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Active Adaptation

The Emergence of Ideal-Seeking Systems[1]

Men are not limited simply to adapting to the environment as given. Insofar as they understand the laws governing their environment they can modify the conditions producing their subsequent environments and hence radically change the definition of "an adaptive response."

Such possibilities are present in turbulent environments. There are some indications of a solution which might even have the same general significance for these turbulent environments as the emergence of strategy (or ultrastable systems) has for clustered and disturbed, reactive environments. Briefly, this is the emergence of ideals which have an overriding significance for members of the field. Values have always arisen as the human response to persisting areas of relevant uncertainty. Because we have not been able to trace out the possible consequences of our actions as they are amplified and resonated through our extended social fields, we have sought to agree upon rules such as the Ten Commandments that will provide each of us with a guide and a ready calculus. Because we have been continually confronted with conflicting possibilities for goal pursuit, we have tended to identify hierarchies of valued ends. Typically these are not just goals or even the more important goals. They are ideals like health and happiness that, at best, one can approach stochastically. Less obvious values, but essentially of the same nature, are the axioms and symbols that lead us to be especially

responsive to certain kinds of potentialities. (Emery and Trist, 1972, Vol.III)

Turbulence, Values, and Ideals

The social environments we and our institutions are trying to adapt to are turbulent environments. Massive unpredictable changes appear to arise out of the causal texture of the environment itself and not just as planned, controlled actions, not even those of the superstates or the multinational corporations.

Our patterns of morality and our sense of common ideals have not been immune to these kinds of changes. Traditional patterns of morality appear to be deeply eroded. Yet, man's greatest hope for coping with uncertainty lies in the emergence of widely shared values and ideals (Emery and Trist, 1972, Vol.III).

There is a dilemma here. We appear to be losing our values just as we need them most. Certainly, the demise of old values and ideals might help to clear the way for the emergence of new values and ideals, if the reason for their being discarded is that they are irrelevant. We are still left with grave uncertainty about what new values and ideals could emerge that would be appropriate to the task of curbing our turbulent state. And, how could they possibly emerge quickly enough to prevent us irremediably damaging ourselves by our short-sighted and basically maladaptive responses to the turbulence, e.g., by our retreat into hedonism, law-and-order and life-boat concepts of the international order?

My first attempt to find a way out of this dilemma was to occupy the middle ground between, on the one side, ideals and codes of great antiquity like the Ten Commandments and, on the other, daily life. The suggestion was that man could move toward some semblance of a common ideal by consciously confronting the basic choice that is always present in social architecture: to use the whole person as the building block or to build on a

multiplicity of individuals, each a specialized functional bit, and any one bit having a high order of redundancy. (Emery, 1967; Mumford, 1967) At the time I made that suggestion my colleagues and I were very busy trying to create a new order of morality in the daily life of Norwegian industry. We translated the ideal of humanity into a set of workable and relevant values by identifying what seemed to be a minimal set of requirements that humans valued in their work activity:

- Freedom to participate in decisions directly affecting their work activity.

- A chance to learn on the job, and go on learning.

- Optimal variety.

- Mutual support and respect of their work colleagues.

- A socially meaningful task

- leading to some desirable future.   (Emery and Thorsrud, 1969)

We had found in practice that these things are valued regardless of sex, nationality or race. They are also valued as much in working at an education or working for a family or a community as in working for money. Like any values they are given different weight by different persons at different times and in differing circumstances.

Even a very tenuous formulation of an ideal proved a great aid in identifying relevant values. We had then no conception of any manageable *set* of ideals whose pursuit would guide man to his own self-fulfillment.

Such a conception emerged only whilst Russ Ackoff and I were struggling to formulate a model of man as a purposeful being (Ackoff and

Emery, 1972). As we got on top of that problem we realized that we had the germ of an idea for formulating a model of man as an ideal-seeking system. Our greatest efforts had been to break away from models of man-as-a-machine and cybernetic models of man as a pseudo human. Once free of these, the next few steps were relatively easy. The key to identifying purposeful systems had been the choice between alternative *goals*, simultaneously present. The next step was to recognize that purposeful systems could be confronted by choice between *purposes* or the objectives of those purposes. It seemed to us that that was what ideals are about. Endlessly approachable but unattainable in themselves, ideals enable people

- to maintain continuity of direction and social cohesiveness by choosing another objective when one is achieved, or the effort to achieve it has failed; and

- to sacrifice objectives in a manner consistent with the maintenance of direction and social cohesion.

Further, it seemed to us that men would have always sought to improve their ability to make such important choices between purposes. If men were as omnipotent as their gods then there would be no need for such strivings. Short of being gods, men must seek to improve their choices in ways that would have to show up in changes of one or another of the four parameters of the choice situation. Even in the absence of conscious conceptualization of these parameters we expected that, by sheer trial and error over many millennia, there would have emerged a close mapping of common ideals and these parameters.

The next step is a tricky one. It is rather like choosing synonyms. The best matching we could manage in our first effort is shown in Table 1. What emerges is a finite, rigorously defined set of ideals that men will always strive after if they are at all ideal-seeking. Will they indeed?

Table 1

The Parameters of Choice & Related Ideals

Parameters of Choice	Related Ideals
a. Probability of choice (familiarity, accessibility)	Plenty
b. Probable effectiveness (knowledge)	Truth
c. Probability of outcome = $f(a,b)$ (understanding)	Good
d. Relative value of intention (motivation, needs, affects)	Beauty

(Source: Ackoff & Emery (1972)

Even as we settled on these synonyms I was, for other reasons, back into the study of Asia, Mo Tzu, Mencius and the like. I continued to be plagued by doubts. Ackoff and I very deliberately took a plunge and decided to publish our chapter on "ideal-seeking systems" (1972). We thought that it was far more important to start the debate in the wider circles the book was intended to reach than to wait till we could publish a definitive statement. There were other doubts. In *Towards a Social Ecology* (Emery and Trist, 1973) I expressed a strong feeling that ideals and values represented some important differences even if they were "essentially of the same nature" (p.68). They are similar in that they both refer to potentiality, i.e., they can exist even though no force on behavior is present; at the same time, under proper conditions, they may evoke wishes or ought forces on behavior (Heider, 1958:224). They differ in that ideals refer to people's ultimate strivings for perfect beauty, perfect health, etc., but people do not try to "reach" the value of fairness--fairness guides their behavior.

