

HOLONOMIC ALCHEMY:

The secret of the Sol-Luna Conjunction

A HOLONOMIC APPROACH TO
ALCHEMY BASED ON SPECIAL
SYSTEMS AND EMERGENT META-
SYSTEMS THEORY

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Introduction

Alchemy is a strange subject. It is difficult to say anything either succinct or illuminating about the subject as a whole¹. The view presented here is strongly influenced by Jung's major works on Alchemy: *Aion*² and *Mysterium Coniunctus*³. However, here we take a different tact from that of Jung and try to explicate Alchemy on the basis of

¹ Hopkins, A.J. *Alchemy Child of Greek Philosophy* (AMS Press NY 1967) gives an excellent resume of the subject as a whole and its historical development.

² Jung, C.G. *Collected Works*, Vol 9 II Parthenon Books 1959

³ Jung, C.G. *Collected Works*, Vol 14, Princeton UP 1963

Ontomythology. Ontomythology⁴ is an approach to myth in terms of Ontology developed in the author's book *The Fragmentation of Being and the Path beyond the Void*⁵. In that book a mystery was uncovered which was dubbed the negative fourfold. The negative fourfold is a negative metaphysical principle which has been lost in Western Metaphysics but is deeply associated with women and is the opposite of the positive fourfold discussed by Heidegger in "The Origin of the Work of Art."⁶ The Positive Fourfold consists of Heaven, Earth, Mortals and Immortals. The Negative fourfold consists according to Aristophanes of Chaos, Abyss, Covering, and Night. Here we will try to explain what has been learned about the mystery of the negative fourfold attributed to women historically since the writing of that book within the context of Alchemy.

World Structure

In the Western Tradition our definition of the World has been in terms of the Positive Fourfold. Heidegger mentions this in "The Origin of the Work of Art"⁷. The World was defined by Socrates in the *Gorgias* as being composed of Heaven, Earth, Mortals and Immortals. Socrates said, "*And wise men tell us, Callicles, that heaven and earth and gods and men are held together by communion and friendship, by orderliness, temperance and justice; and that is the reason, my friend, why they call the whole of this world by the name of kosmos.*"⁸ Heidegger develops the idea that these four characteristics of which the world is

⁴ Ontomythology interprets myths as giving evidence for the structure of the world which differentiates various kinds of Being.

⁵ <http://dialog.net:85/fbpath.htm>

⁶ <http://www.panix.com/~squigle/sva/owa.html>

⁷ *Basic Writings*. Edited by David F. Krell, New York, Harper & Row, 1977, 1993.

⁸ *Gorgias (507e)*

composed mirror each other. Further research has uncovered that the structure of the Western Worldview is more complex than merely these four characteristics. First of all these four characteristics describe the Western Worldview in the Mytho-poietic era and not the Meta-physical era inaugurated by Thales. In the Meta-physical era these dualities are replaced by Unlimited/Limited, and Physis/Logos. Second there are a whole series of duals produced by the worldview that need to be considered which form a hierarchy. This hierarchy has the following form including a reference to the non-duals at each stage:

<u>Originating Dual</u>	<u>Non-Dual</u>	<u>Orphan Dual</u>
Quantum Mechanics	spacetime	Relativity
Physics	Infoenergy	Thermodynamics
Physis	Orders	Logos
Limited	Rights	Unlimited
Have	Goods	Have not
Exist	Fates	Exist not
Actualize (paradoxical)	Sources	Actualize not (supra-rational)
Extremal, i.e. Otherness unrelated to God, i.e. the unmanifest.	Root, i.e. single source of all causation	Manifest Attributes of God

At each level the Originating Dual bifurcates to produce the next level up and each level has embedded in the excluded middle between the two duals a non-dual which is

characteristic of that level. This scheme assumes that duality and non-duality are themselves dual and that they are inseparable as they are in the Mobius Strip where the non-dual nature of non-orientability of the surface considered globally is non-dual while the strip locally is two sided or dual.⁹

Negative Fourfold

In the process of writing The Fragmentation of Being and the Path beyond the Void¹⁰ I ran into something I have called the "negative fourfold". This appears in Aristophanes *Birds* as the first things that were created in his mock theogony. Aristophanes is of interest because he appears in Symposium as a character and he also wrote a scathing denunciatory play against Socrates called the *Clouds*. In the parabasis Aristophanes claims to be giving his audience wisdom. It is clear that Plato and Aristophanes have an interesting relation to each other which is not merely hostility due to Aristophanes' denunciation of Socrates. If we accept Aristophanes' claim as true and begin to look for the wisdom reading his works carefully we note that he constructs opposites in his plays that mirror the fundamental dualities of the worldview. But beyond that we are struck by his mock theogony which contradicts Hesod saying that the first creations were Night, Chaos, the Abyss, and Covering. If we look in the Epics and Myths for these creations we find that they appear many places unexpectedly. For instance, in the *Iliad* Chaos is Battle, Abyss is the oblivion of Death that characters appear briefly to recite their genealogy and then fall into it vanishing forever from the narrative, Night is the "Night Raid" by Odysseus where he wears

⁹ See "Intertwining Of Duality And Nonduality" at <http://dialog.net:85/autopoiesis.html>

¹⁰ <http://dialog.net:85/fbpath.htm>

his grand-father's armor. Covering is exemplified in the mist that Aphrodite covers Paris with as he whisks him away from danger to see Helen. When we look at Greek mythical sources in general we find that the negative fourfold is omnipresent and generally attributed to women. Aristophanes in his plays concerning women paints the picture of their immersion in the negative fourfold and embodiment of it. The negative fourfold can ultimately be traced to the Ogdad which is the primal scene of the Egyptian myth of creation¹¹.

The negative fourfold is the counterpart of the positive fourfold attributed to men who articulate the dualities of the world. It took me a long time to understand the negative fourfold, I looked for it in more recent literature without success. The closest thing to it is *Finnegan's Wake* by James Joyce. Otherwise the negative fourfold seemed to be well hidden in Western Culture after the Greek age. However, eventually I realized that the negative fourfold is the inversion of the non-duals. The key was the realization that the characteristic of order was shared between the reversal of the negative fourfold and the non-duals. It eventually becomes clear that there is a relation between the negative fourfold and both the non-duals and the aspects of Being, i.e. truth, reality, identity, and presence:

<u>negative fourfold</u>	<u>reversal of negative fourfold</u>	<u>aspects of Being</u>	<u>non-duals</u>
chaos	ordering	Identity <i>A is A</i>	order
covering	uncovering	Truth <i>A is B</i>	right

¹¹ Wolf, F.A. *Spiritual Universe* p. 63

abyss	grounding	Reality <i>A is</i>	good
night	lighting	Presence <i>This is A</i>	fate

You reverse the negative fourfold to get a description of the positive fourfold but that description connects with the description of the non-duals within the positive fourfold. Thus, we realize that women were not just thought of negatively but were seen as an embodiment of the negation of the non-duals and thus were a reminder of non-duality which was rejected. Thus, woman as embodiment of the inversion of the non-duals as signifier and as economic commodity has a deep significance with respect to the comprehension of the worldview in general. This gives new meaning to the negative myths and the oppression of women within the Western worldview as it is not just that women were controlled and oppressed as humans. Rather they were signifying commodities (See Baudrillard *Critique of the Economy of the Sign*) who embodied though negation the non-dual core of the worldview which was defined by and rejected by the dualities who imposed the principle of excluded middle while still desiring the signifying commodity. This was an imposition of a deep contradiction on the markers of male and female within the society. In other words, the marker of the male represented the hierarchy of dualities that defined and delimited the essential structure of the worldview and women as a marker was the negative embodiment of the non-dual, and thus a constant reminder of the non-dual. These women are a signifying commodity that stands for the non-dual, for what has been excluded, and the oppression of women is an exclusion of the non-dual from the realm of discourse. But because women are desired and always present

though hidden within the household (economy) they are also a constant reminder of what has been excluded.

We can see when we look deeply into this that the Alchemist's picture of Luna is a symbolic reference to the negative fourfold. It is one of the few such pictures that I have found within the later Western Tradition. Normally the negative fourfold is completely suppressed because the non-dualities are by definition excluded from consideration from the beginning due to the principle of excluded middle enunciated by Aristotle. The moon has its phases that move it from dark to light. The darkness of the moon is the point that Odysseus chooses to kill the suitors of Penelope. The darkness of the moon may be seen in the female menses. It is associated with the Abyss. The opposite of the Abyss is the Chaos of the Full moon which corresponds to the ovulation within the female. The moon is seen primarily at night. The realm of women is within the house where it is dark and of course sexual activity is associated mostly with night and darkness. There are rare times however when the moon and the sun are both visible especially in winter. In the female the winter is associated with the loss of the menses and thus of fertility. Covering in terms of the moon is the eclipse and in terms of the female is pregnancy. Covering and Night are opposites because fertility and infertility are opposites. These times when both the sun and the moon are visible together may be seen as the conjunction of the sun and the moon. They occur when the light of the sun is lessened.

In terms of the Sun there is a binary rather than a quaternary configuration. The sun is visible during the day and invisible at night. In ancient times there was always the problem of where the sun went when it vanished. The sun also has its eclipse, which is done by the Moon producing the darkness at noon which is *sol nigrum* which causes blindness when one looks at it. Thus sight and blindness are seen as related to daylight

and darkness. The saturnine darkness at noon and blindness are seen as the opposite of the darkening of the moon.

Myth of the Goddess

It is always dangerous for a man to debunk a popular myth held by new age inclined women, but there is a myth that there was a time when women were in charge and everything was better then prior to patriarchy. This myth is based on the work of Marija Gimbutas¹². Her work has fostered this strange myth¹³ that in the time prior to settlement when humans were hunter gatherers and when matriarchy was the rule that humans were more in touch with their environment and there was peace and tranquility on the earth. Part of that myth is that the women were in charge at that time instead of men and because of that there was less conflict and more responsiveness to each other and their surroundings. The problem is that matriarchy is taken to mean that women were in charge rather than men as in patriarchy. This unfortunately is not true. Matriarchy and Patriarchy as used in the anthropological sense only mean whether the inheritance of name and clan association, for instance, is taken from the male line or the female line. Women except in a few rare instances were never "in charge," i.e. dominance roles within society were not reversed, the only question was which males were in charge. In matriarchy the father does not give up his daughters and the males who father the children come from outside and then leave again while the uncle acts as "father" to the children. Matriarchy fosters clan solidarity because the women never leave the clan and they are always dominated either by their father or their brothers. Patriarchy was an innovation where the women became a traded commodity and were

¹² <http://www.pacifica.edu/cglibrary/gimmbib.html>

¹³ See The Chalice and the Blade by Riane Eisler (<http://www.labyris.com/Uppity/leslie.html>)

actually given over to the husband to live in their estates, rather than staying at home. Matriarchy occurs when fertility is a scarce resource where women are not traded but kept at home. Patriarchy occurs when women are less of a scarce resource and thus may be traded profitably without the danger of losing the resource of fertility, because it can be gotten from some other source for oneself if the daughters are given up. Patriarchy means stronger ties with other clans, while Matriarchy means that the clan has weaker ties with others and is attempting to be self-subsistent, only taking in males for the purposes of keeping the blood lines healthy. So the whole question of matriarchy and patriarchy revolves around who owns the women, father or outsider husband. It turns out that patriarchy from the viewpoint of the women is a much better deal than matriarchy. Under matriarchy the women may be part of a harem of clan women controlled by the head of the clan. They may be relatively faceless in that mass. Under Patriarchy there is normally a single husband who cares for a particular female whom he has acquired through bartering. The woman comes to live with the husband in his estate and is usually under the mother of the son. Thus there is normally only one other woman to vie with for power in the Patriarchal situation whereas with the Matriarchy there may be a whole host of other women that must be vied with for power and provision. Both situations can be miserable for women caught in these two cultures, or the circumstances can be more or less livable depending on the precise situation. The point is that it is not a case of there being a time when women were in charge and all was right with the world. Patriarchy and Matriarchy are equally dehumanizing and alienating for both men and women. In each the realities of power politics are just as intense and women who tend to be weaker than men physically were taken advantage of in both situations or not as the case may be.

