STAGES OF TRANSMUTATION: THE VISUAL RHETORIC OF ALCHEMY IN SEQUENTIAL ART

By

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To my family, both by blood and of the heart

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Abstract of Dissertation Presented to the Graduate School
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This project examines artistic and literary presentations of alchemical transmutation in the Medieval and Early Modern periods, along with appropriations of alchemical ideas and imagery in present day comic books. It looks at the relationship of the verbal and visual depictions of alchemy with the conceptualization of alchemy as a process which occurs in time. The focus of this project is on material alchemical transmutation, rather than the allegorical and spiritual elements with which examinations of alchemical writing and art have generally considered most central. Within this body of literature, very little has been written on the presentations of the physical change of matter in alchemical image sequences.

The project is limited in its examination of alchemical change in the modern day to its presentation in comic books, even though there is certainly room for study of recent prose fiction, most particularly in the fantasy and science fiction genres, that utilizes alchemical ideas. Rather than tackling the full body of alchemy-related literature, this project directs the reader to further resources in these fields in Chapter Two.

The sequences of static images found in both early artistic representations of alchemy and comic book appropriations of alchemy offer unique, yet related ways of looking at time, space and change.

CHAPTER 1
INTRODUCTION

One could make the claim, without too much fear of error or correction, that alchemical literature breaks down readily into three categories: alchemical allegory, alchemical satire and depictions of literal alchemy. Early alchemical writings of the Middle Ages generally compounded the allegorical with the literal, describing processes of transmutation at the same time that those very processes and their material components were personified and allegorized by symbolic figures which tied the mundane, practical meaning of the texts to larger claims about the spirit of man (specifically, the alchemist himself) and the workings of the universe. According to many scholars of the alchemical writings of the period, the allegorization of transmutation also functioned as a code that would keep the philosopher's secrets shrouded in mystery, and conveniently obfuscate those places where the alchemical theories described *failed* to work when practically applied. Alchemical satire maintains alchemy as a physical, literal practice, but that practice is one of failed experiments and charlatanry. These alchemical frauds and failures crop up in not only anti-alchemical treatises banning the 'art,' but fictions like Ben Jonson's *The Alchemist* and Chaucer's *Canon's Yeoman's Tale*. Even in alchemical satire, however, alchemy, howsoever fraudulent, can lead to real change, not within but without the alchemical vessel: Subtle's deceit in Jonson's comic play leads to real social change (and eventually to a real marriage); the experiments of both canons in the Yeoman's *Tale* perform what I term a kind of anti-alchemy[1] upon themselves and the people and world surrounding them, systematically degrading, destroying and tarnishing, rather than improving and purifying.

[1] I argue that the alchemical procedures described in the *Canon's Yeoman's Tale* constitute an anti-alchemy that inverts the ideologies and processes of ideal alchemical transmutation, as well as simply subverting the desired result. The canon's alchemy is in direct and aggressive opposition to all that either spiritual or material alchemy should be, but as such it does still succeed in bringing about change.

More recent studies of alchemy's presence in fiction and poetry also tend to focus on the allegorical, examining works like the *Chymical Wedding* and narrowing in on transformative themes and metallurgic references in Yeats and many other nineteenth and twentieth-century writers.

Even the more pragmatic alchemical texts are commonly read allegorically, still seen as code for the soul's transformation even once gods and phoenixes are (literally) not in the picture. There is a long-standing tradition of saving early alchemical writings from themselves by claiming that their true goal was the guidance of the self towards a state of perfection, and not the production of silver or gold. The removal of the alchemical 'taint' from the work of Sir Isaac Newton is only one of many examples. While in many cases this message of salvation may not be incorrect, something very important is lost when the physicality of metamorphosis is removed from the study of alchemical writing, the same way something is lost when allegory itself, if alchemical writing must be read allegorically, is treated only as a veil to be lifted and then cast aside.

Gordon Teskey, in his interrogation of the Faerie Queene in *Allegory and Violence*, refers to "the truth over which allegory is always drawing its veil: the fundamental disorder out of which the illusion of order is raised" (19). Teskey points toward the "sin" of Francesca as "a sin against allegory," and that sin is "to show that there are some things in life that cannot be captured by books" (20). The 'capturing' of things into books (or language, in the broader sense) *is* allegory, and thus all literature is painted as ultimately allegorical, capable of being read and imbued with deeper meaning.

When one comes right down to it, everything *can* be alchemy because nothing escapes change, and all language and thought *can* be allegory because no word or concept is exactly the

thing that it signifies, but that does not mean that it becomes fruitful to apply either alchemy or allegory to everything.

C. S. Lewis, in his *Allegory of Love*, argues that allegory belongs "to man . . . or even to mind, in general" (44), and that man has always and inevitably been a producer of allegory. In the same chapter, Lewis puts forth "another way of using the equivalence [of passions and *visibilia*]," which he terms sacramentalism or symbolism, used in the allegorization of an invisible world by the material world:

> It is, in fine, 'in the philosophy of Hermes that this visible world is but a picture of the invisible, wherein, as in a portrait, things are not truly but in equivocal shapes, as they counterfeit some real substance in that invisible fabrick.' (45)

The "sacramentalism" that Lewis describes is deeply entwined with the roots of alchemical thought; in the *Asclepius* of Hermes Trismegistus, "the forms of all beings conform to their archetypes so that the archetype is a whole; the individual is a part of the archetype" (Salaman 56) and just as "what is good or happy has always been high like the heavens and bright like the sun" (Lewis 44), in the *Asclepius* the "Sun is a second god. . . . As the cosmos is everlasting, so the Sun is the everlasting ruler of all things that live and of their very life force; it gives forth life and does so continually" (85). This simultaneous conjunction and disjunction of the spiritual with the ('real') material in alchemical allegory is key to the seventeenth-century split that Jung describes between "the chemist and the Hermetic philosopher" in (*Psychology and Alchemy* 227). In the Western tradition, very few writings exist on 'pure,' literal transmutation, untouched by either allegorical references or allegorical revision**;** and when such writings do occur, they are by and large considered undesirable in the alchemical canon, ridiculed in art and academia both contemporary and modern for their shortsightedness, the alchemists themselves depicted as either greedy frauds or futilely struggling fools.

One exception to this general rule may be the presentation of successful Philosophers in

what functioned as alchemical handbooks, in which the genius alchemsits' works were either conveniently located in the distant past or described in such vague or convoluted terms that the experiments are not reproducible. At the same time, many instructional treatises on alchemy were heavily allegorized, and when they were not, their lack of detail occasionally allowed for only incomplete depictions of the transmutations described therein.

The tradition of academic distaste for, and universal distrust of, material alchemical transmutation leads to a deceptively simple conclusion: it is not "grown up" to talk about alchemical transmutation without either an allegorical or satirical component.

One of the challenging aspects of both alchemical study and the study of alchemical writing is that alchemical transmutation (reduced to its most basic components) is ultimately change. Slowly yet surely, alchemy in literary studies becomes shorthand for changing and creating: writing itself, personal redemption and character development all become alchemy. Alchemy can be applied to all forms of creative expression, and as evocative as the word is in these contexts, its overextension divorces it from more concrete meanings, and it is the concrete in alchemy that most interests me in this project.

The reasons behind the narrowing of the focus of this project to material alchemical transmutation are threefold. The first is a simple matter of pragmatism, for to sufficiently cover all aspects of figurative alchemy would open up any and all forms of creator-controlled change to examination, and such an endeavor is far beyond the scope of the project at hand; the second is a matter of preference: in recent study, symbolic alchemy has been by far the favored child, thus leaving material transmutation open to innovative investigation; and the third and most important reason is that *material alchemy opens up opportunities for the study of visual representations of physical change.*

This project begins in Chapter Two with a general overview of the alchemical concepts that will be used to understand the visual rhetoric of transmutation in later chapters, as well as a brief discussion of depictions of alchemical transmutation in literature. Chapter Three goes on to examine visual presentations of transmutation in sequential pictorial alchemy, while Chapter Four continues the focus on transmutation in sequential images through its look at alchemy in comic books. Alchemical picture sequences and comics have been selected as the cornerstones of this project, rather than other visual/textual media representations of alchemy, because they share both a genuine investment in the visual presentation of temporal progression and similar narrative frameworks.[2]

The depictions of alchemical transmutations *on the page* take several forms, but the most notable distinguishing qualities of their different modes of presentation are the *speed* of the transformation, the kind of time utilized in the transformation (e.g. linear versus cyclical) and whether the alchemical power is natural or learned.

The tradition of alchemical illustration is also, in most cases, heavily invested in the portrayal of the alchemist himself (and on rare occasions herself), as well as of his laboratory and equipment. The noteworthy qualities of illustrations of *the alchemist* include props, the presence or absence of other figures, the surrounding environs and the actions performed. There has been a move in recent years, at least in the comics that take up a significant portion of this study, to transform the solitary student/alchemist of legend, hunched over his alembic or book, into a present-day action hero, supplanting the *vita contemplativa* of the classic alchemist with the *vita activa*.

[2] While alchemical transmutation in children's picture books would, based upon these same criteria, also be appropriate to this study, I will not be focusing on them for the simple fact that I have not yet seen enough such examples to make sufficiently informed conclusions about the function of alchemy in that medium.

Though the 'big names' of alchemy are frequently invoked in early alchemical writing, the alchemists visually presented performing transmutations and distillations are more indistinct: the actual figures embody, instead of incarnations of specific men and women, the ideals and stereotypes that constitute the *idea* of the 'alchemist.' In the alchemical picture sequences examined in Chapter Three, this may be largely due to the instructional and exemplary nature of these texts; as the reader, potentially, may wish to perform his own versions of the alchemical *experiments* presented, the *alchemists* presented must represent attainable ideals rather than specific, recognizable persons.

Change in physical matter is dependent upon time and space, and this project's examination of the spatial and temporal relations of objects, as presented verbally and visually in the texts under scrutinization, pulls largely from the theoretical physics of Aristotle, as well as its later theoretical incarnations. In its discussion of visual representations of space and time on the page, this project also owes a debt to Mary C. Olson's *Fair and Varied Forms: Visual Textuality in Medieval Illuminated Manuscripts*, in which Olson expounds upon "Narrative Time in Graphic Space" in a chapter of the same name.

In my investigation of both the alchemical picture narratives of the Early Modern period and comic narratives of the late twentieth and early twenty-first centuries, my structural and visual focus will be on the design, transition, placement and general use of the *panel*.

Thierry Groensteen, in his *System of Comics*, chooses to use the panel as his "reference unit" precisely because the panel is, for his, in some senses irreducible: In its habitual configuration, the panel is presented as a portion of space isolated by blank spaces and enclosed by a frame that ensures its integrity. Thus, whatever its contents (iconic, plastic, verbal) and the complexity that it eventually shows, the panel is an entity that leads to general manipulations. One can take it, for example, in order to enlarge it and create a seriagraph; one can also move it. (25)

Groensteen evokes in this quote the very modern, very Western, comic page, influenced by a visible grid or framework and comprised of clearly defined panels framed individually and separated by "blank spaces." This design is what functions as the generic default of the American comics "mainstream,"[3] but it is of course not representative of the way in which all comcis are assembled, and is furthermore misleading when discussing the panel within alchemical picture sequences. Groensteen's most significant qualification of the panel, for my purposes, is that it "is easily contained by and takes part in the sequential continuum" (26). In comics that represent time (and comics do almost by definition in one way or another; there may, however, be some experimental "comics" that avoid manage to resist presenting time), a panel embodies a complete idea, moment or sequence of an *existence in* or *action through* time. At their simplest level, what comics present is space and time: space and the objects 'in' it through pictures and time through the indication of actions, thoughts and events both in the organization of those pictures (panels) and their content, both pictorial and verbal. Panels are the discrete units of of that spatial/temporal structure.

The 'panels' of the alchemical picture sequences that I examine in Chapter Three may not all follow modern comic conventions (with a grid layout, black frames, and gutters between panels) but they do *evoke* frameworks, and even without frames and gutters serving as guidelines for the eye, the division of these texts into distinct temporal units (designating moments in or periods of time separate/d from other time) is clear. The *Mute Book*, for one, certainly has more in common structurally with the "mainstream" comic book than does, for example, the Bayeux tapestry, which makes its way as a 'proto-comic' into nearly every instructional or academic text

[3] In both academic and lay discussions of comics, the term "maintsream" has come to refer to narratives revolving around the superhero and action hero.

on comics as a matter of course.[4] These concepts will be discussed in more detail in Chapters Three and Four.

[4] The popularity of this move has reached a point where the incorporation of this artifact in instructional texts and lectures on comics has become a bit of a joke within comics scholarship; Matt Madden's reference to the tapestry in his *99 Ways to Tell a Story* is, while still technically in this tradition, quite noticeably tongue-in-cheek.

CHAPTER 2
AN OVERVIEW OF ALCHEMY

If the Vertues of this never-sufficiently praised Metal, were known, as well for the health of the Body, as the convenience of mens living, it would be adored with a greater devotion than it is already. The Apes of Wise Nature, cunning Inquirers in Experiments, perceiving a certain Glory and Brightness in Gold, and an attractive or magnetick vertue (if I may so say) which at first sight draws every mans eye to look upon its Majesty and Beauty, and tempts our hands to touch and handle it, and even our mindes to desire it, so that even Infants do rejoyce, and laugh at the sight of it, and reach their arms out after it, and catch it, and will by no means part from it; presently conjectured, that there was some extraordinary Vertue in it for the health of man.

--Giambattista della Porta on Gold, *Natural Magic*, 271

In the 1970 Ambix article, "Alchemy: Origin or Origins?" H.J. Sheppard offers as a definition for alchemy (in its broadest sense, and not limited to a European understanding of alchemy) as "the art of conversion of that which is base, both in the material and spritual worlds" (Debus 79-80). More recently, Sheppard has offered another definition for alchemy as "the art of liberating parts of the cosmos from temporal existence and achieving perfection which, for metals is gold, and for man, longevity, then immortality and, finally, redemption" (Linden 11). According to Sheppard, alchemists thought of themselves as not only remaking materials, but as changing the temporal duration of ultimately natural processes. In the transmutation of metals, this meant that the natural, linear progression of baser metals into pure gold was shortened; in physical human development, this meant that the natural lifespan of a human being was lengthened (11).

Medieval and Renaissance students of alchemy in the Western tradition, by and large, held a common picture of the workings of the material world, and this common view incorporated the theory of the four elements (generally associated with Aristotle, though it appears in the works of earlier philosophers--like Empedocles--to some of whose ideas Aristotle

openly subscribed) and their properties; Geber's theory of the importance of sulphur and mercury in the creation of metals; the existence of a *prima materia* that was the ultimate and universal substance from which all matter was composed (thus permitting the transformation of matter from one thing or state to another); and the associations of metals with the sun, moon and planets.

