

Taken together, the Löwenheim - Skolem
and Gödel Theorems reveal that we
~~neither~~ can neither ^{uniquely} confine our
statements to any one system nor can
~~we~~ our statements ~~completely~~ fully
embrace ~~that~~ such a system.

in other words,

Taken together, the L-S and G Theorems reveal:
Not only are our interpretations ~~about~~ ~~of~~ about a
system incomplete, but, like it or not,
these interpretations reach out beyond
that system.

specific

or putting it another way
in other words

These theorems reveal that we can neither
confine our statements to ~~a particular~~
specific system nor can these
statements fully embrace that system.

Taken together, the L-S and G Theorems reveal
that: Not only are our ^{scope statements} ~~interpretations~~ about
a specific system incomplete, but like it
or not, these interpretations reach out beyond
that system.

or putting it another way

These theorems reveal that we can neither
confine our ^{specific} statements to ~~any one~~ ~~specific~~ system
nor can these statements fully embrace that
system.

These theorems suggest that: Not only are our
statements ^{about that system} ~~incomplete~~ but like it or not, these
statements reach out beyond ~~that~~ ^{any given} system.

- W
- Taken together, the L-S and G Theorems reveal that: Not only are our logical, formal, theoretical, or intentional statements that represent any one system incomplete but, like it or not, these statements reach out beyond any such system or putty it another way.
 - These theorems reveal that we can neither confine these statements to any one system nor ~~say that~~ they fully embrace any such system.

suggest that

- Taken together the L-S and G theorems reveal that: Not only are our logical, formal, set-theoretical, or intentional statements that represent any one system ~~but like it or not~~ incomplete but, like it or not, these statements reach out beyond any such system or putty it another way.
- These theorems reveal that we can neither confine these statements to any one system nor suggest that they fully embrace any such system.

- Taken together the L-S and G theorems reveal that: Not only are ~~our~~ ^{the} statements that we use to represent any one system incomplete but, like it or not, these statements reach out beyond any such system or putty it another way.

These theorems reveal that we can neither confine these statements to any one system nor suggest that they fully embrace any such system.

17 1957

logical, formal, or theoretical

- Taken together the L-S and G Theorems reveal that: Not only are our statements, about ~~any one~~^a system incomplete but, like it or not, these statements reach out beyond any such system.

or putting it another way.

- These theorems reveal that we can neither confine these statements to any one system nor can these statements fully embrace any such system

Taken together the L-S and G Theorems reveal that: we can neither make a set of axioms that will

but only as feature

- Taken together the L-S and G Theorems reveal that: Not only are our ~~statements~~^{with} logical, formal, or theoretical statements about any one system incomplete but, like it or not, these statements reach out beyond any such system

or putting it another way

- These theorems reveal that we can neither confine these statements to any one system nor ~~can they~~^{can they} ~~these statements~~ fully embrace any such system

VIP

Incompleteness & Undecidability

- I
- Taken together the L-S and G theorems reveal that: Not only are the statements that we use to represent any one system incomplete but, like it or not, these statements reach out beyond any such system or conversely
 - These theorems reveal that we can neither confine these statements to any one system nor suggest that they fully embrace any such system

Non-categoricalness / Incompleteness / Undecidability

- II
- Taken together the L-S, G, C & T theorems reveal that: Not only are the statements that we use to represent any ^{one} such system incomplete but, like it or not these statements reach out beyond any such system and do so in unpredictable ways, or conversely

- III
- These theorems reveal that we can neither predict the future migration and evolution of ~~these~~ ^{these} statements nor ^(over) confine ~~them~~ ^{them} to any one system nor suggest that they fully embrace any such system.

I

Note

- Does ^{not} disorder ~~not~~ provide the possibility of ~~additional~~ a higher order universe since randomness increases the potential for producing link-ups of ~~the~~ some (or all) of the fundamental constituents, their common attributes.
- Does the creation of events and phenomena by high energy accelerators represent natural phenomena or is it (or parts of it) only a synthetic creation.
- Uncertainty Principle ~ 1927
Bohr's Theorem ~ 1931
- Question? How do subjective arguments, evaluations, decisions etc. surface? Is it not related to the idea of trying to determine the nature (or action) of a system within itself

II

- Following this line of thought, can we say (or not say) that subjectivity, ~~or related~~ or degree thereof, is related to disorder? (The more disorder & entropy the higher or more participation of subject as the objective) Since capacity for independent action related to disorder, is not subjective aspects of argument, analysis or decision related to the goal of gaining the independent action.
- Irreversibility → Gödel's Theorem
Hessenberg's Principle
Law of Entropy
- Superior or higher level systems identified by direction of irreversibility.
- Ambiguity → Trying to understand a system within itself

Boundary Conditions —

- A system cannot deprive its boundary conditions — a boundary condition is ~~extraneous~~ extraneous to ~~the~~ the system it contains or harnesses

- A system cannot determine its own consistency (Goedel)

- • Both statements are consistent with each other

• Destructive Deduction →

Shattering boundary conditions ~~which~~ and which constrain the particulars — ~~Or~~ ~~are~~ ~~not~~ are these boundary conditions the relationships that ~~for~~ connect the particulars?

- Boundary Conditions / or Constraints ~~act as~~ act as controllers

IV

- meaning $\rightarrow$ the "glue" or common characteristics that hold these the system together. Is not the glue the boundary conditions? - (Part of glue)

- Going from lower to higher is an irreversible process

- Key: What is the process to go from the particular to the general then understand the particular that make up the general?

- Example of D/Destruction & One Induction

- Memory of detail or particular in a certain general background - experience - can inhibit adjustment to environment. Imagination ^{which is related to memory} is that quality that can break the set ^{and experience}

V

and see those particulars ~~seen~~
superimposed into different
backgrounds. (critical)

- The open-ended nature of the Destructive Deduction and Constructive Induction is ~~powerfully~~ also revealed by Gödel's Proof of Incompleteness. Therefore Gödel's proof is not only a proof of the incomplete nature of logical - Mathematical Process itself but also a ~~proof~~ proof of the open-ended nature of thought itself in its ~~alternation~~ Dialectic alternation between Destructive Deduction and Constructive Induction.
- Rigid thought occurs when Deduction / Induction proceeds back and forth many times within a paradigm until a "set" interpretation of one with the other is achieved, Learning ^{is} ~~is~~ enhanced but discovery and creativity are minimised.

VI

• Palomazé —

- Doesn't see the Destructive Deduction and how it leads to the Constructive Induction
- No mention of Gödel / Herstein
- Doesn't see the idea of trying to determine the consistency of a system within itself and how that is related to Gödel and Herstein
- Doesn't (at least specifically) mention collection of bits and pieces with their attendant domains as a data bank or collection of models that can be ~~surveyed~~ surveyed and rearranged into new patterns or integrations

- Entropy related to path dependent processes - irreversibility
- Creativity related to path dependent processes - irreversibility
- Stratified universe related to path dependent process
- Meta-Paradigm is the basis for generating the stratified universe
- Gödel's Proof, Harsanyi and Law of Entropy related to irreversibility ~~is~~ path dependent

- [Basic Goal of Individuals and (Improve capacity for independent) action]
- [Basic Goal of Group not Incompatible]
 If Group can provide those ^{aspects} needed by individuals that appear ~~impossible~~ ^{unrealizable} ~~unrealizable~~ ^{unrealizable} without Group action. In other words, The group provides the low-probability actions (of individuals) to satisfy Basic Goal, while individuals take care of high probability actions.

$$S \supset (\neg S \supset q)$$

$$S_1 = S$$

$$S_2 = \neg S$$

$$S \text{ and } \neg S \supset$$

$$S \text{ and } S \supset \neg S \Rightarrow \neg S$$

$$S \text{ and } S \supset (\neg S \supset q) \rightarrow (\neg S \supset q)$$

$$S \supset S \text{ and } S$$

$$S \text{ and } S \supset q \Rightarrow q$$

$$\neg S \text{ and } \neg S \supset q \Rightarrow q$$

^{adapting}
~~needed towards shaping and adapting~~
 towards adapting and shaping their
 environment in attempting to
improve their capacity for
independent actions.

- If Group cannot provide low probability (less likely actions achievable by individuals) actions needed for satisfying basic goal - There can be ~~no legitimate~~ legitimate basis for social contract between individuals and group - hence no legitimate basis for group - since it cannot improve an individual's capacity for independent action by Group action (see Spinning on the one) (18/10/25) - about Eric Fromm.

Key

• ~~Induction building the~~
~~lintrages~~

• Induction → building or creating
the lintrages or common
attributes or characteristics

• Reducting → verifying consistency
of lintrages

Note

- Proof by falsehood presents necessity as present
 - Universal / Particulars — ~~assume~~
 - Relating² Particulars must be thru a ~~and~~ another characteristic (universal) that is common to both.
-

questions

- What do we mean when we speak of large quantum numbers?
- Why do we use LaGrange multipliers?
- Why and under what circumstances do we use probability? (Is it to measure a system without itself?)
- What does (pseudo factor) mean

uncertainty and related disorder is ~~the~~ diminished by the direct artifice of creating a higher ~~order~~ and/or broader more general concept to represent reality.

However, once again, when we begin to turn inward and use the new concept - within its own framework of ideas and interactions - to produce a finer grain match with observed reality, we note that the new concept and its match-up with observed reality begins to self destruct just as before. Accordingly, the dialectic cycle of destruction and creation begins to repeat itself once again. In other words, as suggested by

Destruction and Creation

D R A F T

①

~~4-1~~ BASIC GOAL

A study of human behavior reveals that the actions we undertake as individuals are closely related to survival, ^{more importantly,} survival ^{on our own terms.} without undue interference by others. Naturally, such a notion implies that we should be able to act relatively free or independent of any debilitating external influences--otherwise that very survival might be in jeopardy ^{since it can be manipulated by others.} In viewing the instinct for survival in this manner we imply that our basic aim or goal, as individuals is to improve our capacity for independent action. The degree to which we cooperate, or compete, with others is driven by the need to satisfy this basic goal. If we believe that it is not possible to satisfy it alone and without help from others history shows us that we will agree to constraints upon our independent action ^{in order to} collectively pool skills and talents in the form of nations, corporations, labor unions, ^{possibly} etc. so that obstacles standing in the way of the basic goal can either be removed or overcome. On the other hand, if the group cannot or does not attempt to overcome obstacles deemed important to many ^{possibly} (or any) of its individual members the group must risk losing these alienated members. Under these circumstances, the alienated members may ^{dissolve} ~~dissolve~~ their relationship and remain independent or form a group of their own or join another collective body in order to improve their capacity for independent action.