One point that should be made clear is that

whereas some women are producing this mythology of a golden age for women, other women are doing research into primate anthropology, and finding out how primate groups actually operate in the wild, such as Jane Goodall. What has been discovered is that these primate groups tend to have a bimodal population. The dominant mode has the alpha male who asserts his territorial imperative and herds a harem of females. He is continually at risk from a group of beta males who would like nothing better than to take his place. The other sub-dominant mode of the population is made up of outcast females and outcast males (gamma) as well as the pharmakon¹⁴ (epsilon) who all the societies members might turn against. This bimodal pattern of the population has a lot of ramifications for understanding the primordial situation with humans which probably started off with something like this as their population pattern in the wild prior to any civilizing factors. It is probably this pattern that both Matriarchy and Patriarchy harken back to. In fact we can see Matriarchy as the pattern of the dominant mode where there is an alpha male and a harem of females with brothers as beta males. Patriarchy on the other hand has the looks of a contract between outcast males and females. Thus we can think of the change from matriarchy to patriarchy in terms of a shift from self-autonomy of independent clans with little trade to an interdependence and trade in females between clans that created ties between clans and a fluidity to the DNA pool that could not be achieved in Matriarchy as easily.

What is interesting is that the bimodal population can be easily seen as an evolutionary strategy for the production of diversity. For instance, it has been noted that females of the harem sneak off often to create

¹⁴ The "pharmakon" in ancient Greek society was the "scapegoat". The best examples of this are Oedipus and Odysseus. The pharmakon would be cast out to redeem the city from its sins against the gods.

relations with other males, in order to assure that they have a place to go should one of the beta males kill or drive off the alpha male, because the new alpha male will kill the offspring of the old alpha male. This strategy of finding a safe haven outside the harem is a strategy of the women to safeguard their children. The females have a big investment in the raising of the children which she seeks to preserve in the face of the killing of the alpha male on whom she depends. Also it can be seen how the pharmakon may be driven off from the territory and create his own new territory else where by taking a few of the outcast females with him. Thus the population as a whole has a mechanism to continually explore other niches in the environment and expand. Driving off of the pharmakon is just a way to assure the expansion of the population in to every available space.¹⁵

What is interesting is that Indo-European societies caste system bears striking resemblance to this age old primate bimodal population structure. In the Indo-European society there are four classes of males and one class of controlled females. We can see this primal caste structure in the relations between the Indo-European Vedic gods as well as in epics such as the Maharabhata. In the Epic there are five brothers married to one wife. Among the Vedic Gods there are five primary male gods and one female god. These distinctions within the caste system between the males, and lesser distinction between the females is an important point that needs to be recognized. Males are more differentiated than the females. Females are either herded or outcast. Males are one of five classes, including the pharmakon. These correspond very closely to the differentiation of males and females in the primate population.

However, we have also seen that in terms of Sol and Luna the division is opposite. In

other words Sol is divided into two categories and Luna into four, while in terms of caste structure Males are divided into four groups plus the pharmakon and females are divided into two groups. Females take on the caste of their husband and do not have to be as finely distinguished. Thus we find that the two ways of categorizing, one in terms of initiation and the other in terms of caste are exactly the opposite.

	Female	Male
Initiation/ Marriage	Luna Fourfold Chaos, Abyss, Night, Covering Changablity of women	Sol Binary Night, Day Two faces of Zeus
Caste	Split Female Hera-Nephele Helen in Troy or Egypt Faceless in Harem or Faced in Patriarchy	Four Classes of Men Alpha-Varuna Epsilon-Mitra Beta-Indra Gamma-Twins pharmakon

The reversed symmetry between these two views of male and female categorization within the Indo-European tradition is almost too good to be true. The fact that the categorization number is swapped is pretty amazing. It shows us that the distinctions within the male and the female are different in different circumstances. In initiation, i.e. the royal marriage they are reversed from the norm set by the Caste system. Initiation takes place outside the city and its dynamics are the basis for the static structures inside the city. In the Indo-European case there is a trial by fire and a trauma induction which takes place in the initiation ceremony in order

¹⁵ Bob Cummings pointed out this dynamic.

to test the candidates to see who can stand up to the rigors and best preserve the city. Some attempt was made in The Fragmentation of Being and the Path beyond the Void to unearth the structure of this initiation process which is distortedly mirrored in many myths as the taboo subject that is never described but always alluded to. By knowing that there are really various kinds of men and women going through the ceremony whose paths are different it is possible to begin to map out the transformations that may have occurred in the ceremony itself. Some attempt was made to do this in the accompanying presentation. This is however a work in progress and needs more research. But when we put the stages of the male initiation on one side and the stages of the female initiation on the other and then we attempt to track each class of participant given what we know of the kinds of events that may have occurred in the initiation itself then we begin to get a view of what that initiation process might have been like to some degree. Of course, we are looking through a glass darkly because there is no description of the initiation process only images of it in myth which must be put together from various sources. However, this is important because many people are making up initiation ceremonies today in order to try to revitalize our relations to each other and to our environment and communities by marking the stages of our lives. But the initiations performed by the Indo-Europeans were far more sinister because they had the purpose of inducing trauma in both the young males and females partially in order to see how they might react and partially in order to exert very strong social control.

The point of interest here is that the Sol/Luna division of male and female is complementary to another division based on the caste system which is rooted in the structure of primate communities and which is perhaps the instinctual base for all primates including ourselves. The caste structure divides males and females

differently from the initiation/marriage structure. These two divisions are complementary and stand as the next deeper strata below the dualism of the male and the fourfold changeability of the female that appears as celebrated in the Alchemical literature.

Moments of Serendipity and Synchronicity

In alchemy, there is much talk of the conjunction of Sol and Luna, or the Sun and Moon as symbolic of the Royal Selves of the Masculine and the Feminine. Alchemy is particularly difficult to understand. In our approach to it we will depend on Jack Lindsay's The Origins of Alchemy in Graeco-Roman Egypt¹⁶. This is an excellent resource which does much to make an extraordinary opaque subject clearer. Here we will propose a new theory of the nature of the *Mysterium Conjunctus* and extend the Jungian theory appropriately. It is the understanding of the nature of conjunction which is the key to alchemy as it is understood in this essay. Here we will see the Sol/Luna conjunction in terms of the relation between Duality and Nonduality within the Western worldview. However, it is necessary for us to approach this subject step by step in order for it to make sense, because the making sense of alchemy, calls for an interdisciplinary approach to the subject. You cannot understand alchemy by studying alchemists! This is because over the course of time the original sources have been corrupted and many individuals have attempted in vain to reconstruct the original nature of Alchemy. So Alchemy as a tradition contains a mixture of myth, proto-science, fantasy and myriad other features which is almost impossible to make sense of

¹⁶ Lindsay, Jack, 1900-. The Origins of Alchemy in Graeco-Roman Egypt. New York, Barnes & Noble, 1970.

by rational inquiry. The greatest attempt so far is that of Jung in his alchemical works where he sees alchemy as proto-psychology. Long ago in my senior thesis in Honors Sociology at the University of Kansas I wrote about the connection between Jungian Psychology and Symbolic Interactionism founded by G.H. Mead. At that time I read almost all of Jung's works except those that dealt with Alchemy which I found impossibly obscure. However, recently by serendipity or in a moment of synchronicity I noticed in the lecture notes of Edinger on Aion a diagram which drew me back into Jungian thought and led me to begin reading his Alchemical works. I first read Aion which contains Jung's version of the diagram in question discovering that what first drew my attention was indeed relevant to my other studies. Then, I continued on to read Mysterium Coniunctus because I thought it might also bear upon the issue at hand. However, I become bogged down about one third through that book not understanding what Jung was getting at. It so happened that our local Orange County Jungian Club had a Jungian therapist who decided to have a seminar on the book Mysterium Coniunctus, so we began reading the book together. The group was made up of several therapists and other interested parties. This caused me to begin also reading the other alchemical works of Jung such as his Alchemical Studies and Psychology and Alchemy and The Psychology of Transference. After our class finished I began reading widely in the history of alchemy and in alchemical works as available in English until I eventually found the book by Jack Lindsay which contained the key that I had been looking for in my search for my own meaning of alchemy.

I have a fundamentally different approach to Alchemy than the Jungians who I encountered in my reading group. I was prepared for their approach to the subject and to myself by a seminar which I attended of James Hillman. He pointed out in a way

that was not too flattering¹⁷ that Jungians tend to have a very narrow interpretation of Jung. The group that I was associated with seemed to be more flexible and adventurous than some of the reports would lead one to assume. However, my own approach was so radical because it was rooted in philosophy and so far beyond the pale because it was based in advanced systems theory that my fellow readers could not relate to it. I see Jung as a theorist who has developed and articulated a very interesting theory concerning the nature of the Self. However, the Jungians do not consider him a theorist but instead think of his works as a way to get into their own unconscious processes. I was interested in delving into that theory that Jung outlined in Aion and which he further developed in Mysterium Coniunctus. He was clearly struggling with the material of alchemy, and in the process of attempting to understand his theory as outlined in those two books I developed my own theories¹⁸ as to what he was really trying to get at. I believe that these theories that turn out to be radical interpretations of Jung's thought in light of Special Systems Theory should be considered as a means of revitalizing Jung's thought making it relevant again today in the Postmodern era. On the whole my experience with the study group was extremely positive because I came to many understandings of Jungian psychological theory that I would not have been able to grasp without their help, even if those realizations fell for the most part beyond what I might be able to share with the group. I did attempt to share a few of these understandings I had with the

¹⁷ Hillman quoted himself as having said that Jungians were "second rate people with third rate minds" which he corrected by saying that he should not have said that they were second rate people because he was not in a good position to judge that. His point was that he did not retract the quip about their having third rate minds. By that I interpret that he meant that Jungians as a movement tend to follow Jung to the letter and very uncreatively at that.

¹⁸ See Holonomic Human Processes ISSS 2000 at <http://server.snni.com:80/~palmer/autopoiesis.html>

group in a short presentation which I made to them. That presentation¹⁹ is the basis of this essay. From their reaction it appeared that only one of the members of the group actually could hear what I was trying to say about Jung and his views on alchemy. For the most part I believe that their reaction seemed to be mild shock and dismay. But even though I had quite a bit of trepidation about presenting such a radical view to that group, it led for me to some very profound insights which I would never have had if I had not made the effort so show them a world very different from their own. My world is that of Philosophy and Systems Theory which is fairly esoteric and the others present in that group would not be expected to be able to appreciate that approach to things nor understand how insights from philosophy could inform their understanding of Jung. But I believe in principle of sharing my world when I get a chance because through the reactions I get from others it helps me understand how they view me and perhaps they might get some insight into how I view things from this strange and esoteric perspective.

