PSYCHOLOGY

PARANORMAL

THE MEDIUM, THE MYSTIC, AND THE PHYSICIST
Lawrence LeShan
1966
IV-I-1

EXPLORING THE CRACK IN THE COSMIC EGG
Joseph Chilton Pearce
1974
V-C-3

MYSTERIES
Colin Wilson
1978
III-A-4

THE SKEPTICAL INQUIRER MAGAZINE
Various
1983
IV-C-4

BEYOND SUPERNATURE
Lyall Watson
1988
IV-I-1

THE FRINGES OF REASON
Ted Schultz (ed.)
1989
IV-I-2

HARPER'S ENCYCLOPEDIA OF MYSTICAL AND PARANORMAL EXPERIENCE
Rosemary Ellen Guiley
1991
DESK

THE SYNCHRONIZED UNIVERSE
CLAUDE SWANSON
2003
V-E-3L

SIX IMPOSSIBLE THINGS BEFORE BREAKFAST, THE EVOLUTIONARY ORIGINS
LEWIS WOLPERT
2006
V-B-3

FIVE LEVELS OF RELATIONSHIP

The sage Li Kiang once said that human relationship to Heaven and relationship between humans involved five levels. According to his discernment these levels could be named:

I. Master-Slave
II. King-Subject
III. Teacher-Student
IV. Partners
V. Lovers

I. Interpreting for our century Li Tzu's five progressive steps in relationship, we note that those of Class I are intended to be permanent. The relational factors of absolute authority, absolute inequality, and perpetual dependence are never to be questioned nor altered. The rules governing the slave are not applicable to the master. However the master may at any time make or break rules according to whim.

> "There is great merit in the generosity of a master when he is kind to a slave, but there is greater merit in the slave when he ignores the wrongs which he suffers and cherishes kindness and good-will to all mankind. He will cease to hate his oppressors even when powerless to resist their usurpation, and will with compassion pity their arrogance. Where there is much suffering, there is also great bliss: –Sakyamuni

The vehicle that transports this class of relationship is unchecked **capriciousness.** In the Age when this view of Heaven prevailed (Mythic and Pentateuchal times), the gods were beheld to be vengeful, cruel, and capricious.

II. The second class in Li Tzu's pentapleth, though also intended to be permanent through its dogma of non-transcendable inequality, allows for amelioration of absolute authority through petitioning for alteration of rules. However, as in Class I, the rules for King and subject are not the same, but the relationship permits the emergence of mutual concern and respect. Instead of total dependency, there is exchange, such as security for services. (and punishment for violations). In our times Class II continues to be operative in some landlord-tenant relationships, in some employer-employee

relationships, and in many marriages. However, the success of revolutions has resulted in decreasing its applicablity to the state-citizen relationship. Whereas non-compliance on the part of a subject has long been illegal and cause for punishment, this is now balanced by malfeasance on the part of the state rendering the state illegitimate and subject to recall.

> Church Christianity (and many other religions) have historically been a Class II relationship, between a priest category representing a Shepherd and a subject category of sheep.

The vehicle that transports this class is **stability** achieved through balance. The Class II view of the relationship to Heaven is one of access through an intermediary endowed with possessing divine right.

III. Beginning with Li Kiang's Class III, relationships are no longer permanent and static, they must be evolving and dynamic. In the case of Teacher-Student, the initial relationship may be highly unequal, but progresses by raising the student to the level of the teacher, or even beyond. Information and energy in the forms of knowledge and skill are passed from teacher to student. In this process, there is evolution from blind obedience to self discipline and from strict authority to shared discovery. Finally there is liberation: "You are now on your own. Go forth to a new and higher place." Ideal parent-child relationships usually follow this form.

> Both the Buddha and the Christ taught this as the proper relation to Heaven. Sakimuni admonished Ananda: "Therefore, O Ananda, Seek salvation alone in the truth. Those who shall be lamps unto themselves, seeking their salvation in the truth alone, it is they who shall reach the very topmost height."; Jesus said to his disciples: "He that believeth in truth, the works that I do shall he do also and greater works than these shall he do." [John 14:12]

A central question is what is really transmitted from teacher to student. It is more than information, more than inspiration and energy, it is more than mission. It is liberation, the ability to think independently, the ability to make discoveries on your own. And finally to hold a seat at the table of deliberation where each concept triggers another concept and equals glimpse the Grail of Truth. The vehicle that transports this class is **fulfillment.** In academia, the military, and many corporations a form of Class III evolution is followed from apprenticeship through mastery to ultimate replacement.

IV. Class IV relationships take many forms. Some are permanent, some are ad hoc; some are static, some dynamic. A partnership may be between equals or unequals, but is usually formed to create a whole capable of doing what the parts alone cannot do. Some are based on shared visions and goals; others on shared interests and activities, having things in common. It is in this class that most marriages are found. The vehicle that transports this class is **sharing.** The view of Heaven of this class is that of shared responsibility with Heaven. It is the view of the parent and the prophet, the view of the crusader and the missionary.

V. Class V emphasizes that lovers are far more than just partners. The primary impetus, goal and vision of lovers is to attain oneness, be this with another human, with the divine, or both. Equality or inequality is not a consideration, nor is liberation. In the spiritual mode lovers seek realization through intimacy, mutual understanding and mutual support. Lovers project themselves into each other to the extent that each contains the other. It is then possible for individual selves to dissolve. In a material truncated mode the great transformational power of oneness is briefly glimpsed in the sex act but with a temporary physical satisfaction replacing a step to realization.

> The achievement of oneness is the only possible mode of no-relationship. In all other cases an identity is related in one way or another to everything else in the universe from the tiniest insect to the most distant galaxy. But for the enlightened Sage there is no Sage and there is no Other therefore no relationship.

In this class the vehicle is **surrender.** The view of Heaven is the view of Heaven.

NOTES:

Nothing has been said of bonding, but in each of the five categories of relationships an element of transcendental permanence is possible: A purified essence of the postitive aspects of the relationship deposited in eternity.

Neither has anything been said of such relationships as enmity and rivalry. For the most part competive and non-symbiotic relationships fall in class IV of partners. These are negative, but are nonetheless partnerships, partnerships of co-dependency which would cease without opponents.

PSYCH

AUTHORTY.WPW

4/19/93
~~02/19/86~~

ON AUTHORITY

Authority is a mental construct. It is a concept that the Chief, the Pope, the Academy,... will be the source of the criteria for my decision making. In this authority is projected. We project authority then place ourselves under it. But projections may be given and they may also be withdrawn. Power is intimately associated with authority. Direct power limits my options for action. The indirect power of authority limits my options through placing mental limits on my option space.

Authority works because each of us as a helpless child had to place ourselves under the authority of our parents to survive. The process becomes habitual. Further the confusion created by a large option space leads us to seek constraints. At times it is a relief to have some one tell us what to do, what not to do. All choice and decision is difficult, correct choice and decision demands maturity.

Authority supports itself by threats to resort to direct power. You will either limit your option space or we will do it for you. However, once the projection of authority is withdrawn, the power behind it quickly errodes. No power can sustain itself for long once its authority has been lost. The first step in revolution and rebellion is the withdrawal of authority. Preceding this is usually loss of respect. i.e. respect is usually the first aspect of authority to be lost.

Authority should belong to every individual, as with sovereignty according to Thomas Jefferson.

The most powerful authority operating in the world is the authority of the past. This includes established institutions, traditions, customs, and habits. We live in a past oriented society. We hold that the past is this best guide to the future, but this idea is breaking down in our times.

Authority projects fear on disagreement

PSY211

INOUTPUT.P51 March 23, 1993

INPUT and OUTPUT

Considered as a physical system, the human's material inputs are food and oxygen, material outputs are feces, urine and CO2. The informational inputs are sense data--sight, hearing, smell, taste, touch and inertial conditions; informational outputs are actions--speech, expressions, poses. Energy flows are involved in all.

Thou shalt not live by bread alone

It is documented that when one is blind the sense of feel is enhanced. When one or more senses are impaired, others ofttimes become more sensitive. In the case of Helen Keller, some complex integration of touch and smell data allowed her to synthesize other forms of information. If we extrapolate these properties of sense deprivation to the state of death, when it is assumed that all sense input ceases, what happens?

It must be said at the outset that all that is known for sure concerning physical death is that output ceases, what happens to input is uncertain. With living metabolic operations and functions halted, it has been reasonable to assume input also ceases. But with the above noted changes in information channels under sense deprivation, may not there be informational enhancements of some sort in the state of death? And does information processing continue to take place somewhere"

At this point we must question whether there exist in living systems informational inputs besides those of the five (or six) senses. We must also question whether all informational processing takes place in the brain and sensory organs. Did Helen Keller form her informational patterns solely from a gestalt of touch-smell-taste data or were there other channels in operation? Do "insights" come from synthesizing sense data or from other channels? Are intuitions arrived at by information processing or through non sensory channels? Are there informational containers other than the physical? Can we design experiments to decide? Are experiments on the properties of living systems of any use in penetrating the informational barrier of death?

WHAT

WHERE WHEN

WHY **WHICH** WHO

WHENCE WHITHER HOW WHERE WHEN

WHERE WHEN

PRONOUNS AND SETS

Over millennia of human experience most languages have come to use the same six interrogative pronouns –who, what, how, where, when, and why. The questions implied by these pronouns lead to the most common links which we perceive to connect the events of our experience. These six pronouns are not only basic to how we organize our experience, but also direct and limit the way we perceive the world and think about it. They govern how we assign facts, people and events to different sets and categories; they govern how we project order onto the world and create order in our lives.

Each pronoun refers to parameters that occur repeatedly in our experience. For example, **where** seeks the values of parameters defining location in space;. **when,** the values for the parameter time; **what** attempts to locate a specific event in a common class or set of events; **who,** a specific agent in a class or set of human agents; **how**, in a class of tools or processes. Finally, **Why** is a "catch-all" pronoun, not relating to any given set but rather inaugurates a search for a set whose intersects with some common sets might reveal links to other events. That is to say, find links which would give the event meaning, locate it with respect to its contexts.

We might ask ***why*** have our languages settled on these six interrogations? While they have been modified and supplemented with other words, such as, where is —, when will —, how much is—, etc, why are there not more single word interrogative pronouns referencing additional specific sets and categories? Does the cut off at five imply some boundary to what is commonly experienced or is it a consequence of some limit to human information processing capacity? Or did the catch-all **why** pronoun make additional pronouns unnecessary? With the rapid increase in the diversity of human experience in the past two centuries, are the traditional pronouns still sufficient? Today, many of the most important errors in our thinking arise from our inability to discriminate between elements, sub-sets, and sets and between their multiple intersects. Perhaps we now need new pronouns or verbal devices for correctly locating events in the hierarchy of the **intersects** of the who, what, how, where, and when sets. And perhaps pronouns or devices for realizing entirely new categories and sets

In summary, interrogative pronouns are tools our language uses to assign events to sets or categories. These sets or categories are the entities we use to construct reality. Although they simplify and truncate our experience, they do allow us to create order and find meaning.. But has the time now arrived when we must add new basic interrogations in order to keep pace with the world we are recreating?

SEVENINT.WPD ~~NOTE~~ 2002-07-20

REALITY AND THE SEVEN INTERROGATIONS

	ENGLISH	GERMAN	FRENCH	ITALIAN	RUSSIAN	JAPANESE
SYNCHRONIC	WHAT	WAS	QUOI	COSA	CHTO	NANI
	WHERE	WO	OU	DOVE	GDYE	DOKO
	WHEN	WANN	QUAND	QUANDO	KOGDA	ITSU
PROCESS SCIENCE	HOW	WIE	COMMENT	COME	KAK	DOYATTE
RELIGION	WHY	WARUM	POURQUOI	PERCHE	POCHEMU	NAZE
AUTHORITY	WHO	WER	QUI	CHI	KTO	DARE
	WHICH	WELCHER	LEQUEL	QUALE		

Grammarians distribute these seven basic interrogative words into the categories: pronouns, adjectives, or adverbs, depending on their use in a sentence. Epistemologists prefer to view the way these words control our question-answer dialectical process.

ADD

DIACHRONIC
- WHENCE SOURCE CAUSE
- WHITHER DESTINATION PURPOSE

what pronoun refers to meaning?

THE VARIOUS PATHS TO "MAKING SENSE"

INTPRO.WPD January 28, 2011

INTERROGATIVE PRONOUNS

ENGLISH	WHAT	HOW	WHO	WHY	WHERE	WHEN	WHICH
GERMAN	WAS	WIE	WER	WARUM	WO	WENN	WELCHER
FRENCH	QUE	COMMENT	QUI	POUQUOI	OU	QUAND	LEQUEL
ITALIAN	CHE	COME	CHI	PERCHE	DOVE	QUANDO	QUALE
SPANISH	QUE	COMO	QUIEN	PORQUE	DONDE	CUANDO	
RUSSIAN	ЧТО	КАК	КТО	ПОЧЕМУ	ГДЕ	КОГДА	
JAPANESE	NANI	DO	DARE	DOSHITE	DOKO	ITSU	
CHINESE	SHENME	ZENME	SHEI	WEI SHENME	NAR	SHENME SHIKOU	

In addition, two Old English interrogative pronouns: WHENCE and WHITHER.

PSYCH

algful.wp6 March 16, 1995

The Algorithm of Fulfillment

The first part of life is for exploration. To find what exists, what paths are available, what people are out there.

Next comes selection, fixing on the path you feel fits, on the one you can call your own. At this stage one switches from the exploration of variety to the direct pursuit of fulfillment. You select the path you feel will lead to fulfillment, select the person with whom you feel you can write the second sentence of life.