When this orderly (and pleasant) state is reached the concept becomes a coherent pattern of ideas and intractions that can be used to describe some aspect of observed reality. As a consequence, there is little, or no, further appeal to alternative ideas and interaction in an effort to either expand complete or modify the concept. Instead, the effort is turned inward toward ~~the concept~~ rearranging and fine tuning the ideas and intractions^{ev2} in order to improve generality and produce a finer grain match of reality with the conceptual pattern. Toward this end, the concept -- and its internal workings -- is tested and compared against observed phenomena over and over again in many different and subtle ways. Such a repeated and an inward oriented effort to explain increasingly ³more subtle aspects of reality suggests the disturbing idea that perhaps, at some point, ambiguities, uncertainties, anomalies, or apparent inconsistencies may emerge to stifle a more general and precise match-up of concept with observed reality. Why do we suspect this?

On one hand, we realize that facts, ^{perceptions,} ideas, impressions, interactions, etc. separated from previous observations and thought patterns have been linked together to create a new conceptual pattern. On the other hand, we expect that refined observations now underway will eventually exhibit either more or a different kind of precision and subtlety than the previous observation, and thought ^{patterns} that were used to make-up the "new" ^{concept} being used to describe current reality. Clearly any anticipated difference, or differences, suggest we should expect a mismatch between the observation and the concept

(8)

description of that observation. To assume otherwise would be tantamount to admitting that previous constituents and interactions would produce the same synthesis as any newer constituents and interactions that exhibit either more or a different kind of precision and subtlety. This would be like admitting 1=2. To avoid such a discomfiting position implies that we should anticipate a mismatch between phenomena observation and concept description ^{of that observation.} Such a notion is not new and is indicated by the discoveries of Kurt Gödel and Werner Heisenberg.

In 1931 Kurt Gödel created a stir in the World of Mathematics and logic when he demonstrated that it was impossible to embrace mathematics within a single system of logic. He accomplished this by proving, first, that any consistent system that includes the arithmetic of whole numbers — is incomplete. In other words, there are true statements or concepts within the system that cannot be deduced from the postulates that ~~form~~ ^{make-up} the system. Next, he proved even though such a system is consistent its consistency cannot be determined within the system.

Such a result does not imply that it is impossible to demonstrate the consistency of a system. It only means that such a proof cannot be accomplished inside the system. As a matter of fact, since Gödel, Gerhard G Gentzen and others have shown that a consistency proof of arithmetic can be found by appealing to systems outside that arithmetic.

← Thus Gödel's proof indirectly shows: that in order to construct and determine the consistency of any ^{new} ~~next~~ system we must construct or ^{uncover} ~~create~~ another system beyond it. Over and over this cycle must be repeated to demonstrate the consistency of more and more elaborate systems.

Keeping this process in mind let us see how Gödel's results impact the effort to improve the match-up of concept with observed reality. To do this we must consider two kinds of consistency: The consistency of the concept and the consistency of match-up between observed reality and concept description. In this ^{sense} ~~search~~, if we assume -- as a result of previous Destructive Deduction and Creative Induction efforts -- that we have a consistent concept and a consistent match-up; we should see no differences between observation and concept description. Yet, as we have seen on one hand we use observations to shape or formulate a concept. On the other hand, we use a concept to shape the nature of future inquiries or observations of reality. Back and forth, over and over again we use observations to ~~sharpen a concept and a concept to~~ sharpen observations. Under these circumstances, a concept must be incomplete since we depend upon an ever-changing array of observations to shape or formulate it. Likewise our observations of reality must be incomplete since we depend upon a changing concept to shape or formulate the nature of new inquiries and observations. Therefore, when we probe back and forth with more precision and subtlety, we must admit that we have differences between observation and concept description hence cannot determine the consistency of the concept, ^{system - in terms of its} ~~or its~~ match-up with observed reality. ^{and}

Furthermore, the consistency cannot be determined even when the precision and subtlety of observed phenomena approaches the precision and subtlety of the observer -- who is employing the ideas and interactions that play together in the conceptual pattern. This aspect of consistency is accounted for by Gödel's Proof ^{not only} ~~as~~ ^{but} ~~also~~ ^{well as} by the Heisenberg Uncertainty or Indeterminacy Principle.

The Indeterminancy Principle uncovered by Werner Heisenberg in 1927 showed that one could not simultaneously fix or determine precisely the velocity and position of a particle or body. Specifically he showed, due to the presence and influence of an observer, that the product of the velocity and position uncertainties, is equal to or greater than a small number (Planck ^{is Constant} ~~Consistent~~ or Quantum of Action) divided by the mass of the particle or body being investigated. In other words:

$$\Delta v \cdot \Delta Q \geq h/m$$

where Δv is velocity uncertainty

ΔQ is position uncertainty

and h/m is Planck's constant (h) divided by observed mass (m).

Examination of Heisenberg's Principle reveals that as mass becomes exceedingly small the uncertainty, or ⁱundeterminancy becomes exceedingly large. Now -- in accordance with this relation -- when the precision, or mass, of phenomena being observed, is little, or no different than the precision, or mass, of the observing phenomena the uncertainty values become as large, or larger, than the velocity and size frame-of-reference associated with the ~~bodies~~ ^{bodies} being observed. In this environment, the character or nature of the observer is little, or no different than the character or nature of the phenomena being observed. In essence, then, when the observer and observed become essentially one and the same the uncertainty values hide or mask phenomena behavior; or put another way the observer ^{perceives} ~~perceives~~ uncertain or erratic behavior that bounces all over ^{the place} ~~the place~~ in accordance with the indeterminancy relation. Under these circumstances the uncertainty values represent the inability to determine the ^(character or nature) ~~consistency~~ ^{behavior} of a character or nature (consistency) of a

...
and subtlety of the observed phenomena
system within itself. On the other hand, if the precision is [^] (11)
much less than the precision and subtlety of the observing
phenomena the uncertainty values ~~are~~ while still present --
become much smaller than the velocity and size values of the bodies
being observed. Under these circumstances, the character or nature
of a system can be determined - although not exactly - since the
uncertainty values do not hide or mask observed phenomena
behavior ~~nor~~ indicate significant erratic behavior.

Keeping in mind, that the Heisenberg Principle implicitly
depends upon the undetermined presence and influence of an
observer, we can now see -- as revealed by the two examples
just cited -- that the magnitude of the uncertainty ~~or~~
~~undeterminacy~~ values represent the degree of intrusion by
the observer upon the observed. When intrusion is total, (that
is, when the character or nature of the observer and observed
become essentially the same) the uncertainty values indicate
erratic behavior. When intrusion is low the uncertainty values
do not hide, ^{or mask observed phenomena behavior} nor indicate significant erratic behavior. In
other words, the uncertainty values, not only, represent the
degree of intrusion by the observer upon the observed but also
the degree of confusion and disorder perceived by ^{that} ~~the~~ observer.

approaches
~~complete~~ chaos or death.

Fortunately, there is a way out. Remember, as previously shown, we can forge a new concept by applying the Destructive Deduction and Creative Induction mental operations. Also, remember in order to perform these dialectic mental operations we must first shatter the rigid conceptual pattern or patterns, firmly established in our mind. (This should not be too difficult since the rising confusion and disorder is already helping us to undermine ~~that~~ ^{any} rigid patterns) ~~Conceptual pattern(s)~~. Next, we must find some common qualities, attributes or operations to link isolated facts, ideas, impressions, observations etc. ^{together} as a possible concept to represent the real world. Finally we must repeat this unstructuring and restructuring until we develop a concept that begins to match up with reality. By doing this - in accordance with Gödel, Heisenberg and the Second Law of Thermodynamics - we find that the uncertainty and disorder generated by an inward oriented system talking to itself can be offset by going outside and creating a new system. Simply stated,

disorder (Entropy) of the present system can be diminished by the direct artifice of constructing (creating) a higher and/or broader more general system. ^{must (in part) represent reality} As stated before in uncovering any new concept when the ^{Inductive/Deductive} Dialectic of Creation and Verification (Purification) fails to appeal to ideas and interactions external to the new pattern being formed the system becomes closed. ^{However,} Once again when we ^{begin to turn inward and} use this new system, paradigm or concept - within its own framework of ideas and interactions - to produce a finer grain match with observed reality, the new system ^{will} begins to self destruct just as before. Accordingly, the dialectic cycle of ^{Destructive Deduction} Destructive Deduction and ^{Constructive Induction} Constructive Induction begins to repeat itself once again. ^{suggested phrase} In other words, as indicated by Godel's Proof ^{of Incompleteness imply} of Incompleteness we suggest that the process of Structure, Unstructure, Restructure, ^{Unstructure} Unstructure, Restructure ^{Unstructure} is repeated endlessly in moving to higher and broader levels of elaboration. In this unfolding drama the Entropy ^{alternating cycle of} increased toward more and more disorder and the Entropy decreases toward more and more order appears to be ^{part} one side of a control mechanism that literally seems to ^{drive} push and regulate this alternating cycle of Destruction and ^{creation} Construction toward higher and broader levels of elaboration.