It is interesting that on the whole people who are interested in Psychology do not seem in the least bit interested in Philosophy, and on the other hand when philosophers consider psychology they only consider Freud and never take Jung seriously, or any of the other psychological theorists or practitioners after Freud. I believe that Jung and Philosophy, especially post-modern philosophy, have much that they could fruitfully share and consider in relation to each other. I am particularly interested in the relation between the work of Jung and Deleuze and Guattari. In my paper on "Holonomic Human Processes" I develop a theory of the archetypes between the level of Self and Atman. Jung concentrates on the archetypes

¹⁹ See http://dialog.net:85/homepage/kent_palmer.html for access to a copy of this presentation.

between Ego and Self. I posit that the special systems articulate the space between these various emergent levels, i.e. Persona, Ego, Self, Atman, Vishnu/Brahma/Shiva, Brahman. These articulations define the archetypes at each level in terms of the Dissipative, Autopoietic and Reflexive Special systems theory. The consideration of the confluence of Jung and Deleuze and Guattari, is just one of the comparisons that can prove enlightening with respect to postmodern thought, interesting comparisons may also be made with the work of Lacan, Derrida, Foucault, Bataille, Heidegger, Sartre, etc. In general the lack of consideration of the mutual informing of Postmodern thought and Jungian Thought impoverishes both. Jung had some fundamental realizations concerning the nature of the collective unconscious archetypes which he related to various cultural phenomena like alchemy and gnosticism. Postmodern thought has opened new horizons for the exploration of the philosophical nature of human existence which bears on the deeper understanding of the archetypes. For instance, Heidegger in his Contributions to Philosophy (From Enowning) and in his course on Parmenides has a discussion about the gods which is very relevant to understanding the nature of the complexes, or archetypes. Also relevant is Heidegger's consideration of the world as fourfold composed of Heaven, Earth, Mortals and Immortals in "The Origin of the Work of Art." Both the Jungians and the Philosophers would be enriched if they read a bit more widely of each other's work. Jung's work appears philosophically naïve to the Philosopher and Postmodern Philosophy appears overly esoteric. But both in different ways are approaching very similar phenomena²⁰. One might compare Jung's work on alchemy with Foucault's Archeology of Knowledge in The Order of Things. Jung is uncovering lost ways of looking at the

²⁰ Brooke, Roger, Jung and Phenomenology. London ; New York : Routledge, 1991.

world which he believes can inform our understanding of the human Psyche. One may compare his exploration of the Shadow with the work of Bataille in Accursed Share who attempts to get us to look philosophically at the dark side of life and by that developed the idea of the General Economy. One may compare Jung and Hillman's interest in the gods with Heidegger's own interest in the gods and his interpretation of meta-physics as the fleeing of the Gods from man. One may compare Heidegger's forgetfulness of Being with the collective unconscious. There are many aspects of postmodern thought that is relevant for the reassessment of Jung's thought.

One of the things I learned from my time in that reading group which was just ten weeks, (it was a very intense reading), that I did not share with the group at that time was that I learned through our readings and other experiences that what I had been doing for years in my own personal study was indeed a form of Alchemy. It is strange to find that what one has been doing, which one thought was unique and not engaged in by any other known groups of scholars, actually has a tradition, all be it a very strange one. The realization that I am an alchemist and that the alchemical tradition existed as a series of intellectuals very similar to myself, was a strange and wonderful thing, because up till that point I had felt very estranged from the scientific tradition within which I had been attempting to contribute. Now that I know that my approach to science is essentially alchemical and that others have had a similar approach in the past, but that this approach has been suppressed as pseudo-science/magic has given me some valuable insights into not only my own practices as a scholar and scientist but into the tradition of which I am a part. To me an alchemist is anyone who approaches both physus and logos with an eye toward the non-dual between them. It is clear that the alchemists did that from their works and I have also been trying to do that

independently form many years. But I did not get to that by studying Alchemy. Rather long after I had discovered an approach that would allow me to make sense of the non-dual within our tradition I discovered that hidden within the Western Tradition which is predominantly dualistic there is an alternative tradition which has always been rare but which existed and which was interested in the implicit non-duality that lies hidden between the dualistic opposites.

Now that I understand that this tradition exists of which I am part, even if I have only belatedly discovered my place in it, I wish to reform and set straight the misunderstandings of Alchemy which have become legion over the centuries as many have attempted to find a non-dual way of looking at things within our worldview, but many more have missed the point all together and have introduced foreign elements that have nothing to do with alchemy as I understand it. Because we are not going to be able to reform alchemy itself, which contains all the imperfect images of itself, I will give my view of alchemy the name Holonomic Alchemy to distinguish that alchemy which is primarily concerned with the relation between non-duality and duality. I see alchemy as the attempt to come to terms with this intertwined relationship between the duals and their conjunction in the non-dual which is called symbolically the Sol-Luna conjunction or the Mysterium Coniunctus or Royal Marriage. This vision of alchemy will not appeal to everyone, but hopefully as we go along it will become clear that it has some strong explanatory power not only to make sense of alchemy, but to make sense of the Western Tradition of philosophy and science with which Holonomic Alchemy is intimately involved. Alchemy is not proto-chemistry. Rather Alchemy is an alternative way of looking at Science which takes into account the non-dual aspect of things. Alchemy is an alternative science within the Western Tradition which has just as strong a basis as normal dualistic science. In fact, just as I showed earlier, the non-duals within our

tradition can only be known by the duals. In fact the reverse is true as well. The duals can only be properly appreciated from the vantage point of the non-duals. In fact, that is what is missing in normal Western science, an appreciation of the role of the non-duals. Traditionally they have been negatively signified by women, who in spite of their oppression are an ever present reminder of the non-dual through the negative-fourfold that haunts the positive-fourfold. In terms of science today they are signified by pseudo-sciences such as acupuncture and homeopathy which haunt normal medicine. Alchemy provides the foundation for understanding these alternative medicines and other alternative approaches to things which are rejected by Western science, but which nevertheless seem to have some efficacy, despite the deprecations of normal science.

My own approach which led eventually to an understanding of alchemy is rooted in Philosophy of Science which I studied at London School of Economics while I was there doing a Ph.D. in Sociology. I was taken at that time by the arguments of Feyerabend Against Method. His dictum is that "Anything Goes" in terms of Scientific Method. In other words, there is no royal road to scientific discovery. I personally have taken that as a basis for my own study of Acupuncture and Homeopathy as alternative sciences, with the intention of attempting to see what they have to offer that perhaps has been overlooked by our predominant Western approach to Science. I have done my best to understand what Traditional Sciences have to say beyond the projections onto them of pseudo-science, proto-science, or magic and superstition. In other words, can we look at these traditional sciences afresh and glean from them the alternative ways they have of seeing the world, which could help us to see the world better ourselves and perhaps solve some of the problems that our normal way of looking at things create.

By a variety of routes, this search has led to the discovery, by serendipity or synchronicity, a new basis for Western Science that is wider than normal science, which builds a bridge between it and these traditional sciences which have very different approaches and assumptions. I call this wider approach and basis Mainstream Science. It is called mainstream because it connects Western Science to a much broader and deeper tradition that came before it and continues on beside it. Part of that continuation is the shadow tradition of Alchemy that looks at the nondual in the midst of duality of the Western Tradition. Part of Alchemy is Homeopathic Medicine and Acupuncture Medicine which are both disciplines that use this non-dual aspect of the world to create alternative medical practices. My premise is that Western Science has much to learn from these alternative approaches rooted in tradition which it cannot understand because they violate some of its fundamental assumptions. In other words the comprehension of traditional mainstream sciences, i.e. alchemical sciences, depends on undergoing a paradigm shift, or some even deeper shift in the basis of understanding such as an episteme shift, shift in the interpretation of Being, or shift in our understanding of existence. Mainstream science, is not just some foreign traditional sciences, but also resides right within our own tradition as alchemy which was practiced seriously as by Western scientists and intellectuals at least late as Newton. There are many others since Newton who have like Pauli thought that there must be something beyond quantum mechanics and relativity theory which involved the recognition of consciousness as implicated in physical phenomena. One attempt to bridge this gap that is interesting is the work of Fred Alan Wolf in [Dreaming Universe](#).

The basis of Mainstream science is the series of prophets to mankind which are recognized within Islam to be about 124,000 in number

since Adam²¹ down to Muhammad²². A prophet can be asked two different kinds of questions. One can ask a question about God or a question about Creation. The answer to the former is the doctrine of Tawhid, i.e. concerning the unity of God. The answer to the later is normally some heuristic concerning the natural rolling over of opposites in creation. Part of my study has been to try to piece together the archeological remains of these heuristics as a way of forming a basis for understanding acupuncture and homeopathy. The basis for this has been the Western Sufic works as well as works from Buddhism and Taoism. Today we have a rich vista of the past that it behooves us to take advantage of not only in our attempts to understand ourselves but in order to understand the relation of Western culture to other cultures.

Although I have taken advantage of Buddhist, Taoist and Islamic Sufic works in order to attempt to understand the basis of Mainstream Science prior to and independent of the Western Scientific tradition, it is not particularly through these works that I have discovered the basis of Alchemy as I understand it. Instead, part of my study had to do with the relation of homeopathy and acupuncture theories to modern mathematical discoveries and their relation in turn to systems theory. One day in about 1993 I suddenly by synchronicity or serendipity asked what two completely independent lines of investigation might have to do with each other. Bateson says in Mind and Nature that we get better quality information when we study two completely different subjects simultaneously. That has been a practice of mine for a long time. But it was completely by accident that the two subjects I happened to be studying bore unexpected fruit when this question was asked at that time. The answer led to the discovery of what I call Special Systems Theory and the theory of

Emergent Meta-systems. My major paper on this subject is called *Reflexive Autopoietic Dissipative Special Systems Theory*²³. Once I had developed the theory of Special Systems and the Emergent Meta-system with the help of Onar Aam and Ben Goertzel who I had the fortune of meeting via the Internet about that same time and with whom I had many engaging and interesting discussions over the years, I began searching for evidence that these peculiar systems theoretic structures had been known in the past. Part of that search led to the understanding of the role they played in Buddhism, Taoism, and Islamic Sufism. Another part was the role they played in traditional sciences such as Acupuncture and Homeopathy. This theory has many amazing features not the least of which is the way it extends modern Western science and defines for it a new cutting edge while at the same time giving us access to understanding how traditional sciences that are normally beyond the pale fit into the picture of Mainstream science of which modern Western science is a diversionary eddy. Part of that also has been the understanding how Alchemy kept the concept of non-duality alive even with the mainly dualistic Western Philosophical and Scientific tradition. It is a role that was little appreciated until Jung noticed the similarity of Alchemy to the dynamics of the unconscious in his patients. Jung's work can only be seen as brilliant because not only did he intuit the existence of the collective unconscious archetypes which correspond to the Special Systems but he also developed a positive theory of transformations within the Self which he derived from his study of Alchemy which is a very precise model of the Emergent Meta-system. How Jung was capable of this insight that goes against all Western scientific intuitions of his day and without the support of modern systems theory, is unknown and speaks of his profundity and brilliance. He went completely against the Science of his day to

²¹ May Allah bless him.