Any brief overview of literature on alchemy will reveal that the Western alchemical beliefs and principles on transmutation ultimately derive from the theories on mineralogy as put forth by Aristotle. In Aristotle's "philosophy of nature," all matter is made up of the four elements earth, water, air and fire, each of which exhibits two of the significant and contradicting qualities of hotness, dryness, wetness and moistness:

> The elements are four, and any four terms can be combined in six couples. Contraries, however, refuse to be coupled; for it is impossible for the same thing to be hot and cold, or moist and dry. Hence it is evident that the coupling of the elements will be four: hot with dry and moist with hot, and again cold with dry and cold with moist. And these four couples have attached themselves to the *apparently* simple bodies (Fire, Air, Water, and Earth) in a manner consonant with theory. For Fire is hot and dry, whereas Air is hot and moist (Air being a sort of vapour); and water is cold and moist, while Earth is cold and dry. (Aristotle, *On Generation and Corruption*, II.3, lines 30-35)

Medieval and Renaissance alchemy also generally accepted and integrated Aristotle's explanation of the development of minerals, which he averred are formed in the earth due to the influence of two distinct "exhalations":

> We maintain that there are two exhalations, one vaporous and the other smoky, and there correspond two kinds of bodies that originate in the earth, things quarried and things mined. The heat of the dry exhalation is the cause of all things quarried. Such are the kinds of stones that cannot be melted, and realgar, and ochre and ruddle, and sulphur, and the other things of that kind, most things quarried being either coloured lye or, like cinnabar, a stone compounded of it. The vaporous exhalation is the cause of all things mined--things which are either fusible or malleable such as iron, copper, gold. All these originate from the imprisonment of the vaporous exhalation in the earth, and especially in stones. Their dryness compresses it, and it congeals just as dew or hoar-frost does when it has been separated off, though in the present case the metals are generated before the separation occurs. Hence, they are water in a sense and in a sense not. Their matter was that which

> might have become water, but it can no longer do so; nor are they, like savours, due to a qualitative change in actual water. Copper and gold are not formed like that, but in every case the evaporation congealed before water was formed. Hence, they all (except gold) are affected by fire, and they possess an admixture of earth, for they still contain the dry exhalation. (Aristotle, Meteorology, III.6, lines 19-34)

The combination of the four-elements theory with the idea of all minerals resulting from the combination of two primary forms of matter reappears consistently in alchemy in the Western tradition, though Aristotle's depiction of smoky and vaporous "exhalations" is not repeated so often as the sulphur-mercury theory attributed to Geber.

Jabír ibn Hayyan, or Geber (an alternate spelling used for Jabír), accepted Aristotle's mineral theory in general, but modified it by adding an "intermediate conversion":

> The two exhalations, he believed, when imprisoned in the bowels of the earth, were not immediately changed into minerals or metals, but underwent an intermediate conversion. The dry or smoky exhalation was converted into sulphur and the watery one into mercury, and it was only by the subsequent combination of sulphur and mercury that metals were formed. The reason of the existence of different varieties of metals is that the sulphur and mercury are not always pure and that they do not always combine in the same proportion. If they are perfectly pure and if, also, they combine in the most complete natural equilibrium, then the product is the most perfect of metals, namely gold. (Holmyard, *Works of Geber*, xii)

It is Geber's version of Aristotle's mineral theory that "survive[s], with some alterations and additions, until the beginnings of modern chemistry in the eighteenth century" (Holmyard, *Works of Geber*, xii). The focus on mercury and sulphur remained prominent throughout the Early Modern period, as did Geber's claim that the sulphur and mercury actually used in the creation of other metals were not "the well-known substances which go by these names, but hypothetical substances to which ordinary sulphur and mercury form the closest available approximations" (Holmyard, *Works of Geber*, xii).

These elements, their constituents and their properties are repeated subjects for alchemical imagery, and frequently appear in the form of a graph which places the four elements or four properties at oppositions to one another. These graphs then indicate the associations

between the properties and elements, often incorporating the (bodily) humours connected to the properties of wetness, dryness, hotness and coldness. Alchemical literature is built upon the interaction of oppositional forces and concepts. Especially popular in recent discussions of the subject is the division set up between exoteric (or external) alchemy and esoteric (or internal or spiritual) alchemy.

Exoteric alchemy describes the quest to transmute objects in the material world, and is most frequently understood in terms of the practicing alchemists' attempts to create either precious metals (most particularly gold) or the Philosopher's Stone itself, which would in turn be used in the transformations of base metals into purer forms. Exoteric alchemy is the side of alchemy that has been most criticized, both by the contemporaries of alchemical practitioners and by later historians of the art. Esoteric alchemy refers to the form of alchemy driven by alignment of alchemical transformations with spiritual and religious transformations; and in many forms of esoteric alchemy, the physical transmutation of objects in the material world is neither expected nor attempted. While this division is useful, the vast majority of Medieval and Early Modern illustration of alchemy utilizes some combination of these two interdependent areas, and therefore limiting discussion of alchemical presentation to only one or the other proves functionally impossible, though this project will focus on examples of material, physical transmutation (fitting loosely if not exclusively in the category of "exoteric" alchemy). As a student with some investment in the presentation of alchemical transformations *as they occur on the page*, I am at least as interested in another internal/external division within the field of alchemical studies: that of the literal inside versus the literal outside of the alchemical vessel.

In much of the Medieval and Early modern alchemical writings, the details of processes and procedures are left obscure. Sherwood Taylor, in *The Alchemists: Founders of Modern*

Chemistry, identifies this trend as a central challenge of alchemical study:

> This concealment of the nature of materials is so general that only a very small minority of alchemical recipes can be interpreted in such a way that they could be repeated. Here is the foremost problem of alchemy. The alchemists were quite certainly performing real experiments with well-designed apparatus, but they rarely tell us what they put into the apparatus. (Taylor 5)

The specifics of ingredients for 'successful' alchemical experiments were therefore frequently left unkown. What was *in* the alchemical vessel during processes of experimentation could be a mystery for the experimenter as well, even if the alchemist worked in full knowledge of what had been placed into the crucible or alembic, as: "these alchemists had no means of discovering that they were simply making an alloy, and no means of finding out the composition of what they had made. They were trying, by empirical means, guided by an incorrect theory, to color metals" (Taylor, *The Alchemists*, 49).

The inability of the alchemists to successfully determine the composition of their products is closely associated with alchemy's dependence upon the sense of sight. As measurement was, during the stages of matter manipulation, being performed in only a few other ways--smell is mentioned on occasion--the visual appearance of matter became the functional equivalent to the matter's nature:

> From making a metal that resembled gold to believing that the artificial product really was true gold was only a short step for the alchemists, who lacked the technical training of goldsmiths, and whose fundamental curiosity was philosophical rather than directed to mercenary gain. If metal had a golden lustre, they thought, it must be gold, though Archimedes could have told them differently. (Holmyard 24)

This focus on the visual aspect of alchemical transmutation led to the prioritization of sequences of color changes that were observed during experiments, and these shifts in color were eventually standardized into the "stages" that defined the alchemical process. Carl Jung, in *Psychology and Alchemy*, gives a brief recounting of what became the standard alchemical color sequence:

> Alchemy, as is well known, describes a process of chemical transformation and gives numberless directions for its accomplishment. Although hardly two authors are of the same opinion regarding the exact course of the process and the sequence of its stages, the majority are agreed on the principal points of issue, and have been so from the earliest times, i.e., since the beginning of the Christian era. Four stages are distinguished, characterized by the original colours mentioned in Heraclitus: melanosis (blackening), leukosis (whitening), xanthosis (yellowing), and iosis (reddening). Later, about the fifteenth or sixteenth century, the colours were reduced to three, and the xanthosis, otherwise called the citrinitas, gradually fell into disuse or was but seldom mentioned. (Jung 228-229)

Change in color was therefore sometimes the *only* change, or at least the only change whose provable effect held any meaning to the practicing alchemist; for changes in color were understood to mean changes in the underlying composition of the material undergoing transmutation. Color theory is particularly important to the understanding of alchemical picture sequences, even if some, like the *Mutus Liber* or *Mute Book* (discussed in detail in Chapter Three), were originally produced in black-and-white illustration and not colored until much later.

The transition to red was always the ultimate or penultimate 'transformation,' and both gold and the Philosopher's stone were associated with red. Iosis thus signaled the success of the alchemical experiment.

The second chapter of *The Mirror of Alchimy* (for many years attributed to Roger Bacon, though this attribution seems to have been in error) revolves around distinguishing metals by their qualities. According to this text, gold is a "perfect body" (4), silver is "clean . . . and almost perfect," and steel is "clean and imperfect" (5) while lead, copper and iron (5 and 6) are all both unclean and imperfect. It is clear from their descriptions that all of these metals are seen as stemming from the same originary material, and their distinguishing features are just that: differing qualities that may be the result of their development in the earth. All metals are basically composed of the same "stuff," and all, in their ideal state, would be gold, as metals, just as human souls do, strive for perfection.

Lyndy Abraham, in her ambitious and thorough *Dictionary of Alchemical Imagery* (published in 1998), offers up a definition of this originary material, the *prima materia* of which the Medieval or Early Modern alchemist would have been aware, as "first matter, the original, pure substance from which it was believed the universe was created and into which it might again be resolved" (153). Aristotle put forth that "Fire, air, water, earth, we assert, come-to-be from one another, and each of them exists potentially in each, as all things do that can be resolved into a common and ultimate substrate" (*Meteorology*, I.3, lines 37-339b 2) and expanded in more detail upon the associations of an ultimate and common material with change in *On Generation and Corruption*:

> . . . a single matter must always be assumed as underlying the contraries in any change--whether change of place, or growth and diminution, or alteration; further, that the being of this matter and the being of alteration must stand and fall together--For if the change is alteration, then the *substratum* is a single element; i.e. all things which admit of change into one another have a single matter. (I.1, lines 27-315a 2)

It is Aristotle's insistence upon a common "substratum" producing the possibility of material transformation that most likely developed into the conception of the *prima materia* in alchemical thought (and seemingly remains influential in the presentations of transformations at the molecular level in works of science fiction).

As important as color theory to the visual representation of alchemical change is the metals' associations with the heavenly bodies and their respective gods. The equating of metals with gods is especially important in allegorical alchemical illustration, in which deities are shown in attendance upon alchemical transformations and frequently within alchemical vessels themselves. The Yeoman in Chaucer's *Canon's Yeoman's Tale* offers up a succinct overview of the metals' alliances with the sun, moon and planets:

> Sol gold is, and Luna silver we threpe, Mars iren, Mercurie quiksilver we clepe, Saturnus leed, and Juppiter is tyn, And Venus coper, by my fader kyn! (826-829)

Though the Yeoman means his words in scorn, describing with great distaste the tenets of "This cursed craft whoso wole excercise, / He shal no good han that hym may suffise" (830-831), his alchemical knowledge is sound, judged on the basis of the prevailing philosophies of the time. The Yeoman's accuracy in his depiction of the art, no matter how disdained the art is in context, led many alchemical writers to assume that Chaucer himself was a "master" of the subject, and literary historians frequently theorize that Chaucer had some experience of alchemy, as either a student of the art himself or a jilted former customer.

For a comprehensive look at alchemical literature in the centuries following Chaucer's use of alchemy in the *Canon's Yeoman's Tale*, Stanton J. Linden's 1996 book *Darke Hieroglyphicks* provides an excellent resource. In his text, Linden outlines the trajectories of exoteric and esoteric alchemy in literature during a designated three hundred year period; Linden argues that from 1385 to the Restoration constitutes "the period in which literary references to alchemy are most abundant" (2).[1]

Linden, taking a more-or-less chronological approach, begins with an examination of medieval alchemical satire (of which Chaucer is perceived as the vanguard) and transitions into a Even if Linden is correct in his assertion of those three hundred years as the most fruitful time for alchemy in literature, there still exists a great deal of room for examination of alchemical

[1] Of the works produced in the seventeenth century, Linden focuses on Francis Bacon as "the first English writer to give alchemy an impartial hearing through careful consideration of its physical and metaphysical foundations" (105) as well as the literary, alchemical works of Ben Jonson, examining most closely *The Alchemist* and *Mercury Vindicated*. Linden also pulls from the religious poetry of Donne and Herbert in one chapter, and in another examines the hermetic poetry of Vaughan and the alchemical references of Milton that appear in *Paradise Lo*st. Linden also devotes one chapter to alchemical allegory and its association with treatises on alchemy, and closes his text, once more returning his focus to satire, most closely examining Samuel Butler's "An Hermetic Philosopher." The earliest fictional works that Linden discusses in depth are those of Chaucer, Gower and Langland. (Piers Plowman, though not in and of itself an alchemical text, can be read alchemically--in an esoteric context--at several points.) In the period following, Linden highlights the works of three "transitional" poets, Dunbar, Barclay and Skelton (71), focusing on William Dunbar's "As yung Aurora with cristall haile," which satirized the "real alchemical charlatan," John Damien (65). According to Linden, "In comparison to Chaucer, Gower, and Langland, these transitional poets appear to have known relatively little about the art" (71).

references in more recent writings. The book *The Golden Egg: Alchemy in Art and Literature* collects a series of essays given at the 2000 Leipzig conference on alchemical references in and influences upon art and literature. This collection takes a consciously multifaceted approach, accepting alchemical *readings* (of texts like *Finnegans Wake* and Ann-Marie MacDonald's *Good Night Desdemona (Good Morning Juliet)*) as well as readings of alchemical literature.

David Meakin's 1995 *Hermetic Fictions: Alchemy and Irony in the Novel* offers up an overview of alchemy and hermetic philosophy in classic literature, tracing their use in the works of Thomas Mann,Jules Verne, James Joyce and Lindsay Clarke, among others. Meakin begins his text with a recounting of "the investigation of alchemy from the different but complementary standpoints of Mircea Eliade, Gaston Bachelard and Carl Gustav Jung" (12), along with a brief discussion of early alchemical literatures. Meakin does not limit his engagement with alchemy to the physical, and (in his discussion of the novels of Emile Zola and Jules Verne) is fully willing discussion of sixteenth century alchemical satire.

More work remains to be done on alchemical imagery and references in recent novels, particularly in the genres of fantasy and children's literature; the comparatively high-profile cameo of Nicholas Flamel and the Philosopher's stone in J. K. Rowling's Harry Potter series constitutes only one example among many of alchemy's influence upon current fiction.

Evan S. Connell's 1991 *The Alchymist's Journal* begins with the imagined diary of Paracelsus, recording philosophical principles while railing against the false, pseudo-alchemists: "Puffers abound--monk-bellied wizards proposing deleterious recipes in lieu of knowledge" (16). In the realm of historical romance, Laura Kinsale's (rather bodice-ripping) *Shadow Heart* incorporates the study of the works of Hermes Trismegistus into an alchemically-oriented subplot. Phillip Pullman's Young Adult fantasy trilogy, *His Dark Materials*, displays clear

influence by alchemical motifs, and in only 2007, popular fantasist Dave Duncan published *The Alchemist's Apprentice*, first in a series of historical fantasy novels.[2]

With the post-Enlightenment association of alchemy with the magical and the fantastic came also a shift in the target audience for alchemical literature, causing, in recent years, children's books and comics to become fertile grounds for the study of Medieval and Renaissance-inspired alchemy represented in fiction. One of the predecessors to the examples of alchemical transmutation found in the modern-day comic book is the alchemical picture sequence of the fifteenth, sixteenth and seventeenth centuries.

[2] This is nowhere near an exhaustive list of contemporary examples of alchemy in literature, and is presented here primarily to whet the appetite of potential future researchers into the subject.