→ Now in relating this Deductive/Inductive activity to the basic goals discussed in the beginning, I believe we have uncovered the

dialectic engine

covered the ~~Meta - Paradigm or Meta - Model~~ that we have been searching for that permits the construction of feedback decision models needed by individuals and societies for determining and monitoring actions in an effort, to improve their capacity for independent action. ~~Furthermore,~~ *Further more,* since this ~~Meta - Paradigm~~ *engine* is directed toward satisfying this basic aim or goal, it follows that the degree or lack thereof toward reaching ~~this goal~~ *the goal* appears to be the other side of a ~~Dialectic or Cybernetic~~ *drive* control mechanism that seems to also both ~~push~~ and regulate the alternating cycle of destruction and construction toward higher and broader levels of elaboratean. In this context, when acting within a closed system, *of individuals and societies* the goal seeking effort to improve ~~the~~ *their* capacity for independent action tends to produce disorder towards randomness and death. On the other hand, in

insert 1
satisfying the goal seeking effort the tendency for disorder is offset by the push for increased order as the unstructuring or destructive Deduction unfolds and shifts toward a Constructive Induction. Likewise, the tendency toward randomness and death indicated by an Entropy increase in a closed system is offset by the improved possibilities also offered by this Entropy increase which permits both the destruction of the old system *or unstructuring (closed)* and the creation of a new ~~mental univers~~ *the march toward* system to nullify randomness and death.

insert 2
The
When taken together this Entropy law and the Basic Goal of individuals and ~~collectives~~ *societies* seem to work in dialectic harmony toward regulating the ~~Inductive/Deductive or Deductive/Inductive~~ *dialectic* action - that we have described herein as *a dialectic engine.*

a changing and expanding universe of mental
concepts matched to

(18)

~~the Meta-Paradigm.~~ The result is a changing and expanding
universe of observed reality. As indicated earlier these mental
concepts are employed by individuals and societies for determining
and monitoring actions needed to cope with their environment
(to improve their capacity for independent action).

Confusion and disorder are also related to the notion of Entropy and the Second Law of Thermodynamics. Entropy is a concept that represents the capacity for taking purposeful action and the degree of confusion and disorder associated with any physical or information activity. High entropy implies a low capacity for taking purposeful action or a high degree of confusion and disorder. Low entropy implies just the opposite. Viewed in this context, the Second Law of Thermodynamics states that all observed natural processes generate entropy. From this law it follows that entropy must increase in any closed system - or, for that matter, in any system that cannot ~~communicate~~ communicate in an ordered fashion with other systems or environments external to itself. Accordingly, anytime we attempt to take purposeful action inside such a system - a concept and its match-up with reality - we must anticipate an increase in entropy, hence an increase in confusion and disorder. Naturally, this means we cannot determine the character or nature (consistency) of such a system within itself since the system is moving irreversibly toward

a higher, yet unknown, state of confusion and disorder.

What an interesting outcome! According to Gödel, we cannot - in general - determine the consistency of an abstract system within itself. According to Heisenberg and the Second Law of Thermodynamics any attempt to do so in the real world will expose uncertainty and generate disorder. Taken together these three notions support the idea that ~~any~~^{any} inward oriented and continued effort to improve the match-up of concept with observed reality will only increase the degree of mismatch. Naturally, in this environment, uncertainty and disorder will increase, as previously indicated by the Heisenberg Uncertainty Principle and the Second Law of Thermodynamics respectively. Put another way, we can expect unexplained and disturbing ambiguities, uncertainties, anomalies, or apparent inconsistencies to emerge more and more often. Furthermore, unless some kind of relief is available, we can expect the confusion and disorder to increase until randomness

D R A F T

~~A~~ BASIC GOAL

A study of human behavior reveals that the actions we undertake as individuals are closely related to survival, more importantly, survival on ~~determined~~ ^{our own terms} without undue interference by others. Naturally, such a notion implies that we should be able to act relatively free or independent of any debilitating external influences--otherwise that very survival might be in jeopardy since it can be manipulated by others. In viewing the instinct for survival in this manner we imply that our basic aim or goal, as individuals is to improve our capacity for independent action. The degree to which we cooperate, or compete, with others is driven by the need to satisfy this basic goal. If we believe that it is not possible to satisfy it alone and without help from others history shows us that we will agree to constraints upon our independent action ^{in order to} collectively pool skills and talents in the form of nations, corporations, labor unions, etc. ^{so that} obstacles standing in the way of the basic goal can either be removed or overcome. ^{On the other hand,} if the group cannot or does not attempt to overcome obstacles deemed important to many (or any) of its individual members the group must risk losing these alienated members. Under these circumstances, the alienated members may dissolve their relationship and remain independent or form a group of their own or join another collective body in order to improve their capacity for independent action.

CAPS

2

Environment

In a real world of limited resources and skills individuals and groups form, dissolve and reform their cooperative or competitive postures in a continuous struggle to ^{remove} remain or overcome physical and social environmental obstacles. In a cooperative sense, where skills and talents are pooled, the removal or overcoming of obstacles represents an improved capacity for independent action for all concerned. In a competitive sense where individuals and groups compete for scarce resources and skills, an improved capacity for independent action achieved ^{by some} individuals or groups constrains ~~that~~ capacity ~~for independent action~~ for other individuals or groups. Naturally, such a combination of real world scarcity and goal striving to overcome this scarcity intensifies ^{The individuals groups} this struggle of ^a and ^a to cope with both their physical and social environments.

Need for Decision

Against such ^a background actions and decisions become critically important. Actions must be taken over and over again and in many different ways. Decisions must be rendered to monitor and determine the precise nature of the actions needed that will be compatible with the goal. To make these timely decisions ^a implies that ~~as individuals~~ we must be able to form mental concepts of observed reality and be able to change these concepts as observed reality itself changes. The concepts can then be used as decision-models for improving our capacity for independent action. Such a demand for [] decisions that literally impact ^{our} ~~our~~ survival causes one to wonder: How do we generate or create the mental concepts

to support this decision-making activity .

CAPS

Constructing Concepts

There are two ways in which we can develop and manipulate mental concepts to represent observed reality: We can start from a comprehensive whole and break it down to its ^{particulars} particles or we can start with the ^{particulars} particles and build towards a comprehensive whole. In other words, we can go from the general to ~~the~~ specific or from the specific to ~~the~~ general. A little reflection here reveals that deduction is related to proceeding from the general-to-specific while induction is related to proceeding from the specific to ~~the~~ general. In following this line of thought can we think of other activities that are related to these two opposing ideas? Is not analysis related to proceeding from the general to ~~the~~ specific? Is not synthesis, the opposite of analysis, related to proceeding from the specific to ~~the~~ general? Putting all this together: Can we not say that general to specific is related to both deduction and analysis, ^{while} likewise specific-to-general is related to induction and synthesis. Now can we think of some examples to fit with these two opposing ideas? ^{We should not look for.} The Differential Calculus proceeds from the general to ~~the~~ specific--from a function to its derivative. Hence is not the differential calculus related to deduction and analysis? The integral calculus on the other hand, proceeds in the opposite direction--from a derivative to the general function. Hence, is not the integral calculus related to induction and synthesis? When viewed in this light ^{we cannot say} ~~it is inappropriate to say~~ "The Calculus is an analytical tool." Otherwise we would be forced to conclude that the integral calculus does not exist. Yet many professionals who use the calculus regard

it as an analytical tool. Summing up once again we see that; general to specific is related to deduction, analysis and differentiation. On the other hand specific to general is related to induction, synthesis and integration.

Now keeping these two opposing idea chains in mind let us move on a somewhat different tact. Imagine, if you will a domain (a comprehensive whole) and its constituent elements or parts. Now, imagine another domain and its constituent parts. Once again, imagine even another domain and its constituent parts. Repeating this idea over and over again we can imagine any number of domains and the ~~constituent~~ parts corresponding to each. ^{concepts} Naturally as we go through life we develop concepts of meaning with included constituents to represent observed reality. Can we not liken these concepts and their related constituents, that represent observed reality, to the domains and constituents that we have formed in our imagination? Naturally, we can. Keeping this relationship in mind suppose we shatter the correspondence of each domain or concept with its constituent elements. In other words, we imagine the existence of the parts but pretend that the domains or concepts they were previously associated with do not exist. ^(concept) Result: We have many constituents, or particulars, swimming around in a sea of anarchy. We have uncertainty and disorder in place of meaning and order. Further, we can see such an unstructuring or destruction of many domains--to break the correspondence of each with its respective constituents--is related to Deduction, Analysis and Differentiation. We call this kind of unstructuring a Destructive Deduction.

Insert page 5

~~Edwards~~

Through such connecting threads ~~we~~
of meaning we synthesize constituents
from, hence across, the domains we have
just shattered.

5

care
care

Faced with such disorder or chaos, how ~~do~~ we reconstruct order and meaning? Going back to the idea chain of specific-to-general, induction, synthesis and integration the thought occurs that a new domain or concept can be formed if we can find some common qualities, attributes, or operations among some or many of these constituents swimming in this sea of anarchy. ^{Insert} Linking particulars together in this manner we can form a new domain or concept--providing, of course, we do not inadvertently use only ~~in the same way as the existing arrangement that we~~ those "bits and pieces" associated with one of the domains ~~that~~ purged from our imagination. Clearly, such a synthesis would indicate we have created something new and different from what previously existed. ^{Bring back to our idea chain} ~~it~~ follows that creativity is related to induction synthesis, and integration since we proceeded from unstructured bits and pieces to a new general structure or concept. We call such action a creative or constructive induction. It is important to note that the crucial or key step that permits this creative induction is the separation of the particulars from their previous domains by the Destructive Deduction. Without this unstructuring the creation of a new structure cannot proceed--since the bits and pieces are still tied together ^{PP} ~~as meaning~~ within unchallenged domains or concepts. Recalling that we use concepts or mental patterns to describe reality it follows that the unstructuring and restructuring just shown reveals a way for changing our perception of reality. Naturally, such a notion implies that the emerging pattern of ideas and interactions must be internally consistent and match-up with reality. To check or verify internal consistency we ^{try logically} ~~perform a logical deduction from the conceptual whole~~ to see if we can find our way back to the original constituents that were used in the creative or constructive induction. If we cannot reverse directions

do not go together in this way without contradiction,

⑥

Hence they
the ideas and interactions are not internally consistent. However, this does not necessarily mean we reject and throw away the entire structure. Instead, we should attempt to identify those ideas (particulars) and interactions that seem to hold together in a coherent pattern of activity as distinguished from those ideas that do not seem to fit in. In performing this task we check for reversibility as well as check to see which ideas and interactions match up with our observations of reality. Using those ideas and interactions that pass this test together with any new ideas or other promising ideas that popped out of the original Destructive Deduction we again attempt to find some common qualities, attributes, or operations to recreate the concept. Also once again we perform the check for reversibility and match-up with reality. Over and over again this cycle of Destruction

and creation ~~and destruction~~ ^{or} is repeated until we demonstrate internal consistency and a match-up with reality. ~~Reconstruct~~

During this process of Structure(s) Unstructure, Restructure, Unstructure, Restructure, etc. we must keep in mind

When this point is reached the concept becomes a coherent pattern of ideas and interactions that can be used to describe the observed pattern of reality.