²² Peace and blessings of Allah be upon him

²³ <http://dialog.net:85/homepage/autopoiesis.html>

recognize the importance of these very esoteric systems theoretic constructs which he somehow drew out of his study of Gnosticism and Alchemy as well as his wide reading of foreign cultural milieus. However, he did this, it was an amazing leap of insight which I am still marveling over today.

Unfortunately, without the theory of the Special Systems and Emergent Meta-systems clearly articulated, it is difficult for others without the same level of insight to see precisely what he meant by the theoretical concepts he elucidated. Also, it seems the Jungians themselves have little insight into the real brilliance of their master, due to their being a little too literal in their following of him. In fact, reading Jung or Alchemy is really no use in coming to terms with these issues, because their nature is so counter intuitive that we readily misinterpret what Jung is saying, which still to him was not all together clear. It seems that he as well as the Alchemists were looking through a glass darkly, but still in spite of these limitations they were on to something very profound and their contribution should be recognized. But because their terminology and the way their concepts are expressed are so foreign to modern scientific ways of thinking about things it is difficult to see what the nature of Alchemy is starting either from Jung or the Alchemists. However, once the pattern is recognized then it is clear that they are talking essentially about the same thing as is contained in Special Systems Theory and Emergent Meta-systems Theory. In fact, there is a long history that is discovered by an archeology of knowledge of works that indicate these special systems through out our tradition and other foreign traditions. By linking up these various glimpses of the Special Systems and the Emergent Meta-Systems we get a pretty good picture of how these systems work and how they were perceived down through human history which is the traces of mainstream science in various cultures and civilizations.

In this essay we will introduce the rudiments of both Special Systems Theory and the Theory of Emergent Meta-systems and show how they give a rigorous basis to Alchemy and various related alternative or traditional sciences such as Acupuncture or Homeopathy. But in particular we will marvel at how Alchemists saw and recorded their observations of this possibility of non-dual approaches to what is normally split dualistically between logos and physus within our Western dominant philosophical and scientific tradition. And ultimately this all takes us back to a deeper understanding of what it meant by the Sol-Luna conjunction, which is also known as the *Mysterium Coniunctus*. It is difficult to talk about the non-dual because it is hidden and suppressed within our dualistic tradition. That is why we need to look at other traditions which do not actively suppress the non-dual such as those of Buddhism, Taoism and various Hindu traditions such as the Advaita Vedanta. Just as Luna, the negative fourfold, has been suppressed within our tradition, so it is with everything non-dual. That is why it is such a large paradigm, or episteme, or interpretation of Being or approach to existence **shift** for us to talk about the Special Systems and the Emergent Meta-system. It changes our whole way of looking at our own tradition and takes us back into Mainstream Science, where Alchemy becomes a viable approach that is an alternative to normative dualism and that supports such traditional medicines as acupuncture and homeopathy as examples of viable alternative scientific practices.

The presentation in this essay will be brief and to the point because more elaborate explanations exist elsewhere.

Systems Theory

We start with Systems Theory as it stands today because that is our way to plug into the tradition of Western Science and lead others up to the point where they can critique our results. Systems theory is best seen in the

work of George Klir called Architecture of Systems Problem Solving. This work is a turning point in Systems Theory because it is the first work that said more than merely *everything is a system*. This work actually gives us a view of the formal structural systems theory which is the foundation of almost all of Western Science. The key point necessary for us to understand here about systems is that they are social gestalts or flows and that as gestalts they are wholes greater than the sum of their parts exhibiting emergent properties. When we look at phenomena first we try to prove things about it as a formalism, when this fails we attempt to explain it based on its structure or process characteristics at the level of patterns of content, when this fails we attempt to describe the system as a social gestalt or flow. The "formal structural-process system" combines proof, explanation and description into a single way of approaching phenomena which is very successful in our tradition. George Klir gives a good non-discipline-specific introduction to this way of looking at things which concentrates on the architectures of such formal pattern systems. Systems Theory itself is very well understood, this broader combination of several schemas of understanding is beginning to be better understood. The only point which is genuinely new in this part of my presentation is the idea that gestalts and flows are duals of each other and that both fit into the schema of the system, and the idea that systems are not objectively given but are instead socially invented, constructed and projected gestalts/flows. In other words we approach directly through Social Phenomenology the question of whether there can be a disinterested scientific observer and we find that to be a fiction in every case. In the general case the observer is always a social group and individual observers are a reification and degeneration from the level of the social observer of gestalts and flows that we reify and call the general schema name of "system".

Meta-systems Theory

We are good at seeing systems which we describe as a last resort, but what we are not good at doing within our Western tradition is seeing the side effects in the environment of systems. The totality of these side effects we will call meta-systems. Meta-systems are deconstructed Super-systems. Super-systems are nested systems within systems within systems. When we deconstruct a super-system we see it as the environment of the sub-systems within it. Such environments, ecosystems, ecologies, milieus, contexts, situations of systemic gestalt/flows are called meta-systems. We would like to call them a better name, which would be Archons after the functionaries of the Athenian city after the king was deposed and democracy formed. This usage also would align with Jung's use of the term Archetype which he saw as aligned with the Gnostic use of the term Archon which ultimately came from the same source. It also aligns with the use of the term Architecture as the built environment of human scale systems. All the other general schemas that we know of have names that do not refer to other levels such as

Pluriverse
Kosmos
World
Domain
Archon (meta-system)
System
Form
Pattern
Monad
Facet

Meta-systems are particularly hard for us to see and so we do not even have a unique name for them.

The important thing about Meta-systems is that they are wholes less than the sum of their parts rather than the more. In other words they have an explicit deficit in relation to the

surplus of systems. They have holes and niches exactly adapted to hold the systems and anti-systems that appear within them. They act as filters to keep out maladapted systems and anti-systems. We call the meta-systems a proto-gestalt or proto-flow because they are the deeper background on which we see the gestalt or flow as a super-figure in a higher level gestalt type conceptual or perceptual grasping. Because we are blind to Meta-systems the opposition and dualism between them is hard for us to recognize. But they are duals to each other in the way the universal turing machine as an operating system is a dual to the turing machine, or the way the operating system of your computer is a dual to the applications that run on your computer. You need a particular operating system because the applications only work in one environment which is the origin that gives rise to them and the arena within which they operate and interact with other applications. Meta-systems at the first level are always complementarities between origin and arena. At the next level down the participate in meta-complementarities such as that between origin/arena and source/boundary. Meta-systems are not unified but are interwoven complementarities of complementarities. Systems on the other hand are always unified in contrast to their environments which are detotalized totalities, as Sartre expresses it in Critique of Dialectical Reason. A good view of this difference is given by Bataille in Accursed Share where he contrasts the "general economy" to the "restricted economy". Arkady Plotnitsky in Complementarity gives a good account of how this relates to the philosophies of Bohr and Derrida.

Special Systems Theory

We have defined the difference between wholes greater than the sum of their parts (Systems as gestalts/flows) and wholes less than the sum of their parts (Meta-Systems as proto-gestalts/proto-flows). This is a key difference, what Bateson *calls a difference*

that makes a difference. And when we look at it very carefully we might suddenly ask ourselves if it is possible for there to be a whole exactly equal to the sum of its parts. This is the only other possibility that stands as a non-dual between the dual of excess and lack in terms of systems. Perfection is something that Western science normally does not search for, it assumes that each thing is probabilistic and in some sense accidental and imperfect. Perfect balance seems a remote possibility. However, it turns out on close examination it can be ascertained that this possibility not only exists but is realized in actuality. In fact we ourselves as social creatures are an example of that realization of perfect balance. In fact, all creatures are an example of autopoietic, i.e. homeostatic balance within their environments which has to be precise enough within certain limits to sustain life.

When we delve into this possibility of a third, non-dual, kind of system we eventually see that there are exactly three kinds of these rare and anomalous systems.

Meta-system	Sedenion Hyper-complex Algebra	deficient number
Reflexive Special System	Octonion hyper-complex Algebra	sociable number
Autopoietic Special System	Quaternion hyper-complex Algebra	perfect number
Dissipative Special System	Complex Algebra	amicable number
System	Real Algebra	surplus number

This possibility of perfection can be seen in the possibility of a perfect number²⁴. These numbers divisors add up to the number itself as in the case with 6 and 28. They are rare but important kinds of numbers. There are more numerous numbers called Amicable whose divisors add up to each other such as 220 and 284. Both of these kind of numbers were known since antiquity but more recently the Sociable numbers were discovered which are a sequence of numbers in which each's divisors adds up to the next total and so on around a circle of numbers such as 1264460, 1547860, 1727636, 1305184. The point is that amicable and sociable numbers have deferred perfection compared to the perfect numbers, they involve other numbers in the perfection of each other. But they are perfect numbers ultimately none the less merely in various grades of differing and deferring with respect to perfection. The key is that perfection is not simple as we might assume, but is approached by degrees. These degrees are analogies for the Special Systems. Another deeper mathematical basis for the Special systems is the Hyper Complex Algebras. This deeper basis will not be explained in detail in this paper but it is another way to define special systems which is even more precise from a mathematical point of view.

The special systems appear in three kinds called Dissipative after the theory of Prigogine who talks about Thermodynamic neg-entropic dissipative ordering structures, Autopoietic after the theory of Maturana and Varela concerning the self-organizing nature of living/cognitive systems, and after the theory of reflexive social systems developed by O'Malley and Sandywell. These theorists give some theoretical definition to the kinds of Special Systems that we more rigorously define using Hyper-Complex Algebras. Our difference from these modern systems

theorists is that we base our reasoning about these special kinds of systems as much as possible on the mathematics of hyper-complex algebras. The hyper-complex algebras have some very strange properties that have not really been used very much in normal physics, which perfectly describe non-dual kinds of systems. We discover the properties of these special systems by the loss of the algebraic properties. For instance, moving from real to complex algebra there is a loss of unity of the element within the algebra and the introduction of the conjunction which is signified by the plus sign between the real and imaginary parts of the complex number. Moving from complex to quaternion algebra we lose the commutative property which suddenly makes actions important because they cannot be reversed with impunity. Moving from quaternion to octonion algebra we lose the associative property which suddenly makes social aspects of systems significant. Moving from the octonion to the sedenion algebra we lose the division property which plunges us into a field. That field is infinitely deep because there can be infinitely many non-division algebras out past the sedenion as we follow the Cayley-Dickson process which produces the possible algebras filling in the lines of a Pascal Triangle of these complementary meta-systems which is infinitely deep.