CHAPTER 3
ALCHEMICAL PICTURE SEQUENCES, MEDIEVAL AND EARLY MODERN

Time, space and change are all interdependent. Space is established by measurement between objects just as time is established as measurement between events. Visually, change is necessary to the representation of both space and time. Jacques Derrida, in "Ousia and Gramme," points to Aristotle's association of time with change, which puts forward that change is necessary to produce the sense of movement and time, whether the change is external and objective (physical) or internal: "the form of inner sense is also the form of all phenomena in general. The transcendental exposition of time places this concept in an essential relation with movement and change, even while rigorously distinguishing it from them" (49).

In sequential art, we recognize time when we encounter change, but a single, wordless image with no implied action or event is timeless (or at least, it does not contain or constrain a spread of time), unless juxtaposed with another image that indicates a transition from one point in time to another. Space on the page is also determined by change (or in this context *variation*) unless one is attempting to represent a featureless, infinite void--but even a void must be contextualized by other ideas in order to be understood as a void, and will thus still be connected to and dependent upon time and change. Alchemy is ultimately change, and change exists on the page only in implicit time and space.

Mary C. Olson, in *Fair and Varied Forms: Visual Textuality in Medieval Illustrated Manuscripts*, claims that: "Temporality can be expressed only spatially in graphic production" (27). Barring a heavily metaphysical argument regarding the 'graphic production' of imagined pictures and the imaginary space they may or may not take up, there is indeed no picture that exists outside of space and whose space does not imply time. In her examination of spatial time in the *Hexateuch*, Olson selects four indicators of temporality in visual narrative: "duration,

repetition, simultaneity, and causality [which she later combines with a discussion of order]" (116), and Olson's choices in this specific case are readily applicable to the study of time in other picture sequences.

Olson also traces interrelating theories of time, looking at how Paul Ricouer adapts the theories of both Augustine and Aristotle. Augustine's "model of time" was "a threefold present existing only in the mind, which does not depend on any connection to the material world" (56). Aristotle's approach to time (in Book IV of the *Physics*) is perceptual and physical, but ultimately not spiritual. Ricouer, with whom Olson appears to share some sympathies, claims:

> Change (movement) is in every case in the thing that changes (moves), whereas time is everywhere in everything equally. Change can be rapid or slow, whereas time cannot include speed, under the threat of being defined in terms of itself since speed implies time. (*Time and Narrative*, 3:14-15 qtd. in Olson 114)

Ricouer, in the above quote, expresses time ("in everything") as a *quality*: everything is imbued with the quality that is time, and time is furthermore a constant and universal quality. Time has no rate or speed.

Time exists for the mind in three aspects: memory, awareness of the present and awareness of the future. The past does not exist except in memory. Even records of and objects from the past exist now, and have only ever existed, in the now of the present--that immeasurably small point in time that is, in the physical world, all that we have of time. Memories are not *of* time, though they may incorporate the concept of time, but of events separated from the present by a universal but individually subjective measurement. Thoughts of the future, also, are made up of *projected* events and the concept of the space between them; "the future" does not yet and never can exist in time, in the *now*.

The *now*, Derrida has imagined, is an impossibility. Derrida, working through Aristotle's theories of time in *Physics IV*, notes the inherent paradox of "now":

> By giving in to the obvious, that time is, that time has as its essence, the *nun*, which is most often translated as instant, but which functions in Greek like our word "now" (*maintenant*). The *nun* is the form from which time cannot ever depart, the form in which it cannot not be given; and yet, the *nun*, in a certain sense, is not. If one thinks time on the basis of the now, then one must conclude that it is not. The now is given simultaneously as that which is *no longer* and as that which is *not yet*. It is what it is not, and is not what it is. (39)

The moment, the now, is always almost arrived and already departed. We depend upon an idea on moments strung together, building upon one another to create a larger stream of "time," but the absolute moment (if time is to be imagined as having presence or place) is infinitely small, so small that no addition of absolute moments, of now in the plural, can add up to a (larger) "sum" of moments that constitutes time. (A similar paradox exists between space and the point.) We can only live in the now; we can never live in the now. We cannot think at a pace to comprehend the now and only the now as it occurs, or as we occur in it. The present is intrinsically fragmented, and time is only ever represented in a fragmented way; the use of "real time" in video and audio recordings is, at best, a temporal alignment of disconnected events, and not a representation of time. Some forms of media, like film and sequential art, make the fragmentation of time more visible than others.[1]

Mary C. Olson, using the work of Robert Scholes, discusses how time is evoked by tense in narrative: "Scholes points out that narrative is always in the past. Science fiction stories are written in the past tense. Drama, however, is in the present tense. 'To speak of the future is no prophecy or predict or speculate--never to narrate' (206)" (114). Drama, television shows and films, though they may be defined and described as occurring in the past, take place in an implied present, especially as many scenes occur in 'real time.' Cuts between scenes suture

[1] Both Alan Moore in *Watchmen* and Frank Miller in *The Dark Knight Returns* utilize juxtaposed television screens and "shots" to reflect the disjointed temporal narrative gestalt produced by comic panels on the page.

temporal gaps, but the experience of observation is that of keeping pace with a continual present, a constant of now.

Pictures, also, take place in an implicit now, though the appearance of change within a single picture or outside a single picture can establish the picture as a period of time, rather than as a single moment existing within a stream of time. Olson opens the first chapter of her *Fair and Varied Forms* with Gotthold Ephraim Lessing's theories on the applicable uses of painting versus those of poetry: "by Lessing's definition, painting is suitable for depicting objects, persons, scenes, or single actions--that which exists in a single moment, from a single vantage point. Poetry is suited to the relating of consecutive actions and not for ekphrasis" (1). The still photograph, much more recently, has become in many ways the embodiment of the capture of 'the moment' or a moment of time in a visual form.

In comic book studies, the visual unit most closely associated with the 'moment' within a larger stream of time is the panel, and Terry Groensteen, in *A System of Comics*, explores in great detail the interaction of the comic panel with the spatial presentation of time. Groensteen describes the panel as follows: "It has been said: framed, isolated by empty space (a redoubling of the frame), and generally of small dimensions, the panel is easily contained by and takes part in the sequential *continuum*" (26). While Groensteen's description evokes a very traditional, Western comic panel, framed by black lines and again by white gutters, the ideas of the comic's framing and of its location within a sequential (and thus spatial and temporal) continuum can be applied to models of sequential art and graphic narrative that do not fit this mold.

Groensteen further constrains the panel using the three parameters of form, area and site (28-29), and it is true that these three aspects of a panel are pivotal to its capacity to imply constructions of time. The form, area and site of a panel all offer temporal clues *when the panel*

juxtaposed with other panels. A panel that is longer or shorter than another spatially may indicate a longer or shorter period of time; a large panel amongst smaller panels may indicate a brief and sudden surprise. The parameter upon which most comics are dependent for their presentations is site, or where a panel appears when juxtaposed with other panels in a sequence. The sequence itself generally indicates a stream of time made up from a series of 'nows.' Comics, notably, are most commonly narrated in the present tense when narrated at all, and take place implicitly, like films, in the present.

The presence of multiple panels that follow a linear sequence on the page create a form of juxtaposed time, in which many 'nows,' many moments, exist and are seen at once; the frame, whether drawn or implied, that separates moment from moment becomes permeable: it does not block the eye from proceeding to the next moment in sequence, nor from jumping to any point on the page ahead or behind. The comic page exists both as a graphic narrative and as a single visual gestalt. It is this gestalt that is partially constructed by the frame, or the layout of the actual grid that establishes panel boundaries and relationships.

In sequential art, time can be implied by contextual clues within or without the panels (or other visual units), or by verbal indications. In comics, the mere presence of dialogue in a speech bubble can cause that panel to incorporate two competing incarnations of time. The dialogue 'spoken' within the panel would take time to say, and yet the visual picture of the speaking figure or figures within the panel will generally emulate the pose of the still photograph: thus, the visual representation of the aural moves through a space of imagined time while the active figures are shown in the 'moment,' which presumably take place at some point during the time of the aural communication. Inanimate objects, on the other hand, can create for less temporal dissonance. When dialogue is combined with an inanimate object rather than with a single moment of action,

the object's continual non-doing can allow for a temporal ambiguity to accommodate 'aural' accompaniment, but the cost for this consistency is the visual representation of action.

In the the alchemical transmutation of matter, what is inanimate becomes animate; in the visual representation of transmutation in pictures and picture sequences, the inanimate-become-animate is expressed in inanimate form. The changes that would not *be* without the influence of the conceptualized alchemy are shown through basically unchanging visuals. The visual rhetoric of alchemical imagery is one of support but also of inversion: the inanimateness of the still visual image competes with the motion of the transmutation--that same transmutation that animates the material object.

The subject matter in visual scenes of alchemical experimentation can be inside or outside the alchemical vessel, representative or figurative, and these categories are not mutually exclusive. The matter can be diagetically within the vessel but literally drawn without the vessel, combining representative and figurative imagery. It can be shown as a near-realistic mass of liquid or solid substance of which it is composed even as it is mirrored in the humanoid personification of or abstract symbol for the same substance.

Alchemical picture sequences share a few common traits: they are by and large instructional, intended to (or pronounced to intend to) teach the reader to perform alchemical procedures. At the same time as they are pedagogical, they exist within a system of intellectual discourse that thrives on the cultivation of mystery. Jung points out that "The alchemist is quite aware that he writes obscurely" (*Psychology and Alchemy* 289). As deliberately mysterious artifacts, they do not offer the complete steps of alchemical processes without gaps; as artifacts of sequential art, they *could* not offer the complete steps of alchemical processes without gaps

(for the nature of sequential art is to include gaps), thus making sequential art an ideal format for the presentation of alchemical teachings.

The first two alchemical picture sequences in my discussion, the illustrations of Geber's treatises and Nicholas Flammel's *Book of Hieroglyphics*, do not function as do the others: the first, because it consists of illustrations that only punctuate a much longer work of text, does not include images that directly inform and influence one another; the trajectory of its reading is from text to picture to text, and not from picture to picture. Flammel's *Book* is unique because, despite being perhaps the most influential sequence of alchemical imagery in the Western tradition, a 'copy' of it does not exist. The book is evoked in visual form in versions inspired by Flammel's descriptions (and perhaps the reproductions of the painted images which Flammel commissioned, since lost), but the 'copy' of the book closest (in the since that each copy of the preceding copy in a succession of degrading of an item becomes more distanced from the original) to the legendary and elusive *Book of Hieroglyphics* is Flammel's own ekphrasis.

Illustration in *The Works of Geber* (illustrations 1545; original text 7th Century)

The ten alchemical illustrations of *The Works of Geber* (which appear in the Latin 1545 Berne edition (vi)) are listed as "Sublimation," "Sublimation in Athnor," "Fixation and Sublimation," "Descension," "Distillation," "Calcination," "Water-Bath," "Vessels" "Fixation and Sublimation" (distinct from the other figure which shares its name) and "Fusion" (xxxv). Of these, only four, "Sublimation," "Descension," "Distillation," and "Water-Bath," show anything approximating the actual matter housed within various pieces of apparatus and upon which the experiments described are enacted; the remaining six figures show the outside surfaces of equipment only, and what those vessels and furnaces contain, if anything, is left ambiguous.

Of the ten alchemical illustrations of *The Works of Geber* (not including the frontispiece), only two, "Fixation on Sublimation" (118) and "Water-Bath" (111) or "Coagulation on Water-

Bath" (242), incorporate the figures of alchemists interacting with their equipment. "Fixation and Sublimation" shows two figures, one with a tool in his left hand and his back facing the viewer, turning to address his associate, who lifts what the reader assumes to be "a long *Glass Vessel*, the *Bottom* of which (made of *Earth*, not of *Glass*, because that would crack) must be artificially connexed with good *Luting*" (117) described on the previous page. The material inside the *Vessel* is not shown.

In "Coagulation on Water-Bath," another alchemist holds a glass vessel of similar size, which appears to have both solid and liquid matter within it: the assumed result of the "*Reduction* of a Thing *Liquid*, to a *Solid Substance*, by *Privation* of the *Humidity*" (110) accomplished either by (in the case of the coagulation of mercury) "the *Induration*, or *Hardning* of *Argentvive*" or "the freeing of Medicines dissolved, from the Wateriness with them admixed" (110). While the transparency of the foregrounded vessel reveals the liquid and hardened matter within it, the contents of the background vessel, which is half-submerged in the heated water-bath of the alchemical furnace, remain unseen. The water of the bath itself is visible, while flames and smoke arise from the furnace, the curling plumes of smoke echoing the puffs of cloud represented in the sky above. If the brick construction of the furnace can be taken as a representation of the element of earth (and I see no pressing reason why it could not), then the furnace itself represents, at once, all four of the elements that would have been important to Geber: earth (brick), water (bath), air (smoke) and fire. The addition of the figure of the alchemist himself and the presence of matter at two stages of its progress during alchemical transmutation makes this image an ideal representative of contemporary illustration of alchemy, and reflective of most exoteric alchemical illustration that precedes the modern-day. The process of "coagulation" is represented within the larger vessel, but the alchemist and his equipment

remain captured in a single moment in time, fire and smoke (never actually immobile themselves) are made static, and given shape that makes them appear solid on the printed page.

Nicholas Flammel's Book of Hieroglyphics

Nicholas Flammel, who presumably lived from circa 1330 to circa1418 (Pearsall, *The Alchemists*, 66), is widely known as the father of pictorial alchemy. According to his own accounts, he purchased a "Booke of hieroglyphicks" attributed to one "Abraham the Jew." This book, consisting of twenty-one pages, included a series of images that represented different stages in the production of the Philosopher's Stone. Flammel's own writings on the mysterious Booke describe and interpret these images at the allegorical, mystical and practical levels, interweaving esoteric and exoteric alchemical concepts and conclusions. The first chapter of Flammel's text is on the "Theological Interpretations" of the mysterious Booke and the second on the interpretations Philosophical," while the third book begins a series of disciplined rhetorical analyses of the figures that Flammel describes.

Nicholas Flammel's own description of the Booke is shrouded in mystery and wonder:

> there fell into my hands, for the sum of two Florens, a guilded Booke, very old and large; It was not of Paper, nor Parchment, as other Bookes bee, but was onely made of delicate Rindes (as it seemed vnto me) of tender yong trees: The couer of it was of brasse, well bound, all engrauen with letters, or strange figures; and for my part, I thinke they might well be Greeke Characters, or some such like ancient language: Sure I am, I could not reade them, and I know well they were not notes nor letters of the Latine nor of the Gaule, for of them wee vnderstand a little. (6-7)

Throughout his description of the Booke and its illustrations, Nicholas Flammel regards alchemy as a mysterious art kept secret by its practitioners, frequently referring to a kind of social responsibility for silence.

