

CYBERNETIC GUERRILLA WARFARE

by Paul Ryan

To fight a hundred times and win a hundred times is not the blessing of blessings. The blessing of blessings is to beat the other man's army without getting into the fight yourself.

The Art of War Sun Tzu

Part I GUERRILLA STRATEGY AND CYBERNETIC THEORY

Traditional guerrilla activity such as bombings, snipings, and kidnappings complete with printed manifestos seems like so many ecologically risky short change feedback devices compared with the real possibilities of portable video, maverick data banks, acid metaprogramming, Cable TV, satellites, cybernetic craft industries, and alternate life styles. Yet the guerrilla tradition is highly relevant in the current information environment. Guerrilla warfare is by nature irregular and non-repetitive. Like information theory it recognizes that redundancy can easily become reactionary and result in entropy and defeat. The juxtaposition of cybernetics and guerrilla strategy suggests a way of moving that is a genuine alternative to the film scenario of NYC urban guerrilla warfare "Ice". Using machine guns to round up people in an apartment house for a revolutionary teach-in is not what the information environment is about. All power does not proceed from the end of a gun.

We suffer the violence of the entropy of old forms—nuclear family, educational institutions, supermarketing, cities, the oil slick complex, etc., etc. They are running us down, running down on us and with us. How do we get out of the way? How do we develop new ways? This ship of state continues to oscillate into runaway from its people and its planetary responsibilities, while efforts continue to seduce us onto boarding this sinking ship—educational loans, fellowships, lowering the voting age. Where did Nixon come from anyway? How did that leftover from the days of Elvis get to be Captain of our ship, Master of our fate?

How many Americans once horrified by thermonuclear war are now thinking the unthinkable in ecological terms with a certain spiteful glee of relief at the prospect of a white hell for all?

Psychedelic my ass: Children of A-Bomb.
Bob Lenox

Nobody with any wisdom is looking for a straight out fight. We have come to understand that in fighting you too easily become what you behold. Yet there is no way on this planet to get out of the way. Strategy and tactics need be developed so the establishment in its entropy does not use up our budgets of flexibility. The efforts to enlist the young in the traditional political parties by '72 will be gross. Relative to the establishment and its cultural automatons, we need to move from pure Weiner wise Augustinian Cybernetics into the realm of war game theory and practice in the information environment.

The most elegant piece of earth technology remains the human biocomputer; the most important data banks are in our brain cells. Inherent in cybernetic guerrilla warfare is the absolute necessity of having the people participate as fully as possible. This can be done in an information environment by insisting on ways of feeding back for human enhancement rather than feeding off people for the sake of concentration of power through capital, pseudo mythologies or withheld information. The information economy that begins in a guerrilla mode accepts, cultivates and depends on living thinking flesh for its success. People are not information coolies rickshawing around the perceptions of the privileged, the well paid, or the past. People can and do process information according to the uniqueness of their perceptual systems. Uniqueness is premium in a noospheric culture that thrives on high variety. Information is here understood as a difference that makes a difference. The difficulties of a negentropic or information culture are in the transformations: how do we manage transformation of differences without exploitation, jam or corruption that sucks power from people.

I am not talking about cultivation of perceptual systems at the expense of emotional cadences. Faster is not always better. Doing it all ways sometimes slowing down. Internal syncing of all facets is critical to the maintenance of a flexibility and avoidance of non-cybernetic "hang-up" and "drag."

The bulk of the work done on cybernetics from Weiner's guided missiles through the work at IBM and Bell Labs along with the various academic spin-offs has been big budget establishment supported and conditioned by the relation of those intellectuals to the powers that be distinctly non-cybernetic and unresponsive to people. The concept of entropy itself may be so conditioned. Witness the parallel between Weiner's theoretical statements about enclaves and the enclave theory of withdrawal from Vietnam. One of the grossest results of this situation is the preoccupation of the phone company and others with making "foolproof terminals" since many potential users are assumed to be fools who can only give the most dumb dumb responses. So fools are created.

The Japanese, the people we dropped the A-Bomb on in '45, introduced the portable video system to this country in 1967, at a price low enough so that independent and semi-independent users could get their hands on it and begin to experiment. This experimentation, this experience, carries within it the logic of cybernetic guerrilla warfare.