CAPS



Environment

In a real world of limited resources and skills individuals and groups form, dissolve and reform their cooperative or competitive postures in a continuous struggle to ^{remove} remain or overcome physical and social environmental obstacles. In a cooperative sense, where skills and talents are pooled, the removal or overcoming of obstacles represents an improved capacity for independent action for all concerned. In a competitive sense where individuals and groups compete for scarce resources and skills an improved capacity for independent action achieved ^{by some} individuals or groups constrains ~~that~~ capacity ^{for independent action} for other individuals or groups. Naturally, such a combination of real world scarcity and goal striving to overcome this scarcity intensifies this struggle of ^{individuals groups} ~~a~~ and ~~b~~ to cope with both their physical and social environments.



CAPS

Need for Decision

Against such ^a background actions and decisions become critically important. Actions must be taken over and over again and in many different ways. Decisions must be rendered to monitor and determine the precise nature of the actions needed that will be compatible with the goal. To make these timely decisions [implies that] ^{as individuals} ~~as~~ we must be able to form mental concepts of observed reality and be able to change these concepts as observed reality itself changes. The concepts can then be used as decision-models for improving our capacity for independent action. Such a demand for [] decisions that literally impact ~~our~~ survival causes one to wonder: How do we generate or create the mental concepts

to support this decision-making activity .

CAPS Constructing Concepts

There are two ways in which we can develop and manipulate mental concepts to represent observed reality: We can start from a comprehensive whole and break it down to its ^{particulars} ~~particles~~ or we can start with the ^{particulars} ~~particles~~ and build towards a comprehensive whole. In other words, we can go from the general to ~~the~~ specific or from the specific to ~~the~~ general. A little reflection here reveals that deduction is related to proceeding from the general-to-specific while induction is related to proceeding from the specific to ~~the~~ general. In following this line of thought can we think of other activities that are related to these two opposing ideas? Is not analysis related to proceeding from the general to ~~the~~ specific? Is not synthesis, the opposite of analysis, related to proceeding from the specific to ~~the~~ general? Putting all this together: Can we not say that general to specific is related to both deduction and analysis, ^{while} ~~Likewise~~ specific to general is related to induction and synthesis. Now, can we think of some examples to fit with these two opposing ideas? ^{we need not look far.} The Differential Calculus proceeds from the general to ~~the~~ specific--from a function to its derivative. Hence is not the differential calculus related to deduction and analysis? The integral calculus on the other hand, proceeds in the opposite direction--from a derivative to the general function. Hence, is not the integral calculus related to induction and synthesis? When viewed in this light ^{is it appropriate to say it is inappropriate to claim it is appropriate to say} ~~we cannot~~ say "The Calculus is an analytical tool." Otherwise we would be forced to conclude that the integral calculus does not exist. Yet many professionals who use the calculus regard

it as an analytical tool. Summing up once again we see that; general to specific is related to deduction, analysis and differentiation. On the other hand specific to general is related to induction, synthesis and integration.

Now keeping these two opposing idea chains in mind let us move on a somewhat different tact. Imagine, if you will a domain (a comprehensive whole) and its constituent elements or parts. Now, imagine another domain and its constituent parts. Once again, imagine even another domain and its constituent parts. Repeating this idea over and over again we can imagine any number of domains and the constituent parts corresponding to each. ^{Concretely} Naturally as we go through life we develop concepts of meaning with included constituents to represent observed reality. Can we not liken these concepts and their related constituents, that represent observed reality, to the domains and constituents that we have formed in our imagination? Naturally, we can. Keeping this relationship in mind suppose we shatter the correspondence of each domain or concept with its constituent elements. In other words, we imagine the existence of the parts but pretend that the domains or concepts they were previously associated with do not exist. ^(invert) Result: We have many constituents, or particulars, swimming around in a sea of anarchy. We have uncertainty and disorder in place of meaning and order. Further, we can see such an unstructuring or destruction of many domains--to break the correspondence of each with its respective constituents--is related to Deduction, Analysis and Differentiation. We call this kind of unstructuring a Destructive Deduction.

(Lavent)

(unless)
Through such connecting threads ~~and~~
(of meaning) we synthesize constituents
from, ~~thence~~ across, the domain we
have just shattered.

Can
Faced with such disorder or chaos, how do we reconstruct order and meaning? Going back to the idea chain of specific-to-general, induction, synthesis and integration the thought occurs that a new domain or concept can be formed if we can find some common qualities, attributes, or operations among some or many of these constituents swimming in this sea of anarchy. *Linking* Linking particulars together in this manner we can form a new domain or concept--providing, of course, we do not inadvertently use only ~~in the same way~~ *that we* those "bits and pieces" associated with one of the domains ~~the~~ purged from our imagination. Clearly, such a synthesis would indicate we have created something new and different from what previously existed. *Going back to our idea chain* It follows that creativity is related to induction synthesis, and integration since we proceeded from unstructured bits and pieces to a new general structure or concept. We call such action a creative or constructive induction. It is important to note that the crucial or key step that permits this creative induction is the separation of the particulars from their previous domains by the Destructive Deduction. Without this unstructuring the creation of a new structure cannot proceed--since the bits and pieces are still tied together *PP* [as [meaning] within unchallenged domains or concepts. Recalling that we use concepts or mental patterns to describe reality it follows that the unstructuring and restructuring just shown reveals a way for changing our perception of reality. Naturally, such a notion implies that the emerging pattern of ideas and interactions must be internally consistent and match-up with reality. To check or verify internal consistency we *try logically* perform a logical deduction from the conceptual whole *try logically* to see if *(by deduction)* we can find our way back to the original constituents that were used in the creative or constructive induction. If we cannot reverse directions

to great go together in this way without contradiction
in other words they do not necessarily
level these together

the ideas and interactions are not internally consistent. However, this does not necessarily mean we reject and throw away the entire structure. Instead, we should attempt to identify those ideas (particulars) and interactions that seem to hold together in a coherent pattern of activity as distinguished from those ideas that do not seem to fit in. In performing this task we check for reversibility as well as check to see which ideas and interactions match up with our observations of reality. Using those ideas and interactions that pass this test together with any new ideas or other promising ideas that popped out of the original Destructive Deduction we again attempt to find some common qualities, attributes, or operations to recreate the concept. Also once again we perform the check for reversibility and match-up with reality. Over and over again this cycle of Destruction, Creation and Verification is repeated until we demonstrate internal consistency and a match-up with reality. *(Don't)*

During this process of Structure(s) Unstructure, Restructure, Unstructure, Restructure, etc. we must keep in mind

state
When this point is reached the concept becomes
a coherent pattern of ideas and interactions that
can be used to describe the observed pattern
of reality.

also

Confusion and disorder are ^{also} related to the notion of Entropy and the Second Law of Thermodynamics. Entropy is a concept that represents the capacity for taking purposeful action (~~doing work~~) and the degree of confusion and disorder associated with any ^{physical} ~~natural~~, or information ^{activity} ~~system~~. High Entropy implies a low capacity for taking purposeful action or a high degree of confusion and disorder. Low entropy implies just the opposite. Viewed in this ~~context~~ ^{context}, the Second Law of Thermodynamics states that all observed natural ~~phenomena~~ processes generate Entropy. From this law, it follows that entropy must increase in any closed system. — or, ~~for any~~ that matter, in any system that cannot communicate in ~~any~~ an ordered fashion with other systems or environments external to itself. Accordingly, anytime we attempt to take purposeful action inside such a system ~~we must anticipate an increase in entropy, hence an increase in confusion and disorder.~~ ^{of a concept and its match-up with reality} ~~Clearly~~ ^{naturally} this means we cannot determine the ~~state~~ ^{such a} character or nature of ~~the~~ system within itself, since the system is moving irreversibly toward

a higher, yet unknown, state of confusion and disorder.

What an interesting outcome! According to Gödel, ~~in the abstract world of mathematics and logic~~, we cannot - in general - determine the consistency of ^{an abstract} system within itself. According to Heisenberg and the Second Law of Thermodynamics any attempt to do so in the real world will expose uncertainty and generate disorder. Taken together, these three notions ^{to support the idea} suggest that any inward oriented and ~~repeated~~ ^{continuous} effort to improve the match-up of concept with observed reality will only increase the degree of mismatch. ^{Naturally} in this environment, uncertainty and disorder will increase, as previously indicated by the Heisenberg Uncertainty Principle and the Second Law of Thermodynamics respectively. Put another way, we can ~~anticipate~~ ^{expect} unexplained ambiguities, uncertainties, anomalies or apparent 'inconsistencies' to emerge more and more often. Furthermore, unless some kind of relief is available, we can expect the confusion and disorder to increase until randomness ~~becomes~~

I

16 Jan 78

- Quality — invariant to be useful
- Use ~~of~~ fighters get lights on
WWT to make them better

- like ~~badly~~ ~~group~~ Probability permits
one to consider a statement and
its contradiction as part of the system
- Gödel showed if you can insert a
statement and its contradiction within
a system it is incomplete (inconsistent)
- Gödel also showed in such a situation
you cannot determine the consistency of
a system within itself.