The object that is the book itself is as important and evocative as the information that it

holds, and its very obscurity -- the fact that it was unreadable to Flammel at first and that it required great effort to interpret in any way -- adds to its mysticism and value. The impression of a secret brotherhood of Philosophers is only underscored as Flammel continues:

> Vpon the first of the leaues, was written in great Capitall Letters of gold, ABRAHAM THE IEW, PRINCE, PRIEST, LEVITE, ASTROLOGER, AND PHILOSOPHER, TO THE NATION OF THE IEWES, BY THE WRATH OF GOD DISPERSED AMONG THE GAVLES, SENDETH HEALTH. After this it was filled with great execrations and curses (with this word MARANATHA, which was often repeated there) against euery person that should cast his eyes vpon it, if hee were not Sacrificer or Scribe. (8-9)

Not only is the manuscript difficult to interpret for those not already initiated into the secrets and principles of the art which it describes, but it even carries the threat of a curse targeted at inappropriate readers.

Flammel writes admiringly of the obscure writing style of "Abraham," speaking of the writer's use of oblique visual references to "Argent" as indicative of "cunning" and "workemanship." One of the positive elements of the Booke itself is, for Flammel, that it *cannot* be used by those readers with no familiarity with the field. This suggests a desire both to keep the powerful--and therefore dangerous--art of alchemy in the hands of those presumably best able to use it and to preserve alchemy as a kind of knowledge limited in ownership to those already initiated:

> hee aduertised them of the colours, and of all the rest, sauing of the first Agent, of the which hee spake not a word, but onely (as hee said) in the fourth and fifth leaues entire hee painted it, and figured it with very great cunning and workemanship: for although it was well and intelligibly figured and painted, yet no man could euer haue beene able to vnderstand it, without being well skilled in their Cabala, which goeth by tradition, and without hauing well studied their bookes. (10-11)

Flammel then goes on to interpret the various images of the manuscript, frequently beginning a chapter with a brief description of a particular image and continuing with an in-depth explanation of the images described.

Famously, Flammel commisioned that reproductions of the pictures in his *Booke of Hieroglyphicks* be painted upon an archway in St. Innocent's Churchyard. Though the original manuscript is lost to legend, these painted reproductions "are reputed to have survived until the eighteenth century" (Pearsall 67). The 1612 edition of Flammel's *exposition of the hieroglyphicall figures* includes an illustration of the famed "archway," and its chapters are occasionally punctuated with images taken from this illustration. Many of the images described and analyzed in Flammel's *exposition*, however, do not appear reproduced in this figure.

One of the figures that is present in this composite illustration is that of two alchemical dragons, the serpents of Sulphur and Mercury upon whose interaction all the transmutation of all metals is dependent:

> LOoke well vpon these two Dragons, for they are the true principles or beginnings of this Phylosophy, which the Sages haue not dared to shew to their owne Children. Hee which is vndermost, without wings, hee is the fixed, or the male; that which is vppermost, is the volatile, or the female, blacke and obscure, which goes about to get the domination for many moneths. The first is called Sulphur, or heat and drinesse, and the latter Argent viue, or cold, and moisture. These are the Sunne and Moone of the Mercurial source, and sulphurous originall, which by continual fire are adorned with royall habiliments, that being vnited, and afterward changed into a quintessence, they may ouercome euery thing Mettallick, how solid hard and strong soeuer it bee. (65-66) . . . These two then, (which Auicen calleth the Corassene bitch and the Armenian dogge) these two I say, being put together in the vessell of the Sepulcher, doe bite one another cruelly, and by their great poyson, and furious rage, they neuer leaue one another, from the moment that they haue seized on one another (if the cold hinder them not) till both of them by their slauering venome, and mortall hurts, be all of a goarebloud, ouer all the parts of their bodies; and finally, killing one another, be stewed in their proper venome, which after their death, changeth them into liuing and permanent water; before which time, they loose in their corruption and putrifaction, their first naturall formes, to take afterwards one onely new, more noble, and better forme. (68-69)

Like Geber, Flammel views the two elements found in nature and actually utilized in alchemists' experiments to be insufficient to create eventual perfection in metal. Instead of common mercury and sulphur, Flammel envisioned an ideal:

> These are the radicall moysture of mettalls, Sulphur, and Argent viue, not vulgar, and such as are sold by the Merchants and Apothecaries, but those which giue vs those two faire &

> deare bodies which wee loue so much. These two spermes, saith Democritus, are not found vpon the earth of the liuing: The same, saith Auicen, but he addeth, that they gather them from the dung, ordure, and rottennesse of the Sunne and Moone. O happy are they that know how to gather them; for of them they afterwards make a triacle, which hath power ouer all griefes, maladies, sorrowes, infirmities, and weaknesses, and which sighteth puissantly against death, lengthening the life, according to the permission of God, euen to the time determined, triumphing ouer the miseries of this world, and filling a man with the riches thereof.

Flammel, pulling from the alchemical theories of Democritus and Avicenna, envisioned ideal forms of sulphur and mercury that would not only affect metals, but also provide the human body with health and longevity. Alchemy was not only to lead to wealth and fitness but also to the ability to overcome "griefes" and "sorrowes"; it its purest form, Flammel's brand of alchemy promised to lead to that ultimate incarnation of betterment: happiness.

The *Donum Dei* (15th century; illustrations 17th century)

The *Donum Dei* is not a monolithic, single-authored work, but rather a compilation of alchemical quotations from different authorities. The work itself "first appeared in 15th-century manuscripts," while twelve illustrations created for the *Donum Dei* date from the seventeenth century (Roob 358).

The illustrations show the same glass alchemical vessel, the contents and surroundings of which are transformed as the matter within the vessel undergoes a sequence of stages of transmutation such as dissolution, putrefaction, calcination and rubification.

While the vessel is more or less representative rather than figurative (in other words, a glass vessel that consistently looks like a glass vessel, and only *fails* to look like the kind of object that an alchemist might actually have access to in laboratory in terms of its apparent size, which is as much a result of the other objects that appear around and within the vessel in the twelve illustrations), the environment in which the vessel is placed, and most especially the vessel's contents, are almost exclusively allegorical in nature. The singular exception to this trend

is the presentation of the (usually liquid) matter collected at the bottom of the vessel. The liquid is overlapped by allegorical figures which indicate its composition, but it also undergoes its own changes (most particularly in color) as the different stages of the alchemical process are performed (See Figure 3-1).

In the plate that shows whitening (more specifically, the end result of whitening) a "white queen" stands before the white liquid which fills the bottom of the glass, and a "red king" stands before the red liquid in the image that represents rubification. The figures, though apparently inside the glass with the liquid, are shown framed within the vessel but outside of the liquid itself, the feet of the "king" and skirt of the "queen," not a bit obscured, completely dry and untouched by the substance with which they should share the space within the glass. This layering effect, along with the straight, horizontal line that consistently demarcates the surface of the liquid, emphasizes the flatness of the images. The shading of the glass itself, in its many iterations, indicates a roundness, creating the impression of three-dimensionality. The liquid with its flat surface, combined the imposition of the humanoid figures 'on top' of this liquid, makes it appear as if the vessel contents (both physical and allegorical) are spatially distinct from the surrounding environs in the Plates in terms of either shape or perspective.[2] The *changeable internal matter* in the alchemical container thus exists on multiple spatial planes separate from that of the other elements of the images.

The limitation of each plate to a single 'picture' suggests a slow process of transmutation, in which each stage of the alchemical transmutation is separate and distinct, with an identifiable beginning and ending. Time is thus constructed of an orderly sequence of changes, with each

[2] In this case, the double meaning of "perspective"--as both the way in which distance is indicated visually and the point of view of an implied viewer--is deliberate.

change constituting its own period, and with the result of each change prioritized over transitions from one stage to another.

The *Mute Book* (1677; colored late 18th century)

Jacob Sulat's "hieroglyphic picture book," *Mutus Liber*, uses fifteen plates to show the process of isolating "volatile salt" from dew, or "the preparatory attainment of salt on the wet path" using a "crystalline salt with the power of harmony" (in lieu of sal ammoniac) labeled "harmoniac" by Eugéne Canseliet, who produced an annotated edition of the work in the twentienth century (Roob 304)**.** The *Mute Book*'s use of panel-to-panel transitions and evocation of linear time closely foreshadow the illustration of exoteric alchemy in modern-day comic books (discussed in the next chapter).

Plate 4 of the *Mute Book* shows a man and woman harvesting dew in the foreground as rays of light shine on their town in the background (Roob 308). The rays of light indicate that the harvest occurs at dawn, but the simultaneous presence of the sun and moon at the upper corners of the Plate imply a certain ambiguity in terms of time, evoking the portrayal of time as a cycle that appears in so much early alchemical illustration. Plate 4 is not divided into panels, but the return of the same figures (the man, the woman and the dew itself) in the next Plate (which is divided by panels), suggests a transition from this temporally ambiguous scene to a representation of linear time.

In Plate 5, the man and woman are shown distilling and coagulating harvested dew in three rows of five functional "panels" that each show a different stage of the alchemical procedure that the couple enacts, and thus a distinct point in time. In the foreground of Plate 4, the two figures wring collected dew into a broad, shallow bowl. This bowl returns in the first "panel" of Plate 5, in which the couple pour the collected dew into a vessel (part of the alembic used for distillation) which sits depressed in an alchemical furnace. In the next "panel," the parts of the alembic are

joined, and flames are shown emanating through the furnace's grate. The two "panels" of this row are created by a pillar that splits the row in two. At first, the pillar appears to be part of the architecture of the alchemists' laboratory, but upon quick examination, it is clear that, while it connects to the "floor" of the room, it only rises to the upper edge of the Plate, while the female figure's hair extends beyond the top of the Plate; the pillar, thus, does not support the room so much as the row itself. The third "panel," in the second row, shows the woman lifting coagulated matter from one retort, while the next panel shows her giving "four coagulated particles" to a man holding a dead baby (Roob 309). This figure is presumably the "Lunar Vulcan," who "symbolizes the 'secret fire' formed from the two salts of the dew" (Roob 309). The second row is not divided into "panels" with a straight, vertical line like that created by the pillar in the row above, but by the very presence of two different parts of the same process that take place at different moments in time. In the third and final row of the Plate, the broad, symmetrical structure of the "digestive apparatus," which divides the male and female figures, reflects the two-panel divisions of the first two rows.

Plate 5 shows not only the activities of the alchemists as they perform different parts of the distillation and coagulation process, but the actual matter upon which the processes are enacted. The dew in the first panel is shown again in panel 4 after it has been transformed into four distinct particles. This Plate of the *Mute Book*, then, is one of the few places in alchemical illustration in which representative drawings of the 'before' and 'after' of the matter used in an alchemical procedure appear.

Plates 6, 7, 10 and 13 follow a near-identical panel structure to Plate 5, each made up of three rows that are then split into "panels" or approximations thereof. Each of these Plates shows the performance of alchemical processes taking place in linear time.

The alchemists of the *Mute Book* are experimenters working actively to produce the practical, material results of their alchemical procedures. The transmutations in this *Book* are thus shown as the result of active human agency rather than the result of some obscure presence that produces a 'natural' change without human influence. Allegorical figures like the "Lunar Vulcan" may be present, but their presence is the result of human activity.

The *Elementa chemicae* Illustrations (1718)

The *Elementa chemicae*, produced by J. C. Barchusen, in theory describes the process of making the Philosopher's Stone using the "wet" path, comprised of a series of distillations (as opposed to the "dry" path, which is shorter and "in which the separation of the matter took place under the influence of external heat and the involvement of a secret 'inner fire' " (Roob 114)).

While much of the visual work of the *Elementa chemicae* is symbolic, evoking the esoteric alchemy that Holmyard denigrates, at times the representation of matter moves from figurative into a kind of hyper-stylized mode. This mode shows different forms that matter takes as patterns that echo (though certainly do not mirror) what the actual appearance of the matter might be. This is most notable in presentations of stratification and of fire. Robert Fludd's 1617 *Utriusque Cosmi* also uses stratification imagery to similar effect as part of its depiction of the formation of the world.

Even when symbolic alchemical imagery like the mercurial dragon is used in the *Elementa chemicae*, representations of fire and the resolidification of matter in the very same images, though not realistic, could not be reduced to the purely figurative level and do not function allegorically in the same way as the work's images, gods and heavenly bodies most certainly do.

The *Elementa chemicae* is fascinating for its detailed approach to graphic, step-by-step alchemical instruction and for its side-by-side representations of the same alchemical vessel during different stages of material transformation. This final trait is one that it shares with the

Donum Dei, but the *Donum Dei* is almost exclusively alchemical allegory while the *Elementa chemicae* is, by comparison, more devoted to the portrayal of inanimate (or at least, animated by external force rather than inner spirit) matter in stages of transformation. Most of the images in the *Elementa chemicae* are of the retort, and each retort, bordered with its outline and surrounded at least in part by white space, embraces the function of the "panel." The close proximity of these "panels" suggests a quickness to the pace of the transformations even as the number of the panels indicates a sequence long and arduous.

The Visual Rhetoric of the Alchemical Picture Sequences

The alchemical picture sequences of the fifteenth, sixteenth and seventeenth centuries function along two simultaneous yet dissonant 'paths' (to borrow a term utilized in the alchemical treatises themselves). The first path is that of the teaching text; alchemical picture sequences visualize (usually written) directions *intended to be followed*, and as such the sequences are broken down into distinct stages, with each stage given visual indicators that it takes place over a definite if not specified period of time. The second path is the path of mystery. Alchemical picture sequences offer detailed, but not complete, steps in the enactment of transmutation experiments and procedures, and do not give all of the details necessary for the reproduction of these experiments. The use of alchemical symbolism and presentations of the alchemist as a learned figure also contribute to an aura of entitlement and *enlightenment* bestowed upon the properly educated alchemical practitioner.

Many of the early alchemical sequences were fragmentary not only in their design (as a series of images or sections of text), but in their production as well. Illustration could be provided for alchemical texts years, sometimes centuries, after the text's creation and distribution (though, if 'Flammel' is to be believed, the reverse is equally true). Pictures like those that compose the *Mutus liber*, also, would frequently be produced at first in the form of black and

white illustration and only colored much later. (Certainly, the developments of practices and distribution were responsible for some of these shifts in trend, and the influence of textual production and reproduction technologies upon alchemical work warrants further study.) This fragmentary assembly of 'complete' versions of these texts (though there is, of course, nothing to suggest that they were incomplete before these modifications), then, interestingly foreshadows the compartmentalized, assembly-line approach to production of the large mainstream comics publishers of today.