There is an asymmetry in the relations between ideals and values. No amount of dedication to the observance of a particular value converts that into ideal-pursuing behavior. In fact, we are inclined to regard dedication to, say, always telling the truth as somewhat pathological. On the other hand, it is hard to see how ideals could be pursued without generating values to guide the pursuit in everyday affairs. Successful collaboration with

others in the pursuit of ideals would seem to presuppose some shared values.

These considerations led me to attribute greater significance to the special role of ideals in adapting to turbulence and hence to turn a very critical eye on them. Our own set of ideals seemed a good place to start. First, these ideals, unlike our two social design criteria, did not seem to indicate what *values* people should follow in their daily life. In fact, the current pursuit of Plenty through industry, of Truth though science and universities, of Good through the churches and of Beauty through the arts all seemed destructive of human values. This did not seem at all like the relation one would expect between the pursuit of ideals and the observance of values. Second, as I tracked the course by which Mao Tse Tung was leading the Third World back to ideals like those of Mo Tzu, I had to ask myself whether our synonyms were not just those that existed in Western Christianity.

Reflecting on this, I think there is considerable merit in our attempt to define the core set of human ideals. I now think, however, that our synonyms are irrelevant to the problems of turbulence that currently face Western societies and dangerously divisive in a future where East and West must find a new modus vivendi, a conscious sharing of ideals.

Let us take our initial identification of *probability of choice* with the ideal of *plenty*. Probability of choice is very much a function of familiarity and accessibility. Regardless of all else, people in a choice situation will tend to be guided by the old folk sayings--"better the devil you know," "old ways are best" or "a bird in the hand ..."

Familiarity with courses of action and accessibility of means is not simply a function of plenty of material means as we tend to interpret it in Western societies. Our Western concept of plenitude is well enough represented in our belief that growth in GNP and a nationally guaranteed minimum income would significantly improve probability of choice for everyone. Plenty of love, care and concern has precious little to do with these notions. In fact, the guaranteed minimum income concept is treacherously near the Roman concept of bread and circuses--pay them off and forget them. On the one hand,

it appears to recognize that even the poor are human but, on the other, it says we now have no responsibility for any particular disability you might have, including any disability that might affect your ability to use that income to meet your family needs.

I am very much inclined to the view that improvement of probability of choice is to be found in increasing *homonomy*, not in material plenty. By this I mean that it is in more closely relating themselves to their neighbors, workmates, etc., that people will improve their probability of choice. The experience of others is a prime source of "familiarity with" the world, and "the others" are usually best able to provide access to a wider range of courses of action.

The pursuit of **HOMONOMY,** a sense of relatedness and belongingness between self and others, seems to be an ideal that is more likely to improve probability of choice than individual pursuit of plenty. It is an ideal that simply presupposes the existence of interdependent others. It does not presuppose growth in GNP. It is an ideal that can be pursued at any level of GNP per capita. It is an ideal that is equally relevant to people in the East or the West, in subsistence or overdeveloped market economies. The richest gift a person can have is in his friends and "family" not in his material possessions.

Improving probability of choice means that a person is more likely to choose the course of action that best fits his real world than would otherwise be the case. I suggest that this improvement is more likely to occur if people are richly connected to their fellow humans than if they are richly connected to non-human resources. The re-identification of this ideal would seem to imply certain redefinitions of *values* for everyday life. I will mention just a couple of examples. This ideal implies strong negative evaluation of all forms of contempt of the other, whether the other is poor, colored, female, foreign, young or old. It implies negative evaluation of the pervasive use of shame that lies at the basis of so-called conscience. It implies strong positive evaluation of trust and openness.

The formulation of this ideal as a universal trend toward homonomy, "the need to belong and identify with persons," (Angyal, 1966:114) denies the validity of the postulations about ideals being "the super-ego operating with the Ten Commandments." As Angyal observes about this sort of super-ego, "it is not inherent in human nature as such but is an extraneous result of social development, something required not by the individual but only by society." (p.114)

Marcuse (1956) discusses the same kind of pseudo-ideal-seeking individual in modern society as a product of "surplus repression." Within our theoretical framework, the "ideals" that stem from such a super-ego-ridden individual reflect a system level considerably lower than that of an ideal-seeking system. Such an individual would have to be regarded as operating at a lower system level than the institutions instilling his norms. The sense of sacrifice associated with such *norm seeking* "boils down to fear of punishment or ostracism" (Angyal, 1966:115). The sense of sacrifice associated with the ideal of homonomy is avoidance of "the betrayal of somebody or something one loves" (p.115). The ideal, I suggest, is this "wish to be *in harmony* with a unit one regards as extending beyond his individual self" (p.15); not in *dependence*.

The second dimension of choice between purposes is *relative effectiveness*. This seems to be almost self-explanatory when choice is between goals that can probably be achieved within a time that does not seem to require another choice. Choice between purposes is a different matter. Even in a disturbed, reactive environment, the choice of *a* purpose has to be protected from the unexpected by the evolution of operational objectives (to create, hopefully, a closed system between tactics and strategies). If choice between purposes is the problem, then the effort will be towards such omniscience and such control over resources that interruptions in mid-course will be minimally disruptive. In a Type III disturbed, reactive environment, this end was pursued by growth in wealth, size, market share, etc. In a Type IV turbulent environment, this seems to be self-defeating. With so many

systems confronted with the same challenges to survival, the nature of "relative plenty" has to be redefined. "Autonomy," the behavioral trend that should so obviously counterpose the homonomous trend as an ideal, does not appear to be appropriate.