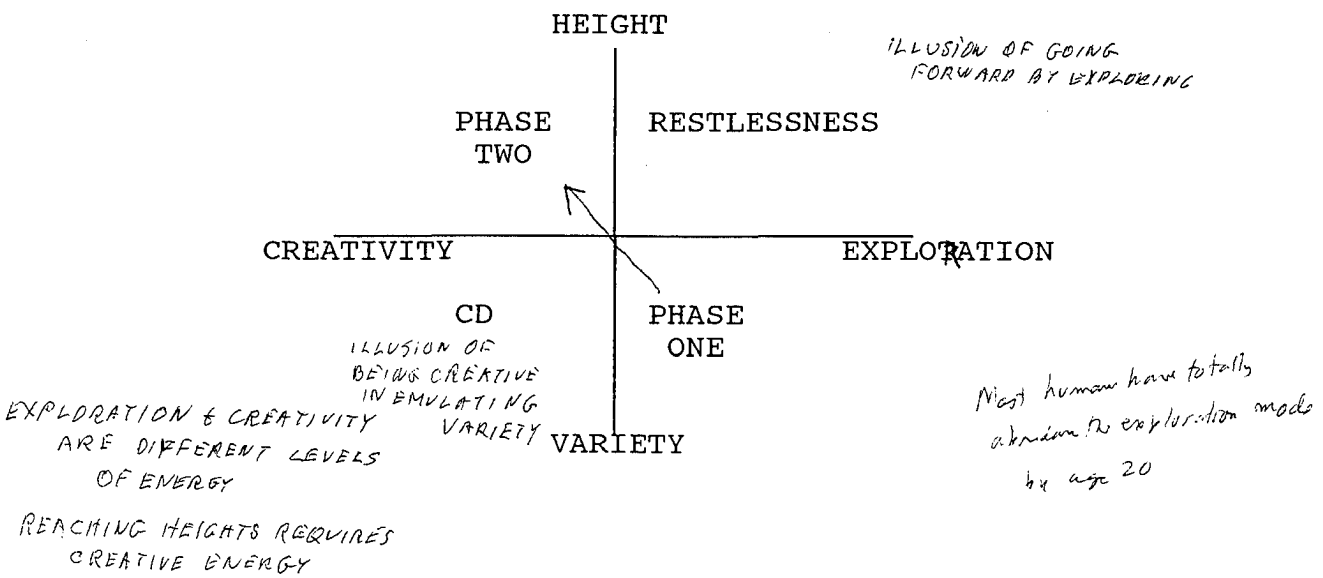
If successful in the selection, creation begins to replace exploration. Indeed the second sentence of life is about creativity.

There are many places to get blocked along the path

If not successful, one has the choice of going back to square one and re-entering the variety level, or remaining on the creativity level and making solutions rather than hunting for them. Our energies can be expended either for going into depth and reaching for new heights or for spreading broadly into various repetitive agendas. [Which in essence is abandonment of fulfillment]

Sometimes people return to the exploration/variety level to "confirm their path" This is delusion. They return to the variety level because it is easier to redo something they have done before than it is to go forward to a new and higher place. The false newness in the variety is a deception for the true newness of place on the path. [However all newness is euphoric]

Finally, T.S. Eliot holds that old age is again for exploration. But only when one has reached a new world to explore. This does not mean trying to return the youthful pursuits.



PSYCH 16

CAREER.JSL (1 of 2) March 27, 1990

SIGNIFICATION AND CAREER

DEFINITION:

CAREER: THE PATH YOU CHOOSE IN ORDER TO REALIZE THOSE THINGS WHICH YOU WISH TO BECOME. YOUR CAREER IS NOT TO BE CONFUSED WITH HOW YOU MAKE YOUR LIVING, WHICH IS ONLY A MEANS TO ENABLE YOU TO PURSUE YOUR CAREER.

PART ONE: YOUR CAREER

1. WHAT DO YOU REALLY WANT TO DO WITH YOUR LIFE?
2. WHAT THINGS DO YOU REALLY FIND INTERESTING? SATISFYING?
3. WHAT THINGS DO YOU FEEL ARE IMPORTANT FOR YOU TO DO? FOR SOCIETY TO DO?
4. HOW DOES YOUR LIST OF WHAT IS INTERESTING TO YOU COMPARE WITH YOUR LIST OF WHAT IS IMPORTANT?
5. WHAT ARE YOU GOOD AT? WHAT ARE YOUR SKILLS? YOUR STRONGEST SKILLS?
6. WHAT DO YOU ENJOY DOING? WHAT DO YOU NOT ENJOY DOING?
7. HOW DOES YOUR LIST OF WHAT YOU ARE SKILLED IN COMPARE WITH YOUR LIST OF WHAT YOU ENJOY DOING AND FIND SATISFYING?
8. WHAT ASPECTS OF YOUR CAREER CAN YOU AT PRESENT NOT PURSUE DUE TO ECONOMIC, TIME, OR OTHER CONSTRAINTS?

PART TWO: MAKING YOUR LIVING

GENERAL:

1. WHAT THINGS IN THE ECONOMIC AREA NEED TO BE DONE?
2. WHAT THINGS IN THIS AREA CAN YOU DO WELL?
3. WHAT THINGS THAT NEED TO BE DONE THAT YOU CAN DO WELL ARE NOT ALREADY BEING DONE SUFFICIENTLY BY OTHERS?

PERSONAL:

4. WITH REGARD TO YOUR SKILLS, IN WHAT DO YOU NEED SUPPORT FROM OTHERS? IN WHAT CAN YOU GIVE SUPPORT TO OTHERS?
5. WHAT PERCENT OF YOUR TIME EACH WEEK DO YOU WANT TO DEVOTE TO YOUR CAREER?
6. HOW MUCH MONEY DO YOU NEED TO EARN?
7. WHAT ARE YOUR FEELINGS WITH REGARD TO OPERATING YOUR OWN BUSINESS AS OPPOSED TO WORKING FOR SOMEONE ELSE?
8. WHAT SUGGESTIONS DO YOU HAVE FOR AN ORGANIZATIONAL STRUCTURE THAT WOULD ACCOMMODATE YOUR NEEDS?

PSYCH

PURMEAN1.WP6 NEW EPIONT February 12, 1995 See also 1995-#59

ON MEANING AND PURPOSE

EXPLANATION DERIVES FROM CONTENT
MEANING DERIVES FROM CONTEXT.
Li Kiang

What do we mean by meaning?

We ask "What is the meaning of ...."
of life, of the world, of
We ask "What is the purpose of ...."
of life, the world, ...

Meaning has to do with having a place, belonging, fitting in, being needed.
Purpose has to do with having a function, a task, dynamically fitting in.

To have meaning is to have a place in the order of things.
If you have no place, you have no meaning.
This implies that if the order of things changes, then one's meaning will change.

How is meaning related to "the order of things", to organization?
For there to be a place there must first be an infrastructure. This is why we have ontologies and theologies, which are infrastructures into which we can place ourselves.

How are infrastructures created? cosmologies

cf. Bennett

If ∃ a reason ⇒ there is a need

Reason ≈ Cause ≈ Purpose

We use the word meaning in two senses
Meaning of a word or sentence
Meaning of Life
What is the commonality?
Meaning has to do with being connected to something else
a word with other words
a sentence with an image or idea
Life with the world, the Cosmos, God ...

PSYCH
AIA

ZEROSUM1.WP6 January 28, 1995

THE WORLD OF TIME AND THE WORLD OF SPIRIT

If I take time for shopping, I have less time for lunch. If I spend time watching TV, I have less time for sleep. If I store furniture in the garage, I have less space for the shop. If I pave a patio, I have less space for the garden. Abundance here always creates scarcity there. It appears that both time and space have the properties of a "zero-sum-game". If A wins, then B loses. The world of matter and things is a highly competitive world, filled with the struggle for time, space, energy, and money.

On the other hand, if I love my oldest child, that enhances my ability to love my other children. The more love I give, the more I seem to have to give. And the more I give the more that is given back to me. Where there is beauty, more beauty is inspired and created. Abundance anywhere increases abundance elsewhere. Both Love and Beauty seem to have the properties of a "non-zero-sum-game". The more A has, the more B is able to have, and the more all can have. The world of the spirit functions so that to those who give more is given and those who retain lose what they would keep.

This difference between zero-sum in the world of time and space and non-zero-sum in the world of love and beauty shows that spiritual quantities exist outside and beyond time and space, and are not subject to the same processes that govern the physical world. We conclude that while that which exists in time and space must follow the physical laws of growth and decay, that which exists outside time, may never decay nor die.

The fact that we experience one set of rules for material things, and another for spiritual things, implies humans possess two kinds of existence. Our physical component obeying the laws of the world of space and time, our non-physical component obeying the laws of the spirit.

A basic question arises: Into the closed world of matter, with zero-sum space and time, how do we bring in the eternal non-zero-sum world of Love and Beauty?

DIACHRONIC WEALTH IS NON ZERO SUM

SYNCHRONIC WEALTH IS ZERO SUM

PGPC11

LOSSARCH.WP6 January 19, 1995

THE ARCHETYPE OF LOSS AND THE ARCHETYPE OF TRANSFORMATION

Two important archetypes in the dynamics of change are the one that is triggered with a loss, such as death, and the one that is triggered by confrontation with a dead end, such as woundedness. An archetype is a deterministic pattern in time that takes us from state one to state two. While the onset of an archetype may result from circumstances beyond control, its initiation may be intentional. In the event of the launching of any sort of intentional change, before launch it is most important to put whatever is to be preserved into an "ark". Whatever is sacred must not be put at jeopardy nor left to the whims of chance.

THE ARCHETYPE OF LOSS

In the event of a loss, especially through death, the world has shifted. A stable system, consisting of physical and psychic components has been truncated. Such a decapitated system is unstable and cannot function until it can restore working order either through internal readjustments or union with another system. The loss of a leg, for example, requires both a physical and psychological readjustment before the system is functional. The process of readjustment is carried by the archetype of loss which has the following stages:

Fr Ogle / June 8, 1986

Kubla-Ross's 5 steps

SHOCK
DENIAL
ANGER
DEPRESSION
ACCEPTANCE

Blame others
Blame self

Denial
Anger
Bargaining
Depression = forcing down feelings
Acceptance

The onset of the loss event causes a trauma which, dependent on its suddenness, may create a state of shock. A death spread over days or weeks allows preparation and avoidance of shock, but sudden death or loss does not.

Following the loss is a struggle not to accept its reality. A period of oscillation between facing the facts and "it just didn't happen", a set of ifs, and turning the clock back. This is an exhausting period which results in protest.

The next is OK so it happened, but why, it is not fair, it is outrageous and intolerable. There is a pouring out of anger on anyone or thing that can be blamed, the surgeon, the driver, the system, and most of all on God. There are thoughts of vengeance when possible, thoughts of retribution. Some people never transcend this stage.

Following anger, comes a shifting of blame from others to oneself. The result is depression. Certainly the loss has

diminished us and we feel diminished, we lose self esteem, we question our competence, what have I done wrong, then we feel immature for not being able to handle the situation. we begin to question everything. And at this point the mood can turn suicidal. There is no heart in anything, everything is purposeless, meaningless, why go on. Finally it settles down into a deep sadness.

From the sadness gradually comes healing, the pain slowly goes away and some of the lost energy is recovered. Things that should have long ago been put in the ark are at last put there. The memories evolve from sadness to sweetness, and it is realized that something still exists that is to be cherished. Everything has not been lost, the deepest treasure is still intact and now at last it is visible. All the surface stuff has distracted us all along. We are not sure whether our healing is from our acceptance of what has happened or from the traversing of the path along which the archetype has taken us.

SOME NOTES

ON ENERGY

The physical system has its psychical counterpart related through sensory exchanges. Both are configurations of stored and flowing energy. A truncation requires readjustment of the energy patterns in both systems. The archetype is a symptomatic description of this process of readjustment.

But there is also energy/information stored in the relationship, in the link. This energy/information is both static or stored and flowing. Over time the e/i in a relationship can become very rich, like a savings account of large magnitude. When the link is broken, the e/i begins to flow. For one party it can be like a spending spree, very euphoric [the euphoria comes both from the e/i released from the broken link and the flow of e/i into the new configuration.] For the other party the flow is draining the energy from the link, lost and diminished. There is no access to the e/i redeposited in the new bank account. In the case of death when we are drained does this mean that the e/i has been available to the departed one (cf ancient burial of e/i in tombs with kings, etc.) and if we have not lost significant e/i does this mean that there is little for the departed one?

ON MEMORY

Whenever there is a loss every loss in the organism's memory is again brought into play. From the teddybear lost as a child, the purloined highschool sweetheart, the house that burned, the job that was terminated, the death of a parent... In general whenever any archetype is encountered, all of the previous specific instances of that archetype are brought into play...

Grief is an active ritual which mitigates the impact of the archetype. Letting go completely, letting the energy flow hastens the construction of a new configuration. Acceptance, readjustment comes more quickly.

The coin of loss has two sides, one of loss as above and the other of liberation which is the second archetype

THE ARCHETYPE OF LIBERATION (TRANSFORMATION)

Whereas the archetype of loss is predicated on a truncation of the system, the archetype of liberation is predicated on union with another system. Both truncation and union require readjustments in the system and this means that certain stages in the respective archetypes are the same. In general unions are euphoric while separations are depressing. The basis for union is a deep seated yearning for "home", derived from the cosmic flow of energy toward its source. Although it is oftimes reached stepwise through other unions, ultimately all yearning is for the union of self and God, for intimacy with God. for completion

The stages in the liberation archetype are:

Liberty is getting the others off your back
Freedom is getting yourself off your back

Li Kiang

PSYCH

THNKFEEL.WP6 September 25, 1995

THINKING ABOUT FEELINGS

"It isn't anger that is the problem. The problem is we make our anger bite something. We think that our anger tells us something about the world, it tells me about my own vulnerability. It doesn't tell me anything about you. As I refine that even more, feeling doesn't tell me so much about externals, it doesn't tell me much about myself, it tells me about itself. Feeling begins to teach me about feeling". --Lama Kunga

---

FEELING	LINK TO HOOK
ADMIRATION	TOWARD
ANGER	WITH
ANXIETY	---
AWE	OF
COMPASSION	TOWARD
ENVY	OF
FEAR	OF
GRATEFULNESS	TOWARD
JEALOUSY	OF
JOY	---
PAIN	WITH

Feelings and what we are calling 'hooks' are on different levels. The Feeling is less localized than the hook. The hook can usually be associated with a sensory input. We recognize many specific hooks but only a few kinds of feeling. Sometimes feelings are associated with the heart and hooks with the head.