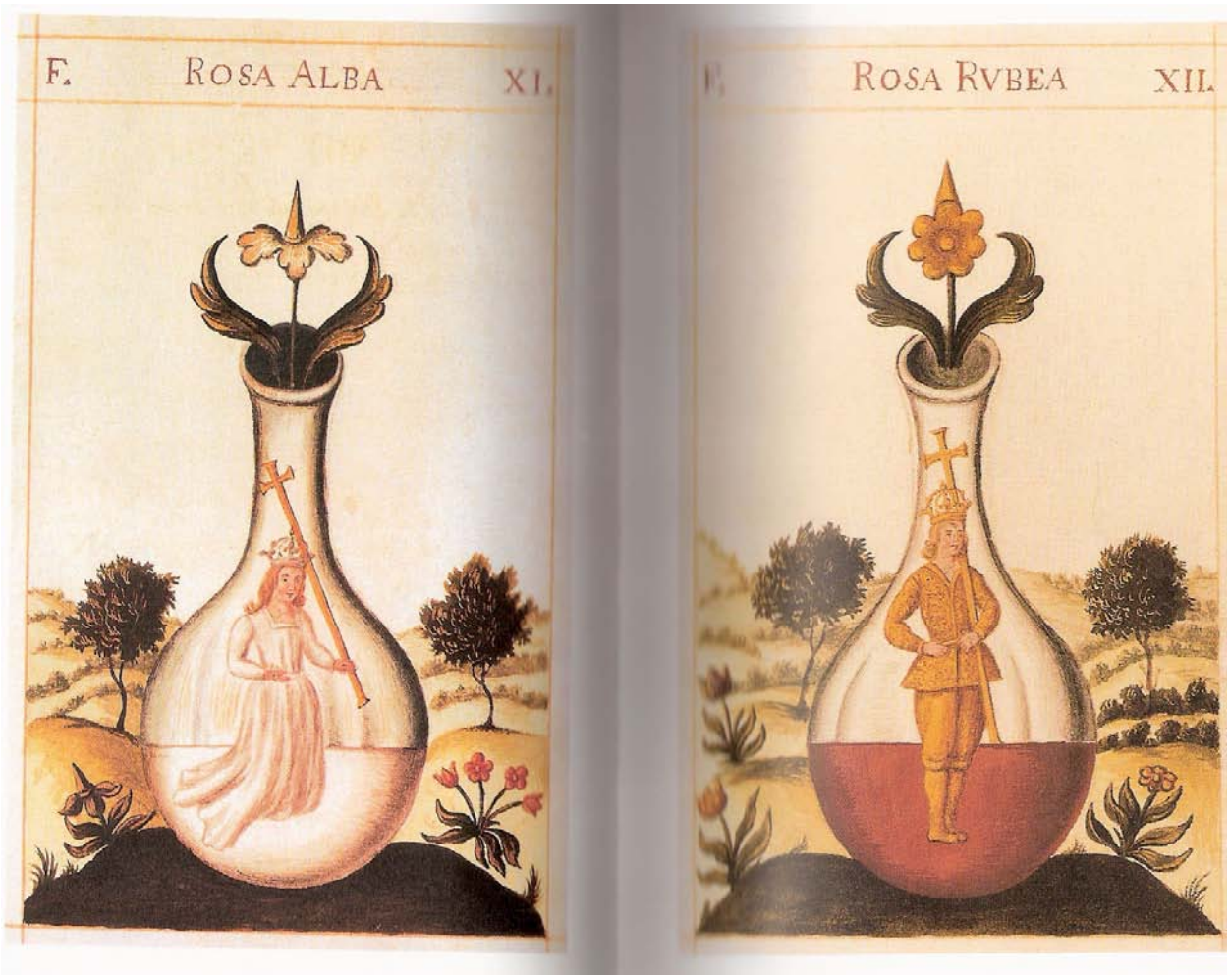

Figure 3-1. *Donum Dei*: stages of whitening and reddening (Roob 358)

Figure 3-2. The *Mute Book*, Plate 5 (Roob 304)

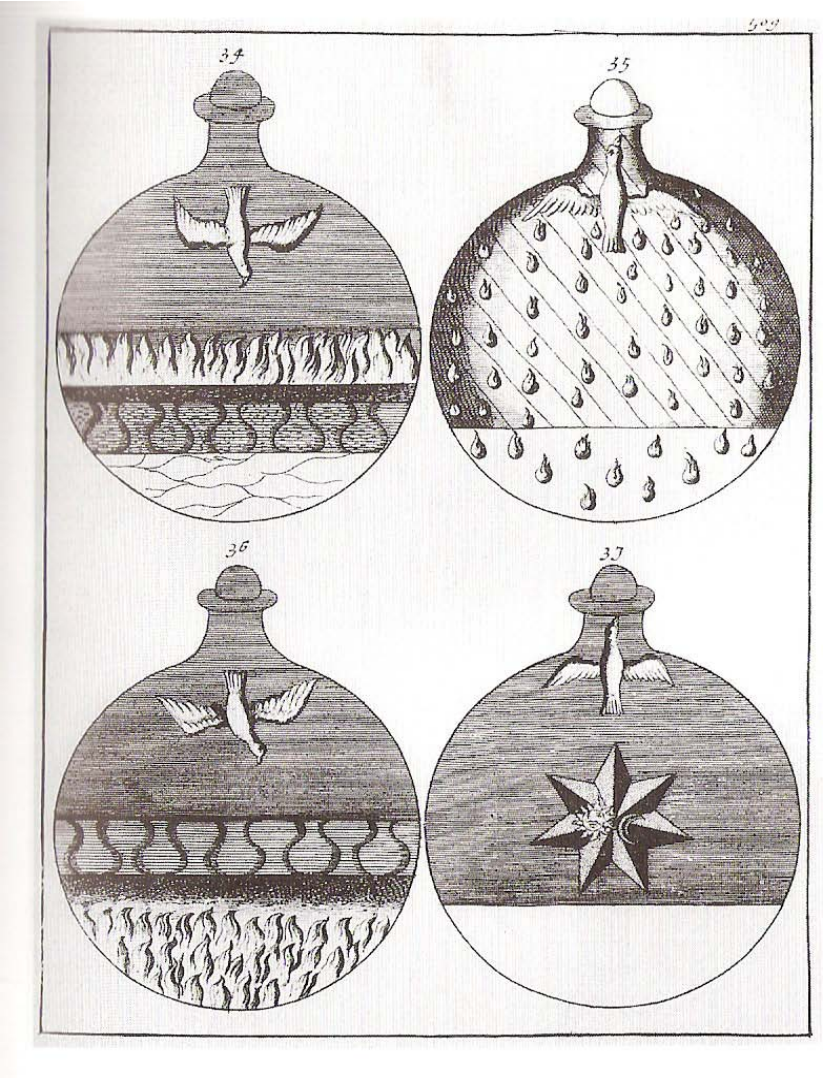

Figure 3-3. Elementa chemicae illustration: "the lapis attains its fiery nature"(Roob 114)

CHAPTER 4
ALCHEMY IN COMICS / ALCHEMY IN ACTION

The alchemy that occurs in the modern-day comic book, unlike the alchemical picture sequences of previous centuries, does not depend on a fantasy of the depicted transmutations' reproducibility. The twentieth and twenty-first century vision of the *functional* transmutation of matter is a vision of the 'quick fix,' produced in a manner, while it may be endowed with a scientific explanation, that is fundamentally magical. Alchemists are no longer relegated to the realms of the library and laboratory; the comic-book alchemist is as likely to be an action hero as an intellectual, his power based on intuition or pure physical ability as much as knowledge. The transmutations themselves, as they most frequently occur in these texts, are instantaneous. The act of transmutation is no longer a long process to labor over during weeks or months of study, but a tool to affect the the *immediate* world--the world in near time, in close (physical) proximity. This new brand of alchemy is not the speeding up of a long, natural process, but a way of working against what is natural and normal: a special power that gives individual characters the unevenly distributed ability to forcibly manipulate the world.

Epileptic

David B.'s autobiographical *Epileptic* follows David through his life, from childhood to early adulthood, as he struggles to cope with his brother's epilepsy. The brothers' parents attempt many different ways of curing Jean-Cristophe's epilepsy, and one of the methods that his family eventually turns to is alchemy, as perscribed in the writings of the contemporary French alchemist Armand Barbault in *The Gold of the Thousandth Morning* (207-208). Armand Barbault himself is shown in cluttered laboratory space, his body and hands those of a man, but his head a retort, its long, angled-downward stem forming his nose (207). When David's father begins to study Barbault's theories, he, too, is shown with a retort as his head, surrounded first by

open books (and a small selection of the allegorical, alchemical figures that he finds within those books, most recognizably the mercurial dragon) and in the next panel, by laboratory equipment (208). David's father, as alchemist, is shown as a retort in profile, his body so minimal in its expression that it, too, could as easily be a stand for the vessel as the body of a man. Other retorts and glass vessels fill the panel, and if not for the alchemist's distinctive eye and brow, the alchemist himself would be easily camouflaged among the other pieces of laboratory equipment.

The other pieces of equipment, with their longs necks emulating beaks and snouts and their animal "feet," look as much like living things as they do like inanimate lab supplies. Instead of transmutation influencing larger world by bringing man closer to spiritual awakening, this form of alchemy brings man literally closer to the material: the alchemist is the retort. Conversely, the alchemical tools used in experiments have become alive. The tools have been *animated* (in the sense that they have been given the apparent aspect of life) and the alchemist *objectified* so that they have both come to be entities that exist as neither entirely creature nor entirely object. The literal stillness of the page, which lets diagetically still images *appear to be in motion*, allows this mutual duality to take place.

David, his father and his sister are shown collecting dew in the next page, in an image that, except for its art style, would be perfectly at home in the *Mutus Liber* or the *Bibliotheca Chemica Curiosa*. At the end of this page, the young David announces "We're going to change everything into gold. My brother into gold, the cats into gold, the garden into gold, the river into gold, a life into gold, dreams into gold" (209). The final panel of the page shows the golden Jean-Cristophe ridinf a cat in a field of golden cats, grinning and gazing at a nugget of matter floats above his hand, emanating radiating lines that indicate its golden luster. All of the artwork is black and white, but the panels in this sequence have been dominated by black up until this point, the

objects in them given form by extreme shadows and highlights. In the panel that shows the aftermath of the imagined transmutation of "everything into gold," white predominates, and shape is only indicated by outline. The golden world David envisions is a world without shadow, an ultimate incarnation not of rising to a more perfect state of being but of the abdication of all forms of responsibility.

Fullmetal Alchemist

The *Fullmetal Alchemist* manga, produced by mangaka Hiromu Arakawa, is one of the comic titles most closely aligned with both the visual rhetoric and practical application of Renaissance-inspired alchemical transmutation. In it, "alchemy," or *renkinjutsu*, is an everyday production performed by specialists who have both the talent and training to put it into play. The image of the intellectual, sedentary, solitary alchemist, surrounded by books, diagrams and symbols, is still present; but it goes hand-in-hand with the image of the alchemist as action hero. The protagonists of the series, the Elric brothers Edward and Alphonse, are on a continuing quest to improve their mastery of alchemy and undo the result of the laboratory 'accident' they suffered before the narrative's opening, when they attempted to revive their dead mother.

While alchemy itself is fairly widespread in this world, certain alchemical acts-specifically the transmutation of humans and the creation of gold--are taboo. In a flashback narrated by Alphonse, Edward and Alphonse attempt to resurrect their mother and fail; and the price of their folly, bound up in the world's concept of "equivalent trade," is enacted upon their bodies. The brothers' journey is one of setting things right, a quest for the knowledge and power not to bring anything new into the world, but to return their bodies to their natural, more perfect, states. Pat of their quest is their persistent search for the Philosopher's Stone (the only resource powerful enough to transmute their human flesh), whose nature and even form remains something of a mystery for the majority of the series. Along their journey, they encounter many fraudulent

Philosopher's Stones, all red, some solid and some a gelatinous liquid that can congeal into solid form. All of these "Stones" augment alchemical power in some way.

Alchemy is quick in this world, and, as this is an action series, frequently associated with combat. One of Edward Elric's favorite tricks is to transform his "automail" (prosthetic) arm into a jagged blade (72), turning a symbol (though resilient and frequently empowering even when not transformed) of his handicap to one of both physical and alchemical power.

One of the first alchemical transformations that we witness the character performing is the transformation of part of a stone floor into a spear. The transmutation is quite flashy, accompanied by cracks of lightning and boldly written sound effects. Alchemy in this world is not a patient, subtle art, but a fast-acting display of raw, combative--and often quite humorous and irreverent--power. It is also used at several points for more pragmatic purposes, like fixing tools (105) and (See Figure 4-1) turning a load of culm into a load of gold (129), though these more mundane transmutations are equally flashy, accompanied by lightning and explosive noise. Despite its force and directness, alchemy is not a purely natural or physical ability, like bodily strength, but the result of intense intellectual study.

The Elric brothers' training, especially those parts of it presented in flashback, consists of book-study as much as it does of alchemy's practical application. Before the boys' attempted revival of their mother, they look through books and charts in a cluttered study (See Figure 4-2). In the page immediately following these depictions of the scholar-alchemist's surroundings--the images that support the idea of the alchemist as the intellectual, perpetual student of the old masters (and it is later revealed that Edward and Alphonse do in fact have a master, a living teacher who initiated them into the world of alchemical study)-- the violence of the alchemical ritual takes hold: Edward's leg, or part of it, is shown separated from his body, and pieces of skin

appear to be floating from it in a swirl of black--suggesting the literal de-composition of the leg itself. A similar consequence befalls Alphonse, who is shown in the next panel (read right to left), his (past) arm and fingers disintegrating as his voice in the present narrates: "And I had my whole body 'taken' " (64). The next time Alphonse is shown (in a lower panel on the same page), his body has been 'translated.' Edward, in exchange for one arm, is able to retrieve Alphonse's soul and transfer it into a suit of armor.

All alchemy in this world is based upon the concept of "equivalent trade," which usually signifies rules such as the conservation of mass in material transmutations but in this case appears to refer to a different kind of trade--the exchange of one thing for another from a different actual *space*. This space is the elusive space into which souls and bodies go and from which they can be retrieved.

Alchemical symbolism also abounds in this comic--most notably the modified cadaceus that begins every chapter: a cross with one snake entwined around it, topped with a crown and the wings of Hermes. The cadaceus is made even more prominent in Alan Moore's series *Promethea*, in which it serves as the staff of the comic's central heroine.

The Metamorphae: Metamorpho and Element Girl

Element Girl (Urania Blackwell)

At the bottom of page 6 of "Façade," on of a collection of short vignettes in Neil Gaiman's *Sandman: Dream Country*, Urania Blackwell is shown as human, running. The looming figure of Ra towers above and behind her, his taloned hands threatening her from either side. She is then grabbed by Ra at the top of page 7. We do not see the action of g*rabbing* occur; we merely see Urania held in Ra's hands. Her hair and left arm are visible. It is not clear at this point how much of Urania's body has been transmuted and how much is still human flesh, nor is it clear where the border between Urania's and Ra's body lies. Visually, there is no border: the line-shaded "torso"

visible extending beneath Urania's arm appears to also be the flesh of the index finger of Ra's left hand.

In the next panel, which fans out from the first like one playing card pressed out from behind the other, Urania is shown from above. At first it might seem that we view her from the perspective of Ra himself, but the rounded, dark form in the foreground of the panel indicates that we see Blackwell from a position above and slightly behind that of the kneeling Ra. Thus, we see Urania not from a perspective of God-like power, but from the perspective of awkwardly spaced voyeurs, suspended above the scene and powerless to influence it. In this panel, Urania's body is already at least partly transmuted. The (comparatively) doll-sized figure of Urania Blackwell in Ra's hands appears to be being formed out of clay, evoking Ra's line in the panel immediately preceding: "From my senile spittle and from the dust, humankind was created to walk the earth, and to worship the gods" (6). Instead of being created out of clay, however, Urania's Blackwell is being transmuted from flesh *into* clay, or something like clay, that is then further transformed into the constituent parts that make her Element Girl.