If we bear in mind the conditions that contributed to the emergence of turbulent social fields (Emery and Trist, 1965), it becomes clearer that the ideal must define a trend towards plenty of knowledge and of know-how and of efficient means. The ideal is increasingly difficult to approach as one cannot determine what means are going to be required to make the pursuit of one purpose more effective than that of another. It was this difficulty that led NASA to rule that special "project type" organizations be specified as part of any contract for a major space system. There was no way of knowing beforehand what, or whose, physical resources and knowledge were going to be critical. The emerging ideal is that resources must be regarded as at all times part of the common pool of society's resources even though at any one time some individual or organization (public or private) has definite privileges of access to those resources.

In our earlier formulation we referred to this as "an ideal scientific state of *truth*" (Ackoff and Emery, 1972). This puts it in a nutshell. But I think the shell is too cramped. When many seek to define ideals within which choices of purposes will not be unduly cramped by inability to choose effective purposes, we think they will be as much concerned with availability of all material means, know-how and skills as with scientific knowledge. It is part of a dying worldview to imagine that advance of pure scientific knowledge is the sole key to this progress, or the paradigm of it.

I flinch from putting to this ideal the first name that comes to mind--omniscience. In searching around I am aware of the extent to which previous assumptions about resource availability (or non-availability) have been undermined by overriding concerns of national defense, "Naderism," consumer and conservation movements.

One thing emerges clearly: the name of the ideal we are seeking is not that of "Truth." It must be an ideal that in some real way subsumes the concept of truth. The best that I can manage at this stage is the notion of nurturance. This seems like a profound divergence from the original concept we used, namely, "Truth." Not, however, if we accept that truth-- scientifically established knowledge--must be truth about the "other" and the self as well as of the physical world in which we both exist. In this context we are implying that the emergent ideal cannot be just a contribution to an impersonal growth of scientific activity or an openness to sharing the results of such activity. What I am implying is that in a turbulent environment the need for survival is going to press people towards nurturance of others (although not by any means all others), not simply Welfare State type succorance, and certainly not a simple survival goal of proving one's self, or one's organization, a charitable giver on all possible occasions.

Pursuit of this ideal of *NURTURANCE* would, I infer, mean that people will choose those purposes that contribute most to the cultivation and growth of their own competence and the competence of others to better pursue their ends. The culture-free ideal is best conceived of as the probable effectiveness of cultivating, not of making.

Margaret Mead's (1952) interpretation of Arapesh culture exemplifies this concept:

> To the Arapesh, the world is a garden that must be tilled, not for
> one's self, not in pride and boasting, not for hoarding and usury,
> but that the yams and the dogs and the pigs and most of all the
> children may grow. From this whole attitude flow many of the
> other Arapesh traits, the lack of conflict between the old and
> young, the lack of any expectation of jealousy or envy, the
> emphasis upon co-operation. (p.100)

That is, pursuit of this ideal implies a "fundamentally different experience

of the world: nature is taken, not as an object of domination and
exploitation, but as a 'garden' which can grow while making human beings
grow." (Marcuse, 1956:216)

      The third parameter--*probability of outcome*--is a derivative of
the first two. The individual system that is doing the choosing will be
affected by the interaction between the first two parameters (e.g., between
two courses of action that both look reasonably effective "but this one is
really the only one that *we* would consider taking"). The course of action
that will appear to provide the most probable outcome will be some amalgam of
what is effective and what is fitting or appropriate to the choosing system.
As an ideal, I think this is best described as an ideal of *HUMANITY*, given
that at any time we know of many different purposes that we might pursue and
our tendency will be to choose not the "best" but the one that best fits our
nature. In a sense the issue is expressed in Norbert Weiner's (1950) title
The Human Use of Human Beings. Historically, it has been expressed in the
notion that "man is the measure."

      Originally this was referred to as the ideal of "Good." I am now
just being more specific about the question of "good for whom?" We would
simply note at this point that the ultimate reference for humaneness is how
individuals are affected, not organizations. Thus a judicial decision cannot
be judged as humane or inhumane unless we know how it affects the
individual(s) concerned.

      I do not suggest a change in the label for the fourth dimension of
choice *relative intention*. As an ideal "Beauty" does not seem "culture
bound." The meta ideal of omnipotence becomes vacuous if all desire, all
relative value and intention is eliminated; that is, if a state of Nirvana is
attained. Therefore, omnipotence presupposes desire, and this, in turn,
requires that more desirable goals and objectives replace old ones once they
have been obtained. Thus an ideal-seeking system would enlarge its desires,
and the succeeding objectives that it sought would be more desirable to it.
In an ideal state, all purposeful individuals would be ideal-seeking. such a

state can be referred to as the ideal *aesthetic* state of *BEAUTY.*

What this means in terms of choosing between purposes is fairly clear. "Relative intention" expresses the liking for and desire for certain outcomes, as distinct from recognizing that certain outcomes may, objectively, be more probable. The ideal that men pursue is not that they simply prefer what others prefer, but that they actually desire and affectively react in ways that are not necessarily the same as are those of others, but are not contradictory.

This has been put very well by Caudwell (1949):

Whenever the affective elements in socially known things show social ordering, *there we have beauty, there alone we have beauty.* The business of such ordering is art, and this applies to all socially known things, to houses, gestures, narratives, descriptions, lessons, songs and labour. (p.106)

I am suggesting that men will increasingly choose--and more consciously strive to choose--those purposes that manifest intentions calculated to stimulate both themselves and others to expand their horizons of desire, and to rationalize conflict. By rationalizing conflict we mean the demonstration that the conflicts are containable within a higher order of ends, a higher rationality.

One implication of what I am postulating as an ideal of *beauty* is that men will increasingly reject the pursuit of purposes that are likely to be ugly, deforming, degrading or divisive, i.e., the kinds of purposes intrinsic to the maladaptive strategies.

If the ideals put forward here are meaningful then they would have to, at least, pass the test that their opposites are in general abhorrent to people. I cannot assure the reader that this is a fair test because it is I who have picked out the labels for the opposites:

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homonomy        selfishness

nurturance      exploitation

humanity        inhumanity (cf. Nuremburg trials)

beauty          ugliness
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I think that these alternatives are universally abhorrent. These alternatives could at best constitute goals or purposes of man. They are obviously goals and purposes that have frequently overridden pursuit of ideals. That is not the problem to which we have been addressing ourselves here.