Our natural question is: Which comes first, the feeling or the hook? Where the HOOK-LINK indicates an outward movement, flowing from within us outward, as expressed in English with **toward** or **for,** it seems the feeling is primary. It is a feeling searching for a specific, someone to be grateful to. If the feeling level is 'above' the hook level, then the outward feelings are **descending** from the higher to the sensory level.

Where the HOOK-LINK indicates an inward direction, flowing from outside to within us, as expressed in English with **with** or **about**, it seems the hook is primary. A specific sensory incident gives rise to the feeling. Someone cutting in front of us makes us angry, someone less deserving winning the lottery makes us jealous. We may consider such examples as **ascending** from the sensation level to the feeling level.

Then there are feelings that seem to be hookless. We can be filled with anxiety without any specific incident occurring. We can be suffused with joy without any specific identifiable cause. Can we conclude that the source of feelings in many cases is not directly traceable to sensory inputs. The world of feeling is not entirely attached to the world of sight and sound.

Sometimes beauty fills us with awe or joy. But beauty is not pure sensation. It is a special filter for sensation. Beauty is an example of a bridge between the sensory level and the feeling level.

Is detachment for cutting the connections, the bridges, between feeling and specifics? To have compassion without attachment seems to mean that we should develop the feeling of compassion and have it always ready for whatever specifics we might encounter. Perhaps this notion should be generalized. We should make all of our feelings detached. Abolish the hooks. Experience the feelings for what they are. Learning to relish the salutary ones, learning to transcend the negative ones. Perhaps we will then perceive that feelings are primary and come from invisible worlds we invent hooks in order to make them part of the visible world.

sensory a trigger

Cognitive Therapy — thinking 1°, feeling 2°

All sensations must be interpreted → cognition

Triad — Sensation → Perception — interpretation
Thinking → concept
Feeling

sensation + interpretation = perception
perception + value = cognition

3 brain @ 3 rates

map weighted feelings onto psychological types

Therapies are to get to our feelings.
⇒ Feelings are then a priori

FUNDAMENTALISTS [The inflexible]

These people operate from the rear view mirror with tunnel vision and blinders on.
The literal interpretation of their chosen dogma becomes an absolute.

SOME OUTSTANDING RELIGIOUS FUNDAMENTALISTS.

The Pharaoh Tutenkhamon

Had his father in law, the Pharaoh Ahknaton, the first monotheist, murdered because he had abandoned the traditional gods of Egypt..

Amr ibn al-As

When his armies had conquered Egypt in the seventh century, he was informed of the great library at Alexandria. "If the books disagree with the Koran they are heretical, if they agree with the Koran they are superfluous. Burn them all!"

Abbot Arnold-Amaury of Citeaux

When the city of Beziers was taken by Pope Nicholas III's crusaders, the Abbot was asked what to do, some of the people were Catholics, others were Cathars [heretics]. He said, "Kill them all , God will know his own".

Bishop Diego de Landa

The "Umar" of Yucatan. "We found a great number of books [of the Maya] and as they contained nothing in which there was not to be seen superstition and lies of the devil , we burned them all."

Pope Pius IX

The architect of Vatican I, corrected theological inconsistencies regarding the Theotokis, Mary the Mother of God, with the doctrine of the Immaculate Conception. And for good measure proclaimed the doctrine of Papal Infallibility.

SOME OUTSTANDING POLITICAL FUNDAMENTALISTS.

Lenin and Stalin

We shall prove Marx to be correct even if we have to slaughter 20 million kulaks to do so.

Joseph Goebels and Julius Streicher

The Jew is the corruptor of Aryan Culture and must be eliminated. "Destroy them all!"

Andrew Jackson

When Chief Justice Marshal interpreted a treaty made with Indian tribes in favor of the Indians, Jackson responded, "John Marshal has made his decision, now let him enforce it." Jackson then sent the Indians on the "Trail of Tears".

Jesse Helms and Oliver North

Any president elected by the other party is not my president or commander in chief

SOME OUTSTANDING CULTURAL FUNDALMENTALISTS

The Kansas School Board

Evolution is only a theory and should not be taught in the schools

The Supreme Court of the United States.

Declared itself in 1803 to be the sole and final interpreter of the Constitution. A power not granted it by the Constitution.

Madison v Marbury

LONE WOLVES

How are Lone Wolves to be identified? They are:

Not part of a lineage
Ahead of their time
Against the tide
Inner directed
Innovative
Self confident
Ridiculed, or worse
Want no disciples
Need

A lone wolf may be an iconoclast, if so that is only incidental. They are not mere rebels, rebelling for rebellion's sake, nor are they advocates of some cause. They are creative, imaginative, innovative. They effect emergence without an Hegelian dialectic. The verge in which they operate is with the innovative, the original, not with the contrary. They do not think or act in conventional and traditional channels. Nor do they take the path less traveled; they take an entirely new path. In terms of current jargon, they are not pushing the envelope, they are thinking outside the box. A lone wolf can neither succeed nor fail. He can only do what he must do.

CANDIDATE LONE WOLVES

FORMER TIMES	20TH CENTURY	REBELS (Not Lone Wolves)
MILA REPA		
Daedalus	Ray Bradbury	Icarus
Cain	M. C. Escher	Prometheus
Akhnaten	Paul Feyerabend	Sparticus
Socrates	Frank Gehry	Wat Tyler
Lao Tze	Henry Geiger	Jan Huss
Hsün Tzu	Roger Penrose	Luther
Elijah Nicholas of Cusa	Nicholas Roerich	Tom Paine
Deutero Isaiah	Nikola Tesla	John Brown
Nagarjuna	William Irwin Thompson	Billy Mitchell
Shantideva	Ken Wilber	Hitler
St. Anthony	Fritz Zwicky	Spong
Wycliffe		
Pascal		
Blake		
Kierkegaard		
Nietzsche		
Dostoevsky		

PREFACE1.WP6 March 16, 1997

PROPOSED PREFACE FOR THE ULTIMATE SELF HELP BOOK

The level of dissimulation in our culture has reached the point where there is a growing market in books with titles such as: What Your Travel Agent Doesn't Want You To Know, What Your Stock Broker Doesn't Want You to Know, What the Government Never Wants You to Know, What the Church Never Wanted You to Know, etc. The present book is an addition to this category. Its most accurate title perhaps should be: What **YOU** Don't Want *you* to Know. yourself ~~yourself~~

If *you* feel **YOU** are well adjusted, feel **YOU** are on **YOUR** way to where **YOU** want to go, are satisfied with the state of things, then this is not *your* book. Put it down now. If on the other hand *you* have some doubts, feel perplexed, wonder where **YOU** fit in, do not trust what is being printed and broadcast, are anxious that the culture made a wrong turn back there somewhere, then read on.

Conversely,

If **YOU** have some doubts about **YOUR** life and relationships, feel perplexed, wonder where **YOU** fit in, do not trust what is being printed and broadcast, are anxious that the culture made a wrong turn back there somewhere, then this is not **YOUR** book. Put it down now. If, on the other hand, **YOU** feel *you* are well adjusted, feel *you* are on *your* way to where *you* want to go, are satisfied with the state of things, then read on.

Either way, ~~F. OR I.~~, this book is on **YOur** side. It will enable **YOUR** fulfillment OR *your* liberation. PUT IT DOWN NOW, and then read on

> Brahma, the Creator of Worlds, who is the Alpha and the Omega, the positor of beginnings and endings, the designer of all themes, seeks in all worlds what variations are possible on the themes. Bhahma knows the denouement of worlds; what Brahma does not know are the possible alternatives that may occur within a theme. Brahma is fascinated with the unique, and with the variety of actualizations that can occur within the set bounds of potentiality.

A human has to feel special in order to fully function. It is important for us to feel that we are in some way unique, we have a special function to perform, a special role to play, a special gift to give. This is the essence of what we call 'meaning'. Mature parents inculcate in their children that they are special; that they are to be or do something someday that no one else can be or do. They are unique. An important part of the teaching of each religion is to assure its adherents that they are special: they are created in the image of God, they are Chosen, they are among those who in the last days will be saved, etc. Successful politicians impress on their followers that they are special, they are members of the master race, they alone have a special heritage, the future belongs to them. Advertisers exploit by assuring you that you become special when you buy their product. Our sacred and secular traditions convince us that we are special as a species, special as belonging to some particular group, special as a person living in some particular place or time. Because of Brahma's interest in alternatives, we have been suffused with the drive to be unique. This is what lies behind our cherishing of freedom, for only with freedom can we develop our uniqueness.

We see the importance of all of this when the sense of being special is taken away. When we are dissed, get no respect, aren't needed, are denied access to markets and membership in groups. To remedy this we set up gangs, we get guns, they get us respect. What is it that happens that takes away our sense of specialness? There are many forces out there operating to do just that. These are the forces of homogenization. Some are philosophical, some social, some psychological, and some even physical. Philosophical ideas that have reduced our sense of uniqueness have been Copernicus taking away our central position in the universe, Darwin taking away that we were specially created, modern astronomy scaling us to minuteness, and modern views equating us to animals, mechanisms computers. Monopolies and mergers reduce umiqueness; the trend from home town to megopolis to global village has reduced and homogenized us. The ubiquitous action of the second law of thermodynamics is homogenizing the world to one temperature, even gravity can act to homogenize all matter into one singularity.

The great dialectial struggle in the universe then shapes up to be not good against evil, but uniqueness against homogenization.

Psych

COLUNC1.P51 DISK:LASTPISCEAN October 25, 1991

VS

ON CULTURE AND THE COLLECTIVE UNCONSCIOUS

Long ago I adopted the motto: ANONYMITY ASSURES AUTONOMY. When I heard that the Indian way was to walk through the forest in such a manner as to allow no one to know you had passed that way, I felt that was the way to live. This seemed to be a deeper statement of such Biblical injunctions as, When you pray, do not do so in public, go into your closet. When you do alms do not let your left hand know what your right hand doeth. But there is a paradox in the teaching. Let your light so shine before men that they may see your good works and glorify your Father which is in heaven. Perhaps the resolution of this paradox lies in the difference between the culture and the collective unconscious.

Even if we leave no trail in the culture, there is no way of walking through life without leaving a trail in the collective unconscious. But in the collective unconscious, unlike in the culture, all is anonymous. The culture is a record of the past and present both determined by current selections and emphases and attributed (correctly or incorrectly) to specific individuals. On the other hand, the collective unconscious is a momentarily updated version of all human images and thoughts undifferentiated either by the individual contributors or by the historical time of their contribution. Unlike culture its composition is not governed by conscious selectivity. When and how it intrudes is largely beyond conscious control. However, it may have spatial variations of intensity, although as culture becomes globally homogenized, these fluctuations diminish.

In the case of social insects, ants, bees, termites, denizens of the colony, even when at a great distance from home base, are instantly immobilized whenever the queen is destroyed. There is some sort of 'hival noosphere' on which the functioning of the hive depends that is altered when the queen dies. The collective unconscious is a human hival noosphere whose health depends on some central nucleus. This nucleus is one of the many essences that we lump under the term, **God**. This particular facet of God is perhaps best symbolized by Chomolungma, the Goddess Mother of the Earth. Chomolungma is to Gaia, as the nucleus is to the cell.

Can we then conclude, "Leave no trail in the culture, but let your trail in the collective unconscious be one of light"? No such conclusion is warranted until the deeper relation between the culture and the collective unconscious is understood.

re cast in synchronic/diachronic terminology

PSYCH

A MOTIVATIONAL SCALA

People are motivated to participate in or avoid certain behavior patterns according as to the relative pressures of the factors in the following scala:

LEVEL	FACTORS
BIOLOGICAL	PAIN / PLEASURE
PSYCHOLOGICAL	INTERESTING / UNINTERESTING
SOCIETAL	IMPORTANT / UNIMPORTANT
PLANETARY GLOBAL	VALID / INVALID
COSMIC ABSOLUTE	TRUE / FALSE

- On the biological level there is freedom to choose between pain or pleasure, but without being overruled by excessive pressure from one of the higher levels, people will invariably seek to avoid pain. In fact the avoidance of pain is usually regarded as a safe guide in selecting a course of action.
- On the next two levels, the psychological and societal, there is not only choice but also relative impunity of choice. We are each free to choose what we find to be interesting, but we may not be so sure that we were free in determining what turned out to be interesting to us in the first place. On the societal level cultures determine what is important by consensus. However, there are usually penalties associated with an individual's ignoring the society's selection of what is to be taken as important. That is, there are penalties incurred when an individual opts for behavior that goes against the society's values. For whenever there is choice values are involved, and if an individual or society has choices they will construct a scala of values to guide their choices. An individual is fortunate and likely to be successful if it turns out his/her personal interests and society's views of what is important coincide. Or this is inculcated
- The fourth level, what is valid or invalid is trans-cultural, not subject to choice. As societal is contextual to individual, planetary or global is contextual to societal, and ultimately context overrules content in both cases. There may be, however, choice in selecting to adopt an invalid procedure instead of a valid one, but the whistle is immediately blown and sooner or later the boom is lowered.
- The above four levels are each bounded in space and time. The fifth level, true/false, transcends all limits of space and time. It is that which is valid in all places at all times. Thus truth, in this sense, is unknowable. It can only be approached as larger and larger realms of space and time are experienced. And Truth with capital T lies beyond space and time. It is absolute, eternal, and ubiquitous. Whether Truth exists, we do not know. Universal

can

Some ontological alternatives:
The foregoing scala is organized in accordance with conventional western ontology, what is valid is not subject to choice. But it could be that the universe is multi-faceted and we select which facet to exist in. In such a case what is valid could be said to be subject to choice. Perhaps only to one-time choice. Or a yet different ontology would say perhaps to continuous choice, i.e. we create reality at every moment of time.

Some behavioral alternatives:
The foregoing scala is predicated on individual or collective motivations and initiatives. But there is also a scala based on responses. Behavior in response to pulls or calls. Behavior forcing itself upon us. There is also what lies behind pain, interest, importance and validity. Such matters as ego, curiosity , intuition, hunch, values, and recognition lurk behind the scala.

Some questions:

- Are values personal or societal? Are Virtues cultural or global (valid)?
- Is the created or invented cultural and the discovered global (valid)?