By the next panel, the transformation sequence itself seems to be complete, but the four quadrants of her body do not appear as clearly defined in their different elemental forms as they do elsewhere in the comic. Though woodgrain and the texture of stone are evoked in the linework on her leg, arm and back, the cast-down figure of the page's third panel still looks more like a woman of clay, a piece in Ra's reversed human creation narrative, than she does like Metamorpho's empowered sidekick.

In panel 4 of the page, Urania's face is shown in closeup, her eyes closed and her expression sad and somehow peaceful, though it is clear in the narrative that that peace comes from resignation rather than acceptance. In this panel, time seems indeterminate. In the previous

panel, still clearly part of the transmutation sequence, Urania is shown sprawled facedown. In this panel, Urania appears to be either lying on her back or standing. However, the abstracted lines contouring her face, neck and shoulders are more evocative of the clay version of herself in Urania's dream than they are of Element Girl's waking image at the end of the page. The implication is that the face of Urania in this panel is the face of her current self-image, one influenced by her transmutation but one that still looks ultimately human nonetheless. There is no time presented when Urania should look as she does in this image, and no background to indicate her surroundings. Urania is outside of both time and place, between human and inhuman, looking inwards at the intersection of thought, dream and reality.

It is significant that the entire visual sequence of Urania's transmutation takes place in dream, and that the dream is not a reiteration of the experience in Urania's memory. In the same panel in which Urania is in the grip of the giant, menacing god, her narration tells us: "This didn't happen. It was just the stone. It didn't happen like this."

There is a long and entwined history of alchemy and dreams, as outlined in part by Stanton J. Linden's overview of alchemical dream poetry in *Darke Hieroglyphicks*. "Façade" itself also comes on the heels of the three other collected stories that help to make up the trade paperback that is the collected volume *Dream Country*--stories that, like the entirety of the *Sandman* narrative, are as invested in the dreams as they are in the realities of their fictions, and do not distinguish neatly between the two realms. In "A Dream of a Thousand Cats," the act of collective dreaming transforms dream into reality; more notably for my purposes, a random, delusional rambling of the male protaganist of "Calliope" conjures a series of alchemical writers, foreshadowing Element Girl's transmuted and transmuting body: "Magical and alchemical

traditions seen as a cargo cult; Aureolus Theophrastes Bombastes Paracelsus and Raymond Lulli were the same man" (21).

In a sense, it is the combination of alchemical references in "Calliope" with the transition from dream to reality in "A Dream of a Thousand Cats" that allows Urania's transformation to occur in the way that it does. Urania does nor have to choose between memory and dream; despite the 'fact' that "It didn't happen like this," Urania's nightmare supplants Urania's memory. The nightmare is more immediate, more vivid. Memory itself has been transmuted into nightmare and that dream now becomes memory, stronger and more powerful than memory that has not been processed by the act of dreaming.

When Urania wakes, *Urania has only just* been transformed because Urania *has only just* woken up. At every moment in the story until its conclusion, Urania lives in the moments after her transformation, because Urania is always reaching back in memory, trying to reclaim the past of her body and rejecting the present of herself.

"Façade" includes two other transmutation seqeunces in which the transmutation is performed by Urania Blackwell herself, one that precedes and one that follows Urania's final attempt to go into the world as a seemingly "normal" person. The first is on page eight, immediately after Urania's nightmare transformation.

In the first panel of page eight, we see Urania looking into a mirror. Only the face in the mirror is visible; the face of the woman who stands before the mirror is obscured by Urania's green "hair." Urania has already at least partially transformed her face, which is smooth and contoured like that of a "normal" woman (which in this case means a woman who meets the standards for attractiveness as measured in the comic-book world). In the next panel, we can see part of Urania's face before the mirror (ear, chin, cheek and eyelashes in a three-quarter turn),

while a face, now slightly more detailed than the one in the previous panel, peers out from the mirror. Below that face, another face looks out from a photograph, grinning and oblivious to the drama playing out in the bathroom. Rainie tells us that the face she makes is "silicate," a mere imitation of the flesh-and-blood face in the photograph. But a photograph is not flesh and blood. A photograph, too, is "silicate," its image, at least compared to that of actual flesh, plastic and unchanging, trapped outside of time. Thus, of the three faces we see in the third panel of the page, one is a silicate mask grown from Rainies body, one is a reflection of that mask and one is the plastic image used as a model and guide for that mask. None of the faces are flesh.

Rainie's photograph, the image of her former self, forces her to recreate her fantasy of normalcy from a snapshot of a particular moment of her distant past, now idealized and unattainable. When her friend Della meets her at Da Vinci's restaurant in the next scene (and the restaurant's name is certainly not incidental), Della tells her, "You look *incredible*, Hon! You haven't aged a *day*! You *must* tell me your secret." Rainie has not aged a day because her mask of herself is a mask of the past: a mask of a self that no longer exists except in image, and, as image, cannot age.

In the same sequence in which Rainie remakes her face, she also remakes her hair: "Faking real hair is easier. Mostly I use metals." With her narration overlaying the image, we see Rainie combing through her "hair," now in shades of green (its default state), red and gold. Though Rainie performs transmutations on (or of) her body elsewhere in the comic without 'using her hands,' it looks as if, at this moment and in this panel, the act of her hands combing and shaping her hair is what allows the transmutation to occur. In this example of transmutation, we see the matter worked upon in its process of transition, after the transformation has been begun but before it is completed.

The next transmutation sequence includes, first, her transformation of her hand to "magnesium" (12) and then her entire body into "nitrogen" (13) Each transmutation takes only a single panel to enact, and each of these two panels only has one word of text in it (See Figure 4-4). When Urania says/thinks "nitrogen" as part of her running narration of the story, the word could as easily be a command or a concept as a verbalized thought. Saying, doing and thinking all become one: all that Urania needs to do to make herself into nitrogen is *decide*.

Metamorpho: The Element Man (Rex Mason)

While I do not know if any direct parallels have been made between the Orb of Ra that appears in the *Metamorpho* comic books and the Philosopher's Stone, I believe that the very presence of a stone or substance that transmutes matter and allows others to transmute matter is not to be ignored.

The Orb of Ra, like the Philosopher's Stone, is a sacred treasure whose power was at one point and time harnessed by past experts, mythical or near-mythical figures whose secrets have largely been lost. Like the Stone, the orb (or at least, in *Metamorpho: Year One*, the meteor from which the Orb is made) purifies, in this case breaking down Rex Mason into his elemental components and making him into a potentially more perfect--or at least more physically powerful--being. (The mysterious rock also bestows health, durability and longevity upon the Metamorpha it creates, thus aligning it even further with the alchemical writings which described the Philosopher's Stone's physiological benefits.) Also, and amusingly enough, the orb--and the meteor--are *shiny*: the mysterious rock emanates a golden glow, sharing both color and *luster* with the material prize of alchemical practice. The orb of Ra/gold/sun symbolism is so obvious here that it barely warrants mention, but it still adds to the weight of the stack of connections of Medieval and Early Modern alchemy to Metamorpho's meteor rock.

The end of the first issue of Dan Jurgens and Jose Delperdang's *Metamorpho: Year One* includes one of the most alchemically-influenced scenes of bodily transmutation that I have yet encountered in comics. After Rex Mason is exposed to the meteor, a six-panel transformation sequemce occurs on the issue's second-to-last page. Five of the panels share the same width and slightly varied heights, each stretching across the comics page, with thick black borders surrounding. In the first panel, rays of light radiate from the meteor that fills most of the panel's background. These rays appear to penetrate through Rex's body and clothes, piercing through him to emerge on the other side neither interrupted nor fractured. This penetration of light, which appears to both fill and become the human body, constitutes the first depicted stage of the transformation. The next four stages, shown over the next four panels, can easily be matched with the four Aristotelian elements that serve as the backbone for transmutation study. In panel two, Rex's body has been transformed so that it seems, though still firm, composed of muddy deposits packed like clay into the shape of a man (Earth); in the next panel, this clay has melted into what looks like mud, magma or some other viscous liquid (Water); the next panel (this one shorter and thus, in some ways, more intense than the others) shows an explosion of light (Fire); and in the last panel of equal width, that fire has changed to gaseous form (Air).

Only after Rex has undergone this transformation through four elemental stages is his body shown, crouching and whole, in the bottom of the page. This body is in highlighted silhouette, backlit by the meteor that catalyzed its transmutation, its composition still a mystery. The full, final end-result of the transformation is not shown until the reveal on the next page, where Metamorpho's body is shown in full, its color and texture the indicators that the visible body is no longer the flesh-and-blood body of a human man.

The connection between the mysterious 'chemistry' of Metamorpho's new form and power and alchemy itself is made near-explicit in the course of two conversations in the third issue of *Metamorpho: Year One*, one between Rex Mason and Simon Stagg and one between Stagg and the pre-historic henchman Java. As Mason is being examined in Stagg's laboratory, Stagg tells him: "It appears you have been transmuted into the basic chemical elements found in the human body--as well as the contents of your clothing, backpack and items therein. . . . From what I can see, you are now the living embodiment of a good portion--if not *all*--of the periodic table" (5). Four pages later, Stagg tells Java, "Keep in mind that this man may well have the ability--to transform a pile of bricks into a warehouse full of gold." After he himself is transformed, Metamorpho is possessed of an innate (if not strictly natural) transmutative power over the substances comprising his own body. After his initial transformation, the transmutations that Rex enacts in this series are, like Rainie's, the work of a mere gesture or touch and the *desire*, whether conscious or unconscious, to enact the change itself.

Alchemy (Thomas Jones)

One of the more charming, lesser-known mutants of Marvel's *X-Men* franchise is the English schoolboy, Tommy Jones, who has the power of transmutation and goes by the mutant code-name Alchemy.

When Tommy Jones, the winning entry of the "Mutant Registration Contest," first appears in *X-Factor #41*, he is working on his chemistry homework, memorizing the properties of gold, lead and platinum. As he studies, he fidgets with a pen, held close up beside his head but outside his field of vision (3). As he recites the properties of the metals aloud, the pen is shown in close up in his fingers as he flicks it first one direction, then the next in three panels lined up horizontally at the center of the page. In the first of the three panels, the pen is black and mundane, while in the next panel, the 'same' fingers and pen are shown, but this pen is a

gleaming silvery color as Tommy muses to himself, "Okay, what's next? *Platinum*?" There is no visual proof that the pen is platinum rather than silver or steel, but the combination of the comic's set-up and the *word* "platinum" in Tommy's speech bubble 'show' the reader that the pen is indeed that valuable metal. In the next panel, Tommy continues, "Or *gold*. Haven't I *done* gold?" The pen, now positioned more as it was in the first panel of the three, its outline meeting and blending with the panel border as if it could hit the side of the panel containing it, is undoubtedly gold, and would undoubtedly be gold even if Tommy's words did not underscore that fact. The pen gleams in hues of yellow and orange, thick black, wavy shadows only bringing out its highlights and making its surface appear almost fluid. The starburst overlaying it adds to its luster and imbues it with a near-magical appearance (See Figure 4-6). The pen is shown again in close up in the panel immediately below, looking even more fluid and lustrous if possible, its starburst (which, in the previous panel, seemed as if it might indicate the pen's coming into existence *as a gold pen*) differently shaped and now closer to the pen's writing tip.

The pen's transformation gives the line "Haven't I *done* gold?" a dual significance: Tom Jones has indeed "done" gold, for he has, at the top of the page, recited gold's chemical properties. He has also *done* gold, bringing gold into existence by conceptualizing and speaking it. The 'gold' that he makes is complete (it has already *been done*) in the same panel that contains the line, so the gold in that panel exists in a space between past and present. There is other gold that Tommy has *done*, however: the gold that the troll smelled in the very opening of the comic book--the gold that was most likely one of the pen's many shifts in nature, which is gold that neither we, nor the troll, nor Tommy himself, see. The only 'proof' of this gold is the troll's smelling of it, and smell, being neither audible nor visible and therefore ultimately non-transferable to the comic book page, cannot be shared with us. We have only the sound effects of

the troll's sniffing and his claim "*Gold*! I smell *gold*!" (1) to prove that *that* gold, now gone, ever existed.

In Tommy's alchemy, thinking, *doing* and saying are ultimately the same act. After Tom Jones is kidnapped by the Troll Associates, the X-Factor team is able to follow a trail of transmuted golden objects to the trolls' hideaway. Once they reach the trolls' treasure, they find that it is divided into two sections: "Gold doubloons, Roman armor, golden calves! *Ancient* treasure!" and the "modern section," consisting of "TVs and refrigerators and the Pillsbury doughboy. Furniture and cars. . . and a *Rolls* all tumbled together, all turned to *gold*!"

These two sections are shown side by side in two panels on the bottom of page 22, the "ancient" section only at the periphery of its panel, consisting of a scattering of gold coin and trinkets surrounding the X-Factor team as they stride on a, mostly bare, stone floor. The "modern" section dominates its panel, surrounding the team in both foreground and background and filling the panel's space with (the color) gold. The message of the two panels is clear: this is a modern breed of transmutation, focused on modern objects and the transforming of things that never were gold and would normally never be associated with gold. Tommy's own attitude toward his transmutative power, that it is something that he can learn to control through the study of modern chemistry (*X-Factor*, #42, 27), goes along with this modern bent.

It is made clear, in both the sequence with the pen and in other places throughout the narrative, that that the character's ability to transmute matter is not dependent upon his intent. It is not Tommy's purpose, but the combined thinking/doing/saying of the alchemical act that brings it into being.

Promethea

The cadaceus is the symbol and weapon of the "Science Heroine"/demigoddess Promethea in Alan Moore's series of the same name. Promethea's staff is a glowing blue (usually) version of

this symbol complete with living--and talking--snakes, Mike and Mack, her headdress representing the wings of Hermes. *Promethea* is a series which, though it includes little strict material transformation as such, is devoted to the idea of change, and references to alchemy as a concept show up consistently throughout.

Promethea the heroine is an idea, a dream that women--or men--can become through the force of their imaginations, or be made to become through the imaginations of those around them. The newest host for Promethea is Sophie Bangs, a graduate student caught up in her term paper on the mythical figure. The last Promethea, Barbara Shelley, produces one of the most interesting moments of material transformation when she reawakens the spirit of Promethea to help the current Promethea battle demons that have infiltrated a hospital--the same hospital where Barbara is being treated for a terminal condition. She climbs out of her hospital bed and forces herself down one of the institution's hallways, dragging her IV with her. As she imagines herself into becoming Promethea once more, the first sign of the imaginative/physical transformation is not enacted upon her body but upon the IV pole, which begins to become golden under her hand. In the next panel, the gold, which appears to move like molten metal climbing upwards, covers even more of the IV pole, around which ribbons of colors are now winding. In the next panel, which fills the bottom half of the two-page spread (minus the page's borders), she is Promethea once again, the IV transformed into the cadaceus itself (See Figure 4-7). The pole's transformation, from an invalid's sustaining yet inconveniencing prop to the weapon of a warrior-goddess, mirrors the woman's transformation from frail, terminal patient to a mythical creature with strength and vitality. Both transformations are temporary.

There are no *purely* physical transformations in *Promethea*, because the most important quality of the comic's version of the world is that, while divided into the two realms of the

physical and the imaginary, or immateria, both realms are real and each can be transformed through the influence of the other; the metamorphosis of both people and world(s) is constant in this universe.