The Ideal-Seeking Individual

Other important properties certainly attach to my efforts at defining a constellation of ideals that men will pursue as they become increasingly free to do so; and increasingly unable to adapt unless they do so.

However, a summary of my postulations may be helpful (Table 2). This summary may stimulate more critical thought if I juxtapose my set of ideals with those proposed by Trist (Emery and Trist, 1972). At no point did I strive for comparability with Trist's list; my concern was with rethinking the original Ackoff-Emery formulations. Nevertheless, the comparison is of interest. The two points of disparity are with Trist's self-actualization and self-expression. These disparities help me reaffirm my intended meanings. I do not think that self-actualization in a turbulent environment can be adaptive if it is not also an active concern to nurture the "self-actualization" of others (Chein, 1972: 228-29). I do not think, and I am sure that Eric Trist did not imply, that self-expression, "doing one's own thing," is an adaptive ideal unless it is concerned with expressing that which is human and with inducing a human response.

Table 2

Human Ideals: Past, Present, Future

	Trist	Ackoff & Emery	Emery
Under industrialism / Post-industrial /Transition/Post-industrial			
Achievement	Self-actualization	Truth	Nurturance
Independence	Interdependence	Plenty	Homonomy
Self-control	Self-expression	Good	Humanity
Endurance of distress	Capacity for joy	Beauty	Beauty

It will be noted that these difficulties in translation are of the same kind as we experienced in moving from the ideal of "plenty" to that of "homonomy," from "truth" to "nurturance" and from "good" to "humanity." I suspect that this diversion relates to an increasing concern on our part that the values and countervalues of previous societies (and not just industrial society) have been premised on man as a subordinate part of his enduring social institutions. I believe that the social forces that are introducing the modern turbulent social field make it possible and necessary to state a different set of assumptions about the ideals that will move people and, also, about the way people pursue ideals.

Specifically, I postulate that:

1. *Only individuals can be ideal-seeking systems.* By implication, the institutions or organizations that people have created can be, at best, purposeful systems, no matter how old and sacrosanct they may be. They can purposefully act to create conditions under which more of their members can, on more issues, be ideal-seeking systems. They cannot--except as a deceit for dominance--even claim that they are the ideal-seeking system. Ackoff and I put this forward almost as an axiom (Ackoff and Emery, 1972, Chapter 13).

As an axiom, its proof could lie only in the resultant organizational geometry. The movement towards participative management would seem to be some such proof. At the level of ideals and values, Tomkins (1965)

puts a clear viewpoint. Analyzing what an individual can do and what an "organized individual" can do, he observes:

> Indeed, all normative theories of value derogate not only positive
> affect but human beings as such, insofar as they fail to embody in
> their behavior those norms which are postulated to be prior to,
> more real than and more valuable than the human being, who, it is
> asserted, must be governed by such norms if he is to become good."
> (vol.2, p.265)

2.   *Individuals can sustain the ideal-seeking state only temporarily.*
As I have defined it, the pursuit of the ideal is a pursuit of the infinite and unattainable. For the individual this could produce only informational overload and nervous breakdown if he remained focussed on ideals, the choice of purposes. What does seem to be empirically established is that people can support each other to be ideal-seeking. Thus the ideal of nurturance seems to be central to individuals being able to sustain the pursuit of ideals.

3.   *It is only within group life that ideals emerge.* It seems inconceivable to me that ideals could be relevant, much less emerge, in a true Robinson Crusoe setting. Our proposition does enable us to explicate the relation between individuals as ideal-seekers and organizations. The "relevant uncertainties" of the social fields created by interlocking purposes and goals is the prod to the emergence of values and ideals. There is no way in which the turbulence produced for man by *nature* can be mitigated by evolving ideals shared by man and nature alone. Man's only response to naturally induced turbulence is to look to his own defenses and perhaps practice magic. However, group life not only prods man in the search for ideals, but provides more or less fertile soil for the sustained pursuit of ideals. Some historical "soils" have clearly been sterile. Dodds (1951/1963) in his study *The Greeks and the Irrational*, notes how the third century B.C. Greek society so closely approached an "open society" in which conscious and

deliberate choices were being made between alternative purposes (p.237). And yet, "when the masses were seized with fears of turbulent 'astral determination'" (p.252) the retreat began. Writing in 1951 Dodds thought that the same prospect now confronted the emerging hopes of Western society. His final reflection was that "once before a civilized people rode to this jump; rode to it and refused it" (p.254).

He expressed his belief that it was the horse--the irrational-- that refused the jump, not the rider. Like me, he feels that this time we may better understand the horse.

4.   *No ideal can be pursued singlemindedly without sacrifice of other ideals*. This is obvious if considered simply as a matter of allocating resources. But I deliberately use the term sacrifice, not "hindrance" or "neglect." I am trying to make a much stronger point, namely that singleminded pursuit of the ideal of nurturance (not breast feeding but nurturance of one's own and others' ability to choose between purposes) is likely to lead, in other choices, to inhumanity, autonomy (in the sense of man against or over man) and ugliness. Similarly with singleminded pursuit of any other ideal. Hence the need for, and the relevance of, the meta-ideal omnipotence or what Marx called "man's historic struggle for freedom." The need to harmonize in the pursuit of ideals seems inherent in the active adaptation to turbulent social fields.

5.   *Deciding on what sacrifices of other ideals should be made in any particular choice between purposes is the essence of wisdom.* In other words, wisdom is a function of the totality of an ideal-seeking system. It is not simply a more elevated form of "understanding." It is not simply a matter of seeing further into the future like a soothsayer. It cannot be a special property of some ideal-seeking system concerned primarily with one ideal; nor can one expect it to be easier to find in any organization concerned with supporting the pursuit of a single ideal, e.g., amongst Nobel Prize winners or the Academy of Arts. This last point is not irrelevant as people do seek new leadership to accomplish new tasks.