Special Systems are a hidden and unexpected possibility which is rigorously based on algebras that define the differences between and properties of these partial systems and at the same time partial meta-systems. We call them holons because they look as Koestler suggested both up toward the system and down toward the meta-system at the same time. They are two faced holons which are non-dual, i.e. they are a third possibility that is not one nor two but existent between these possibilities. They are not unified in the sense of standing alone separate from the distinction between system and meta-system but nor are they dual in the sense of being

²⁴ <http://xraysgi.ims.uconn.edu/amicable.html>

either one or the other. They are non-dual, i.e. a hidden possibility between the extremes of system as surplus and meta-system as deficit. When we study this kind of ordering of holons we call that discipline holonomics. Holonomics attempts to understand the complex ordering of the various kinds of systems defined by the Hyper Complex Algebras but also attempts to apply that order to phenomena in the world which exemplify that order. At this point we have at least one kind of physical system exemplifying each of the special systems. Dissipative systems are exemplified by solitons. Autopoietic special systems are exemplified by Cooper superconducting pairs. Reflexive Special Systems are exemplified by any macro-quantum mechanical systems such as the Bose-Einstein condensate. There are multiple anomalous series that can be seen in mathematics to indicate the differences between the special systems. For instance, the series of lemniscate, mobius strip, kleinian bottle and hyper-kleinian bottle have strong indications as to the nature of the series of special systems. A similar case can be made for the series soliton, breather, instanton super-breather (multi-monopole). There are not many instances of physical systems that have this form at this time but then no one has ever looked for them before. What we have at least is a proof of existence by example. Special Systems are not just mathematical possibilities but exist as very rare and anomalous physical phenomena showing that they are not just whimsy.

Special Systems Theory is a new branch of General Schema's theory which introduces the schema of the Holon along side the System and Archon.

Emergent Meta-Systems Theory

When we take the normal system and add to it the Holons of the Dissipative, Autopoietic and Reflexive Special Systems then we get something called the Emergent Meta-system which is a dynamic by which Meta-systems

are produced from their constituent parts, i.e. systems and holons. An Emergent Meta-System (EMS) is composed of a series of meta-elements and meta-operations that flow in a series to produce something from nothing. Seeds in a pod via the creation meta-operator produces monads. Monads in a swarm via the mutual action meta-operator produces views. Viewpoints in a constellation via the gestalt pattern formation meta-operator produces candidates. Candidates in a slate via the annihilation meta-operator produces seeds. This series is very similar to what Ben Goertzel calls Self Generating Systems in his book Chaotic Logic. The key here is the idea of radical discontinuity between cycles of the EMS cycle. Each rebirth of the cycle is seen as a new creation ex nihilo, out of emptiness or the void. We see this as the hallmark of the dynamic of Existence as opposed to Being which assumes some level of continuity. Symbolically we see this as the sign of the Dragon in Chinese culture which is the creature that haunts the distinction between form and no-form.

In Indo-European culture existence is suppressed by Being which seeks to vilify and destroy this dynamic of existence and to paper it over with the projection of Being. Zeus/Apollo killing the Typhoon/Python is a case in point of this destruction of existence seen as the evil monster and killed in order to institute dualistic dominance. Once we understand that there is a specific form to existence as creation ex nihilo under the assumption of fundamental discontinuity as opposed to Being which assumes continuity and denies creation ex nihilo then we are placed in a better position to understand our own tradition and to contrast it with other traditions which more readily recognize the possibility of non-dual positions with respect to things. David Loy in his book Nonduality gives many examples of this from Eastern Philosophical and Religious systems.

Much of my own work has been as an

mere juxtaposition of two real numbers. One such property is the Mandelbrot set that exists only in the imaginary plane. It is this symmetry breaking that makes the hyper-complex algebras different from the real algebra as they successively lose important algebraic properties. With each property lost there is the emergence of some particular systems theoretic properties. For instance with the emergence of conjunction in the complex algebras the elements of the algebra lose their unity. When the commutative property is lost then mutual action becomes irreversible. When the associative property is lost then it matters what elements are associated with other elements. In each case there is a difference between the conjunction of elements from the next lower algebraic level and the level in question. For instance, a complex number is different from a vector of two real numbers. A quaternion is different from a conjunction of two complex numbers. An octonion is different from the conjunction of two quaternions. In each case there is an asymmetrical symmetry breaking that transforms the one complex transformational space into another. In that transformation what was two separate and equal elements becomes a single field with emergent properties. The relations between the elements become asymmetrical at the new level under the operations of the higher level algebra. Thus $x+x$ becomes $x+i$; $(x+i) + (x+i)$ becomes $x+i+j+k$; and $(x+i+j+k) + (x+i+j+k)$ becomes $x+i+j+k+I+J+K+E$. But at each level all the lower level conjunctions still hold. So at the level of $x+i+j+k+I+J+K+E$ there is still $(x+i)+ (x+i)+ (x+i)+ (x+i)$. Conjunction keeps previous levels of organization as subgroups within the new level of organization. This is why these systems are holonomic. They do not lose their lower levels of organization when the next higher level of organization occurs, rather both obtain together at the same time. Thus we can see them as Janus faced holons which respond to higher level organizations without losing their lower level organizations. The production of the new

field allows the previous separation and independence to be maintained within a new context. The result is a nesting which does not merge the conjoined elements but holds them apart yet together at the same time. This is a model for conjunction which is not dualistic domination of one opposite over the other, but instead a model of cooperation and teamwork where interpenetration exists along with separation and maintained isolatability. There is an important lesson in this for Alchemists who want to model the non-dualistic union of Mercury and Sulphur or Sol and Luna. Hyper-complex algebras give us a very precise mathematically based model of how such a union might be effected. And what is important is that we can see exactly this kind of union in specific anomalous phenomena like the Cooper Pairs in Superconductivity. Thus it is not just a mathematical model but is also realized in rare forms in nature.

How is this like chemistry: Once we realize that the Special Systems are building blocks we can imagine how we might constitute a discipline like chemistry through the realization of the various types of conjunction between these building blocks. For instance, we might wonder what is the nature of one autopoietic special system with a dissipative special system [A+D]. Or we might wonder what is the nature of the conjunction of a reflexive special system with an autopoietic special system and a dissipative special system [R+A+D]. It is possible to image a kind of chemistry of holons which I believe Alchemy to have originally consisted of as a very special kind of science. Chemy refers to blackness, the blackness of prime matter, i.e. the void. Holonomic systems pop out of the void due to the fact that the void has an inherent holonomic order embedded in it that gives rise spontaneously to the special systems. Out of this void, or emptiness of prime matter there might arise various conjunctions of the special systems in a particular discipline. Al-Chemy refers to the

understanding of holonomic relations between various holons in combination, i.e. super-conjunctions which make up the meta-system or environment. Al-Chemy in this sense is both a new field which seeks to understand conjunctions within the ecosystem and a very ancient discipline which attempted to produce similar kinds of conjunctions in the laboratory. It is difficult for us to imagine how dyeing and metal works in Egypt managed to combine with Neo-Platonism to produce a science of holons but it is clear that there was an obsession with color and coloration of materials especially metals. In some way this obsession with coloration is related to the investigation of the nature of higher level conjunctions of holonomic systems. Goethe became interested in color in similar ways during the romantic period. We might speculate that somehow what David Chalmers calls the problem of Qualia in The Conscious Mind was involved. In other words different observers may see colors very differently. We know that the alchemists were interested in producing color transformations. They would transform metals from Black to White to Yellow to Purple or later from Black to White to Yellow to Red. They would have some phenomenological experience of these color transformations which seems to have been the purpose of the experiments just as much as the production of tints of metals. What has been assumed up to this time is that Alchemists worked alone to produce and view these results. However, it could have been that they worked in teams and that they attempted to compare their phenomenological experience of the colors with each other. When we consider this possibility then it becomes clear that there is a combination of surface coloring, transformation, and multiple view points on the qualia produced involved in the experiments. We know that qualia causes multiple subjective worlds to proliferate in ways similar to quantum uncertainty. If we take a view of social phenomenology and assume that there might

be a macro-quantum mechanical way of looking at phenomena which is both qualia and quantal at the same time, then we begin to wonder exactly what these experiments of the alchemists might have been. We know that it is possible for shared hallucinations to appear as a social group constructs or invents phenomena, and it could be that when these hallucinations occur there is some access to a level of reality which reveals the nature of holonomic conjunctions of special systems. The alchemists are doing what Western theorists have not yet done, which is experiment with the nature of observation itself. Paul Feyerabend in Against Method talks about how Galilio was shocked when the viewers did not all see the same thing out of his telescope. This was because they did not have his theory to guide their perception. On the other hand when a group shares a theory such as the alchemists did then they might all see the same thing due to shared hallucination because they have the same theory. If we concentrate on the process of shared observation and concentrate on color changes then we run right up against the problem of categorization of colors and the strange nature of the color spectrum. It could be that when alchemists concentrated on these phenomena together they found some way to study higher level conjunctions of holons. Out of this came the rules: Nature produces Nature, Nature conquers Nature and Nature delights Nature. What is the nature of Nature produces Nature conquers Nature OR what is the nature of Nature delights Nature produces Nature conquers Nature. Nature in each case is a variable around which the holonomic meta-conjunction folds back on itself. What the alchemists saw and generalized was that only three kinds of special systems were involved in the quality/quantity conjunctions that occurred in their shared hallucinations. In other words they may have been observing mutual observation something that is not considered in modern Western Science and prevents it from being reflexive. This is merely a hypothesis. But we need to think

through seriously what these early alchemists might have been up to which would have opened up the direct experimentation on special systems to them which continues to be closed to us. We only find these systems when we get down to quantum levels where micro-quantum mechanical rules take over. However, it may be that macro-quantum mechanical states are observable under special circumstances, as in the case with the Bose-Einstein condensate, which allowed the alchemists to produce a science of holonomic conjunctions in the mesosphere of human experience. That macro-quantum mechanical sensorium may be related to the qualia differences that may exist splintering subjective experience into multiple worlds. But there is still the relation of the common world to the splintered subjective worlds that needs to be considered. It is on that transition boundary that holonomic conjunction may become observable at the meso level of shared human experience.

Jungian Holonomic Archetypes

I believe that Jung, among others, already found the special systems within consciousness, the so called psyche, and called them the archetypes. The point is that no one up till now has had a mathematically based theory of them before. That is my lone contribution, which is to see that the emergent differences between the levels of archetype that Jung posited can be seen in the relations between the hyper-complex algebras, the soliton series, the mobius-kleinian series, and certain anomalous natural phenomena. But once we discover this mathematically based systems theory we suddenly have quite a bit of leverage to go back and rigorously deal with the conceptual theoretical structures defined by Jung and other precursors. We posit the following basic analogy between Jungian Archetypes and the Special Systems:

SELF DETOTALIZED TOTALITY	SELF AS THOU DETOTALIZED TOTALITY ²⁵	META-SYSTEM (GENERAL ECONOMY ²⁶)
WISE OLD MAN	CATHONIC FEMALE	REFLEXIVE SPECIAL SYSTEM
ANIMA	ANIMUS	AUTOPOIETIC SPECIAL SYSTEM
SHADOW TRANSFORMS WHEN INTEGRATED INTO FEMININE WISDOM OF THE WISE OLD MAN	SHADOW TRANSFORMS WHEN INTEGRATED INTO MASCULINE WISDOM OF THE CATHONIC FEMALE	DISSIPATIVE SPECIAL SYSTEM
MALE EGO	FEMALE EGO AS ALTEREGO	SYSTEM (RESTRICTED ECONOMY)

Once you understand this analogy and the implications of the special systems theory that it alludes to then one is suddenly in a position to be much more exact concerning what Jung was saying when he talked about the archetypes and their interrelations. I have explored the next level up, i.e. the relations between Self and Atman, instead of the relations between Ego and Self in my paper on "Holonomic Human Processes"²⁷.