FIVE VIEWS OF CONSCIOUSNESS RESEARCH

FROM SCIENTIFIC AMERICAN APRIL 1996

I found David J.Chalmers's article, "The Puzzle of Conscious Experience" [December 1995], extremely interesting, but I question his statement that "to explain life ... we need to describe how a physical system can reproduce, adapt and metabolize." Such knowledge would not explain what is unique about a single-cell organism that causes it to do these things. Chalmers also does not discuss whether simpler organisms-insects, plants or one-celled organisms-are aware or possess consciousness. I suggest that neither consciousness nor life can be explained without taking the other into consideration. Perhaps they are opposite sides of the same coin.

SYDNEY B.SELF, JR.
Bedford, Va.

Chalmers offers no compelling evidence of a scientific basis for his distinction between physical process and experience. It would seem more sensible to assume that conscious experiences are physical processes and then to get on with the study of those processes. Neuroscientists might make more progress if they were not being distracted by philosophers proposing modern versions of vitalism.

ROBERT IRWIN
Monument, Colo.

I am surprised that Chalmers classified the question "Why does consciousness exist?" as the "hard" problem. I'd take the simple Darwinian approach of observing what we use consciousness for. We use it to look out for our best interests, and it is working well, as evidenced by the human population explosion. Apparently, no "unconscious automaton" can outperform a worried mind at staying alive.

ROGER LASKEN
Gaithersburg, Md.

I believe the consciousness "problem" is inherently insoluble. To explain a phenomenon is to compare it with another phenomenon of which we have knowledge and which we believe to be in need of no explanation itself. Our consciousness cannot be subjected to such comparison, because we have nothing with which to compare it-it is, by definition, all that we know.

ROBERT J.SULLIVAN
Alpharetta, Ga.

Science requires communication. If you believe that conscious experience is something that can be communicated, you will end up working on Chalmers's "easy" problems. If you believe it cannot be communicated, you'd best shave your head, grab your saffron robe and run-don't walk-to the nearest Zen monastery. Perhaps to understand consciousness fully, you have to do both!

CHARLES G. MASI
Bullhead City, Ariz.

IMAGINATION

June 11, 1974

Imaging To be vital images must be possible
The old lose imaging capabilities because the potential → actual

There is a need for us to have a region in which to imbed our possibilities. There must always be an unknown where the not verified but nonetheless possible can exist. With the gradual drying up of our available areas of the unknown on the surface of the earth, we have had to turn to the regions of the psyche. Of course this is where the "other " has always existed in the first place. In the middle ages it was always possible to have the unusual and highly iamaginative in some foreign and strange land. Cathay, Indien, or far Thule, Hyperborea etc. With the ara of exploration, as the old areas where the "other" could dweel were removed, new areas took their place. Remote islands--always increasingly remote. Upper reaches of rivers--the Nile, the Amazon. Gradually as the interior of Africa and South America were explored, the "other was left without a dweelling place. It became less real and less possible. Today there remains only a hidden monastery high in the Himalayan fastness of Tibet or a lost tribe in the Amazon region. The really different, the unusual, the possible but not likely is always found in the last unexplored place. Of course, when the frontiera of exploration ultimately reach the last outposts the strange and the unusual has the habit of vanishing like a mirage as one approaches it in the desert. But the phenomenon--like the mirage-- is not in the fact that it is not real, but in the laws that cause it to occur. In the case of the mirage, the laws of optics, in the case of the undiscovered other, the laws of imagination. These laws seem to hold that a linkage between our images and reality must exist. Our images cannot be left to float totally unrelated to reality. For the purposes of images is to fertilize the birth of innovation into the real world. Winston Churchill in speaking of the Arthurian legends said that even if they never did happen, they ought to have happened. Most of our ought tos are in the future, some, such as Atlantis and Lemuria are in the past. The need to have them in the present required the presence of ~~the~~ an unexplored land --but real-land in which they can reside.

S. M. Greenfield: Of course, there is a real question as to whether or not it is ice.

Y. Mintz: Well, it could be ice, but not solid carbon dioxide at the −20°C temperature of the summer pole. The winter pole, on the other hand, might be just about at the frost point for carbon dioxide at the pressures involved.

S. M. Greenfield: I believe that polarization measurements made at Pic du Midi indicate the presence of some ice, but you say that not all of it is frozen water?

Y. Mintz: Well, I do not know. My guess is that the polar cap is solid water in the form of a thin layer of hoarfrost that is directly deposited on the surface itself and directly removed, seasonally, without going through the liquid phase.

R. H. Emmons: I have read repeatedly of a dark line which forms as the Martian polar caps recede. I was wondering if we can reconcile this with what you have said.

Y. Mintz: I believe this is supposed to be an indication that the polar cap is melting, not subliming, and the ground is getting wet. I have my doubts about this. The dark wave is said to cross the equator. But the radiometrically observed surface temperature variation at the equator, a diurnal variation of the order of 100°C, is inconsistent with a wet ground (and is inconsistent with a mean daily ground temperature of the order of −50°C). The observed large diurnal surface temperature variation requires us to believe that the surface of Mars is made of a dry, loose, very fine grained material—which therefore has a low thermal conductivity and which goes through no diurnal phase change.

S. M. Greenfield: I think Mr. Emmons posed a different question. If sublimation takes place, the moisture must be carried down in the direction in which the dark wave is moving. Can you resolve this type of motion from north to south in your circulation model?

Y. Mintz: The dark wave is a puzzle. Even if there was a large amount of ice in the polar cap—which is not tenable—it is difficult to believe that the water from melting ice would flow across the equator. The water would simply collect in shallow places and form lakes, producing specular reflections. But these have never been seen.

S. M. Greenfield: Suppose water was carried by the atmosphere?

Y. Mintz: Why should water vapor in the atmosphere make the ground dark?—Although I suppose one can always invent some chemical mechanism that is sensitive to relative humidity changes.

S. M. Greenfield: Or unless you have a true vegetation which responds to the moist air.

Effect of local winds on planetary atmospheric circulation

C. M. James: Would the presence of large, local dust clouds of fairly high altitude modify the lapse rate and introduce perturbations that would destroy a wave regime?

Y. Mintz: Very likely such clouds would affect the local winds, but I do not think they could greatly alter the planetary scale characteristics of the circulation.

W. W. Kellogg: We can make some deductions about the Martian atmosphere from the way in which clouds and dust storms move across its face. For example, Frank Gifford of Oak Ridge has made a study of this. Could you summarize some of the observations that might bear out the theory you presented?

Y. Mintz: Recently, I heard a talk by Dr. Miyamoto, the Japanese astronomer. He had independently reached a similar conclusion about the seasonal reversal of the middle and upper level zonal winds on Mars, not on the basis of theory, but from observation. He pointed out that at the time of the summer solstice

The joys of fantasy and fiction lie in the fact that they might have happened, they could be happening somewhere, or that they may some day happen. Without these elements of possibility--however remote-- the fantasy loses its charm and attraction. Since children are less exposed to the extent of the explored and the real, thier realms of might be are greater than ours. The growth of the actual erodes the realm of the potential until it is all gone and then the actual ceases to grow. In our age in order to rediscover the other we must have a place for it to dwell-- a believabe place, a possible place. For most of us only the future offers such an abode for our images. But when through deterministic extrapolative processes even the future is cut down and excluded form the realm of possible, one of our last available regions diaappears.

It is the task of the artist to create the possible worlds and to go beyond and create the worlds that might be possible somewhere if not here. In this task art and creativity are opposed by science, whose task is to explore and to define and delimit. to obtain a stringent definition of the possible. But science itself is destroying its own growth possibilities through its delimitations. When we have decided that something cannot be done and proved it scientifically, we are through--even though it can be done. The interplay between the actual and the potential is the key to all growth and development. When there is very little actual, no tools, the going is slow and rough. When the tools are all defined and the potentials delimited the going again becaoms slow. As Feynman once said, creativity in physics stops once you begin to know too much. (It is apodictic that creativity does not take off until you know something)

Can we find a believable abode for our images of the other to dwell?

It is easily shown that to a first approximation, the net torque on the fluid in the annulus is zero when

$$\frac{U_0}{U_4} \approx -\left(\frac{\Delta r}{d} + 1\right), \tag{10}$$

where U_0 and U_4 are the mean zonal current velocities at the top and bottom of the annulus, respectively. Δr is the width of the annulus, and d is its depth.

The vertically averaged zonal current velocity is

$$U_2 = \frac{(U_0 + U_4)}{2}.$$

By Eq. 5, the phase speed of the waves C (the rate of eastward drift of the troughlines of the waves) equals U_2 when β is 0. Therefore, by substitution, we obtain for the steady state,

$$\frac{C}{U_0} = \frac{1}{2}\left[1 - \frac{(d/\Delta r)}{(d/\Delta r) + 1}\right], \tag{11}$$

where C/U_0 is the ratio of the phase speed to the current velocity at the top of the annulus and $d/\Delta r$ is the ratio of the depth to the width of the annulus. Thus, we can see that if the ratio of depth to width is very small, the bottom zonal current U_4 will approach zero and the phase speed of the waves will approach one-half of U_0. However, if the ratio $d/\Delta r$ is very large, the zonal current at the bottom will approach the zonal flow at the top in magnitude but will be of opposite sign, and the phase speed of the waves will approach zero.

The theoretical relation given in Eq. 11 is shown by the curve on the right in Figure 14. The short vertical bar in the figure indicates the observed ratio of phase speed to zonal current velocity U_0 as a function of $d/\Delta r$, as obtained in Hide's experiments. The top of the bar represents the average of many cases of wave number 2, and the bottom of the bar, the average of many cases of wave number 5. The observations for wave numbers 3 and 4 fall in the middle of the bar. (For each wave number, the standard deviation of C/U_0 is less than the length of the bar.) This is a remarkably good agreement between theory and observation.

Fultz has given the experimental data for C/U_0 for only the five wave number case in the deep annulus of Figure 10. This is shown on the right in Figure 14 by the circle at $d/\Delta r = 5.3$. All other observations of C/U_0 that can be obtained from Fultz's published experimental data are for shallow annuli in which the depth is less than the width $(d/\Delta r < 1)$. These cases are also given in Figure 14. Although one of these points lies far from the theoretical curve, in general there is good agreement between theory and experiment.

The ratio U_0/U_4 is given by Eq. 10 and the difference $U_0 - U_4$ is given by a thermal wind relation corresponding to Eq. 4. We can therefore theoretically determine the absolute magnitude of the steady-state mean zonal current velocity at all elevations, including the top surface, from ΔQ alone.

The great success of the geostrophic-based theory in correctly "predicting" the observed characteristics of planetary circulations in laboratory models, as well as its good results for the atmosphere of the earth, should give us some confidence in the predictions we have made about the Martian atmosphere. In fact, the lack of appreciable water vapor in the atmosphere of Mars, and the absence of oceans for the seasonal storage of heat makes the behavior of the atmosphere of Mars, as I have shown, more like the laboratory annulus than like the earth.

Relationship between the Martian surface temperature and the composition of the polar caps

L. G. Stoddard: If I understood you correctly, the maximum mean daily temperature at the pole on Mars is −20°C. If this is true, how do we account for the well-observed fact that the polar caps melt? Does this mean that the polar caps are not ice as believed by many scientists today?

Y. Mintz: If we look at Figure 7 again, we see that in summer, the zero degree temperature for the warmest time of day is not reached until about 60° latitude. This leaves a rather large polar cap with below freezing temperatures at all times. Therefore, if the polar cap is made of ice, it would have to grow smaller by sublimation. For example, given a descending current of dry air over the pole, water would pass directly from the solid phase to the vapor phase. If the ice layer is very thin, perhaps just a hoarfrost, bathing it in a stream of dry air at below freezing temperatures would remove the ice without going through the liquid phase, and without adding any substantial amount of water vapor to the air.

ALTERNATE DYNAMICS OF NORMATIVE SYSTEMS

Albert Wilson

The discipline of paradigmatology arises from the recognition of the importance of the role of paradigms in the shaping of human behavior. But paradigmatology is not new. Sir Francis Bacon was well aware of the various types of error and miscommunication that are associated with image formation and proliferation. His four idols--those of the cave, the tribe, the market place and the theater--called attention to the traps we fall into through our personal aberrations, through our common ways of perceiving and thinking, through the limitations of our languages and through the conceptual walls we erect in our Weltanschauungs. The idols of the cave and the tribe have been studied extensively by psychologists while the idols of the market place have been the concern of the students of linguistics. The idols of the theater are the subject matter of paradigmatology but Bacon's views of the subject were far narrower than those of the 20th century. For Bacon the idols of the theater were, "the idols that have crept into men's minds from the various dogmas of peculiar systems of philosophy and from the perverted rules of demonstration...elements which have become inveterate by tradition, implicit credence and neglect." [1] Today we recognize that these idols, or paradigms as we prefer to call them, pervade our social, economic, religious and political views. They are traps of an encompassing nature. They energize and motivate us (or fail to do so), they provide us with our personal and cultural orientation, determine what we consider important, formulate our values and make our definitions of success. They enlist our dedication and frequently command our continued allegiance in the face of coercive stimuli for their

abandonment. It is not surprising that stimulus-response psychological theories cannot provide an adequate base for understanding the behavior of people immersed in certain paradigms. Although paradigmatology has been relatively neglected, it is a very important sector of behavioral science.

Paradigms are not universally shared. They vary not only from culture to culture and age to age but vary among sub-cultures and cohorts. Maruyama [2] has shown how misunderstandings arise between cultures from the differences in their prevailing paradigms. More seriously, paradigmatic differences oftimes lead to projections of irrationality or deceit onto members of other cultures leading to mistrust and hostility. One of the purposes of paradigmatology in the perspective of communication theory is to assure that the sender and the receiver use the same code book. But misunderstandings arise even between those who use identical code books. It must also be a purpose of paradigmatology to understand and coalesce the differences in perspective of a given paradigm among those who belong to the same culture and share the same paradigms. This is not to say that differences are bad and should be homogenized, but that differences should be understood and properly interpreted. It is misleading to assume that all members of a culture possess identical notions of a common cultural paradigm. Americans hold decidedly different views of their constitution; Marxists of dialectical materialism, and Christians of their gospel. These intra-paradigmatic differences are frequently as important as inter-paradigmatic differences. In the understanding of intra-paradigmatic differences psychology contributes an important tool to paradigmatology: the fundamental psychological types. With many of the same difficulties of communication encountered between those who subscribe to different cultural paradigms

also being encountered between persons of different psychological type who live within the same culture and share common paradigms, the psychological types in effect generate quasi paradigmatic differences within cultures and sub-cultures. Since irrationality and irresponsibility, if not duplicity, are also projected onto individuals of other types although they profess the same paradigm, a study of the characteristics of psychological types becomes important to paradigmatology.