I have tried to identify the ideas that men are likely to pursue as they seek to struggle through current turbulence to something that might be termed the "open society" (Dodds, 1951/1963; Popper, 1945). In doing this I have noted that the ideals are most probably something beyond the self-referring ideals postulated by Trist or the traditional Western ideals postulated by Ackoff and myself. Lastly, I have predicted that in actively adapting to current social turbulence men will overcome the myth of organizations and institutions being themselves ideal-seeking systems, value givers (ceteris paribus re physical turbulence). They will increasingly treat their organizations as special environments--habitats--whose purposes are no more than the support, nurture and protection of the efforts of individuals to imagine and aspire to the unattainable. They will reject the kind of organizational arrogance that Koestler (1940) dissected in *Darkness at Noon*. In freeing themselves of guilt-laden organizational norms, men will not be moving simply to "the permissive society" or "the Sensate Society" (Kahn's prediction [Kahn and Weiner, 1967]). While they will not be preoccupied with the sinfulness of pleasure, there is still, as Angyal (1966) shows, a conscience associated with the ideal of homonomy.

It has taken me some time to come to the final point, but I think that, in our present social turbulence, institutions like the universities, the courts and the churches deceive themselves if they insist that they are the true bearers of ideals. They may or may not be institutions that offer particularly favorable habitats for ideal-seeking individuals. However, so long as they insist on their deceit they denigrate the status of man. In practical terms they offer their institutional rewards to those who are most dedicated to serving the institution, not to the ideal-seeking. Traditional sets of institutional values are given much lip service but their function is to mold institutional conformity; they are not organically rooted in the ideals the institutions purport to carry. The institutions themselves reveal this deceit by demonstrating repeatedly in their histories that there is no ideal for which they would sacrifice their survival. It seems almost too much

to expect them to do other than treat as heresies the sort of transformation of ideals that I have outlined above.

A Theoretical Note on the Parameters of Choice (and hence Decision-Making)

This note starts from a development in the theory of decision-making advanced by Ackoff and myself in 1972. The effect of the development is to close the circle between the work we did on organized systems and the work that had been done on systems environments. The latter part of this note traces through some of the consequences for the theory of ideal-seeking systems.

Observation of choice behavior has given a great deal of credence to the four parameters of choice outlined in *On Purposeful Systems* (Ackoff and Emery, 1972). A disturbing feature about this postulation has been the absence of a reason as to why there are just these four parameters. Could we not, on the past history of studies of choice behavior, expect yet another necessary parameter to be identified? Or two, or three others (e.g., Jordan's [1968:133] "law of minimum certainty"?

This possibility becomes even more disturbing when we derive a limited set of human ideals from the earlier postulation of a limited set of parameters of choice. The derived set of ideals could be disarrayed if an additional parameter of choice subsequently appeared to be necessary.

However, there does seem to be a theoretical justification for four parameters of choice; and just these four.

A comprehensive understanding of organizational behaviour requires some general knowledge of each member of the following set, where *L* indicates some potentially lawful connection and the suffix 1 refers to the organization and the suffix 2 to the environment:

$$L_{11}, \quad L_{12}$$

$$L_{21}, \quad L_{22}$$

$_{L11}$ here refers to processes within the organization--the area of internal interdependences; L_{12} and L_{21} to exchanges between the organization and its environment--the area of transactional interdependencies, from either direction; and L_{22} to processes through which parts of the environment become related to each other (i.e., its causal texture), the area of interdependencies that belong within the environment itself. (Emery and Trist, Vol.III)

Choosing is a form of behavior of an organized system. In fact, it appears to be the distinguishing characteristic of a purposeful system. This being the case, the set L_{11}, L_{12}, L_{21} and L_{22}, represents a complete set of the parameters (conditions) of choice behavior.

A comprehensive understanding of the choice behavior of any organized system thus requires some general knowledge of the L_{11} relation. This we have referred to as probability of choice, familiarity (Ackoff and Emery, 1972). The choice behavior of a system will depend to some degree on how the parts of the system pull together. There will be an inevitable tendency for the parts to pull together in ways with which they are familiar; certainly to favor ways that preserve the integrity of the system even if they are not the most effective possible ways. In folk terms this is well expressed as "better the devil one knows." Instead of interpreting *probability of choice* as "familiarity" we could have used the stricter but stodgier phrase "*system conservation*." The influence of this parameter is heightened when the environment is seen as familiar, unchanged.

The L_{12} relation concerns what the system can do in its environment. It refers to what changes it *can* effect in its environment. In our terms (modified after the 1972 publication) this is the parameter of *probable effectiveness*. We used the label "*knowledge*." This was too narrow.

The *can* effect includes *power* to do so and, as Heider (1958) points out,

> ...the power factor is often represented by ability; there are
> other characteristics of a person that affect his power,
> temperament for example, but ability is commonly felt to head the
> list. (p.83)

There is more to *can* than this:

> ...*can* refers to the relation between the power or ability of the
> person and the strength of the environmental forces. The
> relationship might be further specified as:

> *can* = *f* (power, ability, difficulty of
> environmental factors) (p.76)

Probability of outcome, I suggest, is that parameter of choice which
encompasses the L_{21} relation. It does not, however, encompass only the L_{21}.
In 1972 we postulated that it was a derived member, not a prime member, of the
set, i.e.,

probability of outcome = *f* (probability of choice,
probable effectiveness)

Nevertheless, we stressed that the multiplicative relation generates a
qualitatively distinct feature of choice behavior, namely the level of
understanding reflected in that behavior. When we speak of an intelligent
choice or a stupid choice we are referring to this parameter. Now we are able
to identify what it is that particularly distinguishes this parameter:

probability of outcome = *f* (probability of choice, L_{11},
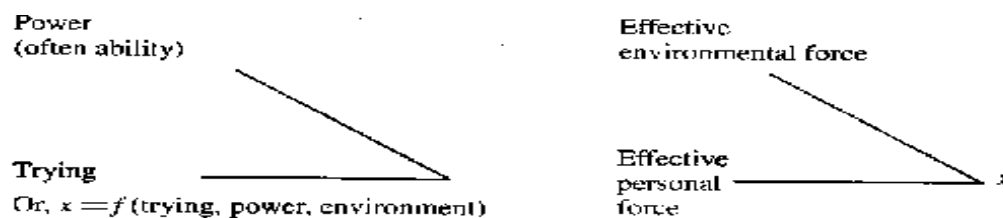
probable effectiveness, L_{12})

$$= f \quad (L_{21})$$

Thus the parameter of probability of outcome is not just a derived member of the set. It qualifies as a prime member because it, and it alone, draws in the L_{21} relation. It stands in a unique position in the total set because it also *generates*, and not just derives from, the two parameters of probability of choice and probable effectiveness. Elsewhere, (Emery and Trist, 1972) I have argued that the L_{21} relation encompasses what we call learning, i.e., learning about the L_{22}. This learning is at the base of the generative influence of the effect of changes in probability of outcome on the other two parameters.