What is most interesting is that a transformation occurs in individuation in which the shadows of the male and female respectively are turned into masculine wisdom of the Cathonic Female and feminine wisdom (sophia) of the Wise Old Man of the Sea. This transformation accords with a series of stages of initiation for men and women which are opposite each other as they go through the kinds of Being in different but reversed orders.

<u>Female</u>	<u>Male</u>
PROCESS male wisdom	PURE female wisdom
WILD Cathonic Female	HYPER Wise Old Man
HYPER Animus	WILD Anima

²⁵ Sartre's term from Critique of Dialectical Reason

²⁶ Bataille's term from Accursed Share

²⁷ <http://dialog.net:85/homepage/autopoiesis.html>

PURE uninitiated girl	PROCESS uninitiated boy
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So as you can see the process of initiation is different from the articulation of the levels of the special systems. In the process of initiation defined in existence the shadow is absorbed and turned into wisdom and the stages of the process of initiation is defined in terms of Being whereas the structure of the Self is defined by existence of the special systems.

It is interesting that the series of the meta-levels of Being defines the difference between the Castes within the Indo-European city as has been seen in The Fragmentation of Being and the Path beyond the Void. The initiation process that takes place outside the city gives these kinds of Being as stages of initiation in a different order than is found to be the order of their logical generation. This is a very significant point. The ordering of the various kinds of Being has a significance in the Indo-European worldview. The order of initiation is dynamic while the order of generation is static. Inside and outside initiation the males and females both experience these different orders.

The juxtaposition of the different kinds of Being in a single formation is called a face of the world. Initiation has one sort of face of the word while the Caste system has a different sort of face of the world. Men and women in their lives experienced both of those faces in early Greek society.

Mysterium Conjunctus

The mysterium conjunctus is seen as the juxtaposition in the individuated male and female of each level of the emergent hierarchy of the special systems. In other words:

Meta-System	Self	Thou
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Post dissipative	Sophia Female Wisdom	Philos Male Wisdom
Prior reflexive Post autopoietic	Wise Old Man of the Sea (Poseidon)	Cathonic Female (Persephone)
Prior autopoietic Post reflexive	Anima	Animus
Prior dissipative Post vanishes	Shadow	Shadow
System	Ego	Alter Ego

The meeting of the couple on the level of the Ego is as individuals who are married by law. Each of them carries into this marriage their shadows which they each absorb unconsciously from each other by contagion regardless as to whether they attempt to avoid it or not. But as individuation occurs in their relationship and with respect to themselves separately then the shadow is accepted and the totality of the Self of each begins to emerge. The Animus and Amima are autopoietic systems which join together to produce the reflexive system of the marriage which is an environment for raising children. The environment of the marriage that is the origin and arena of children as a social field is like the garden, which when they grow up the children must leave as Adam and Eve did. For the children the parents are the autopoietic level and the grand parents are the reflexive level, the extended social situation. Beyond that there is the meta-systems of the various horizons

of the total environment. When the shadows are absorbed into the Selves of the couple who engage in a Self-Thou type relationship leaving behind the I-It kinds of relationship of the non-individuated, then the entire complex flips over. The wisdom of the Wise Old man is feminine, he understands the feminine better than himself. The wisdom of the Cathonic Female is masculine, she understands the male better than herself. Each understands the other better than themselves and thus they can mutually support each other. At this point the wisdom becomes dissociative and the two as Wise man through enlightenment and Wise Woman through endarkenment become autopoietic, i.e. established as independent and autonomous in their conjunction. Thus the Animus and Anima levels become reflexive after individuation, that is to say they become inverted and reversed images of each other in a reflexive social dance animating the royal marriage.

Mysterium Coniunctus is when the couple meet each other genuinely at each archetypal level. The symbol for this is shoe laces which intertwine at various levels exchanging roles gender roles. We tend to wear our interior realities on the outside. For instance, men have many pockets, one over their hearts while women have one bag. This shows that the male disperses the female energy over his body but at the same time brings it close to his heart. Women carry the feminine energy in their hands and it is easily lost or detached from them. Men on the other hand tend to have only one zipper located at a crucial point with respect to their anatomies, while women may have several zippers none of which are located at that point. Men and Women have buttons opposite each other to show their reversal while these symbolic parts of their dress indicate inversion.

The mysterium coniunctus is simple when we know what the levels of archetypal differentiation are and how they are related to each other. It is the meeting of the

individuated male and female in their individuated relationship at each level of articulation of the archetypes including the full self-thou relation.

Jungian view of the Emergent Meta-system

Jung spends a lot of his time and effort in his last two books talking about the Quaternary of Quaternaries that leads us from the Anthropos to the Mortal Man to the Snake to the Lapis back to the Rotundum which is seen as identical to the Anthropos. This theory proposed by Jung is an image of the Emergent Meta-system drawn from diverse Alchemical and Gnostic Materials. It is unclear what the origin of this vision of Jung might be except perhaps the vision of Ezekiel. We interpret the laps as the quintessence which is the *both...and...* of all the aspects of Being as opposed to existence with is the *neither...nor...* of all the aspects of Being. Here the aspects are truth, reality, identity, and presence. Quintessence is all four and their opposites simultaneously while existence is none of the above nor their opposites. Quintessence refers to the fifth element which is impossible, and the quintessence is impossible in the regime of the non-contradiction just as existence is impossible in the regime of the excluded middle. Excluded middle and non-contradiction are complementary opposites which define Being as an *either...or...* sort of state as opposed to all others.

Jung's Quaternary of Quaternaries, i.e. 4^2 , juxtaposes the transcendence of the Anthropos who knows God to Existence which has none of the aspects nor their opposites and stands in for the void out of which God created His creatures. Also it juxtaposes the ordinary man with the impossible fifth element which has all aspects and their opposites. It is a picture of the arising out of the void symbolized by the

serpent of existence, i.e. the dragon, of paradise which then gives rise to the tree and the well of the primal Indo-European scene. Then that tree and well image produces the lapis, or the impossible concentration of pure Being which then gives rise to the four elements that together form the dust of Adam or the man who knew God. Adam gives rise to Moses or the man caught in time who has his good and bad marriages. It is the bad marriage that produces again the serpent which leads to destruction yet again destroying the garden of the happy marriage.

This image of the EMS shows us how the *Mysterium Coniunctus* is held within a special dynamic of existence that lays below the dynamic of the projection of Being. At some level the *Mysterium Coniunctus* is also the marriage of Existence and Being which each have their own dynamic which produces the other.

Gilgamesh: I had a question as I read *Mysterium Coniunctus* that persisted from the reading of *Aion*. That was whether the set of quaternary of quaternaries that Jung inputs to Moses was had in any basis in the tradition. You will remember that Jung says that the Anthropos through the higher marriage of Moses gives rise to the Man which then through the lower marriage gives rise to the serpent that via the Garden gives rise to the Lapis which in turn via the elements gives rise to the Rotundum that is identical with the anthropos. This sequence is precisely like the Emergent Meta-system structure that combines the special systems with a normal system to produce dynamically a meta-system. However, this whole image appears to be contrived by Jung with no specific classical source except his reference to the vision of Ezekiel which is not very precise. So as I wondered about this problem my attention somehow was taken to Gilgamesh. On rereading the Sumarian Epic in this context I realized that it had within it exactly this structure in a very clear and unmistakable way. Gilgamesh and Endiku

are a conjoined pair. One is half man half animal and the other is half man half god. Endiku dies. Gilgamesh decides to go see the Sumarian personification of Noah who was made immortal after the flood and lived at the end of the earth beyond where the sun travels when it leaves the upper air at night. Gilgamesh travels to see Noah but is put off by him, except that his wife thinks he should have a constellation prize. Thus Noah offers him the plant that gives eternal life. Gilgamesh takes the plant and returns but on the way decides to take a bath and while he is in the water a serpent comes and eats the plant. Gilgamesh returns empty handed to his people. What we see here is that the Man-God when he is severed from the Man-Animal goes to the Anthropos, Noah, who gives him a plant that is like the Lapis, which solves the problem of death, but that this secret medicine is lost to the serpent prior to his returning home. Gilgamesh and Endiku perfectly express the nature of conjunction, and when the conjunction is broken then Gilgamesh alone travels the course of the EMS backwards moving from the realm of mortals, to the realm of the immortal Anthropos, who gives him a balm that is like the Lapis but which is lost to the Serpent who sheds his skin as he transforms from life to life. After this loss Gilgamesh returns to the realm of mortality.

From this analysis of the Sumarian epic of Gilgamesh it can be seen that the quaternary of quaternaries described by Jung does have a basis in the tradition, but how Jung found it is unclear. But it does exist as a whole mytheme that can be found in other places than gnostic interpretations of Moses in the bible and ecstatic visions of Ezekiel. This realization made me sure that what Jung was talking about was something really present in the tradition and not something he just made up. Jung's theory is thus shown to have substance. The epic of Gilgamesh shows that the EMS narrative is related to conjunction and so that there is a natural progression from the Theory of the EMS in *Aion* to the

concentration on conjunction in Mysterium Coniunctus. The two books develop two aspects of the same theory.

This EMS narrative may be related to the color transformations talked about by the early alchemists from Black to White to Yellow to Purple (or Red). They may have been trying to produce a transformative process that would loop that loop and return back on itself like the serpent that eats its own tail. They had an idea that the metals were the key to doing this. The metals were seen to reflect the heavenly bodies but were made of something dredged up from within the earth. Metals they could manipulate and attempt to find a way to perfect by turning them into gold. But it is probable that they thought they were manipulating the celestial spheres themselves in their experiments because they were transforming one planet into another attempting to approximate the sensorium of the earthly replica of the sun. At the level of the Octonion there are seven imaginaries: $ijkIjKE$. These imaginaries exist in relation to the real number x . The octonion has the form $x+i+j+k+I+J+K+E$. What we notice is that E has a completely different nature from the other imaginaries, it may be seen as having a kind of transcendence like that of Gold among the metals. This gold as Sol comes from a repeated mirroring, which is represented by silver or Luna. The imaginaries mirror the reals. The $j+k$ mirrors the $x+i$. The $I+J+K$ mirrors the $i+j+k$. At the end of the series of mirrorings comes the production of E which is the supersynthesis of the imaginaries which is the antipode to the reals. Notice that the E appears at the fourth mirroring level. One way of understanding the transformation process of the Alchemists is by looking at the combination of the four base metals, tin, lead, copper, tin as the prime matter. This is black due to oxidation from whence the word Chemy may come. This is moved up from the black to the white to be tinted like silver color. This is then moved up from white to yellow to be tinted like gold color. Finally

this is moved up to iridescent color to be tinted like purple. We start with four metals which are mixed. This is like a vector conjunction of four reals. The first transformation would take these four and produce two complex numbers. The second transformation would take these two complex numbers and make the quaternion. When the quaternion involutes on itself then we get the octonion producing the $I+J+K+E$ out of the $x+i+j+k$. The side effect of involution is the production of the synthesis E which is the antipode of x .