- Why blitzkrieg warfare → Increase
~~disorder~~ ^{Entropy} rapidly never permit threat
to confront ~~the~~ operation in organized
fashion
- Why must go slow in change to new
operation among friends → minimizing
~~disorder~~ ^{never} threat to survival (Entropy)
- Plan ?

4

16 Jan 76

• Plan and Strategy related to Scenario ~~not~~ ^{for} questionable if cannot control scenario

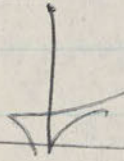
• Plan/Strategy must be able to deal with possible array of scenarios

• If

~~well adapted vs Adaptable~~

~~test~~

Well adapted vs Adaptable



which one!

VIP

Synthesis of the nature related to
Hödel ~~Proof~~ Incompleteness/Consistency Proof
Hawkins Incompleteness Paradox and the First
Law of Thermodynamics reveal:

- We cannot determine the character or nature of a system within that system
- ~~Continued~~ ^{and} parts to be so generate confusion and disorder
- Confusion and disorder from repeated repetitive efforts destroys the system

speech

now none isn't controversial

• sophisticated definition

• Not controversial since

my plans have been bought out and are not being defended to the hilt

o Power — How achieved?

~~o Dominate others~~

o Reduce power of others
over you

o Reduce their capacity to
influence you

~~o Remove the~~

o In other words, reduce
others constraint upon you

o Remove your constraints
upon others

Increase your capacity for
independent action — i.e.
minimize other power over
you — or improve your
power relative to others

- Build-up Basic Goal frame
surround on our terms.

- 1) Individual
- 2) Group

Group provide that which
individual cannot provide

- Skill and talents of individuals
decide whether he will ~~join~~
or not join a group

• Problem solver VIS-a-VIS Problem

- Problem solver VS problem anticipator

↓
[mechanical]

↓
only worries
[precise]

↓
Result: [generates
problems]

↓
[imaginative]

↓
considers approaching
problem systematically
[systematically]

• ~~but~~ T-38 & F-5E go Combat
Trainer - guns bombs etc
represent tacit admission that
CoFS is incompetent

• qualities that (properties) that do not
change as they go thru transformations
give system general meaning
- These invariant qualities (to
~~the~~ domain independent give
power of generality.

• Freeborn's paradox
(Polarizer) → Inverted eye
glasses

- Data Free Analysis
 - Premium Free Data
 - Data Free Analysis
 - Analysis Free Decisions
-

- People who make things happen
 - People who watch things happen
 - People who wonder what happened.
-

When this orderly (and pleasant) state is reached the concept becomes a coherent pattern of ideas and intractions that can be used to describe some aspect of observed reality. As a consequence, there is little, or no, further appeal to alternative ideas and interaction in an effort to either expand complete or modify the concept. Instead, the effort is turned inward toward rearranging and fine tuning the ideas and intraction in order to improve generality and produce a finer grain match of reality with the conceptual pattern. Toward this end, the concept -- and its internal workings -- is tested and compared against observed phenomena over and over again in many different and subtle ways. Such a repeated and an inward oriented effort to explain increasingly mere subtle aspects of reality suggests the disturbing idea that perhaps, at some point, ambiguities, uncertainties, anomalies, or apparent inconsistencies may emerge to stifle a more general and precise match-up of concept with observed reality. Why do we suspect this?

On one hand, we realize that facts, ideas, impressions, interactions, etc. separated from previous observations and thought patterns have been linked together to create a new conceptual pattern. On the other hand, we expect that refined observations now underway will eventually exhibit either more or a different kind of precision and subtlety than the previous observation, and thought that were used to make-up the "new" being used to describe current reality. Clearly any anticipated difference, or differences, suggest we should expect a mismatch between the observation and the concept

description of that observation. To assume otherwise would be tantamount to admitting that previous constituent and interactions would produce the same synthesis as any newer constituents and interactions that exhibit either more or a different kind of precision and subtlety. This would be like admitting 1-2. To avoid such a discomfoting position implies that we should anticipate a mismatch between phenomena observation and concept description. Such a notion is not new and is indicated by the discoveries of Kurt Godel and Werner Heisenberg.

In 1931 Kurt Godel created a stir in the World of Mathematics and logic when he demonstrated that it was impossible to embrace mathematics within a single system of logic. He accomplished this by proving, first, that any consistent system that includes the arithmetic of whole numbers -- is incomplete. In other words, there are true statements or concepts within the system that cannot be deduced from the postulates that make-up the system. Next, he proved even though such a system is consistent its consistency cannot be determined within the system.

Such a result does not imply that it is impossible to demonstrate the consistency of a system. It only means that such a proof cannot be accomplished inside the system. As a matter of fact, since Godel, Genherd Gentyen and others have shown that a consistency proof of arithmetic can be found by appealing to system outside that arithmetic.

Thus Godels proof indirectly shows: that in order to construct and determine the consistency of any next system we must construct or create another system beyond it. Over and over this cycle must be repeated to demonstrate the consistency of more and more elaborate systems.

Keeping this process in mind let us see how Godels results impact the effort to improve the match-up of concept with observed reality. To do this we must consider two kinds of consistency: The consistency of the concept and the consistency of match-up between observed reality and concept description. In this search, if we assume -- as a result of previous Destructive Deduction and Creative Induction efforts -- that we have a consistent concept and a consistent match-up; we should see no differences between observation and concept description. Yet, as we have seen on one hand we use observations to shape or formulate a concept. On the other hand, we use a concept to shape the nature of future inquiries or observations of reality. Back and forth, over and over again we use observations to sharpen observations. Under these circumstances a concept must be incomplete since we depend upon an ever-changing array of observations to shape or formulate it. Likewise our observations of reality must be incomplete since we depend upon a changing concept to shape or formulate the nature of new inquiries and observations. Therefore, when we probe back and forth with more precision and subtlety, we must admit that we have differences between observation and concept description hence cannot determine the consistency of the concept, or its match-up with observed reality.

Furthermore, the consistency cannot be determined even when the precision and subtlety of observed phenomena approaches the precision and subtlety of the observer -- who is employing the ideas and interactions that play together in the conceptual pattern. This aspect of consistency is accounted for by Godels Proof as well as by the Heisenberg Uncertainty or Indeterminacy Principle.

The Indeterminacy Principle uncovered by Werner Heisenberg in 1927 showed that one could not simultaneously fix or determine precisely the velocity and position of a particle or body. Specifically he showed, due to the presence and influence of an observer, that the product of the velocity and position uncertainties, is equal to or greater than a small number (Planck-Consistent or Quantum of Action) divided by the mass of the particle or body being investigated. In other words:

where _____ is velocity uncertainty

_____ is position uncertainty

and _____ is Planck's constant (h) divided by observed mass (m).

Examination of Heisenberg's Principle reveals that as mass becomes exceedingly small the uncertainty, or indeterminacy becomes exceedingly large. Now -- in accordance with this relation -- when the precision, or mass, of phenomena being observed, is little, or no different than the precision, or mass, of the observing phenomena the uncertainty values become as large, or larger, than the velocity and size frame-of-reference associated with the bodies being observed. In this environment, the character or nature of the observer is little, or no different than the character or nature of the phenomena being observed. In essence, then, when the observer and observed become essentially one and the same the uncertainty values hide or mask phenomena behavior; or put another way the observer perceives uncertain or erratic behavior that bounces all over the place in accordance with the indeterminacy relation. Under these circumstances the uncertainty values represent the inability to determine the consistency of a

system within itself. On the other hand, if the precision is much less than the precision and subtlety of the observing phenomena the uncertainty values -- while still present -- become much smaller than the velocity and size values of the bodies being observed. Under these circumstances, the character or nature of a system can be determined - although not exactly - since the uncertainty values do not hide or mask observed phenomena behavior -- nor indicate significant erratic behavior.

Keeping in mind, that the Heisenberg Principle implicitly depends upon the undetermined presence and influence of an observer, we can now see -- as revealed by the two examples just cited -- that the magnitude of the uncertainty or undeterminancy, values represent the degree of intrusion by the observer upon the observed. When intrusion is total, that is when the character or nature of the observer and observed become essentially the same, the uncertainty values indicate erratic behavior. When intrusion is low the uncertainty values do not hide, nor indicate significant erratic behavior. In other words, the uncertainty values, not only, represent the degree of intrusion by the observer upon the observed but also the degree of confusion and disorder perceived by the observer.

Insert # 2

Taken together the entropy notion and the basic goal of individuals and societies seem to work in dialectic harmony toward driving and regulating the destructive/creative or deductive/inductive action — that we have described herein as a dialectic engine.