The interpretation I am placing on the parameter, probability of outcome, is explicated by Heider's (1958) analysis of "conditions of outcome" (Figure 1). It should be noted that the environment as it enters into the determination of L_{12} (probable effectiveness) is a body of barriers and frustrations. It is a view of the environment through a tunnel. In L_{22} we are dealing with a panoramic view of the environment; a view of the environment as a source of valences, positive or negative.

The parameter of *relative intention* appears to be that which maps the L_{22} relation. It reflects, first and foremost, the array of valences, goals and noxiants in the environment. The strength of intention with respect to any objective will be relative to the perception of what is possible. What one thinks *can* be achieved, what is worth *trying* to achieve and what one thinks is *probably achievable* are dependent on what is seen to be possible.

It is easy to assume that the parameter of relative intention simply maps what psychology has designed as "motivation." Tomkins (1962) has already argued that motivation is not a unitary concept and must include at least "needs" and "affects I would argue that any identifiable parameter of choice must have implications for the motivation of people to choose--to choose this rather than that course of action.

Power
(often ability)

Effective
environmental force

Trying

Effective
personal
force x

Or, $x = f$ (trying, power, environment)

This diagram of Heider's 1 would relabel as follows:

L_{12} : probable effectiveness

Effective
environmental
L_{21} force

L_{11} : probability of choice

Effective
personal
force

Probability
of outcome

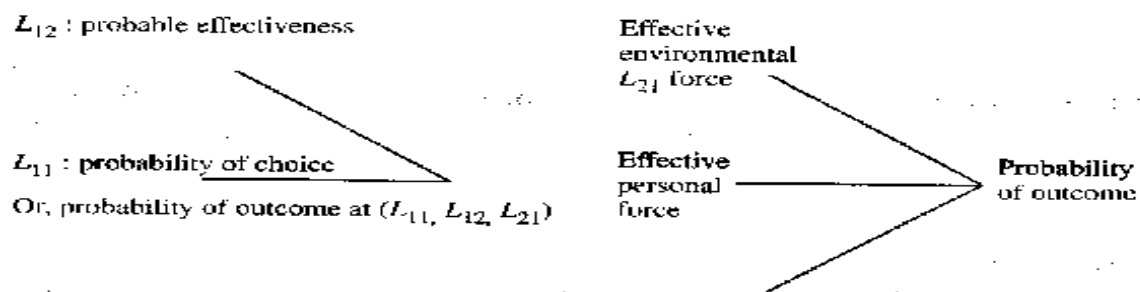Or, probability of outcome at (L_{11}, L_{12}, L_{21})

Figure 1. The conditions for achieving outcomes.

Summary

What has been written above is summarized in Table 3. I started off to show that there was a theoretical reason for finding only four parameters of choice behavior. I think I have demonstrated that the parameters of choice behavior map the parameters of an open system. There could be neither more nor less parameters. The mapping appears to be accurate. Further light is thrown on probability of outcome.

Table 3

Comparison of The Parameters of Choice & of

Open Systems

Parameters of Choice/Interpretative Labels/Open System Parameters

a. Probability of Choice   / Familiarity / L_{11}

b. Probable effectiveness   / Knowledge   / L_{12}

c. Probability of outcome = / Understanding / $f(L_{11} , L_{12} , L_{21})$

      F(a,b)

d. Relative Value   / Intention / L_{22}

Ideals and the Parameters of Choice

From the above it seem clear that there is no prospect of the theory of the ideal set being thrown into disarray by discovery of new parameters of choice behavior. More than that, the improved theoretical clarity of the postulated parameters may enable me to throw more light on that set of ideals.

The ideal of *humanity* was associated with man's inevitable striving to improve the probability of outcome of his choice behavior. We have seen that this ideal cannot be interpreted as simply a joint function of

man's pursuit of homonomy (probability of choice) and nurturance (probable

effectiveness). If that were so, then the ideal of humanity could be

approached by a combination of males bonded in brotherhood and men, women and

children bound in nurturance. This sub-set of ideals could find its

accomplishment in a Mafia (cf. the novel, *The Godfather*). As now defined, the

ideal of humanity introduces an element, the L_{21} relation, which is absent

from either of the ideals of homonomy or nurturance. Pursuit of the ideal

requires also "some general knowledge" of what the world is doing to people,

the L_{21}. Ability to pursue this ideal is built up from pursuit of purposes

that increase learning and understanding; not just the exercise of already

attained knowledge as in the L_{12} relation.

If we examine the ideal of *nurturance* we can see how much easier

it is to derive this from the concept of the L_{12} relation than from the label

of "knowledge" that we had previously placed on the parameter of probable

effectiveness. (As a label "knowledge," like the other labels of

"familiarity" and "understanding," was a best guess at a pointer to the

referent of the formal parameters.) L_{12} refers unambiguously to the actions

of a purposeful system out into and onto its environment. The environment is

a co-producer of the outcomes of behavior and hence the idea, to which people

will strive, is to act not only so as to achieve their immediate objectives

but to develop and nurture an environment that is a more beneficial co-

producer. The environment to be nurtured is not only that of other human

beings but also the wider biological and physical environment.[2]

This is a far cry from the notion of using our accumulated

scientific knowledge and know-how to shape the environment to our immediate

purposes.