Black = $x+x+x+x$

White = $(x+i)+(x+i)$

Yellow = $x+i+j+k$

Red/Purple $(x+i+j+k)+(I+J+K+E)$

It is interesting that according to the early alchemists that the white is within the black, yellow within the white, and Purple/Red within the Yellow. In other words there is the idea that embedded in the lower level is the seed of the next level exactly as it occurs within the EMS lifecycle. In that lifecycle seeds give rise to monads gives rise to views gives rise to candidates that give rise to seeds, as when in a tree a seeds gives rise to the tree with leaves that gives rise to flowers that gives rise to fruits which produce seeds again which in turn leads to more trees. If you have this view that all things develop toward the perfection that allows them to produce others of themselves and you project that upon metals which are the signs of the celestial within the earth then you might just think that the metals held within them an EMS like structure as they moved from the corruptible lower metals toward the higher metals through the functioning of mercury and sulfur, or Yin and Yang.

In other words the Alchemists might have had the idea that the signs of the celestial spheres taken from the earth operated like the

entelechy of the physis of plants and animals and that by producing transformations of the sensorium like those that existed in the skies one could get a picture of the holonomic combinations of the conjunctions that made up the marriage between heaven and earth, yin and yang, and male and female principles. The result of this process would be the philosophers stone, ie. The synthesis that generates the entire sequence as E does in the Octonion.

Midas: This is an imaginary metal beyond gold that has the power to turn things to gold, i.e. the Midus touch. The Midus touch is a curse that appears as a blessing when the wished for thing is granted but in such a way that it becomes horrible.

*Midas*²⁸

There once was a foolish King who had everything he ever needed, but was very greedy. In Phrygia, King Midas had a beautiful land and a magnificent castle that was surrounded by the world's most beautiful rose garden.

One day a servant, Silenus, of the God Bacchus accidentally wandered into King Midas' gardens. Drunk as he was, Silenus became ever sick and the King allowed him to stay until he was over the sickness. Midas returned him to Bacchus and he was extremely grateful to have Silenus back. In his gratefulness he gave

Midas one wish.

Bacchus: Thank you for my servant. For your kindness Midas, I am willing to grant you one wish. Make your choice wisely.

Oh my, thought Midas, and flying through his head went money, gems GOLD!! That's what would make him the richest man alive.

Midas: Your Godshipness I wish to

²⁸ See

<http://www.windsor.k12.vt.us/myth/Midas.html>

have um.... (thinking about it) everything I touch turn to gold!

Bacchus: As you wish Midas. When the sun is directly above this day you shall receive your wish.

Midas: Thank you oh great one.

Midas returned to his castle and waited. There it is the sun, directly over head. As Midas reach down to sit on the fountain base, "bing," it turn to gold! How excited he was. He ran off to make his fortune. Turning the doors, walls, trees, grass, roses, and just about everything in the castle to gold. Midas became tired from all the hard work and went to his room to lay down, but he turned the bed to gold.

Midas: Oh god this is hard, I can't sleep. Well I guess I'll go eat something.

Midas turned the food to gold. He started to cry. This wasn't a gift it was a curse. He went back to Bacchus and begged him to take back the wish. The God told him to wash it off in the Pactolus River. It was done and Midas was free of the "Golden Touch."

Then later in life Apollo asked King Midas to judge a musical contest between Pan and Apollo . Unfortunately Midas chose Pan as the winner. For that Apollo turned his ears into those of an ass. Humiliated Midas swore he would wear a hat for the rest of his life so that no one would know. By mistake that hat-hair dresser found out Midas' secret. Midas made him swear not to tell, and he did. After the hat-hair dresser could bare it no longer, he dug a hole and revealed the secret to the earth. Then in the Spring, reeds sprung up from where the hole was and they told the secret on the wind.

Midas has poor judgement and does not realize what to wish for or what music is best in the eyes of the gods. His mistake is similar to that of Paris with the golden apple. Sometimes discretion is the better part of valor. Alchemists however were looking for something that had a Midas touch with respect to perfecting things. What we note about the Special Systems is their ultra-efficacy which is related to ultra-efficiency

and ultra-effectiveness. Special systems are neg-entropic, and within a limited scope they allow dissipative ordering which is compensated for in the general environment where overall entropy is maintained. When two neg-entropic dissipative special systems are conjuncted then we get self-organizing which is the maintenance of organization as a variable homeostatically. Beyond that is the heterodynamics of the reflexive special system which continually overflows projecting the world from out of the social milieu. This projection of the reflexive is like the overflowing of the Midas touch which perfects everything in the environment and is a secret that cannot be kept. But the Midas touch can be seen to be a dissipative ordering quality where everything is changed in quality from its normal state to an abnormal state. The gold plating of the world destroy the good in it. On the other hand the secret of the ass ears when it gets out causes the king to be ridiculed, i.e. his nobility is tarnished. Tarnishing is the opposite of gold which cannot tarnish. So there is some inner relation between the two curses on Midas, he is a king that overflows and turns everything to gold but then he is a king that becomes tarnished so everything ridicules him due to his ears. The first gift comes from a good deed toward a god while the second one comes from the inability to judge correctly from the point of view of the gods. Music of the gods and the wind are contrasted in the second mytheme. Gold and normal constitution of things whose difference is good is contrasted in the first mytheme. He is transformed in the second mytheme while the world is transformed in the first. Inward and outward transformation are contrasted between the two mythemes. We might think of Midas as the alchemists apprentice who gets it wrong. If we reverse the mytheme then we get the picture of the alchemist who has the philosophers stone that transforms everything into gold by its touch rather than he himself so he retains control over what is transformed into gold. But also the Alchemist has a secret to keep and because of that

writes in symbols and obscurities, so that he will not be embarrassed by the fact that transformation of base metals into real gold does not happen in reality. But the real alchemist must have the qualities that Midas lacks to perfect his art. He must be able to differentiate the music of Apollo from Pan, i.e. sacred order from disorder. And he must be able to understand what wishes to make which will cause no harm. In other words The Alchemists must know what projections onto the phenomenal world are correct and which are incorrect. There is a tension between right projection and the understanding of higher order from lower orders that we get from the conjunction of the two mythemes. In fact, we realize that the conjunction of the two mythemes are an image of the *mysterium conjunctus* itself. Because it is by order from nowhere that Nature Conquers Nature. That music of the spheres is exactly what the Alchemist wishes to produce by this combination of the metals. He is attempting to be like Pan and produce earthly music that mimics the music of the spheres, the higher order and music of Apollo. On the other hand Nature delights Nature by its variety. It is this variety that is suppressed by the Midas Touch. The Nature Conquers Nature is linked to the Dissipative Ordering Special System while the Nature Delights Nature is linked to the Reflexive Social Special System. Notice the first mytheme is the sign of Dionysus and the second is the sign of Apollo. When we conjunct them we get the Autopoietic Special System which is indicated by Nature Produces Nature. Notice that what stands between these two mythemes is the river in which Midas washed.

The Lydian queen Omphale actually owned Hercules, as a slave. She bought the hero from the god Hermes, who sold him following an oracle which declared that Hercules must be sold into slavery for three years. Hercules had sought the oracle to find out what he had to do in order to purify himself, after he murdered his friend Iphitus and stole the Delphic tripod.

The Athenian playwright Sophocles imagined Hercules feeling deep dishonor at being forced into slavery, "so stung was he by the shame of it." Slaves in Greek society often came from non-Greek regions, so the enslavement of the great Hercules by a barbarian queen from Lydia would have seemed an especially outrageous reversal to the Greeks. During this time of servitude, the hero continued his amazing feats, ridding yet another part of the world of monsters.

Lydia was an ancient kingdom in southwestern Asia Minor, in what is modern-day Turkey. The Lydians were not a Greek-speaking people, so they were considered barbarians by the Greeks. Lydia's capital, the city of Sardis, was described as "rich in gold." Sardis was built along the Pactolus River, which flowed from Mount Tmolus carrying deposits of gold. The Lydians built a gold refining operation on the banks of the Pactolus, and they became quite wealthy.

One Lydian king, Croesus, made a lavish display of his riches at the Greek sanctuary of Delphi, hoping to win Apollo's favor (and show his neighbors how rich he was). Croesus sacrificed three thousand beasts, and burned enormous couches covered with gold and silver, golden goblets, and purple cloaks and tunics. The king's sacrifices were so valuable that his name became synonymous with wealth; even today, we use the phrase, "rich as Croesus."

The ancient historian Herodotus claims that the Lydians were the first people to use coinage, which they made from the gold they refined. Many Lydian coins were made of an alloy of gold and silver called electrum.²⁹

Many interesting mythological themes are brought together in Lydia. The river Pactolus was full of gold and this was explained by the myth of Midas washing himself off. But the connections to Hercules are also interesting because his journeys can be interpreted as a kind of failed alchemical initiation. It is also of interest that coinage begins in Lydia according to Heradontus.

²⁹

<http://www.perseus.tufts.edu/Hercules/omphale.html>

The key however for us is that there is a river that exists between the mythemes. The river flows and music flows. The river's flowing makes sounds like the wind's flowing across the earth carrying the secret of Midas makes sounds. The only flowing that is missing is the flowing of the earth which appears in the metals and the flowing of the fire that purifies the metals as various specific heats. Thus between the two mythemes is the concept of conjuncted flows of the four elements and especially the pointer by its conspicuous absence to the flowing of the metals toward perfection. Nature produces nature by the mutual interflowing of the elements as two dissipative systems, that of water and air are conjuncted in symbiosis. This conjunction of water and air calls to mind the missing conjunction of earth metals and fire. So we can see in the seeming nonsensical story of Midas a coding of alchemy by the juxtaposition and conjunction of two seemingly unrelated mythemes.

The Roots of Holonomic Alchemy in the Alchemical Tradition.

What we learn in Jack Lindsay's *The Origins of Alchemy in Graeco-Roman Egypt* is that starting with Bolos there is a saying that is repeated by the early Alchemists which says that *Nature produces Nature, Nature Conquers Nature and Nature Delights Nature*. I believe this formula captures the essence of the special systems theory. Autopoiesis means exactly that Nature produces Nature. Dissipation is the conquering of Nature by Nature as the outpouring of neg-entropic order. Finally in the reflexive social system Nature delights Nature. This statement is repeated by Kleopatra and many others within early Egyptian Alchemy. So I posit that Alchemy has always known about the Special Systems and it takes that knowledge from antiquity where there are many myths that reflect the structuring both of the kinds of Being and the various kinds of special systems and their relation.

There is a task before us to reinterpret alchemy and the Jungian approach to it in terms of the Special Systems and Meta-systems theory. That task would work to see which Alchemists gave us pictures of the special systems and the emergent meta-systems and which did not through-out the history of the Art. Most of the Alchemists seem to be concerned with approaching the physis and logos from a non-dual vantage point with varying success. But the question that concerns us most is how many of them came close to understanding the basis of alchemy in Special Systems and Emergent Meta-systems that they found in nature. It is possible to find allusions in mythology and Plato for these rare formations. Thus there must have been some knowledge passed down about them which the alchemists sought to preserve. To what extent were they able to preserve that knowledge and to what extent was it adulterated. This is an important question with respect to the History of Science, since this basis for special systems has resurfaced today, it is good for us to look at its roots in early decades and how it was misunderstood then as well as now. Science is predominantly dualistic in the West. But there is a non-dual undercurrent that has been there since earliest times, a reminder of the suppressed non-duality that has been foisted many times off on women. How this counter current of non-duality functioned in our tradition is a question that could lead to a rewriting of our history. It is probably no accident that some of the early Alchemists were women, like Mariam and Kleopatra.