CHAPTER 5. IMAGINING CHANGE

5.1 Introduction

Where there is no vision, the people perish. This is a central theme of futurists of all ages. Current expressions are: "men act on images they hold of the future" or "tomorrow's market place depends on what men think today" or"the image we hold of the future is a very important element in determining what the future is going to be." Conceivable futures arise from the realm of imagination, yet imagination is seldom discussed or examined in the literature of futuristics or futurism. Perhaps for sound reason since exercising imagination is altogether different from describing its nature. Poets turn from examining their craft for fear of loosing it and analysts of poets seldom produce poetry despite the millions of words written by both in the effort to contain the "creative" process. Owen Barfield has even gone so far as to suggest that talk about imagination is limited: "imagination, as an end in itself, is a vein that has been, or very soon will be, worked out. I am in doubt whether much more that is really significant can be done with it." (1) The paradox results from the gap that exists between conscious and unconscious, mind and matter, known and unknown, ourselves and the Other. In whatever terms we describe this barrier, descriptions of the other side in terms of the language used on this side lead toward increasingly abstract verbalizations while admissions of an inexpressible experience of the unknown terminate in "impotent silence." Neither extreme is acceptable and although Barfield suggests a way out through an epistemological transformation of imagination, the subject here is how futurists consider the source of their stock and trade. Before there is the possible, preferable, or probable future, there must be the conceivable future. Before there

can be goals or assessments of goals, there must be conceivable goals. Before there can be evaluations of alternative futures, there must be values which derive from images of what could or should be.

Taking our clue from Fred Polak who argues that the more we imagine the Other, the more we are freed from determinism, (2) we may approach the subject of conceivable futures by examining the interface between determinative and volitional modes of change. The only possibility for breaking the determinative trend of present system states is the introduction of a discontinuity of one kind or another. Discontinuities that are powerful enough to break the trend of any one system state (a life style or cultural pattern, for example) usually follow some natural catastrophic event such as an earthquake, flood, or famine; or some human catastrophic event such as a war, an assassination, or invasion. On the individual level, discontinuities are the events which divide our lives into period of "before" and "after" -- before we moved to California, after mother died, or before the factory closed. Discontinuities generate anniversaries and the celebration of anniversaries is a primary process by which humans assimilate change. Occassionally discontinuities that change the system state of a culture or any one individual are (from our point of view) positive rather than negative -- a divine child is born, a new world discovered, or a conflict resolved. The question of discovering alternative futures powerful enough to transcend determinative trends rests on our abilities to imagine the Other. So long as we engage our imaginations in merely performing transformations on what is known rather than in encountering the unknown, the determinism of our present condition will continue to imprison us.

In the present chapter, we examine whether the images of the future contained in the current futurist literature derive from discontinuities or from extrapolations of increase/decrease in number, variety,

or rate. This difference is central for understanding many of the urgent warnings concerning our ability to imagine alternative futures.

The context out of which this sense of urgency stems is often referred to as the escalating growth of knowledge. What many of these graphs depicting exploding information rates fail to display is the simultaneous decrease in meaning and coherence. The loss of meaning and inability to communicate across disciplinary barriers -- what Susanne Langer calls the "collapse of the world image" or Owen Barfield identifies as the final stages of "idolatry" -- is the modern version of the Tower of Babel. This crisis in imagination is thus intimately connected with the Whorfian notion (3) that the language we use (to express images of the future) affects our thinking (about the future). This crisis leads us to examine two distinct approaches to utilizing imagination. Methods devised to perform transformations on what is known are classified as permutative; methods which encounter the unknown we call mutative. Permutative imagination performs permutations, association, inversion, and other transformations on known images. They are effective operations for changes involving increase or decrease in number, variety, or rate. Mutative imagination is required for change which involves discontinuities and emergence. The difference may also be seen in the difference between using signs versus symbols. But before going into the details of any attempt to enhance imagination, we must first make certain assumptions about the nature of consciousness and the human psyche. For this we require a framework of levels. In the final pages of this chapter, we argue that the primary impact of science on the future is its ability to provide new metaphors which facilitate change.

5.2 Levels of Consciousness

The development of consciousness in the individual as well as in the race is often described as a gradual process of increasing separations between an "I" and a "Not-I". A newborn infant, emersed in the immediate environment, cannot make this differentiation. Only after five or six, or even seven years of age, is a child's ego sufficiently stable to differentiate himself from what is not himself with any degree of temporal continuity. This gradual development of an "I" goes hand in hand with an increasing ability to retain images which is imagination. In fact, the ability to retain images is the ego function in the earliest stages of consciousness. The corresponding use of language at this level is primarily the use of nouns and adjectives. The emerging ego has to have names for distinguishing persons, places, and things as well as adjectives to qualify them.

A second level of consciousness and corresponding use of language is attained once the child begins to act in contrast to react; to do things to the environment in the interest of his own survival. This level requires a language of verbs describing action and movement; the separation on this level is between "my space" and the environmental given. The successful manipulation of the environment (the crowning achievement of Western science) requires that language transmit information about nature. Second level consciousness is concerned with satisfying practical needs such as obtaining food, shelter, safety, and sex. But once this level is realized, a differentiation between "what is" and "what could be" is potentially present. If this separation is made, images of the future begin to affect behavior. On this third level, the ability to retain images not only includes the naming of objects of the first level and the identification of the relations between objects of the second level, but

consciousness now encompasses the ability to retain images of what is and what is ideal. The use of language on this third level is not that of ordinary speech (self-expression of the ego), nor is it the communication of information about nature. Here, language is used for expression of the ideal; it employs the use of metaphor; it is the language of literature and myth. (4)

Clearly, this description of the development of consciousness in sequential steps as if each were mutually exclusive is a gross simplification. It may be justified however in that it gives us a framework for examining how to enhance our ability to imagine alternative futures. The three levels of consciousness yield three distinct relations: the I/Not-I, the I/It, and the I/Thou. These three relations correspond to three uses of language. In selecting methods for the expansive phases of forecasting, it would be useful to identify which level any one method emphasis. If the failure to imagine alternative futures is as crucial to our survival as many commentators believe, then it is not only important to encourage imagination, but in order that there be the possibility of escaping what is, it is necessary to enhance I/Thou relations as well as to increase the use of metaphor. Images arising from the I/Not-I level focus on ego differences. Images of the I/It level introduce notions of duality: man versus nature, objective versus subjective, or known versus unknown. Images of the I/Thou level emphasize the gap separating what could be from what is.

The issue of how goals are generated is another reason for introducing the level structure of consciousness and language. Much of the current discussion among futurists describes the lack of institutional mechanism for the selection of goals and many have raised the issue of democratic participation and freedom to choose the future. The above three level classification scheme suggests an important parameter for ordering goals and assessing plans. Goals emphasizing identity and

and liberation (black power, women's lib, self-determination) contain images of the I/Not-I level. Goals emphasizing increase or decrease in number, variety, or rate (population, resources, pollution) contain images of the I/It level and goals emphasizing emergence or novelty (Teilhard's noosphere or Reich's consciousness three) contain images of the I/Thou level. We return to the subject of goals and assessment in a later chapter but it will be important to remember that the capability to implement goals is not the same as the capability to generate goals. This equation is one of the most extensive fallacies existing in our culture today. In advertising media it appears as the cliche that "billboards create choice." These two capabilities are distinct -- the one dependent on the level of technological state of the art; the other dependent on the powers of imagination.

5.3 The Crisis in Imagination

It is a common experience these days to be given the following (or some facsimile) calibration in the opening remarks of public gatherings or sunday supplements:

> If we let 50 years equal the last 50,000 years of history, then we stopped being cavemen fifty years ago, pictoral writing was invented 5 years ago and Christianity was born 2 years ago. The first printing press was invented 15 months ago, yesterday morning,radio was introduced. The first airplane flew last night, television came into being this morning, and the commercial jet was invented since you began reading this example. The first rocket is taking off just now.

This effort in imagery attempts to capture the direct impression of the world we live in. Our time is consumed with accelerating increases or decreases in number, variety, and rathes of change of every sort. Everybody knows this. There is no need to reiterate statistics demonstrating

that:

> Of all the scientists that ever lived, 90% are alive today and producing knowledge at a rate in which the the number of scientific articles now doubles every 15 years; or
>
> Of all the fossile fuel ever consumed in the creation of energy, 50% of the total has been consumed in the last 100 years; or

What does need repeating is the inadequacy of these images to represent what we experience. Dennis Gabor pointed out long ago that "it is only in mathematics that exponential curves grow to infinity. In real life, they either break down gently or they saturate catastrophically." We have already discussed the nature of 'S' curves in Chapter 2. And knowledge of the difficulty of determining whether the data represent a true exponential increase or are merely the left side of a 'S' curve does not lessen the anxiety or helplessness one feels when trying to comprehend our human condition. Either way, we cannot imagine it.(5) Images of catastrophic discontinuities paralize us and images of decline into the right hand regions of 'S' curves require we accept rapidly declining slopes in number, variety, or rates of change. At best, our intimidated imaginations envision the spread of the phenomena Alvin Toffler calls "future shock."(6) But future shock is the sympto , not the disease. If we want to cure our failure to imagine futures other than those of catastrophic discontinuities or those of decaying 'S' curves, we must consider how images affect change. As we have already noted, this causal connection is the one theme shared by futurists of all time. What does it mean that people perish when they have no vision?

For one thing, the inability to image the direct impressions of experience is a failure to receive information from the surrounding context. "Any system is said to be able to receive information if when a change in the environment occurs, the system is capable of reacting in such a way as to maintain its own stability." (7) This is the feedback principle on which simple systems (such as thermostats) function and it is obvious that unless the target remains stable in such systems, no error signal is generated. In that event, we would consider the system to be malfunctioning. The analogy for survival in biological organisms is easily constructed. The behavior of many of the living systems experiencing today's pace of life looks very much like systems which cannot receive information from the environment in which they exist. There is no stability within the systems which are reacting. Sermons from prophets of doom evoke reactions of denial or name calling. Rational arguments to change this or that parameter in social structures are found to be "counter-intuitive" before they leave the drafting boards, and no one knows what to do. What these symptons reveal in the analysis of Susanne Langer is that "the average person -- simple or sophisticated -- is unable to picture the universe or even to conceive what the near future is likely to be. The world image has collapsed." (8) Without images to organize and structure our direct impressions we are not able to apprehend anything, which is to say, we are not able to receive information from the changing environment. This is the <u>crisis in imagination</u>. Summons to identify alternatives or admonitions to design alternative futures are of little use in meeting this crisis so long as we continue to assume that we are receiving information from our environment. All evidence (collected primarily by those whose warnings sound the most urgent) suggests we are not. Without this information, our survival is indeed improbable. Without adequate images, our reception of information is impossible.

5.4 Current Images of the Future

The lack of images leading toward emergence or the possibility of true innovation is the subject of Fred Polak's two volume study of the imagining capacity of western civilization. (2) He examines the images of the future as projected in the art, theology, philosophy, and technology of western man and finds a gradual deteorization in two exxential features: eschatological or transcendent elements which introduce a discontinuity in what is, and utopian or immanent elements which preserve man's responsibility to act in the world. Since Polak's central thesis is that "positive images of the future are the primary causal factors in cultural change," his comparative study is essentially a search for positive images of the future. By positive, Polak means images which envision both radically different conditions from those existing in the present as well as the expectation that the new will be infinitely better. His findings suggest that something has gone wrong with the western imaging capacity to generate positive images of the future. Our present situation is paralyzed by the "momen-ridden" anxieties of existentialism and the negative content of contemporary utopias. Modern art has tried "to retrain the eye and ear to find beauty in ugliness and order in chaos. Religion has tried to divest itself of its transcendental character, and social democracy has tried to divest itself of its immance; the one escaping the reality it is meant to preach, the other postponing the reality it is meant to approach. Philosophy has partly divorced itself from all knowledge of and seeking after the good...Depth psychology endeavours to acquaint man with his bestial unconscious...Technology makes of man a slave; physically, as he tends the machines which dominate his life, and spiritually, as with increasing parasitism he consumes their soul-less products. The spirit of the times focuses all thinking on the realistic status quo..." (11)

But clearly it is not the lack of images that troubles Polak for by any criteria one chooses, it is possible to cite hundreds of images of the future in his own analysis. Other compliations and studies of utopias also exist. (12) Nor is it a waning of interest in the subject of creativity that characterizes our time. A recent count of articles devoted to this subject in the psychological literature alone shows an increase from twelve percent in 1930 to seventy-one percent in 1965. (13) What troubles Polak is that the images themselves are wrong. In directing his criticism toward the images, Polak makes the assumption that the products of imagination are subject to human will and control. Our failure to produce positive images of the future is a failure of nerve. A quite different interpretation is offered by Barfield who reminds us that imagination is not synonymous with good. "It may be either good or evil... (today) the good and evil latent in the workings of imagination begin to appear unlimited."(9) Rather than assess the distortions in current imaginings as nothing but aberrations of the modern mind, we would perhaps do well to heed their warning.

Thus, as we suggested earlier in the introduction to this chapter, the assumptions one makes concerning the nature of the human psyche is a key issue in understanding the current images of the future. If utopian thought is imaginative as Northrup Frye argues (14) then it properly belongs on the I-Thou level of consciousness. Efforts to interpret these visions as means or ends of social reform result in a misues of language. Such misuse would substitute the symbolic language of myth for the precise language of science. The reduction of these two very different levels of consciousness (and use of language) to the same level confuses the important distinction between images and models. It is perhaps this very confusion

between images and models that feeds the sense of urgency felt in so much of the futurist literature. Images render the appearance of its object in one perspective; models illustrate a principle of construction of operation. (15) To treat the products of imagination as models for social action is to deny the very source of imagination itself. Imagination presupposes a "double vision and not simply the substitution of one kind of single vision for another."(1) Admonitions to organize ourselves and "invent the future" or "design alternative futures" do not take into account the threshold separating ourselves from the Other.