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[2]That we should "do unto others... is an ideal that has been long
espoused. That an ideal of nurturance with rspect to the environment is an
ideal in the Judeo-Christian tradition has been challenged. However, Jurgen
Moltmann (1974), Professor of Dogmatic Theology, University of Tubingen,
argues that it was part of that tradition until thee recent centuries of the
capitalist economies. In the earlier tradtition true believers were enjoined
to nurture the environment as part of God's creation.

Deriving the ideal of *homonomy* from the L_{11} relation also gives us a firmer grip on its referent.[3] The concept of homonomy, which was so central to the published work of Angyal, has been notoriously slippery to grasp. He presented the concept in 1941. For his second book, in 1965, Angyal reworked the chapter on homonomy completely, "feeling that his earlier formulations had failed to convey the full meaning of his concept" (editor's note, p.15.) Even Fritz Heider (1958), for all his unusual depth of perception of human affairs, could pass homonomy off as "to be in accord with forces from the outside which impinge upon the person"--"a trend to fuse and be in harmony with superindividual units..." (p.239). This would hardly distinguish homonomy from conformity and gregariousness. In the same context, however, Heider also tries to convey, about the notion of homonomy, that "*p* (the individual) can be part of superindividual social wholes only if other people participate" (in the tendency toward homonomy). (p.241.) I think that the identification of homonomy with the L_{11} relation removes any such ambiguity. In this context homonomy is clearly the *relation of part-to-part within a whole*. Certainly it includes love as the homonomous relation of part-to-part. Certainly it includes some element of conformity as the homonomous relation of part-to-part. However, homonomy is not simply the relation of part-to-part nor part-to-whole; it is the relation of part-to-part within a whole. That is, it is an L_{11} relation. Against this background the purposive pursuits of love or conformity are not necessarily ideal-seeking. They may be.

It was earlier proposed that the ideal of *beauty* is that ideal which flows on from man's concern with the relative value of his intentions in any choice situation. i.e., what does it mean to him whether he makes a better

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[3]In the original formulation we labelled this parameter of choice, "ideal of Plenty." The pursuit of plenty has certainly been a pervasive and persistent purpose but as the real possibility of achieving plenty is envisaged it becomes obvious that it is no ideal. "Possession and procurement of the necessities of life are the prerequisite, rather than the content, of a free society" (Marcuse, 1956:195). In this release from repressive labor Freud and Jung saw a threat to the whole structure of a civilization necessarily based on sublimation. I see instead a transformation from striving after pseudo ideals to striving after ideals that are deeply rooted in the nature of man.

choice or not.

   Now I wish to go further and suggest that both "relative value of intention" and *beauty* refer to the L_{22} relation. If we ask what it is about the L_{22} relation that entices an ideal-seeking system to enlarge its desires and to find its succeeding intentions of even greater value, then the most adequate answer lies in the pursuit of *beauty*. As I quoted Caudwell (1949) earlier:

     Whenever the affective elements in socially known things show
     social ordering, *there we have beauty, there alone we have beauty.*
     The business of such ordering is art, and this applies to all
     socially known things, to houses, gestures, narratives,
     descriptions, lessons, songs and labour. (p.106)

The ordering that people seek as beautiful is not just the degree of ordering that George Birkoff (1933) sought in his aesthetic measure. This is necessary to *beauty* but not sufficient. The ordering must be a tense ordering of articulated shapes that conveys to man not a state of quiescence, but a sense of dynamic equilibrium with the world and a sense that he and his other ideal strivings belong in that world. As Arnheim (1971) says of man's art:

     ...art is not meant to stop the stream of life. Within a narrow
     span of duration and space the work of art concentrates a view of
     the human condition; and sometimes it marks the steps of
     progression, just as a man climbing the dark stairs of a medieval
     tower assures himself by the changing sights glimpsed through its
     narrow windows that he is getting somewhere after all. (p.56)

   It should be clear that this kind of ordering is not just social ordering. Man responds as well to the beauty of nature and, insofar as he is ideal-seeking, he seeks to avoid the degradation of that which he sees as

beautiful. We would not expect man to pursue ideals that were not deeply rooted in man's nature, and not critical to his evolution. Discussion of beauty is so rarely undertaken in this context that some people might think it strange to find it in bed with such obvious survival oriented values as nurturance, homonomy and humanity. Sommerhoff (1950) has suggested a clear answer to such doubts. He suggests that tense ordering of articulate shapes that seem beautiful to us

> always conveys the immediate impression that it is a whole in which a number of perceived parts occupy purposefully assigned position and have purposively assigned form relations. (p.192)

Arnheim (1969) provides an exhaustive treatment of this proposition. In the contemplation of beauty there is purposiveness without any particular purpose (Kant). As to why man should have evolved such an instinctive attraction to *beauty*, Sommerhoff (1950) suggests that

> such an instinctive desire is part of a general psychological mechanism whose function is to lead the individual to the most organic part of the environment, or rather to those parts in which there exist the greatest concentration of directive correlations and which offer, therefore, the greatest opportunity for the coming into existence of higher levels of organic integration between him and the environment. (p.193)

Coming back to my original postulation, I would reaffirm that *beauty* is the ideal most apposite to man's strivings with respect to the L_{22}, and as such is a necessary member of the set of ideals.

Closing Conceptual Circle

Providing a theoretical basis for the parameters of choice behavior has enabled a sharpening of our conception of human ideals. A revision has not been necessary but, by knowing where to look for answers, it has been possible to put those conceptions on a firmer base and to search out further implications. Thus the elaboration can leave us in no doubt but that "no ideal can be pursued single-mindedly without sacrifice of the others." To be obsessed with, for instance, the L_{22} at the expense of the L_{12}, etc., would lead to nonadaptive choice of purposes. The image of closing the conceptual circle is graphically depicted in Figure 2.