Event 1

as already shown, the increasing disorder generated by the increasing mismatch of the system's concept with observed reality opens up or unstructures the system. As the unstructuring or, as we call it, the destructive deduction unfolds, it shifts toward a creative induction to stop the trend toward disorder to satisfy a goal oriented ~~effort~~ ^{effort} for increased order. Hence, —

9 Nov

TWA #489

LV Natural 1600

NR Oldham 1705

Continental #71

LV Oldham 1855

NR C. Gray 2115

RR VR

Rm 233

525-0308

16 Nov — Continental 70

AV Col Spy 1152

NR Chicago 1500

TWA #198

LV Chicago 1830

NR Natural 1850

General & Specific

Reduction
Analysis
Supplementation
Disorder
Unstructured
judgment
rational
direct system
circular mind
Rare history
Verification
Reasonability
opinion

Spa T C

Reduction
Synthesis
Integrals
Reorder
Reduction
generalized
rational
Subconscious
unpredictable
Constructive Inductive
Creativity
Irreversibility
aposteriori
intuition
general ideas

~~KE Day~~
~~Call~~
~~Ruth Douglas~~
~~Book~~

V

②9 Yuhawa Hideki "Creativity and
Intuition" Kodansha International
LTD, 1973

• Series $\rightarrow$

* [Observe system within
steady]

$\downarrow$
 $\lim_{N \rightarrow \infty}$ [over $\frac{1}{N}$ points] $\Rightarrow$ one thing

$\lim_{N \rightarrow \infty}$ [over $\frac{1}{N}$ points] $\Rightarrow$ another thing

DESTRUCTION AND CREATION

BIBLIOGRAPHY

1. Beveridge, W.I.B., "The Art of Scientific Investigation" Vintage Books, Third Edition 1975
2. Conant, James Bryant, "Two Modes of Thought" Credo Perspectives, Simon and Schuster 1970
3. DeBono, Edward, "New Think" Avon Books 1971
4. DeBono, Edward, "Lateral Thinking: Creativity Step by Step" Harper Colophon Books 1973
5. ^{Universal} Foster, David, "The Intelligent Chinese" Putnam 1975
6. ^{Fromm} ~~Frohm~~ Erich, ^{Crises} "The Curses of Psychoanalysis" Fawcett Premier Books 1971
7. Gamow, George, "Thirty Years that Shook Physics" Anchor Books 1966
8. ^u Georgescu-Roegen, Nicholas, "The Entropy Law and the Economic Process" Harvard U. Press 1971
9. Gödel, Kurt, "On Formally Undecidable Propositions of the Principle ^u Mathematical and Related Systems" pages 3-38 The Undecidable Raven Press 1965
10. Heilbroner, Robert L, "An Inquiry into The Human Prospect" Norton and Co. 1974
11. Heisenberg, Werner, "Physics and Philosophy" Harper Torchbooks 1962
12. Heisenberg, Werner, "Across the Frontiers" World Perspectives, Harper and Row 1974
13. Hoyle, Fred, "Encounter with the Future" Credo Perspectives, Simon and Schuster 1968
14. Hoyle, Fred, "The New Face of Science" Perspectives in Humanism, World Publishing Co. 1971
15. Kramer, Edna E., "The Nature and Growth of Modern Mathematics" Fawcett Premier Books 1974
16. Kuhn, Thomas S., "The Structure of Scientific Revolutions" University of Chicago Press 1970
17. Layzer, David, "The Arrow of Time" Scientific American, December 1975

18. Levinson, Harry, "The Exceptional Executive" Mentor Books 1971
19. Maltz, Maxwell, "Psycho-Cybernetics" Wilshire Book Co 1971
20. Nagel, Ernest and Newman, James R., "Gödel's Proof" New York U. Press 1958
21. Osborne, Alex F., "Applied Imagination" Scribners and Sons 1963
- + 22. Piaget, Jean, "Structuralism" Harper Goochbooks 1971
- + 23. Polangi, Michael, "Knowing and Being" University of Chicago Press 1969
- + 24. Singh, Jagjit, "Great Ideas of Modern Mathematics: Their Nature and Use" Dover 1959
25. Skinner, B.F., "Beyond Freedom and Dignity" Bantam/Vintage Books 1972
26. Thompson, William Irwin, "At the Edge of History" Harper Colophon Books 1972
- + 27. Tse-Tung, Mao, "Four Essays on China and World Communism" Lancer Books 1972
28. Waismann, Friedrich, "Introduction to Mathematical Thinking" Harper Torchbooks 1959
- + 29. Yuhawa, Hidēki, "Creativity and Intuition" Kodansha International LTD 1973

①

① Beveridge, W.I.B. "The Art of Scientific Investigation" Vintage Books
Third Edition 1957

② Grant, James Bryant "Two Modes of Thought" Credo Perspectives, Simon and Schuster 1970

③ De Bono Edward "New Think" Avon Books 1971

④ De Bono Edward "Lateral Thinking: Creativity Step by Step" ~~Harper~~ Harper Colophon Books 1973

⑤ Foster David "The Intelligent Uniserial" Putnam 1975

⑥ Fromm, Erich "The Causes of Psychoanalysis", Fawcett Premier Books 1971

⑦ Gamow, George "Thirty Years That Shook Physics", Anchor Books 1966

- ⑧ Georgescu - Roegen, Nicholas "The Entropy Law and the Economic Process"
Harvard U. Press 1971
- ⑨ Gödel, Kurt "On Formally Undecidable Propositions of the Principia Mathematica and Related Systems" Pages 3-38
The Undecidable Raven Press 1965
- ⑩ Heilbroner, Robert L "An Inquiry into The Human Prospect" Norton and Co.
1974
- ⑪ Heisenberg, Werner "Physics and Philosophy"
Harper Torchbooks 1962
- ⑫ Heisenberg, Werner "Across the Frontiers"
World Perspectives, Harper and Row 1974
- ⑬ Hoyle, Fred ~~The~~ "Encounter with the Future"
Credo Perspectives, Simon and Schuster
1968
- ⑭ Hoyle, Fred "The New Face of Science"
Perspectives in Humanism, World Publishing
Co. 1971

- ⑮ Kramer, Edna E. "The Nature and Growth of Modern Mathematics" Fawcett Premier Books 1974
- ⑯ Kuhn, Thomas S. "The Structure of Scientific Revolutions," U of Chicago Press 1970
- ⑰ Layzer, David "The Arrow of Time" Scientific American, December 1975
- ⑱ Levinson, Harry "The Exceptional Executive" Mentor Books 1971
- ~~⑲ Osborne, Alex F. "Applied Imagination"~~
- ⑲ Maltz, Maxwell "Psycho-Cybernetics" Wilshire Book Co. 1971
- ⑳ Nagel, Ernest and Newman, James R. "Gödel's Proof" New York U. Press 1958.
- ㉑ Osborne, Alex F. "Applied Imagination" Scribners and Sons 1963

- (22) Piaget, Jean "Structuralism" Harper
Torchbooks 1971
- (23) Polanyi, Michael "Knowing and Being"
U of Chicago Press 1969
- (24) Singh, Jagjit "Great Ideas ~~and~~ of
Modern Mathematics: Their Nature
and Use" Dover 1959
- (25) Skinner, B.F. "Beyond Freedom and
Dignity" Bantam/Vintage Books
1972
- (26) Thompson, William Irwin "At the
Edge of History" Harper Colophon
Books 1972
- (27) Tse - Tung, Mao "Four Essays on
China and World Communism"
Lancer Books 1972
- (28) Waismann, ~~and~~ Friedrich "Introduction
to Mathematical Thinking" Harper
Torchbooks 1959

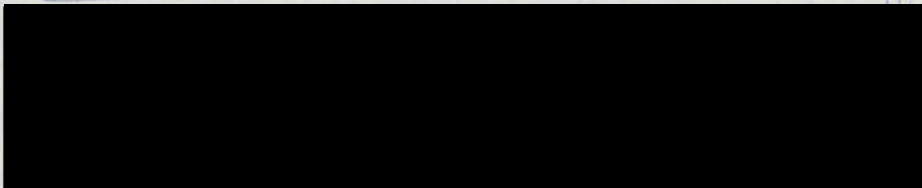
o Grand Cabin 8 Nov 0630-0912
FTH II III

o Return Fh #96 Nabors 16 Nov 0745-1023

39.7
3188
3046

same ~~at~~

(15)
113 copies



I

OX 52408

Angel

- Interpretation of reality → remain open
- That is only given scenarios
and restrictions

- Bright Side vs Dark Side ⇒
Can all or a portion survive

- # • Intuition / Imagination } seem to align intuition
with some pattern recognition - If so
that intuition becomes related to induction
or syntheses } Yabawa, Poincaré, Einstein
yet Yabawa does not associate intuition with
pattern formation

- Creativity p131 (Yabawa) - outside of
framework

- Present state of nuclear physics - Trapped
inside a system of our making

↓
Most important / G, H, 2nd law

page 188

↓
Class { Acceleration and turn separately }

II

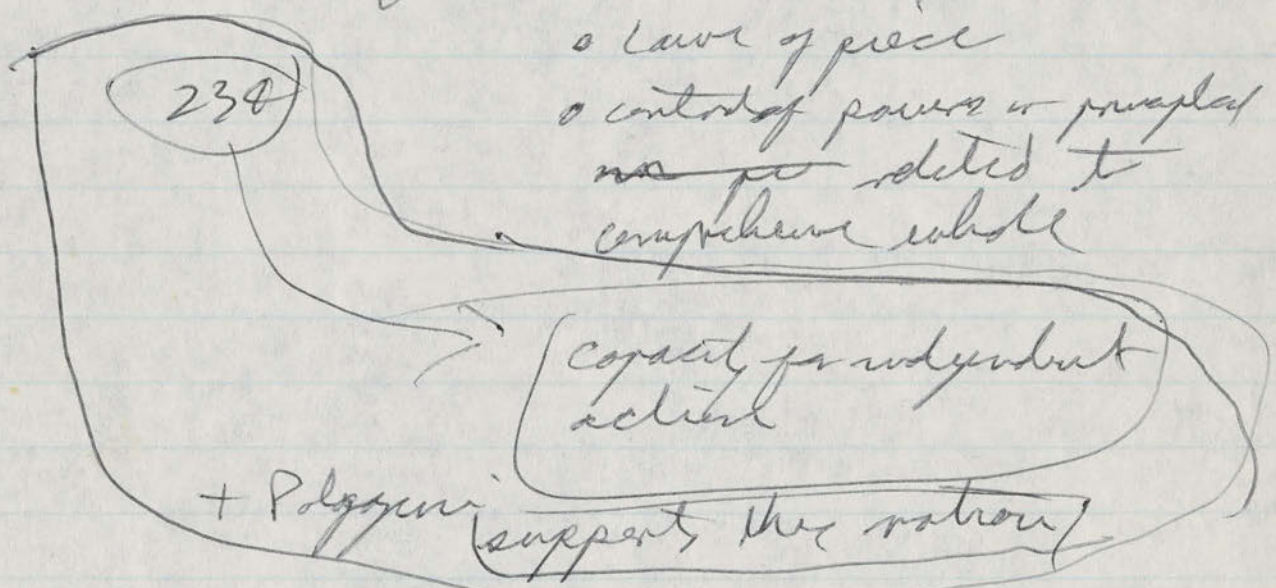
- Value judgments $\Rightarrow$ just another way of ensuring some aspect of survival.
- Originality - creativity generates dissent
- 1109-1110 Polanyi ('invis' camouflage) 113) Put into another background (Page 116) $\rightarrow$ "In other words imagine the bits and pieces" (^{components} details) in different background, or whole
different background or against different attributes, or characteristics in order to break the dominance of the original set.
- Page 118 (Polanyi) Instruction $\Rightarrow$ implies hidden patterns
- [Page 128] - When we concentrate on particulars coherence of whole is weakened. When we emphasize coherence of whole, particulars tend to be submerged in the whole (analysis vs integration)
- Polanyi [130-131]¹²⁹ Bach and Forth etc