What it is to be an Alchemist

Once I recognized that I was an alchemist, I began to wonder more deeply what Alchemy was and who these Alchemists were in our history. Jung makes the point that they were generally individuals working alone who had a passion for understanding the inner workings of both the physical nature and their own minds. They approached this

subject from the point of view of the non-dual which is intertwined with the dualities. They saw the world in a very different way than other scientists of their days and to some extent seemed to have preserved the indications of the existence of the special systems and emergent meta-systems from the mythological pre-history and from the time of Plato. In Plato's Laws we have a very systematic working out of an Autopoietic Systems Theory in terms of an imaginary city. It seems that this knowledge survived and was passed on within the Neo-Platonic tradition as a counter current to the wholesale combining of Aristotle and Plato's viewpoint. Aristotle of course contributed the idea of inter-transformability of things based on the four elements which produced the basis for the kinds of thoughts that later alchemists had of transforming base metals into gold such as is claimed in the works of Gerber for instance. It turns out that it is ultimately possible to transform elements into each other physically but that it takes so much energy that it is not worth doing for the most part except when nature helps us do it by making the elements unstable. As long as we think of Alchemy in terms of claims of immortality or changing base metals into gold or healing every disease, and the other equally absurd claims, such as perpetual motion machines, then we will be missing the point. We can see these as attention getting devices, as marketing ploys that kept people interested in the existence of rare occurrences and long shot possibilities. What is the key is the approach which looks at dualities from a non-dual position and points out the existence of rare anomalous phenomena and mathematical structures that lead us to understand the nature of the special systems and the emergent meta-systems. This non-dual approach is the very heart of wisdom in a milieu which is almost wholly given over to dualism.

For my own part, I did not become an Alchemist by studying Alchemy or Depth Psychology. Rather I became an Alchemist

by studying scientific theories with an eye to their irregularities. The title of my dissertation was "The Structure of Theoretical Systems in relation to Emergence" (U. London, LSE, 1982). It was about how new things came into existence within the Western Scientific tradition. It was based on my reading of Fundamental Ontology as it was developed in Continental Philosophy by such philosophers as Husserl³⁰, Heidegger³¹, Merleau-Ponty³², Sartre³³, Derrida³⁴, Henry, Bataille³⁵, Baudrillard, Deleuze³⁶, Castoriadis³⁷, Levinas³⁸, etc. What I discovered was what I call the fragmentation of Being, which means that there are different kinds of Being which are arranged in Meta-levels of logical typing such as those studied by Russell and Copi. I have applied this scheme to many phenomena since its discovery in my dissertation and have come to the conclusion that the four kinds of Being together are the face of the World and the mirror of the Self in the world. I wrote my book The Fragmentation of Being and the Path beyond the Void when I discovered that the same four kinds of Being can be seen as the differences between the Vedic gods. That showed me that the structure of the fragmentation of Being is very conservative within the Indo-European worldview despite the ever persistent and deep changes it undergoes. In the process of writing that work I discovered that Plato's Laws was an Autopoietic Systems Theory. I

³⁰ <http://sweb.uky.edu/~rsand1/Husserl/>

³¹ <http://www.webcom.com/paf/hb/hbheid.html>

³²

<http://www.nakayama.org/polylogos/philosophers/mmp/index-e-mmp.html>

³³

<http://hometown.aol.com/DonJohnR/Philosophy/Sartre.html>

³⁴ <http://www.hydra.umn.edu/derrida/jdind.html>

³⁵ <http://www.phreebyrd.com/~sisyphus/bataille/>

³⁶ http://lists.village.virginia.edu/~spoons/d-g_html/d-g.html

³⁷ <http://aleph.lib.ohio->

state.edu/~bcase/castoriadis/index2.html

³⁸ <http://pw1.netcom.com/~cyberink/lev.html>

began to work on how to add in the Social element into Autopoietic Theory and eventually discovered by synchronicity or serendipity the Special Systems Theory and the Theory of Emergent Meta-systems in about 1993. Since then I have been attempting to find cultural instances of these theoretical structures and verifying the theory. One of those excursions led me into Alchemy. I had been looking for a long time for an example of the Negative Fourfold in later Western history and found it in Luna. What I did not expect to find was a group of people who had applied similar approaches to the difference between Physis and Logos in the tradition to those I had been applying taken from Buddhism, Taoism and Islamic Sufism, i.e. non-dual traditions. I thought that the Western Tradition was entirely dualistic, but Jung showed very conclusively that the Alchemists were concerned with the non-dual approach to things within this tradition when their works were taken seriously and analyzed carefully. However, in Jung I did not see any remnant of overt special systems knowledge. He seemed himself to have intuited and produced out of the material an image of the EMS, but not until I read Jack Lindsay's masterwork did I find specific references that could be construed to be a representation of the Special Systems. Once I found that evidence then I became convinced that despite its craziness Alchemy is the remnant of a non-dual science within the Western tradition. Anyone who looks at Duality, say between Physis and Logos with a viewpoint derived from non-duality is an Alchemist, and what they see eventually is the Special Systems and the Emergent Meta-systems, i.e. the non-dual between the system and the meta-system and the way that the holons together with systems produce the meta-system and vice versa.

With the publication of the work "Reflexive Autopoietic Dissipative Special Systems Theory" the secret of Alchemy is out. It is called Holonomic Alchemy in order to

distinguish it from all the other versions of alchemy that have been dreamt up over the centuries by those who did not understand it but saw something else other than the non-dual in it. But I would like to make the case that there is a strand within Alchemy in general of Holonomic Alchemy which is concerned completely with the non-dual structures that appear in the midst of the dualities when they are scrutinized from the proper vantage point. The real gold of Alchemy is the ultra-efficacy in the form of ultra-effectiveness and ultra-efficiency. That is to say alchemy points us to the neg-entropic living social primal or archaic situation which we ourselves are as the starting point for discovering the nature of nature.

Alchemy as the Future of Science

In his conclusion Lindsay says:

In the last resort it is this unity of the craft-process with theoretical thought which is the great revolutionary mark of alchemy and which explains why it could find on accepted place in the systems of the ancient world. When in the 17th century an assured scientific method was at last established with a mixture of the particular and the general, with an appeal to experimental method, this was not the same as the alchemic unity; for the concept of nature in perpetual qualitative change was omitted and in its place was put the concept of perpetual quantitative movement. Therefore the question of directions and of values was not present. For exponents of post-Galilean science this lack has seemed a proof of virtue and objectivity. The alchemist would replay that if you exclude humanity (the concrete object of qualities), you exclude reality in any essential sense and your results have a limited and ultimately anti-human aspect.

....

That is, I consider a true and complete science to be one which includes the alchemic viewpoints, but with the addition of various methodological precisions which are the great achievement of post-Galilean developments. The complete science I visualize would then be capable of dealing with more than symmetries in nature, the stable states which quantitative analysis can compass; it would know how to grasp and define at the same time all crucial points of change, in which new qualities emerge; and it would vitally link its inquiries into natural process with the needs of humanity that knew where it was going.

...

This in my opinion is the sort of science that the alchemists glimpsed; and it is perhaps a heartening thought that the men who founded the unity of scientific theory and practice in consistent laboratory work had such a system in their minds, however inadequate were their methods for realizing it-- that their essential positions were opposed to mechanist assumptions which, in place of the real universe of irreversible process, put an abstract symmetrical construction where action and reaction are equal and opposite. With all their limited applications they yet saw reality as unitary, concrete, involving critical or nodal points of change, and consisting of interrelated hierarchical levels of organization; and they wanted a method above all which brought all these aspects together. They saw human values as implicated in every phase of the work and as determining the direction of research from within the processes, not merely as a system of ends imposed from without.³⁹

As Husserl notes in his book Krisis Science has torn free from the lifeworld of humans. Lindsay sees Alchemy as an alternative kind of science which was lost in the beginnings

³⁹ p 391-392

of the western tradition and had a brief revival with the Romantic interest in color.

Holonomic Alchemy through special systems theory revives this lost non-dual approach and ties in directly into Western Science as it exists today. The basis for this tie is the mathematics of Hyper Complex Algebras and the rare and anomalous physical phenomena that exemplify this same mathematical structure and thus gives us a science of the anomalous which answers the call of Lindsay for a more humanly based science. Alchemical mainstream science is more sophisticated than current day Western science but in a way that does not reject it, but instead surpasses it by considering the non-duality all phenomena based on various anomalous phenomena that make clear the existence of another mode of organization which has up till now been hidden beneath the dualism of Western Science but which has roots in a knowledge of the ancients that shows up in Myth, Plato, and the early Alchemists.

About the Author

Kent Palmer is a Principle Systems Engineer at a major Aerospace Systems Company. He has a Ph.D. in Sociology concentrating on Philosophy of Science from the London School of Economics and a B.Sc. in Sociology from the University of Kansas. His dissertation on The Structure of Theoretical Systems in Relation to Emergence⁴⁰ focused on how new things come into existence within the Western Philosophical and Scientific worldview. He has written extensively on the roots of the Western Worldview in his electronic book The Fragmentation of Being and the Path

⁴⁰ <http://server.snni.com:80/~palmer/disab.html> You man also try <http://dialog.net> or <http://think.net> for any of the web related material.

Beyond the Void⁴¹. He had at least seventeen years experience⁴² in Software Engineering and Systems Engineering disciplines at major aerospace companies based in Orange County CA. He served several years as the chairman of a Software Engineering Process Group and is now engaged in Systems Engineering Process improvement based on EIA 731 and CMMI. He has presented a tutorial on “Advanced Process Architectures⁴³” which concerned engineering wide process improvement including both software and systems engineering. Besides process experience, he has recently been a software team lead on a Satellite Payload project and a systems engineer on a Satellite Ground System project. He has also engaged in independent research in Systems Theory which has resulted in a book of working papers called Reflexive Autopoietic Systems Theory⁴⁴. A new introduction to this work now exists called *Reflexive Autopoietic Dissipative Special Systems Theory*⁴⁵. He has given a tutorial⁴⁶ on Meta-systems engineering to the INCOSE Principles working group. He has written a series on *Software Engineering Foundations* which are contained in the book Wild Software Meta-systems⁴⁷. He now teaches a course in “Software Requirements and Design Methodologies” at the University California Irvine Extension.

⁴¹ <http://server.snni.com:80/~palmer/fbpath.htm>

⁴² <http://server.snni.com:80/~palmer/resume.html>

⁴³ <http://server.snni.com:80/~palmer/advanced.htm>

⁴⁴ <http://server.snni.com:80/~palmer/refauto2.htm>

⁴⁵ <http://server.snni.com:80/~palmer/autopoiesis.html>

⁴⁶ <http://dialog.net:85/homepage/incosewg/index.htm>

⁴⁷ <http://server.snni.com:80/~palmer/wsms.htm>

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