Power
(often ability)

Trying

Or, $x = f$(trying, power, environment)

Effective
environmental force

Effective
personal x
force

This diagram of Heider's 1 would relabel as follows:

L_{12} : probable effectiveness

L_{11} : probability of choice

Or, probability of outcome at (L_{11}, L_{12}, L_{21})

Effective
environmental
L_{21} force

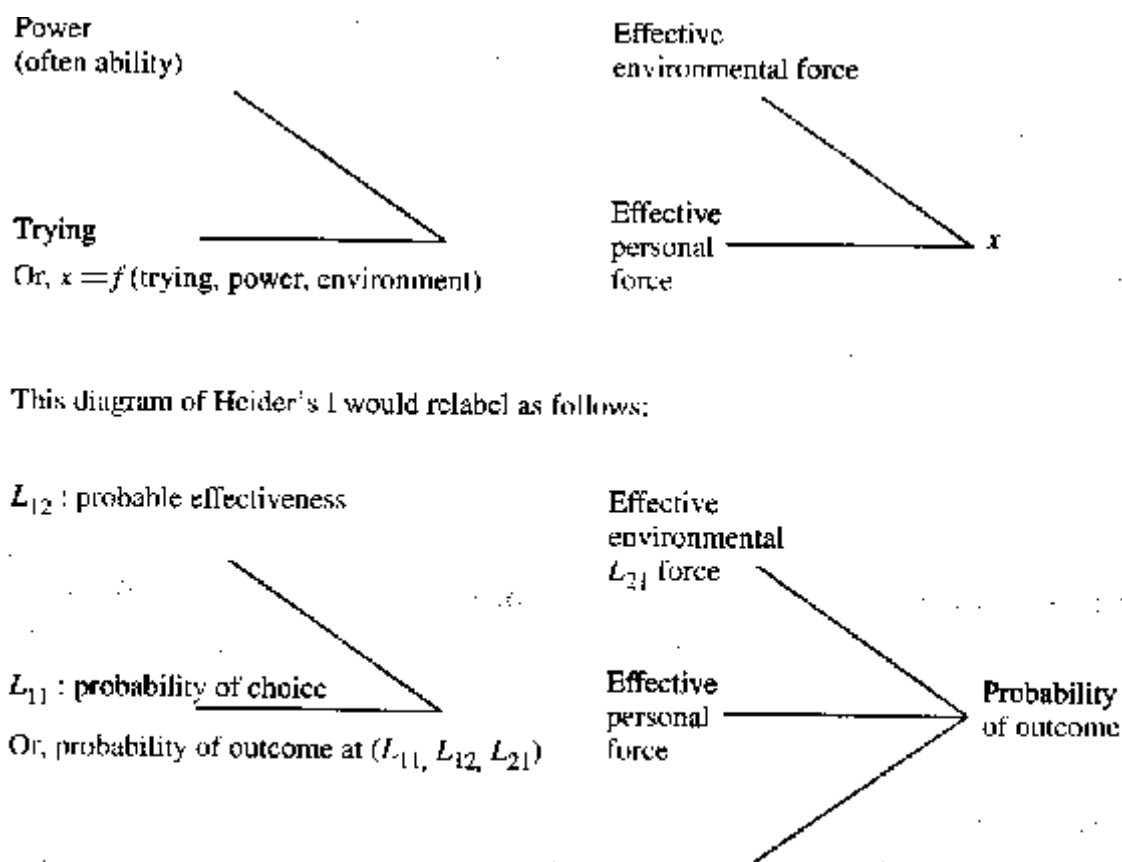Effective
personal
force

Probability
of outcome

Figure 1. The conditions for achieving outcomes.

Choice Environment and Ideals

This seems to be an appropriate point at which to enter into some speculations about where further search might be fruitful.

Whilst the four parameters of choice define the necessary and sufficient conditions of any choice, not all have the same practical relevance or salience in every situation. Thus, a government department or an individual may be so cosseted from the outside world that "some general knowledge about the L_{22}" is pretty irrelevant. Following through on this idea regarding its implications for levels of learning and planning required to adapt to different levels of environmental ordering led to the paradigm shown in Table 4. The righthand side of the Table shows that we are probably dealing not only with shifts in relative salience (as shown in column 2) but with transformations in the qualities of the relations as they change in salience and context.

The distinctions in learning and planning have been so useful that it is tempting to ask whether differences in environments have a similar effect on the relative salience and qualitative interpretation of ideals. I am prepared to yield to this temptation. Table 5 is a first guess.

This is what the theoretical structure suggests. What could it mean? First it should be noted that the Type I, randomized, environment is a theoretical limiting state (Toda, 1962). Under rather special circumstances the human condition approximates this but it is highly doubtful that the course of human evolution started from less than a Type II, clustered, environment. However, in the Type I environment, we would expect from Table 5 that homonomy would be the salient ideal, insofar as ideal-seeking was present (Des Pres, 1976). This is not to say that the other ideals are completely absent and never pursued.

At the other extreme, the Type IV, turbulent, environment, the implication seems to be that pursuit of *beauty* must take its place with the other ideals if choice of purposes is to be adaptive. The pursuit of beauty

would no longer be the concern of just the social elites. This may be
manifested in the current widespread concern for the conservation of nature
and in the slogans--"black is beautiful," "small is beautiful."

Table 4

Environmental Levels & Salience of Parameters

of Choice

Environmental Levels	Salience of Parameters of Choice	Forms of Learning (L_{21})	Forms of Planning (L_{21})
1. Randomized	L_{11}	Conditioning	Tactics
2. Clustered	L_{11} , L_{12}	Meaningful	Tactics/ strategies
3. Disturbed reactive	L_{11} , L_{12} , L_{21}	Problem Solving	Tactics - operations / strategies
4. Turbulent	L_{11} , L_{12} , L_{21} , L_{22}		

Table 5

Environmental Levels & Salience of Ideals

Environmental Levels	Salient Parameters of Choice	Salient Ideals
1. Random	L_{11}	Homonomy
2. Clustered	L_{11} , L_{12}	Homonomy, nurturance
3. Disturbed reactive	L_{11} , L_{12} , L_{21}	Homonomy, nurturance humanity
4. Turbulent	L_{11} , L_{12} , L_{21} , L_{22}	Homonomy, nurturance humanity, beauty

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