10

~~P213~~

P213 - 218 Palauya

P218 Principle of boundary control
233 → Dual Control



P235

Reinforce the set

P236
237

*

P106

Polanyi Bachand forth from particulars to whole and vice versa our and our reinforces the set making it difficult to break up (crucial)



Helps explain why young people discover & create new concepts - since they are not locked in

P156 → Michael Polanyi

P198 → inverted seeing (glosses)

Poincaré - (Polanyi) - bits and pieces are loosened followed by an integration - Integration ⇒ intuition

P (200) Polanyi

~~into~~ intuition → integration at any stage of scientific enquiry

Imagination → visualizing "bits and pieces" in a variety of backgrounds

17 Jan 76

Dear Mrs Probst

Enclosed you will find two sketches - one short, the other long. The short piece was prepared at the Air Force Academy. The long one was prepared by Col E.E. Piccioni and brought up-to-date ~~by others~~ (Spring 1975) by others.

I hope ~~if~~ one of these will prove useful

John R Byrd

I

Reptiles with this closure and
reception

in and out of year

at this point the concept becomes closed ~~inward~~ there is no further appeal to external ideas and interactions in an effort to either expand complete or modify the concept. When this state is reached the effort becomes vision and scope narrow

the concept becomes a coherent pattern of ideas and interactions that can be used to describe the observed pattern of reality ^{as per our perception of} vision and scope narrow now we toward more precisely measuring and discerning the nature of the interactions among the fundamental constituents in order to produce a finer grain match of reality with the conceptual pattern. Repeated effort to improve the precision of the concept — in its ability to surface and explain increasingly more subtle and finer grain aspects of reality — leads to the idea that at some point ambiguities

II

at some point ambiguities, uncertainties,
anomalies or apparent inconsistencies
may emerge to stifle further
elaboration of the concept; Why do
we suspect this?

I

When this state is reached there is little or no further appeal to external ideas and interactions in an effort to either expand complete or modify the concept. ^{quantity of details is reduced} The concept becomes a coherent and an essentially closed pattern of ideas and interactions that can be used to describe the observed pathway reality. With this objective

III

~~Therefore~~

Seeking to avoid this discomforting

Therefore in seeking to avoid this
dise

I

When this state is reached the concept becomes a coherent and an essentially closed pattern that can be used to describe ^{some aspect of observed} the observed pattern of reality. As a consequence, there is little or no further ~~effort~~ appeal to external ideas and interactions in an effort to either expand complete or modify the concept. Instead, the remaining effort is turned inward toward producing a ^{fine tuning} ~~refining~~ the existing ideas and interactions in order to produce a finer grain match of reality with the conceptual pattern.

→ Over and over again in many different ways ^{to achieve this end} the concept and its internal workings ^{is} tested against the observed phenomena. Repeated effort to improve like this to improve the precision and detail of the concept to explain increasingly more subtle and or finer grain aspects of reality leads to the idea that

Therefore in order to avoid this
 discomfiting position, we believe that
 there must be some kind of a
 precision limit for applying this concept
 to predict or describe the nuances of
 and subtlety of ~~static~~ observed reality.
 Therefore as we examine the observed
 phenomena in ^{more} ways and in
 more detail we ^{should expect} ~~believe~~ a mismatch
 between the expected observation and the
 actual observation will emerge.
 It ~~emerge~~ ^{eventually} emerge. Naturally,
 as we probe deeper and deeper the
 mismatch should become more
 evident until the ambiguity, ~~anomalies~~
 uncertainties, anomalies or apparent
 inconsistencies ~~style~~ further elaborations
 detailed elaboration of the concept.

may emerge to & style the
 uncertainties, anomalies or apparent
 inconsistencies may emerge to style
 further elaboration of the concept.

Why do we suspect this? Fundamental
 bits and pieces - that is facts, ideas,
 impressions, perceptions, interactions etc. -
 from previous observations and thoughts
 have been ^{linked together} used to create the present
 conceptual pattern via the ~~deductive~~
 deductive/inductive process previously
 just discussed. Clearly this means
 that the ^{precursor of the} resulting synthesis must
 be intimately linked to those
 constituents, ^{and other interactions,} to assume otherwise
 would be tantamount to admitting that
 the original constituent (and their interactions)
 with ever so slight but undetectable
 variation - or that different bits and pieces
 exhibiting more precision and subtlety -
 would produce the same synthesis.
 This cannot be, since this would
 be like admitting apples = oranges

Degree of freedom provided to
subordinate is directly related
to how well the superior can
synthesize diverse elements and
actions generated by increased
freedom of action

I

orderly

PP

When this state is reached the concept becomes a coherent and an essentially closed pattern that can be used to describe some aspect of observed reality. As a consequence, there is little or no further appeal to ^(altering) external ideas and interactions in an effort to either expand, complete or modify the concept. Instead, the effort is turned inward toward ^{rearranging} fine-tuning the existing ideas and interactions in order to ^{improve generality and/or} produce a finer grain match of reality with the conceptual pattern. Toward this end the concept -- and its internal workings -- is tested and compared against observed phenomena over and over again in many ^{subtle and systematic} different ways. Such repeated effort, to improve the ^{generality and} precision of the concept, to explain ^(increasingly more subtle or finer grain) aspects of reality suggests the ^{idea} that ^{perhaps} at some point ambiguities, uncertainties, anomalies or apparent inconsistencies

II This would be like admitting that a precision watch could be fixed using a mechanic's tools.

may arise to stifle further elaboration of the concept. Why do we suspect this?

Via the Deductive / Inductive process just discussed facts, ideas, impressions, perceptions, interactions, etc. ^{separated} from previous observations and ~~thought~~ patterns have been linked together to create the ^{new} present conceptual pattern. Clearly, this means that the precision of the and generality of this ^{new synthesis} conceptual pattern must be intimately linked to ~~those~~ the precision and subtlety of those a-priori constituents and their interactions. To assume otherwise would ^{be} tantamount to admitting that the ^{previous} original constituents and their interactions would produce the same synthesis as other or never, ~~that~~ constituents, ^{and their interactions} that exhibit more precision and subtlety. (This would be like admitting apples = oranges!) To avoid such a discomforting position we believe that there must be

watches
made
look

II

may arise to staple ^{a more general} ~~broader~~ and ~~for~~
~~more~~ detailed match-ups of ~~the~~
concept with ~~the~~ observed reality.
Why do we suspect this?

Facts, ideas, impressions, perceptions
interactions, etc. separated from previous
observations and thought patterns have
been linked together to create ~~the~~ a
new conceptual pattern. Clearly this
means that the precision and
generality of this new synthesis must
be intimately linked to the precision
and subtlety of those a-priori constituents
and their interactions. To assume
otherwise would be tantamount to
admitting that the previous constituents
and their interactions, ~~the previous~~
~~otherwise~~ would produce the
same synthesis as any newer constituents
(and their interactions) that exhibit more
precision and subtlety. To avoid
such a discomfiting position we
believe there must be some kind of

III

some kind of a limit for applying
the concept to represent observed reality.

9th In this connection, as we examine
the observed phenomenon in many
more ways and probe deeper and
deeper, we should expect a mismatch
between concept and observation that
becomes more extensive until the
ambiguities and anomalies ~~and~~
~~inconsistencies~~ and apparent inconsistencies
stipled further detailed elaboration
of the concept.

~~What is this?~~ Naturally this
we go so far but what is the
limit? How do we get a handle
on it? (Gain insight about it)

Insert

as already shown, the increasing disorder generated by the increasing mismatch of the system concept with observed reality opens ~~up~~ or unstructures the system. As the unstructuring or, as we call it, the Destructive Reduction unfolds and shifts toward a Creative Induction ^{the step}, the trend toward disorder is stopped and turned around into a push for increased order. Hence —

not satisfactory

as already shown, the increasing disorder generated by the increasing mismatch of the system concept with observed reality opens up or unstructures the system.

At the point a goal

During this trend toward disorder a goal seeking effort for increased order shifts the destructive deduction toward a Creative Induction

as already shown, the increasing disorder generated by the increasing mismatch of the system concept with observed reality opens up or unstructure the system. ~~At the point a goal seeking effort for increased order shifts the destructive deduction toward a Creative Induction~~

~~At the point a goal seeking effort for increased order shifts the destructive deduction toward a Creative Induction~~

~~At the point a goal~~

complete - chaos or death.

Fortunately there is a way out. Remember as previously shown, we can forge a new concept by applying the Destructive Deduction and Creative Induction mental operations. Also remember in order to perform these dialectic mental operations we must first shatter the rigid conceptual pattern firmly established ~~firmly~~ in our mind. (This should not be too difficult, since the ~~rising~~ rising confusion and disorder is already helping us to undermine ~~the~~ that ^{very} conceptual pattern) Next, we must find some common qualities, attributes, or operations to link isolated facts, ideas, impressions, observations etc. together as ^{an adequate} a concept to represent the real world. In this way - in accordance with Gödel, Heisenberg and the Second Law of Thermodynamics - we find that ^{the} uncertainty and disorder generated by an inward oriented system talking to itself, can be offset by going outside and creating a new system. Simply stated, uncertainty and ~~disorder~~ ~~related~~ disorder ^{is} ~~can be~~ diminished by the direct act of creating a higher

IV

and/or broader more general concept to represent reality. ~~However~~

However, once again when we begin to ~~use~~ turn inward and use this new concept - within its own framework of ideas and interactions - to produce a finer grain match with observed reality, we note that the new concept and its match up with observed reality begins to self destruct just as before. ~~Accordingly~~ accordingly, the dialectic ~~cycle~~ cycle of destruction and creation begins to repeat itself once again.