John Constantine, Hellblazer: Dangerous Habits

On page 43 of the *John Constantine: Hellblazer* run, *Dangerous Habits*, Constantine's friend Brendan Finn performs the first and only material transmutation of the story arc.

On page 42, we are shown an underground "shrine" in a panel that takes up over half the page. In the center right of the panel is an ellipse of blue: the surface of a well of what Brendan informs Constantine is "holy water," blessed by Saint Patrick himself (42). Constantine confirms this with a touch in the next panel, indicating that there is a perceptible quality of holy water that can be determined through feel, but not through sight or smell. In an irreverent mirror of the New Testament "miracle," Brendan transmutes, not water into wine, but holy water into "magic stout."

The transformation itself takes only four panels to present. In the first panel of this sequence, Brendan leans on a purple table in the background while Constantine dips his fingers into the holy water in the foreground. The table is not shown on the previous page, so it is possible that the table is being set up in this scene, and is in and of itself part of the ritual to be performed, though this cannot be determined from the contextual clues at hand. In the next panel, the table is shown from above. On the table is a white, five-pointed star with a candle at each of its points. Three of the candles candles are lit, one unlit. Brendan appears to be in the process of lighting the fifth candle, suggesting that Brendan has had time in the space between panels to light the three candles and begin on a fourth. The white star, which might be of chalk or paint but whose composition is ultimately uncertain, may have been made in the time and space between the panels or may have pre-existed them. The star itself is clearly part of the transformation ritual, but it is not made apparent to the reader/viewer whether or not the *production* of the star is

also part of that ritual. In the next panel, details of the ritual are made even more obscure.

Up until this point, the transformation ritual that plays out in this scene could be, more or less, replicated by the reader. After this point, the details of the alchemy's production become more difficult to follow. Traditionally, such a shift, from clear, understandable 'instructions' to vague references to alchemical procedures serves to protect alchemical writings from being tested and declared fraudulent; in this *Constantine* sequence, the same shift helps to suspend the reader's disbelief. All we witness of Brendan's ritual in the next panel, however, is the silhouette of his back, arms raised above his head and the back of one hand contoured by highlights. John Constantine's narration in the same panel references "the sound of things," implying that Brendan is using a chant of some kind for his transmutation: "Fairly simple changing spell from the sound of things." Constantine, our resident expert on such matters, reassured us earlier that the water was indeed holy and can now inform us of the general nature of Brendan's spell. This one panel contains two actions: 1) John Constantine's opening of the liquor bottle and 2) Brendan's ritual spellcasting. Constantine's action, unless the bottle is for some reason particularly difficult to uncork, should be the work of mere moments, while Brendan's spellcasting could, in theory, go on for minutes or even hours. The two actions take (most likely), vastly different amounts of time, and yet they are both represented in the same panel, in a moment that captures a piece of each. Uncorking a bottle is a fairly common activity that takes a, though non-standard, typical amount of time which the reader can estimate. The nature, the length and even the very existence of Brendan's oral performance of magic is left up to the imagination of the reader.

By the following panel, the water has been transmuted into *something*, but the identity of the new, changed substance is left a mystery. The water, at first blue and 'clear' (though the color is itself opaque on the page), is now a murky, bubbling brown. Like the holy water on the

previous page, it appears to have qualities that Constantine cannot identify by sight or even, oddly enough, smell.

When the transmutation's nature is revealed to us at the bottom of page 43, the revelation's nature is twofold. Depending on how one reads comics, we either first 'see' or first 'hear' Brendan 'tell' us the nature of the transformed matter. We can 'see' that the water is now alcohol, most likely beer, because of the illustrated hint of the changed water's shift to a new container: the two tall glasses; we likewise 'hear' of the change through Brendan's written/aural clue: "And we are in Ireland, after all," which leads the reader to infer that whatever now fills the new container is a traditional or stereotypical Irish drink. 'Visually,' the burbling, murky surface of the pool has been changed to the same foam that spills temptingly over the rims of the two tall glasses, while the part of the transmuted water that is at first hidden, invisible because below the foam, is made visible in the final panel of the sequence because it can be seen through the transparent glass of the two vessels. Throughout the scene, we are not witness to the transmutation itself, but we do see the *before* and *after* of the transmutation.

The beer that we see in the two glasses is not murky brown like the foam of the pool; instead, it is transformed to a deep brown with coppery highlights and foam of pale yellow. The beer is now closer in hue to gold, echoing that transition of the alchemist's imperfect experimental subjects to that purest of metals. Underscoring that color transition, the holy-water-turned-beer is presented on a panel background of pale gold, black lines radiating around the glasses to indicate rays of light. This "magic stout," as Brendan terms it, is so pure, so perfect, that it--figuratively--produces its own light; like the alchemist's longed-for gold, this stout has its own quality of luster to prove its purity and worth (See Figure 4-8).

The transformation sequence is not complete at this point, however; for, as Constantine has told us, the transformation spell is only "temporary," and we have not yet followed the transformation completely through both its doing and undoing. In the next sequence, one of quintessential John Constantine trickery, we are witness to the beer's transition back into holy water. When Lucifer comes to collect Brendan Finn's soul, Constantine convinces the devil to stop and share a brief drink, saying "I've always wanted to have a drink with the devil" (51), and it is not until after the devil has consumed the liquid that the original transmutation spell is undone. We do not get to see the matter itself as it is transformed in this sequence (at least, not until the pool of holy water is shown once more); instead, we see Lucifer's physical and emotional reaction to the transmutation. Constantine knocks over the table, snuffing the candles and causing the holy water to revert back to its natural state. In panel four of page 53, the devil clutches his throat and screams. His skin, earlier shown as the color of healthy, Caucasian flesh, is now bright red. The devil's body is now the alchemist's opaque vessel, his noise, gestures and color change all indicators of the success of the transmutation. In many alchemical color sequences, red is the final color, signifying the arrival of gold or the Philosopher's Stone. In the *Constantine* sequence, red may not be the final color but it is the desired color: the color indicator that the stout within the demon's body has reverted to holy water and the devil is defeated. The wine and devil's blood that splatter the panels in John Constantine's subsequent attack of Lucifer only add more red, until, after the devil has retreated back to Hell, all that remains are pools of red (wine or blood or both) floating upon and staining the surface of the holy water in its well.

The demon's body, thus, becomes the equivalent of the alchemical vessel. The alchemist cannot see the transmutation take place within the vessel, only the visual indicator of color that

suggests a successful transmutation. The 'proof' of the alchemical procedure's success is the alchemist's witnessing of the end result of this transmutation.

The Function of Alchemy in Comics

Alchemy at its most fundamental level is change, and comics, in order to function as comics, show change. The panels in comics can reveal different iterations of a changed or changing object, but each panel is also in and of itself discrete. The image in one panel is not the same as the image in the next, even if one happens to be an exact copy of the other. Differences exist, of necessity, at least in site, as one panel (or even one image) cannot occupy the exact same physical space as another. In the transformation sequence with the pen in the *X-Factor* comic book, we see not only one pen of several different colors and qualities but also several pens: the design of the comic page makes the reader aware of the multiplicity of objects in the panel sequence. In this example, the transmutation is purely serial, the pen(s) seen only at the moment(s) when its/their transformations from one metal to another are complete. This version of transmutation presents a world in which only results exist, at least when the panels are read linearly, left-to-right and up-to-down. The transformed rather than the transforming thing appears central, but at the same time, the transformations in this case can also be read as stages of one transformation rather than a series of independent transformations. Sequences like those in "Façade," *Metamorpho: Year One* and *Promethea*, on the other hand show the process of transmutation in progression.

The sequence in X-Factor emulates speed by flipping from one resultant transformation to the next, separating adjacent panels from one another with, not a long amount of diagetic time, but a significant amount of time: the (short) periods during which each example of transforming as progression occurs. The scenes that show individual transmutations as progression show the midst of actions, and not their end results. The frozen images in these panels are images of things

that, if they existed in a non-static medium, *would not be* and perhaps *could not be* still, despite the fact that the transmuting matter, without its alchemically influenced transformation, would be basically inanimate.

These inanimate-made-animate figures are only ever still within the comics panels. The existence of this matter as simultaneously animate and inanimate reflects the comics page itself, constantly static while at the same time indicating change and motion. The images themselves may evoke snapshots taken of actions, but unlike snapshots, they are not directly related to external source images and are thus not (by necessity degraded) copies of other, imperfectly 'captured' objects in the world. The comics panels do not *capture* actions in progress; they are already the actions that they describe.

The Metamorphae have an instinctual power over their transmutative ability, because their alchemical power is intrinsic to their changed bodies. Alchemy of the *X-Men* comcis, whose power is a 'mutation,' also enacts alchemy through a seemingly instinctual reflex. The characters desire to enact transmutation, and in the very act of performing transmutation, the actualization of their desire, is all that is needed to bring such physical change into being. In *Promethea*, alchemy is again an actualization of desire, though in this case it is a conscious actualization: Barbara knows that it is her desire and imagination that will bring change into being. The characters of *Fullmetal Alchemist* and *Hellblazer* must learn alchemy in order to perform it, and this performance is tied up in standardized rituals. In *Fullmetal Alchemist*, however, alchemy is, while not universally accessible to all the characters of its fictional world, nonetheless a comparatively common ability, and the rituals required to bring it about are, when not performed on a giant scale, relatively quick and simple to carry out. Of the comics discussed here, *Epileptic*

is most willing to imagine a long, slow, alchemy, but it is also the only text of the group to envision alchemy as ultimately futile, only achievable in dreams.

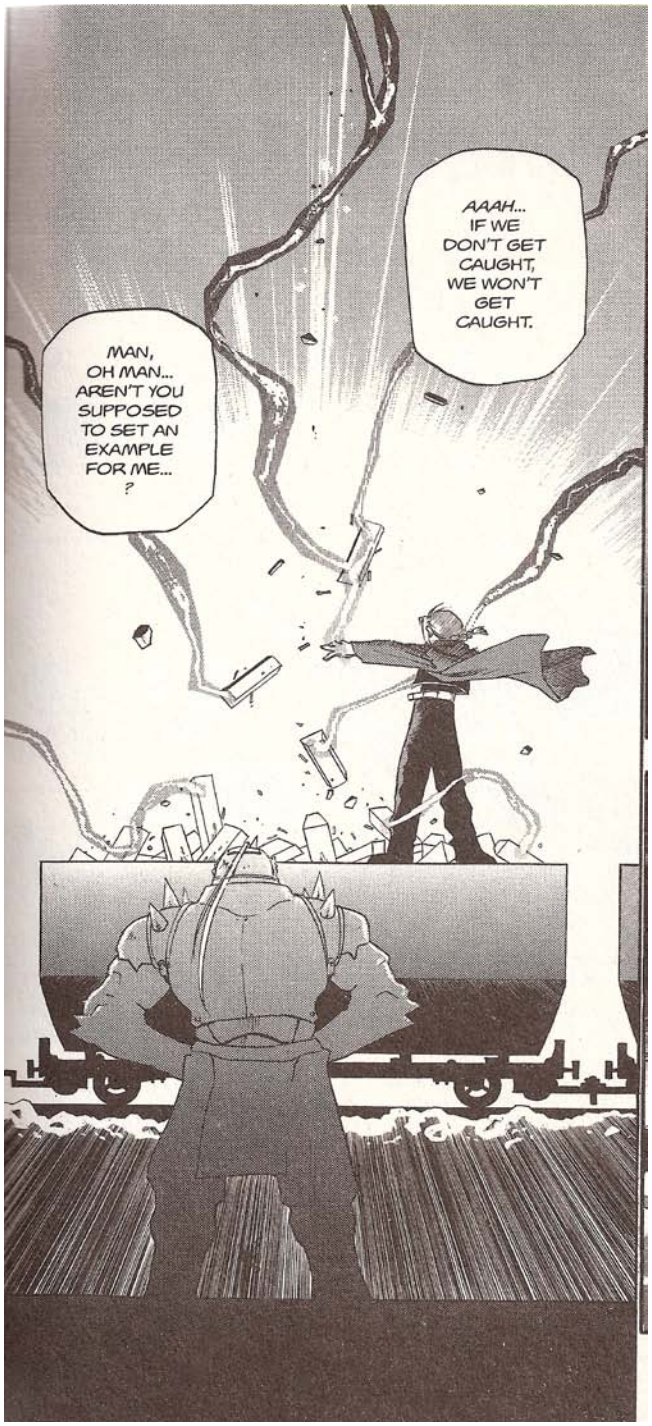

Figure 4-1. Edward makes gold in *Fullmetal Alchemist* (Arakawa 129)