The failure to encounter the Other in imagining the future is especially apparent in reports of committees of experts such as the American Academy of Arts and Science's Commission on the Year 2000. (16) The inventory of predictions promise "an increasingly sensate (empirical, this-worldly, secular humanistic, pragmatic, utilitarian, hedonistic) culture; world-wide industrialization and modernization; increasing affluence and (recently) leisure; population growth; urbanization and (soon) the growth of megalopolises; increased literacy and education; increased capacity for mass destruction."( ) Krutch summarizes much of the criticisms of these committee efoforts in noting that "almost without exception, these prophecies depend on projections or extrapolations ... these are trends which nearly anybody could have listed." (17) But few critics of futuristics have gone beyond pointing out the obvious inadequacies of these team efforts to predict the future. Advocates for and against futures research most often formulate the problem in terms of why past predictions failed (18) or rationalizations that the purpose of is futures orientation, not accuracy. (19) The issue of discontinuity is seen as the chief source of failure in predictions (20) rather than a means of escape from determinism.

William Thompson's analysis of the current images of the future is an exception.(21) Thompson sees the failure of the Commission on the Year 2000 as a failure in imagination. In contrast to endless projections of present trends, he cites Edgar Cayce as the modern prophet of change through discontinuity. Cayce's predictions of cataclysmic destruction for "the most urban and technologically advanced part of the world ... California, New York City, Japan and Scandinavia" during the last third of this century are totally unknown among the academic commissions on the year 2000. Yet according to Thompson, Cayce's is the "most widely read view of the year 2000" today and the Cayce phenomena itself amounts to a "cultural syndrome." By introducing Cayce's prophecies into his analysis of cultural change, Thompson acknowledges the fundamental dicotomy between encountering the unknown and performing permutations on what is. Whether Cayce's images of apocalyptic turmoil or Arthur Clark's images of star children or C.S. Lewis' image of God's invasion are adequate in the sense of meeting the crisis in imagination is not ours to decide. But whatever the verdict, the inventory of images of the future is not nearly so sterile as Professor Polak would lead us to believe. Eschatological encounters are alive and growing (at least in the imaginations of some) and the millenium expectation on the year 2000 proceeds on schedule.

In summarizing current images of the future, we can do no more in this brief introduction than to suggest the framework for a morphological construction of possibilities. The parameters of Table 1 in Chapter 1 used for classifying "types of futurists" may be expanded as a means of comparison. Our list given in Table 5.4 is not exhaustive. It hopefully serves as a starting point for the serious student of change.

5.5 Permutative Methods of Imagination

In our considerations of imagining change, we have thus far distinguished images from models and images of the future deriving from increase or decrease in number, variety, or rates from inages deriving from discontinuities. This all too brief background is the context for demonstrating how our imagination of the future affects our present behavior. Without images of what could be or what should be, we could not move from what we are. This applies on all levels of futuristics -- from the cosmic dream of Teilhard through the local citizens' group image of fallen trees and asphalted hills to the individual's search for salvation from his present condition. Yet not every reader of this text intends to become a producer of images of the future; most will remain consumers of images of the future and as such, the primary reason for understanding methods of imagination is self protection from illusion. For this, there is no better guide than Northrup Frye's six radio talks, The Educated Imagination.(4) In a gentle and elegant way, one is lead from memories of barren studies of literature classes up to the swirling pace of todays technological complexities convinced that his choice is not one of whether or not to exercise imagination in coping with change, but whether he will utilize a 'badly trained' or 'educated' one. Unfortunately, not all inventors of methods for enhancing imagination are aware this difference exists. We have already remarked the absence of discussion of imagination in futures literature, yet methods exist and claims for their creative results abound. Our task in this section is to establish some reference of applicability and to suggest areas of extension.

The notion that creative endeavor in human behavior can be systematized, managed, and enhanced is characteristic of today's large large scale organizations and institutions comprising technological societies. The popularity of this view stems in part from the overwhelming

success of operations research during World War II to organize scientists and engineers into research teams to work on military problems. The transition from the age of eccentric individuals workingaalone in basements or attics to the age of multi-disciplinary research teams who require large and expensive computers, telescopes, or accelerators has been swift and not without consequence for the social order that supported it. Confidence in the ability to manage the conditions in which creativity flourishes perhaps reached its zenith a decade ago. A special issue of Scientific American (September 1958) on innovation in science illustrates this optimism. More striking than the specific articles on the creative process is the tone of the recruiting advertisements in this issue. Now that the lucrative budgets supporting scientific research are diminishing, the promise of lush, stimulating environments in which innovative individuals solve problems appears more astonishing than most science fiction. But whatever the final score of 'big science' over 'little science' , the expectataion that creative endeavor can be enhanced continues within management circles today.

Many advocates of enhanced creativity through enlightened management techniques could be cited, but the work of Douglas McGregor is typical.(30) McGregor found that productivity increased when administrators revised their inherent assumptions that humans are lazy, irresponsible, or need to be rewarded or punished. Humans are as willing and ready to expend mental and physical effort at work as well as at play. Control and threat of sanctions are not the only means of increasing productivity. Employees can be as committed to stated objectives as they can be attracted to rewards associated with achievement. The average person accepts and seeks responsibility and the distributation of creative potential among the average person is much greater than previously realized.(31) Continuing this trend is Abraham Maslow's "Eupsychian" management.(32) Maslow defines

a psychological healthy culture composed of self-actualizing individuals as 'eupsychian' in contrast to materially based cultures that may be 'utopian' or'dystopian.' Applied to management techniques, the self-actualizing person requires an environment which encourages trying out new ideas without fear of ridicule or penality if the ideas happen to be wrong. Further refinements of McGregor's revised assumptions of human nature and Maslow's hierarchy of needs have been made by Clare Graves in the form of differentiating different levels of behavior with an appropriate managerial approach for each.(33) Recognition of levels of behavior is insightful of evolutionary and metabolic change. It offsets the dehumanizing tendencies of one-level industrialization and raises the expectation of permutative change primarily because it places a high value on change in number, variety, or rate as the main strategy of survival in an increasingly technologized milieu. Paralleling these managerial efforts are several group methods of creative problem solving including sensitivity training and its many variations on the theme of group. Here, we discuss three of the most widely known problem solving techniques: brainstorming, synetics, and serious games.

5.5.1 Brainstorming

The object of a brainstorming session is the generation of new ideas, not the evaluation or agreement of ideas. Alex Osborn, one of the first articulators and promoters of the advantages of brainstorming, entitled his book: "Applied Imagination: Principles and Procedures of Creative Thinking."(34) A generalized set of rules for any brainstorming session include:

1) No evaluation of any kind in the 'thinking-up' session,

2) Encourage all members to think wild: "It is easier to tear down than to think up."

3) Encourage quantity, not quality of ideas,

4) Encourage everyone to build upon or modify ideas of others. "Combinations or modifications of previously suggested ideas often lead to new ideas superior to those that sparked them."

Additional suggestions include limiting the number of experts in any one session; limiting the size of the group to no more than ten and no less than six; a group including both men and women is more productive than a homosexual group; groups scheduled in the morning are more effective than those scheduled at other times of the day; group sessions should be about one hour in length; and the problem should be specific and of fairly limited range, at least for beginning groups. (35)

5.5.2 Synetics

A second group method for systematized innovation was developed by William Gordon at the Arthur D. Little Corporation. Central to this method is the notion of deferment by which specific solutions are deferred until the group has parameterized the more general aspects of the problem. To stop the group from centering in on a specific solution that puts the puzzlement to rest too soon, Gordon requires that only the group leader know the exact problem for which a solution is sought. If, for example, the problem is a new way to park automobiles in crowded conditions, the leader opens the discussion by asking the group to consider "storing things."(35) This leads to optimal criteria for storage of many things -- honey in combs or sausages on hooks -- not just automobiles. After the group has exhausted their generalizations, the leader presents the specific problem and the general ideas are translated into specific solutions. Like brainstorming, Gordon also suggests limiting inhibition, guilt, fatigue, technical jargon, and experts among group members and encouraging license and free exchange. A more recent statement by Gordon on the search for the "constants in a

successful problem solving situation" (37) include the conscious use of metaphor in three forms:

1) Direct analogy which compares one thing with another such as a "ship's bow cutting the sea as a plow cuts the land,"

2) Personal analogy which is role playing and identification with animate or inanimate objects. For example, asking how the wood "wants" to be cut or Einstein's asking himself how it would feel to ride on a beam of light.

3) Symbolic analogy which usually combines opposites in a two-word phrase such as "wakeful sleeper," "tears of joy", or "ill health."

This third form is another way of describing the essence of paradox, a stimulus valued by creative individuals of every kind.

5.5.3 Games

A third method of group problem-solving which may be considered a permutative method of imagination is the class of simulated human conflicts called games. Pioneered by military strategists, gaming techniques are increasingly used in other spheres of life: education, industry, government, and design. A formal definition given by Clark Abt is "a game is an activity among two or more independent decision-makers seeking to achieve their objectives in some limiting context."(38) Games are used to experimentally test alternative strategies and provide decision makers with a greater range of experience in the consequences of their decisions. The formalized logic of game theory was applied to economics by Von Neumann and Morgenstern and many other applications have since been described. Aside from the benefit of rules of logic in decision making processes however, game theory involves the simulation of conflict situations. This anticipatory application of imagination called scenario construction is the aspect of games that interests us here. Scenarios are a necessary element of all futuristics and as Helmer points out: "scenario-writing

involves a constructive use of imagination."(40) Kahn utilizes scenarios as an aid to analysis: "They should not be used to prove anything. They are literary and pedagogical tools rather than instruments of rigorous analysis to be used to stimulate, illustrate and teach."( ) The use of scenarios is not limited to the simulation of conflict situations or the enhancement of analysis however.

Scenarios in the form of postulating low-likelihood events with major dislocative consequences can be used to think through the implications of possible developments and to formulate alternative responses. What if radio telescopes identified signals from another intelligence in the universe? What if a death dealing virus created in a laboratory accidentally got out of control? What if extra-sensory perception were understood and applied as easily as foreign language training? While the class of scenarios used in games and analysis constitute a test of our practices and institutions (praxis), the class of scenarios describing events of low proability of occurence but of major consequence and dislocation test our motivations and world views.(42) The permutation and combination of any and all imaginings expands one's ability to see the context, a requisite of a holistic view and hence indispensible for the futurologist. Supplementing these efforts to apply imagination in groups are a whole series of methods for individual use. For example, the method called New Think suggests utilizing inversions, alterations and other permutations.(43) The helpful hint of breaking out of old patterns of thought by inversion was discussed in Chapter 3 with the story of the grandmother who climbed into the playpen and let the toddler play outside. The literature is vast and permutative methods vary from check lists and anecdotes to research reports of intricate measurements and factor analysis. The Journal of Creative Behavior published by The Creative Education Foundation is an excellent source.

In summary, it seems necessary to point out the unifying theme permeating all of these efforts to systematize the creative endeavor -- the theme of opting for the positive side of imagination. Puritanism has always been recognized as a one-sided approach, yet a 'new puritanism' is evident in our age of creative management and education. The neo-puritan emphasizes 'peak' experiences, 'positive' images of the future and 'optimum' decision making strategies. Lewis Mumford says it well in his review of Maslow's humanistic approach to psychology: "... one can hardly penetrate very far into religious experience without realizing that many of them begin in an abyss of rejection and disolation ... to limit these experiences to moments of joy as if joy and creativity were always one" as Maslow does is "to favor one side of subjective experience."(44) This bias is seen in much of the effort to systematize creativity. The great striving after consciousness, positiveness, and optimization leaves no room for their opposites. There is no "imagination in evil" in permutative methods and the very wholeness which shaped the search is sacrificed to a new (albeit different) partiality. The escape from the determinism of present system states can only come from outside the system. The difference in permutative and mutative imagination is not so much a question of what to do with images once they are obtained, but rather with their source. Images of the Other come from encountering the unknown. This encounter does not necessarily provide joyous peak experience, positive images of the future, or optimum strategies of problem solving. It is not subject to human will and control despite the expectations promised by those who articulate methodologies for the application of imagination.

5.6 Mutative Methods of Imagination

The basic question of how images of alternatives emerge in human consciousness is central to discussions of mutative methodologies. Since the results of imagination are first manifest to consciousness in images or symbols, it is necessary to examine whether images or symbols are discovered or designed. The difference is crucial. If symbolic images are designed or otherwise subject to human volition and conscious effort, then it should be possible to lay out an explicit course of action leading to an algorithm of invention. Once realized, one could employ such algorithms to design new images to match our social need -- images to replace such inadequate ones as hierarchies, bee hives, or ant hills. On the other hand, if images are not contrived, then the path toward their discovery lies in improving our ability to gain access to their source. The research from depth psychology and comparative mythology shows that energizing images emerge through the process of attaining higher levels of consciousness. Their source is the threshold between conscious and unconscious experience. Realization of new images capable of extending the set of conceivable futures depends on the ability of an individual human psyche to assimilate and give form to his own experience of encountering this threshold. Conscious, intentional effort alone cannot invent or design effective or energizing images. An immediate consequence of this basic fact for futuristics is that alternative futures do not derive from organizing our efforts to attain, but rather from preparing ourselves to receive. It may well be that futurists are aware of this difference and employ receptive methods in their own creative efforts to generate alternatives, but before we can review the receptive methodologies it is necessary to make explicit what is implicit in the notion of encountering the unconscious and giving form to the images received.