Also apply

Remember in order to perform these ~~the~~ dialectic mental operations we must ^{first} shatter the rigid conceptual pattern firmly established in our mind. (This should not be too difficult since the rising confusion and disorder is ^{helping us} ~~a practical sense~~, if already shattering, ~~weakened~~ ^{by} undermining that conceptual pattern.) ~~For~~ Next we must find some common qualities, attributes, or operations to ~~build~~ ^{isolate} link facts, ideas, observations etc ~~into~~ together to build a new concept to represent reality. Construct a new concept to represent ~~the~~ real world. In this way ~~we~~ we find - in accordance with Bödel, Heisenberg and the Second Law of Thermodynamics - that uncertainty and disorder generated by an ~~unavoid~~ ^{unavoidable} oriented system - ~~observing~~ ^{talking to} itself - can be offset by going outside and creating a new system. Simply stated: Uncertainty and associated disorder ~~can~~ can be diminished by the direct act of creating

III ^{very complex} ~~the~~ ^{the} ~~current~~ ^{disorder} associated with present
concept is no practical already doing this for
us.

complete = chaos or death.

Fortunately there is a way out. Remember,
as previously shown, we can forge a new
concept by applying the Destructive
Deduction and Creative Induction mental
operations. Now, By applying these dialectic
mental operations, ~~we find that the uncertainty~~
~~and disorder generated by a non-evolving~~
~~inward oriented system can be be~~
~~offset by going outside of~~
in accordance with Gödel, Heisenberg
and the Second Law, ^{thermodynamics} we find that the
uncertainty and disorder generated by an
inward oriented system can be offset
by going outside and creating a more
general higher order system! ~~So to do this~~
~~we must be able to separate the particulars~~
~~from other primary domains~~

Remember To do this ~~as we have~~ already
shown, we must ~~smash~~ ^{shatter} the contextual
meaning the present concept has established
in our mind. The closed.

conceptual ~~pattern~~ pattern of meaning firmly
established in our mind. ~~So to~~
Then we must ~~again~~ attempt to

In any sense the should be level subjective mind

$$\dot{\theta} = \frac{rN}{V}$$

$$\frac{\dot{\theta}}{\dot{\theta}} = 1 = \frac{r_2 N_2 / V_2}{r_1 N_1 / V_1}$$

$$\begin{array}{r} 15 \\ 8 \overline{) 1200} \\ \underline{8} \\ 40 \end{array}$$

$$\frac{N_2}{V_2} = \frac{N_1}{V_1}$$

$$\frac{N_2}{1.2} = \frac{4.1}{.8}$$

$$N_2 = 4.1 \left(\frac{1.2}{.8} \right) = (4.1)(1.5)$$

$$\begin{array}{r} 4.1 \\ 1.5 \\ \hline 205 \\ 91 \\ \hline 6.15 \end{array}$$

To gain ^{insight} deeper
insight it is
needed

~~The preceding dialogue~~
~~Further we believe this difference~~

To avoid such a discrepancy position
we should expect a mismatch
between

Such

To avoid such a discrepancy
position we must conclude that
we should ^{conceptually} expect a mismatch --
between observation and concept &
description when the precision
of observation approaches the
precision of the nuances that
are incorporated and play together in
the conceptual model. Such a
relation was ^{summarized} indicated by Gode (1927)
and Heisenberg (1927)

I Does this not suggest ^{the} ~~a way~~
~~that~~ kind of limit we've been
looking for.

reality suggests the disturbing idea that perhaps at some point ambiguities, uncertainties, anomalies or apparent inconsistencies may emerge to stifle a more general and ^{precise} detailed match-up ^{of} concept with observed reality. &

Why do we suspect this?

on one hand ^{we realize} Facts, ideas, impressions, perceptions, interactions, etc., separated from previous observations and thought patterns have been linked together to create a new conceptual pattern. & Clearly, this means that the precision and generality of a new synthesis must be intimately linked to the precision and subtlety of those *ex-priori* constituents and their interactions. To assume otherwise would be tantamount to admitting that previous ^{the} constituents and interactions would produce the same synthesis as any newer constituents (and ^{their} interactions) that exhibit more precision and subtlety. This would be like admitting $1=2$.

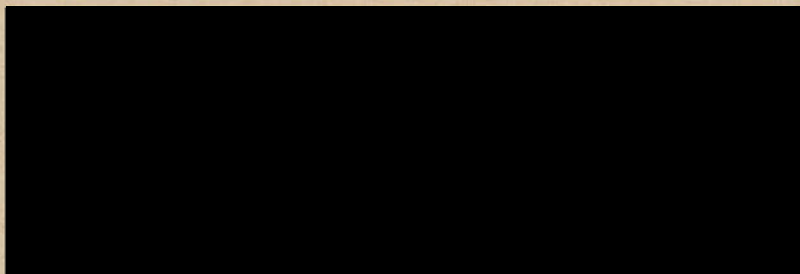
To avoid such a discomforting position we must conclude that there must be some kind of a limit for applying ~~the~~^a concept to represent observed reality. ~~Sounds~~ seems all right so far but these comments ^{do} raise these questions: What is this limit? How do we gain insight about it? Where does it lead us? To address these question we will

keeping in mind the ideas that led us to these questions and the questions themselves we will now move ~~on a~~ ~~different track~~ in a somewhat different ~~of~~ direction.

~~Good~~

To address these question we will move in a different direction.

- Decision makers are paid to do that but do not want to ~~do~~ make decisions
- Pentagon ~~test~~ Gene Hall, Cury Blanton, scared or was 'covering' to move on planning schemes. Therefore ~~abandoning~~ mediocrity
- Clever at "gripes" but cannot produce results - only problems



- ~~link rigid~~ lack of movement to
- bank lack of movement (Magnum
Laine) to rigidity and immovability
to broken down domains

- Scherer - Oppenheimer
- Fitzgerald
- Fule
- De Gaulle - Magnum Laine
- French Quarter
- Betty White - Establishment

Putting down these people - why?

- Prudery & instruction & change:

(Common
practices, properties, attribute operation
(Features)

- Many parties deep

• Snappy - Anti-snappy

• Precision vs Imprecision

Key

Points

• Bees should be able to get modern Physics out of their dilemma

VIP

- Equality $\longleftrightarrow$ Sameness $\Rightarrow$
- Discrimination $\Rightarrow$ (Inequality) ^{lack of} sameness
- Entropy used to represent potential or disorder
- High Entropy $\Rightarrow$ low potential, high disorder
 - $\Rightarrow$ Tending toward sameness and equality
- Low Entropy $\Rightarrow$ high potential, order
 - $\Rightarrow$ Tendency away from sameness and equality
 - $\Rightarrow$ Tendency toward ability to discriminate, or distinguish, or toward equality
- High Entropy $\Rightarrow$ Tendency toward chaos and death
 - $\Rightarrow$ Compatible with equality
- Low Entropy $\Rightarrow$ Tendency toward order and structure
 - $\Rightarrow$ Incompatible with equality

• In the US the distribution of income and opportunity is becoming more and more unequal

VIP

- Relate Gödel's proof and the 2nd law by using the Boltzmann expression for entropy.

- DNA and RNA a dialectic?

3 April 76

Hallo Bob

Enclosed you will find a copy of "Destruction and Creation." We have discussed these ideas many times before you left Eglin AFB.

Once again it was more difficult to capture the right theme in writing - and as you guessed it the writing consumed about 6 months.

I believe the ideas and thoughts captured in this paper represent a way toward dealing with our environment in a positive fashion. Recent readings - ~~note~~ the bibliography - indicate many people are tending to think along these lines. My contribution seems to be the How and Why together with the What ~~and~~ provided by other authors. (Others talked around ~~or~~ to the How and Why but - as far as I can determine - were unable to ~~form~~ form a coherent pattern ~~as~~ of How and Why these things occur)

In any case would appreciate your comments and suggestions

John

- ① mass vs Energy
- ② particle vs wave

VIP

- A rigid-adapt approach implies lack of adaptability or survival
- A changing approach ^{under pressure} implies that the environment does the shaping. In other words such individuals become shapes ~~or~~ who primarily react to their environment. Others act upon him - he reacts to others
- An open approach implies that the individual can shape as well as be shaped by his environment. Others react to him, - he acts upon others.

• Joe Royal
• Bernie Buch

Pentagon
Interviewees

1) For ORs 4/10 my own ~~turn~~
~~allow~~ May 4/10 and share
and obtain turn for
sum of degrees

MEMORANDUM
OF CALL

TO:

Col Boyd

☐

YOU WERE CALLED BY—

☐

YOU WERE VISITED BY—

Mr. Spray

OF (Organization)

☐

PLEASE CALL →

PHONE NO.
CODE/EXT. _____

☐

WILL CALL AGAIN

☐

IS WAITING TO SEE YOU

☐

RETURNED YOUR CALL

☐

WISHES AN APPOINTMENT

MESSAGE

RECEIVED BY

DATE

TIME

1:30

STANDARD FORM 63

REVISED AUGUST 1967

GSA FPMR (41 CFR) 101-11.6

GPO : 1967

300-455 #7-h

c48-16-79684-1

63-108

A Document for briefing - titled:
The Role of the F-15

Summary

The Purpose of this presentation
is to show where in the Air
Battle Arena the F-15 will most
likely perform ~~the~~ the Air Superiority
Role. In this context, performance
visibility, and fuel capabilities and
constraints will be addressed for a
generally independent of scenario
instructions to reveal the ~~the~~
performance regions where it is
most profitable to employ the
F-15. ~~and it is Air Combat~~
~~Maneuvering Combat as well as~~
Hit and Run Tactics as well
as maneuvering combat will be
discussed.