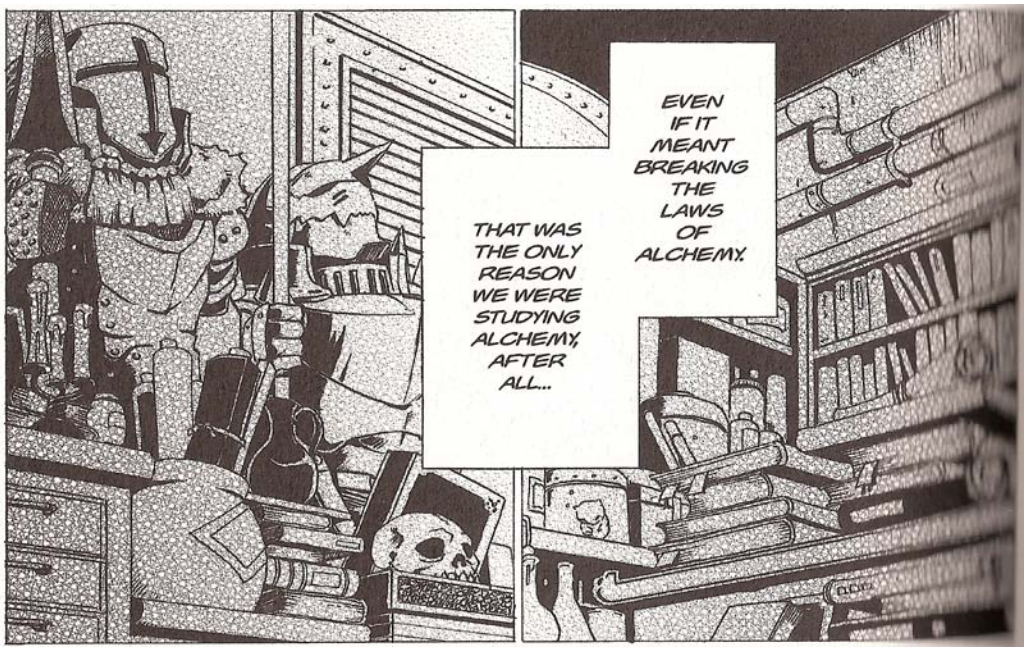

Figure 4-2. The Elric laboratory in *Fullmetal Alchemist (Arakawa 63)*

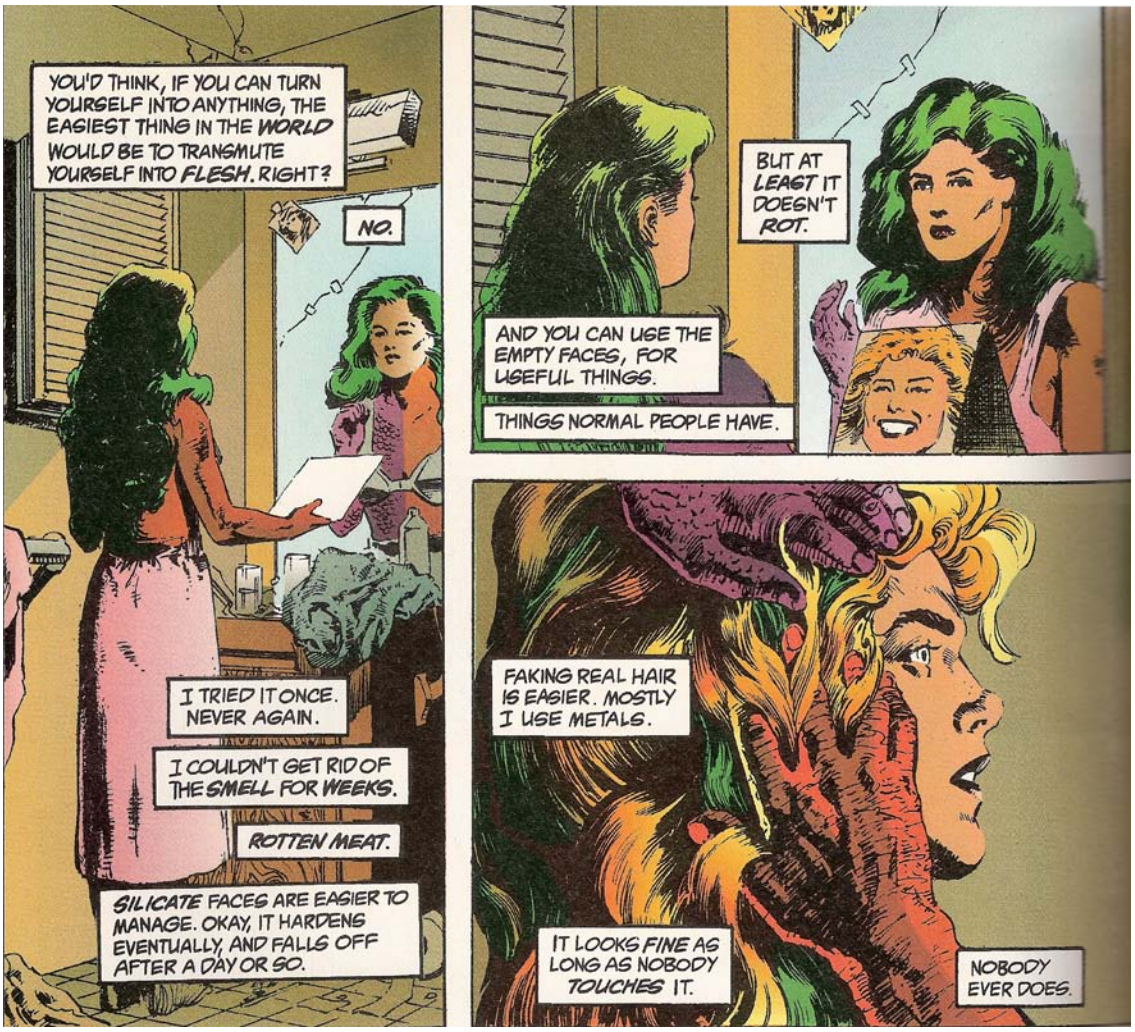

Figure 4-3. *Sandman: Dream Country*: Urania makes herself up in "Façade" (Gaiman 8)

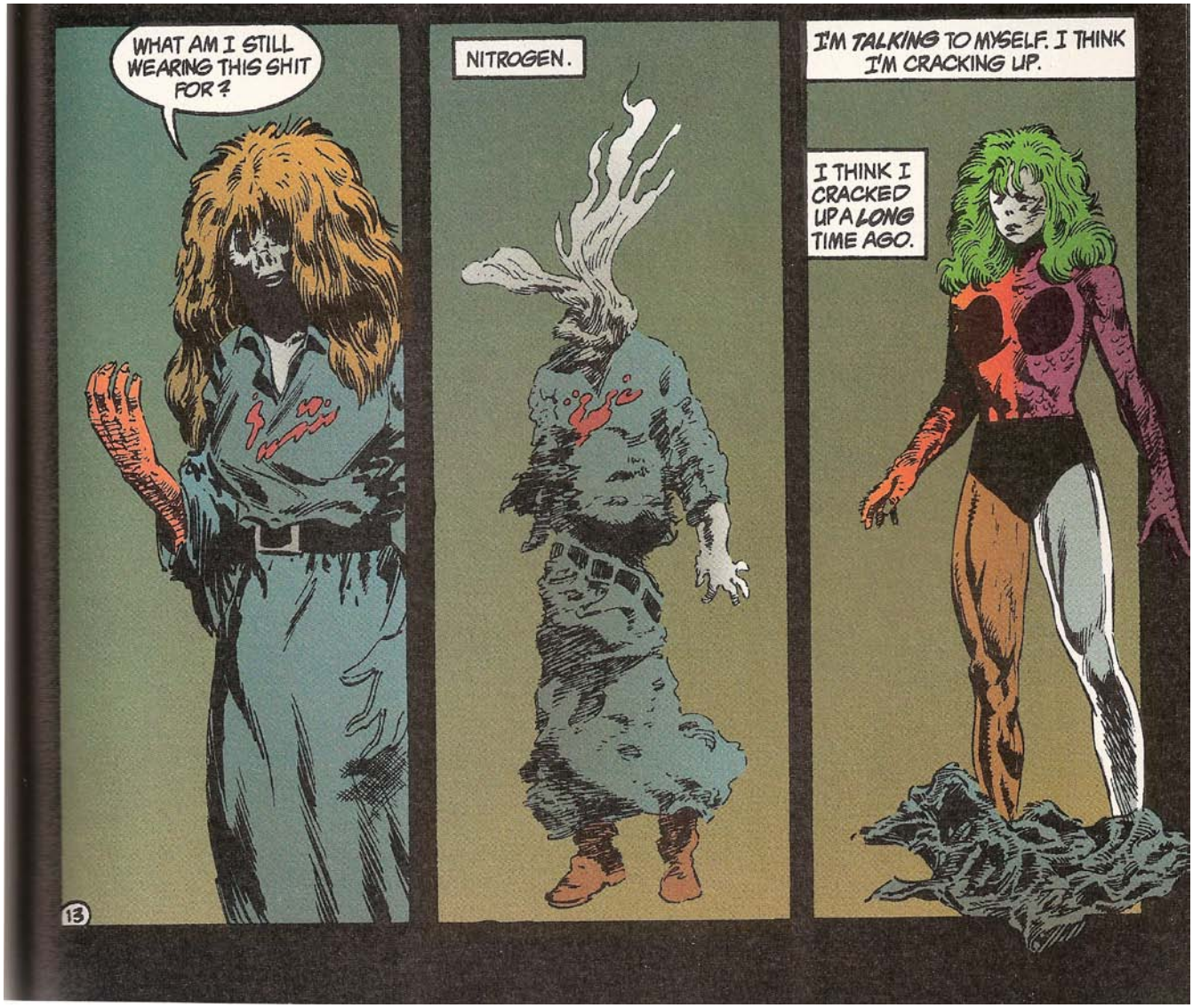

Figure 4-4. *Sandman: Dream Country*: Urania makes herself "nitrogen"(Gaiman 13)

Figure 4-5. Rex Mason transforms in *Metamorpho: Year One* (Jurgens)

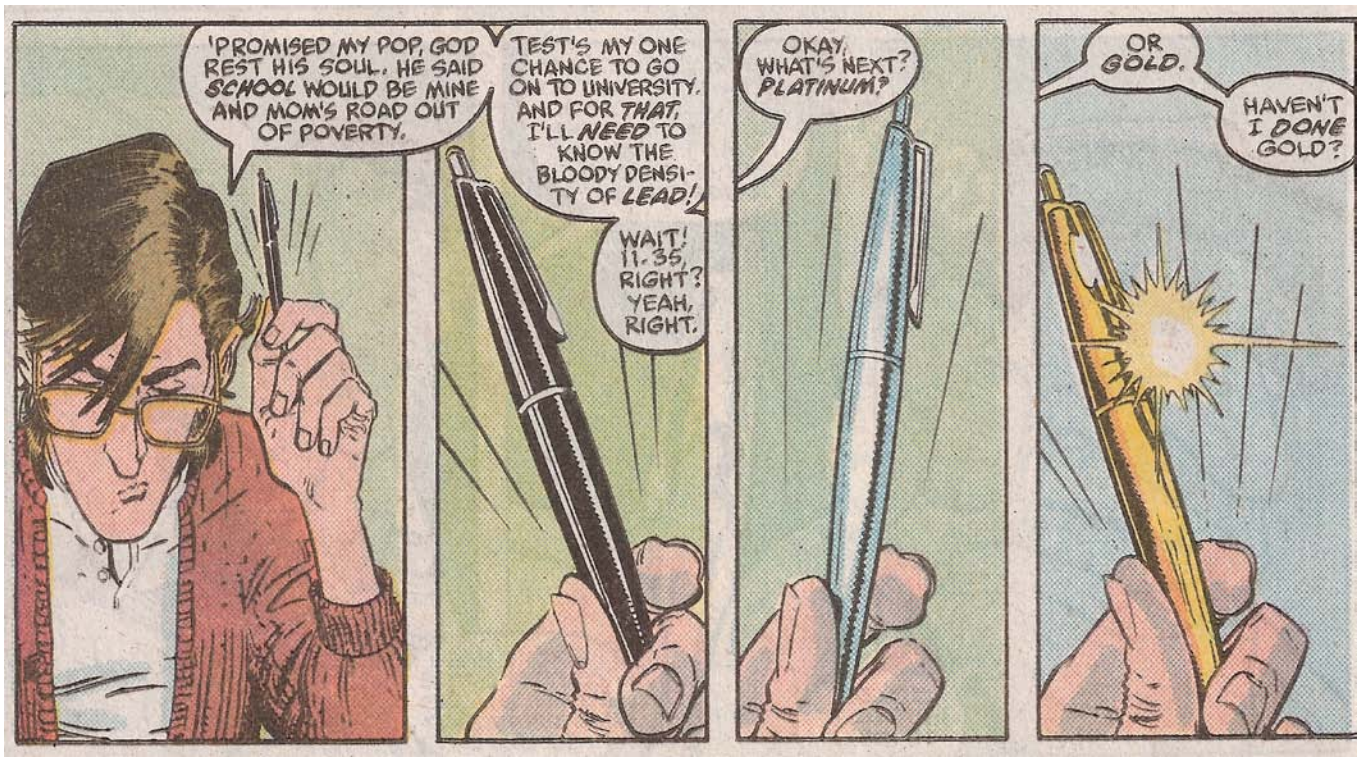

Figure 4-6. "Or gold. Haven't I done gold?" (Simonson 3)

Figure 4-7. A transformation to a cadaceus in Alan Moore's *Promethea* (Moore)

Figure 4-8. Magic stout in John Constantine, Hellblazer: Dangerous Habits (Ennis 43)

Figure 4-9. The devil as alchemical vessel in *John Constantine, Hellblazer: Dangerous Habits* (53)

CHAPTER 5
CONCLUSION

I have tried, as much as possible, to limit discussion to those source texts that deal with physical, material alchemy; in this project, the transformation of matter has been prioritized over the transmutation of self. The nexus of the still image, the physical object, and the presentation of change seems something ripe for examination. While much has been written on the allegorical and historical implications of alchemical literature and imagery, very little has been written on the presentation of *material*, rather than philosophical, spiritual or psychological, change in alchemical texts and pictures. The focus on alchemy, by and large, has been on its presence in the Medieval and Early Modern periods, and not later re-appropriations of the practice in fiction and art. Some overviews of recent incarnations of alchemy have been attempted, but they are few and far between, and as far as I have been able to discern, until now there have been no projects that examine the visual rhetoric of alchemical transmutation in sequential art. This project, especially in its third and fourth chapters, is designed as a series of distinct, yet independent and interrelated chunks of information relating back to different source materials, rather than as a single, coherent 'narrative' or 'story' of alchemical transmutation over time. This fragmented and compartmentalized design follows in a long tradition of alchemical literature. The writing, as well as the performance, of alchemical transmutation is ultimately fragmentary. Alchemical *production* is broken down into stages, and the philosophies and theories that serve as the foundations to alchemical thought are dependent upon categorizations and oppositions. Alchemical writing is largely fragmented in structure as well, composed of disparate, conjoined depictions of individual experiences, proceedings and thoughts, rather than fluid, longer narratives that offer clear and unambiguous relations of cause and effect.

The cause-and-effect of alchemy can never be unambiguous, because alchemy describes and absence rather than a presence. The 'successful' transmutation--no matter what result were gathered and distributed by practitioners and students of the art--does not exist. We have no record of a successful, reproducible alchemical transmutation of matter. Alchemical writings, not based on provable, successful operations (or at least, not based on operations whose desired end results can be proved successful), have no identifiable basis in 'real' historical events; the story behind the early alchemical treatises on material transmutation is one of implied successes and probable failures. What alchemy offers is hopeful mystery, possibility without proof.

The very fragmentation of the subject is what allows alchemy to so readily lend itself to comics and sequential art, which are in and of themselves inherently fragmented media that imply the breaking down and re-piecing of phenomenological worlds.

There are gaps in alchemical knowledge, and these very gaps are in part responsible for the mystery and continuing popularity of alchemy. Important connections--connections that, in theory, would allow later researchers do reproduce the experiments--are frequently left out of alchemical 'recipes.' This practice, perhaps begun as a deliberate attempt to avoid the exposure of unsuccessful procedures--eventually developed into a deliberate tradition of obfuscation, presumably in place in order to limit alchemical secrets to only those with the knowledge and power to utilize them properly.

The 'alchemy' that appears in the modern-day comic book is not obscured. Material alchemy, in the hands of its revisers, becomes a fantasy of immediate, successful change. The popular direction of alchemy's re-imagining in fiction is away from the areas of experimentation and study and towards associations with magic and physical ability. The new 'alchemist' is set apart by his (and her) empowerment: readers are no longer expected to aspire to alchemical

ambitions themselves, and so obfuscation is no longer needed to make physical transmutation of matter appear possible. Once the impossibility of 'alchemy' is established as a given, the way in which alchemy functions can be made explicit. If alchemy in a particular narrative is 'magic,' then it can be explained in full, to the extent that the narrative world's 'magic' functions with any consistency. Alchemy has shifted from theory to fiction, and in that shift, it has become clearer, more immediate, more physical and more directly dependent upon human manipulation.

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Katherine Heath Shaeffer was born to Suzie and James Shaeffer in Ormond Beach, Florida. In 2002, she graduated from Spruce Creek High School, where she was enrolled in the International Baccalaureate program. She received her B.A. in Literature in English from New College of Florida in May 2006. While pursuing her Master of Arts in English at University of Florida, Katherine is also working towards a Master's in Library and Information Studies through Florida State University's College of Information. She plans to continue working on questions of time and change in sequential art.