Alternative futures, like other creations we recognize as art, music, literature or scientific discovery, do not spring full grown from imagination as did Athena out of Zeus' head. The first manifestations of what is potentially conscious are allusions to what is strange, foreign or unknown. These allusions are properly called symbolic images or symbols and are not to be confused with signs which are references to what is known. Becoming conscious of a previously unknown content requires two distinct steps: differentiating which is to separate the vague allusions from the background of the familiar and integrating which is to place the new within the context of the familiar without losing its difference. The conversion of vague images into concrete form, be it a painting, a musical composition, or a scenario of a projected future requires both receptive and conative effort. Most artists "surrender their conscious initiative" (45) in order to engage the unconscious because of the conviction that it alone is the source of authentic and significant works. The 'proof' of the existence of the unconscious and the 'evaluation' of its derivative force are to be found in the ability of its emergent images to continue to engage us, that is, to continue to provide us with pregnant and fertile motivations for creative striving and expression. The forms that result from experiencing content that breaks through into the conscious realm are not in themselves a measure of increased consciousness. Psychotic psyches can (and often do) give form to their experience of encountering the unconscious. The concretized expressions must be submitted to tests of validity just as the results of any other observations are subject to verification through such procedures as the scientific method. The important point for extending the set of conceivable futures is that tests of validity be applied to the forms derived from utilizing imagination, not to the process of imagination itself.

The methodological difference between organizing our energies to attain images from the unconscious and preparing ourselves to receive 'precursors' of consciousness calls for a reorientation in the emphasis of rationality and reductive analysis that has dominated western culture since the scientific enlightenment. This reorientation may already be upon us. Today's eruptive, irrational scene of drug experiments, encounter groups, power quests, and other collective behavior can be explained in large measure as one of unconscious content breaking through the surface to consciousness. Descriptions of 'trips' and 'peak' experiences relating joyous unity as well as nightmarish terror are identical in form to descriptions offered by mystics in ages past. (46) One difference, of course, is the larger number of individuals having and reporting such experiences today. There even appears to be a whole new tourist trade in inner travel. But, for society as a whole, the central issue -- after the experience, what then? -- has not yet been answered. For those concerned with imagining a tomorrow that is not necessarily an scalation of today, the crux of the matter lies in whether or not these collective experiences can be integrated. If not, we risk becoming ill collectively, and in terms of the existing global weapons systems, collective illness may be equivalent to collective annihilation.

Because methods for obtaining access to the source of imagery are described in numerous accounts of the current experiments, (47) we do not summarize them here. Instead, we concentrate on methods whose aim is to integrate newly differentiated content. In turning to consider these embryonic techniques as a means of improving our methods of reception, we can do no more than outline their essential features. Further assessment of how successful they prove to be in generating conceivable futures remains to be explored. So far they have not been widely used in futures research. They include: active imagination outlined by Jung; the use of

the Chinese Book of Changes, the I Ching, discussed by Arquelles; the way of the myth described by Campbell; and the possidictions suggested by Waskow.

5.6.1 Active Imagination

The method called 'active' imagination appears to contradict the notion of adopting a receptive attitude. As we show later, active and passive must be divided two ways, not one. The essence of the method is 'active' imagining rather than 'passive' observance of fantasy. In its original formulation as an auxillary to dream analysis, Jung devised this technique for consciously engaging the images that continually parade before one whenever the ego relaxes.(48) In contrast to Eastern meditation techniques that attempt to clear the scene of all activity, the goal of active imagination is to engage the images while simultaneously avoiding censoring or evaluating which stop the flow. Since there is a natural tendency to avoid negative or painful images, whenever we are simply passively observing our own fantasies, we 'turn-off' whenever anything unpleasant or contradictory occurs. Jung found that if one would consciously try to watch the flow of imagery, even when negative or absurd images appeared, it was often possible to discover helpful and healing information in the recorded material. Thus, in addition to amplifying dream images during the course of a depth analysis, he urged some patients to employ active imagination for obtaining access to unconscious content. Most often the method involves writing down conversation or dialogue with dream figures and accounts of their behavior as well as the setting; however, one can also actualize or give form to images resulting from active imagination by painting or modeling clay or even through body movement. Although many Jungian authors claim uniqueness for the method Jung called active imagination, it may be essentially what all creative persons do in

assimilating newly differentiated content. The detailed examples of dialogue obtained through active imagination (often pedantic and rather dull reading) suggest how one may utilize active imagination.(49) It goes without saying that one's response to the images gleaned through using this method is the pivotal point. For, just as with images presented in the more familiar night dreams, one must deliberatly follow wherever they lead and reconcile them with what is already conscious if they are to be integrated.

Another way to view the difference between an active reception and a passive observation of the flow of imagery is that the ego functions in an evaluating or censoring mode as well as in an initiating and perceptive mode. Ego-linked mental processes reject, judge, defend and censor. Yet, the ego also observes, detects, and initiates mental activity. In utilizing an active reception of imagery, the task is to engage the ego as observer and initiator while simultaneously keeping the evaluator or censor from rejecting and terminating the flow of imagery. We require two perpendicular axes to describe this conception: the active-passive axis and the judging-perceiving axis. These provide four quadrants. In one, we find to passively perceive which is day-dreaming, waiting for God to speak to us; in another, we find to actively perceive which is what Jung means by active imagination. The other two quadrants, although not of immediate interest here, are to actively judge or evaluate which is concentrated, directed or critical thinking and to passively judge which appears to be a contradiction although it resembles the way some persons engage their egos, hop ing about here and there, evaluating every scrap that comes along.

5.6.2 The I Ching

Another method for concretizing the images found in experiences of encountering the threshold between the conscious and unconscious realms is through the use of the ancient Chinese text called the I Ching or the Book of Changes. In a review of today's critical human condition, Arguelles interperts the upsurge of interest in this ancient oracle as much more than a playful find of fortune-telling appealing to hippies, flower children, members of the New Left or sophisticated readers of Harper's Bazaar and Playboy.(50) It is part of an intense turning from what Western minds might quickly label as reaction and revulsion against modern science and technology, but only if they fail to examine the phenomena more closely. Arguelles sees this change in direction as the early stirrings of what will eventually emerge in our own evolution even though he refuses to speculate on its final form. In the meantime, the I Ching can serve us as an "instrument of passage."

In brief, this ancient text was first introduced to the West when Richard Wilhelm returned from China in the 1920's. Its content and method of use were known only to small, esoteric groups until this recent upsurge of interest bright it out into the open. It consists of sixty-four hexagrams that depict favorable and unfaborable situations for human action and thought. Its symbolic language employs the notions of the 'superior' and 'inferior' man, and as Arguelles points out: "... it is no astute psychological observation that a man chooses to identify with what is superior rather than inferior, but the I Ching is so constructed that whoever wishes to see himself as the 'superior' man must follow a certain set of rules or principles in order to remain superior." And further, "an effort to comprehend the images that the I Ching provides will carry the individual into a state of consciousness which transcends the merely

personal or ego-centered. Therefore the Book of Changes can be seen as an auto-regulative behavior mechanism contributing to the evolution of consciousness, which is man's inherited planetary responsibility."

The underlying theme of the Book of Changes is that "opposites come together in time, and conditions, which are not in themselves compatible, become so through the fact that they follow each other and change into each other."(51) This is the advice of Confucius that one should not forcefully carry through a given line of action under all circumstances since such an attitude naturally engenders its opposite and thus perpetuates the conflict without any final victory. By standing within a central position, flowing with the experience of contradictory opposites, we are freed from having to remain bound to one pole, forever viewing the other negatively. This is the very integrated position that depth psychology urges us to attain -- to withdraw projections of the enemy 'out there', to meet the shadow within, and to finally be able to say with Pogo, "We have met the enemy and they are we." Thus, through reflecting and meditating on the images provided when one consults the I Ching, some individuals obtain access to the source of energizing symbols. Whether or not it provides a way to "program" the psyche of twentieth-century humanity as Arguelles argues is not our immediate concern, but as in the case of active imagination, "the truth of the programming depends on how the person who consults the Book of Changes responds to its messages."

5.6.3 The Way of the Myth

The engagement of one's own myth is advocated by Campbell who's sensitive awareness of the human condition and deep understanding of the function of myth clearly suggests a mutative methodology. He reminds us,

> "... clearly, mythology is no toy for children. Nor is it a matter of archaic, merely scholarly concern, of no moment to modern men of action. For its symbols (whether in the tangible form

> of images or in the abstract form of ideas) touch and release the deepest centers of motivation, moving literate and illiterate alike, moving mobs, moving civilizations. There is a real danger, therefore, in the incongruity of focus that has brought the latest findings of technological research into the foreground of modern life, joinging the world in a single community, while leaving the anthropological and psychological discoveries from which a commensurable moral system might have been developed in the learned publications where they first appeared. For surely it is folly to preach to children who will be riding rockets to the moon a morality and cosmology based on concepts of the Good Society and of man's place in nature that were coined before the harnessing of the horse. And the world is now far too small, and men's stake in sanity too great, for any more of those old games of Chosen Folk (whether of Jehovah, Allah, Wotan, Manu, or the Devil) by which tribesmen were sustained against their enemies in the days when the serpent still could talk." (52)

In contrast to dream images, images of the universal elements in myth such as the hero's journey bring one into contact with the 'collective' unconscious that subsumes one's personal unconscious. Similarly, since each of us as individuals is limited either "as male or as female, as child, youth, mature adult or ancient, and in our life-role as craftsman, tradesman, servant or thief, priest, leader, wife, nun or harlot ... the totality -- the fullness of man -- is not in the separate member, but in the body of the society as a whole."(53) If we break off from this whole, we merely break connection with the source of our very own existence, that is, with the source of effective and energizing symbols. Campbell warns that the present split in the body soul, that is, the schism precipitated by a dominance of rational approaches that ignore the source of symbols "will not be resolved by any scheme of return to the good old days (archaism), or by programs guaranteed to render an ideal projected future (futurism), or even by the most realistic, hardheaded work to weld together again the deteriorating elements." Its resolution is the task of the hero, "the man or woman who has been able to battle past his personal and local historical limitations to the generally valid, normally human forms." This is not a work that consciousness itself

can achieve. "Consciousness can no more invent, or even predict an effective symbol than foretell or control tonight's dream."

The value of mythology as a paradigm for the creative encounter of the unknown is that it provides a means for recognizing commonalities of form in the midst of new and unique content. The hero's journey of mythology are different in the specifics from the modern hero's task, but the form is the same and in this we can find orientation. Just as the structuring devices of space and time orient us in our outer perceptions, the universal elements of myth orient us in our inner perceptions. The individual who turns inward and encounters the images of the unconscious requires orientation, otherwise the powerful forces that appear in many variations (as dragons, demons, angels or helping spirits) are interpreted as outer obsticles to be pursued and defeated through war or arms races or power plays. We have already remarked that the products of imagination are not synonomous with good (Sec.5.4). Many of the images encountered in the depths are full of terror and mythology is a structuring device that permits interpreting these encounters. But even Campbell, in champoining the way of the myth, recognizes its susceptibility of interpretation on many levels:

> "The shallowest minds see in it the local scenery; the deepest, the foreground of the void; and between are all the stages of the Way from the ethnic to the elementary idea, the local to the universal being, which is Everyman, as he both knows and is afraid to know."(19)

In an insightful analysis of technological society that is seldom quoted and never mentioned in futurist literature, Gerald Sykes captures the essence of this method in describing the conditions of survival.(20) Emphasizing the durable myth -- the one "that a person has retrieved from the unconscious, that possess him with a strong need to express it" -- as a condition of modern survival, Sykes remarkes that "the future does not terrify the man who knows he can cope with its worst trials." This is the assurance of the hero that we find in myth.

5.6.4 Possidictions

The fourth and last method in our review of mutative imagination comes from the suggestion of Arthur Waskow to imagine "possidictions" that are neither predictions nor utopias, but are "projections of changes that are possible depending on the social and political decisions that men make, rather than changes that are determinate and certain or changes that are merely infinitely desirable." (54) Because of his concern that in a democracy, "the future should be created by the citizenry generally, not by a group of professional planners and reformers," Waskow argues that models of alternative futures can be considered as research projects in the present:

> "The sole condition is that people be prepared to build, in the present, circumstances like those they have imagined for the future. The success or failure of these projects, the response of the society to these events, will be a test of the accuracy of the possidiction. A project crushed, a project ignored, would mean inaccuracy; a project that created strain in the society and brought social movement in the projected direction would indicate success."

Waskow illustrates this method by developing a possidiction for the year 1999. Drawing on three threads of change extracted from the past generation, he finds there emerges a "new class" from each and further, that each of these classes contain the seeds of its own negation. These are:

1) The swelling up of war to a size which makes itself irrelevant to the purposes for which it was originally carried on begats a class defined by its relation to the means of mass destruction, that is, the owners of mass destruction rather than the owners of the means of production;

2) The emergence of a class of the educated whose only property is what they carry around in their heads, but do have the property they carry around in their heads as contrasted to the old working class which owns no preperty or the old middle class which owns a corporation, a farm,

a shop, etc. This class is born in the affluence of the giant bureaucracies -- the great governmental, corporate, and university organizations; and

3) A class of increasingly conscious rebels who derive from the growth of the under-class, those who are cut off in poverty, increasingly racially defined, and cut off from the social mobility that used to exist.

Waskow shows how each of these emergent classes contains the seeds of its own negation and asks, "What would it mean for the anti-militarist from the establishment, the activators from the educated class, and the effective rebels from the underclass to emerge -- all at about the same time?" In answering, he projects their emergence in the year 1999 and offers tests to validate this possidiction. Our emphasis in Waskow's possidictions is the seriousness with which he holds images of the future and with his commitment to submit possidictions to tests of validity as harsh as the criteria used by Jung and Campbell to designate authentic symbols. To the historians present on the occassion of this lecture, he said:

> "We were concerned to study the makings of peace in human history partly in order to understand how peace might be created in the human future. But we have tended to think that as historians, we must proclaim that our territory stops at the knife edge of Now ... If we care about peace, we should realize that those who care about war are already working on the future. The planning of weaponry for the 80's and 90's is already under way; the construction of scenarios for numerous future escalations is already done; and since men in government act now upon these images of the future, they hinder the achievement of a different future in which peace is the normal process. It is only the working through of the implications of peace and the working out of images of peace that can strengthen the power of those who hope it is to make peace." (55)

Although he is not explicit in how to go about the "working through" and the "working out" of the images we hold, it is implied that by doing so, we would satisfy the need for concretizing the vague and pre-conscious images of what should or could be.

