled them from the Kingdom of the Two Sicilies. England favored the Italian republicans but soon weakly favored the American Confederates. France, the perennial ally, favored the Italian and American republicans. The republicans were the victors in both wars, yet in retrospect Adams could no longer tolerate to misconceive them as heroic, great peoples or, for that matter, nations; he later wrote in The Education of his stay in London during the Civil War that “Demolition of one’s idols is painful, and Carlyle had been an idol” (131). The Civil War had aligned the world powers in such a way that assisted the long, relentless venture of the United States to international power. The study of that alignment, not its heroes, mattered most to the historian of the future. When Adams died in Washington D.C. in 1918, he had witnessed the ascension of that American power.

Both Manly and Adams were in Washington D.C. in 1917. Where The Education of Henry Adams (1918) closed the curtain on one “silurian” age of U.S. government, Manly’s work in MI-8 during the war inaugurated another. Manly, a Pragmatist by temperament, was optimistic; Adams, the realist, something else. They simultaneously and briefly occupied the capital of two different worlds. The nation that was to come did not begin with them; it was divided between the rhetorician/historian’s heated perception and the cryptologist/technician’s cool functionalism. Each had a world to bestow upon the future. Henry Adams’ progeny – a diverse body of novelists and

historians - offered the greater insight. The first generation - Faulkner and Eliot - rebelled against their master. The second generation - of whom Pynchon is perhaps the only real member - looked to the present moment. Pynchon cleared the way for literary discourse to once more engage the ante-bellum case made by Melville in Moby Dick, by which the hieroglyphic play of the American Renaissance began another, more impersonal endeavor.

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