5.7 Science as Metaphor

In our brief sketch of imagination, we have suggested several times in various ways that human efforts to know are ultimately tied to who we as knowers are, how we perceive and organize what we know as well as what is knowable. These issues are epistemological and the new key to epistemology is that symbols are used both to attain as well as to organize knowledge. (56) Before this insight, sense data were considered primary in human cognition and their collection and measurement permeated every phase of epistemological investigation. The human mind was conceived purely as a recording and combining device and the central nervous system was metaphorically presented as a giant switchboard. Susanne Langer has done much to correct this inadequate image of mind despite the persistence of reductionists such as Wooldrige (57) and other advocates of artificial intelligence. But the old metaphor of central switchboard is not easily dislodged especially in lieu of an adequate one. At root, the reductionist-holistic argument that currently prevails in the effort to model living organisms is a matter of an adequate image of man. In spite of the fact we can observe the change in the metaphoric containers of man throughout history (for example, rational man of the enlightenment replaced moral man of the middle ages and today self-actualizing man is replacing economic man or organization man of industrialism), we cannot describe in any precise detail how metaphors fail or their replacements emerge. We may say that paradoxes of experience reveal inadequate metaphors and this is the stage we find ourselves in today. But answers to finding adequate metaphors are very much like the dilemma of forgetting what one was searching for until finding it causes one to remember what it was. We don't know what the adequate metaphor of man is until we find it. This brings us back to our central theme of change because we do know that metaphors mediate change.

We may turn to the history of science for an illustration of this mediation. While science is primarily concerned to discover laws of explanation, it introduces new metaphors as well as new technologies. Much has been said about science's technological by-products; very little about is metaphoric ones. We suggest that even though the immediate fascination is with how science provides us with new detergents, deodorants, and dentures, the more durable fruits to be harvested from the practice of science are its metaphors. If so, science is not as alienated as supposed by those who isolate it from the creative endeavor of poets and other makers of meaning and the current anti-scientific attitude might well be corrected toward its real enemy -- the failure to utilize imagination-- rather than toward its supposed enemy -- scientific discovery.

To recognize science as the maker of metaphors requires we utilize its language on a different level than the I/It level of transmitting information about the world. It also requires we become conscious of how we participate in our perceptions of the world. Failure to recognize our participation in our models of explanation lead to the simplistic and 'nothing but' reductionism that invite critics of science to suggest doing away with all science and defenders of science to insist that anything but science is illusion. The higher level view is both subtle and difficult to maintain. Mumford points out that "among the most original and fruitful contributions to the study of living organisms in the seventeenth century were Harvey's observations on the circulation of the blood, whereby he described the heart as a pump with pipes called veins and arteries, whose blood flow was regulated by valves; while Borelli made similar efforts to interpret the location of animals in equally mechanical terms. Both were admirable contributions, as long as their descriptive limitations were not taken as those of the living organism itself; for life was the 'filterable virus' that teasingly escaped through the pores of these new mechanical

containers."(24) Descriptive limitations is the clue for conscious participation; otherwise we fall into the trap of making idols of our mental constructs.(9) Langer also acknowledges the value of scientific metaphors. In commenting on the benefits of information theory as a metaphoric container of the mind she says: "that communications systems furnish models of some highly important neural mechanisms is demonstrated by the advances they have implemented in the field of brain physiology and neurology; especially the basic recognition that nervous activity involves electrical potential and current. The insidious influence of the model, however, is the apparent implication 'that the central nervous system is a communication system.' The central nervous system effects communication in the course of its total operation ... but radically different from that of a machine dedicated to communication as its primary function." (15) We are thus forewarned that metaphors developed in one area and applied in another can lead to dangerous idolatry and insidious imagery. But transfers are made in spite of the misuses as the following list suggests:

the clock preceed the geocentric model of the solar system;
the waterpump preceeded the discovery of blood circulation;
the steam engine preceeded the laws of thermodynamics;
gambling preceeded probability theory;
war games preceeded gam theory;
refineries preceeded cybernetics; and
the solar system model preceeded the Bohr atom.

Other examples could be added. Our reason for pinpointing these metaphoric precursors of theoretical advance is to clarify the process of scientific discovery. Science continually remakes its grasp of reality through adopting new metaphors. It is an endless process of metaphor transforming itself into meaning. Hang-ups occur when metaphors become idols and

Max Planck's remark that old metaphors never die, only their opponents confirms that idols exist in science.(58) The only way to overcome this kind of dogma is through the continual exercise of critical reflection of our primary orientation and worldview. A critical examination of our praxis by which we transform the world and create culture as well as history is one of the chief functions of an educated imagination. This transformation is an essential difference between human experience and animal or robot experience. Humans transform their world and reflect on their action. Neither animals nor automatons have a praxis resulting in both a culture and a history. The curious paradox is that science whose very mode of being depends on the search for and discovery of new metaphors to mediate its changing perception of reality should have ever been considered a paradigm for absolute truth. But despite popular and professional misconceptions of what science is and what it is not, our emphasis here is that metaphor leads to meaning. Recalling the above list of precursors, we may ask: what is it that follows the computer or the holograph? Those who can engage their imaginations will lead us on to a new image of life -- images to replace the inadequate images of reason, economics, organization, or even self-actualization.

BIBLIOGRAPHY

5.1 Introduction

1. Barfield, Owen. Imagination and inspiration, pp.54-76 in Interpretation: The Poetry of Meaning (Stanley Romaine Hopper and David L. Miller, eds.) Brace and World, Inc., New York, 1967.

2. Polak, Fred L. The Image of the Future. Oceana Publications, New York, 1961.

3. Whorf, Benjamin Lee. Language, Thought, and Reality. The M.I.T. Press, Cambridge, Mass., 1956, 278 pp.

5.2 Levels of Consciousness

4. Frye, Northrop. The Educated Imagination. Indiana University Press, Bloomington, 1969, 156 pp.

5.3 The Crisis in Imagination

5. Hetman, Francois. Fading out of the future, p.343 in The Language of Forecasting. SEDIS, Paris, 540 pp.

6. Toffler, Alvin. Future Shock. Random House, Inc., New York, 1970.

7. Young, J.Z. Doubt and Certainty in Science. p.17, Oxford University Press, Galaxy Book edition, New York, 1960,168 pp.

8. Langer, Susanne K. Philosophical Sketches.p 169, Oxford University Press, London, 1962, 190 pp.

9. Barfield, Owen. Saving The Appearances. Harcourt, Brace and World, Inc., New York, 1965, 186 pp.

10. Theobald, Robert. An Alternative Future for America II. Swallow Press, Chicago. 1970

5.4 Current Images of the Future

11. Polak, Fred. L. The Image of the Future. Vol.2, p.363, Oceaan Publications, New York, 1961.

12. Manuel, Frank E., ed. Utopias and Utopian Thought. Daedalus Library Vol. 5, Houghton Mifflin Co., Boston, 1966, 321 pp.

13. Guilford, J.P. Creativity: etrospect and prospect. Journal of Creative Behavior, 4, No.3, pp.149-168, 1970.

14. Frye, Northrop. Varieties of literary utopias, p.31 in Utopias and Utopian Thought (Frank E. Manuel, ed.) Houghton Mifflin Co., Boston, 1966.

15. Langer, Susanne K. Mind:An Essay On Human Feeling. p.59, The Johns Hopkins Press, Baltimore, 1967.

16. Toward the Year 2000: Work in Progess. Daedaulus Journal of the American Academy of Arts and Sciences, 96, No.3, Summer 1967.

17. Krutch, Joseph Wood. What the year 2000 won't be like, Saturday Review, pp. 12 - , 20 January 1968.

18. Clarke, Arthur C. Profiles of the Future. Harper and Row, Publishers, New York, 1962, 234 pp.

19. Adelson, Marvin. The technology of forecasting and the forecasting of technology, pp. 116 -124 in Toward Century 21 (C. S. Wallia, ed.) Basic Books, Inc., Publishers, New York, 1970, 318 pp.

20. Boulding, Kenneth E. Expecting the unexpected: the uncertain future of knowledge and technology, pp.158-175 in Beyond Economics, University of Michigan Press, Ann Arbor, 1968.

21. Thompson, William Irwin. At The Edge Of History. Harper and Row, Publishers, New York, 1971, 180 pp.

22. Fuller, R. Buckminster. Utopia or Oblivion: The Prospects for Humanity. Bantam Books, Inc., New York, 366 pp.

23. Kahn, Herman and Anthony J. Weiner. The Year 2000: A Framework for Speculation on the Next Thirty-Three Years. Macmillan Company, New York, 1967, 431 pp.

24. Mumford, Lewis. The Pentagon of Power. Harcourt Brace Jovanovich Inc., New York, 1970, 496 pp.

25. Reich, Charles A. The Greening of America. Random House, Inc., New York, 1970, 399 pp.

26. Skinner, B.F. Beyond Freedom and Dignity. Alfred A. Knopf, Inc. New York, 1971. See also Psychology Today, 5, No.3, August 1971.

27. Soleri, Paolo. Arcology: The City in the Image of Man. The M.I.T. Press, Cambridge, Mass., 1969, 122 pp. Also the review by Dana F. White. The apocalyptic vision of Paolo Soleri, Technology and Culture. 12, No.1, pp.75-88, January 1971.

28. Sykes, Gerald. The Hidden Remnant. Harper and Brothers, New York, 1962, 241 pp.

29. Teilhard de Chardin, Pierre. The Future of Man. Harper and Row, Publishers, Inc., New York, 1964, 332 pp. See also, Murray, Michael H. Soul, individual and collective. Main Currents in Modern Thought, 24, No.4., pp.98-101, Mar/Apr 1968.

5.5 Permutative Methods of Imagination

30. McGregor, Douglas. The Human Side of Enterprise. McGraw-Hill Book Co., Inc., New York, 1960.

31. Pulford, Alan. Creating creativity, Journal of Creative Behavior, 3, No.3, pp.172-177, Summer 1969.

32. Maslow, Abraham. Eupsychian Management. Irwin and Dorsey Press, Homewood, Illinois, 1965, 277 pp.

33. Graves, Clare W. Deterioration of work standards. Harvard Business Review, 44, No.5, pp.117-128, Sep/Oct 1966. See also, Levels of existence: an open system theory of values. Journal of Humanistic Psychology, 10, No.2, pp.131-155, Fall 1970.

34. Osborn, Alex F. Applied Imagination: Principles and Procedures of Creative Thinking. Charles Scribner's Sons, New York, 1957.

35. Arnold, John E. Useful creative techniques, pp. 251-268 in A Source Book for Creative Thinking (Sidney J. Parnes and Harold F. Harding, eds.) Charles Scribner's Sons, New York, 1962,393 pp.

36. Gordon, W.J.J. Synectics. Harper and Row, New York, 1961.

37. Weiss, Paul, William J. Gordon and Barie Fez-Barringten. Architecture, the making of metaphors: notes from a symposium. Main Currents in Modern Thought, 28, No.1, pp. 9-16, Sep/Oct 1971

38. Abt, Clark C. Serious Games. The Viking Press, New York, 1970,176pp.

39. Raser, John R. Simulation and Society: An Exploration of Scientific Gaming. Allyn and Bacon, Inc., Boston, 180 pp.

40. Helmer, Olaf. Social Technology. p.10, Basic Books, Inc., Publishers, New York, 1966, 108 pp.

41. Kahn, Herman. Thinking About The Unthinkable. p 152, Avon Books, New York, 1962, 290 pp.

42. Wilson, Albert and Donna Wilson. Futures-orientation: toward the institutionalization of change, pp. 108-110 in Human Futuristics (Magoroh Maruyama and James A. Dator, eds.) Social Science Research Institute, University of Hawaii, Honolulu, 1971, 237 pp.

43. Bono, Edward de. New Think. Basic Books, Inc., New York, 1968.

44. Mumford, Lewis. Review of Maslow's Religions, Values, and Peak-Experiences. Journal of Humanistic Psychology,5, No.2, pp.229-232, Fall 1965.

5.6 Mutative Methods of Imagination

45. Arnheim, Rudolf. Toward a Psychology of Art. pp.286-287, University of California Press, Berkeley, 1966.

46. Grof, Stanislav. LSD psychotherapy and human culture. Journal for the Study of Consciousness, 3, No.2, pp.100-118, 1970. See also A Manual Based on the Tibetan Book of the Dead (Leary, Metzner, and Alpert) University Books, New York, 1964.

47. Tart, Charles T. ed. Altered States of Consciousness. A Book of Readings. John Wiley and Sons, Inc., New York, 1969, 575 pp.

48. Jung, C.G. Analytical Psychology, Its Theory and Practice. The Tavistock Lectures, Pantheon Books, New York, 1968, 224 pp. pp.190-192,

49. Weaver, Rix. The Old Wise Woman. A Study of Active Imagination. Vincent Stuart, London, 1964

50. Arguelles, Jose. Compute and evolve. Main Currents in Modern Thought, 25, No.3, pp. 63-67, 1968.

51. Wilhelm, Richard. The circulation of events as depicted in the Chinese book of changes. Spring, pp.91-108, 1961.

52. Campbell, Joseph. The Masks of God: Primitive Mythology. p.12, The Viking Press, New York, 1959.

53. Campbel, Joseph. The Hero With A Thousand Faces. Meridian Books, New York, 1956.

54. Waskow, Arthur I. The historian's role in futures research. Futures, 1, No.2, pp. 117-124, 1968.

55. Waskow, Arthur I. Paper read at the Conference on Peach Research in History, Toronto meetings of the American Historical Association, 30 December 1967.

5.7 Science as Metaphor

56. Langer, Susanne K. Philosophy in a New Key. p.33, 2nd ed.Mentor Book, New American Library, New York, 1951, 256 pp.

57. Wooldridge, Dean E. The Machinery of the Brain. McGraw-Hill Book Co., Inc., New York, 1963, 252 pp.
p.151,

58. Kuhn, Thomas S. The Structure of Scientific Revolutions./2nd ed. enlarged, University of Chicago Press, Chicago, 1970, 210 pp.

Table 5.4 IMAGES OF THE FUTURE

Author	Dynamic of Change (implied or specified)	Unit of Change	Root Metaphor	Significant Issue(s)	Strategy of Change
Noah					
Fuller( )					
Kahn & Weiner( )					
Mumford( )					
Reich( )					
Skinner( )					
Soleri( )					
Sykes( )					
Teilhard( )					
Weathermen					