Warfare... because having total control over the processing of video puts you in direct conflict with that system of perceptual imperialism called broadcast television that puts a terminal in your home and thereby controls your access to information. This situation of conflict also exists as a matter of fact between people using portable video for feedback and in situations such as schools that operate through withholding and controlling the flow of information.

Guerrilla warfare... because the portable video tool only enables you to fight on a small scale in an irregular way at this time. Running to the networks with portable video material seems rear view mirror at best, reactionary at worst. What is critical is to develop an infrastructure to cable in situations where feedback and relevant access routes can be set up as part of the process.

Cybernetic guerrilla warfare... because the tool of portable video is a cybernetic extension of man and because cybernetics is the only language of intelligence and power that is ecologically viable. Guerrilla warfare as the Weathermen have been engaging in up to now and revolution as they have articulated it is simply play acting on the stage of history in an ahistoric context. Guerrilla theatre, doing it for the hell of it on their stage doesn't make it either. We need develop biologically viable information structures on a planetary scale. Nothing short of that will work. We move now in this present information environment in a phase that finds its best analogue in those stages of human struggle called guerrilla warfare.

Yet this is not China in the 1930's. Though there is much to learn from Mao and traditional guerrilla warfare this is not the same. Critically, for instance, in an economy that operates on the transformation of differences a hundred flowers must bloom from the beginning. In order to "win" in cybernetic guerrilla warfare, differences must be cherished, not temporarily suppressed for the sake of "victory." A la McLuhan, war is education. Conflict defines differences. We need to know *what not to be* enough to internally calculate our own becoming earth-alive noosphere. The more we are able to internally process differences among us the more we will be able to process "spoils" of conflict with the entropic establishment—i.e., understanding the significant differences between us and them in such a way as to avoid processing what is dangerous and death producing. Learn what you can from the Egyptians, the exodus is cybernetic.



Illustrations by Claude Ponsot

Traditional guerrilla warfare is concerned with climate and weather. We must concern ourselves with decoding the information contours of the culture. How does power function here? How is this system of communications and control maintained? What information is habitually withheld and how? Ought it to be jammed? How do we jam it? How do we keep the action small enough so it is relevant to real people? How do we build up an indigenous data base? Where do we rove and strike next?

Traditional guerrilla warfare is concerned with knowing the terrain. We must expand this to a full understanding of the ecological thresholds within which we move. We must know ourselves in a cybernetic way, know the enemy in a cybernetic way, and know the ecology so that we can take and take care of the planet intact.

The traditional concern is for good generals. What's desirable for us is ad hoc hierarchies of power which have their logistics down. Cybernetics understands that power is distributed throughout the system. Relevant pathways shift and change with the conditions. The navy has developed war plans where the command is a fleet moves from ship to ship every fifteen minutes. It is near impossible to knock out the command vessel.

The traditional tricks of guerrilla warfare are remarkably suited for cybernetic action in an information environment. To scan briefly.

Mixing "straight" moves with "freak" moves. Using straight moves to engage the enemy, freak moves to beat him and not letting the enemy know which is which.

Running away when it's just too heavy. Leave the enemy's strong places and seek the weak. Go where you can make a difference.

Shaping the enemy's forces and keeping our own unshaped, thereby beating the many with the few.

Faking the enemy out. Surprise attacks.

The business of deception in guerrilla warfare is a turn off for most people in this relatively open culture. This is simply an area that need be better understood, if we are to be successful. People feel that concealing is unethical. Yet overexposure means underdevelopment. Many projects die of too much publicity. There is a sense in which we are information junkies feeding off each others un-lived hopes. The media repeatedly stuns the growth of alternate culture in this country through saturation coverage. It is hard for an American to just keep his mouth shut and get something cooking. You are what you reveal. The star system renders impotent by overexposure and keeps others impotent through no exposure. Seeming different is more important than making a difference. Deception in guerrilla tactics is an active way of avoiding control by an alien, alienating intelligence. When a policeman takes your name, he takes over. I know a guy who is inventing another identity for the computer. There is a virtue of mistrust and wisdom in knowing significantly more about yourself than you reveal. *Love Thy label as thyself.*

We retreat in space, but we advance in time.
Mao

Count the Cost. We need develop an information accounting system, a cultural calculus.

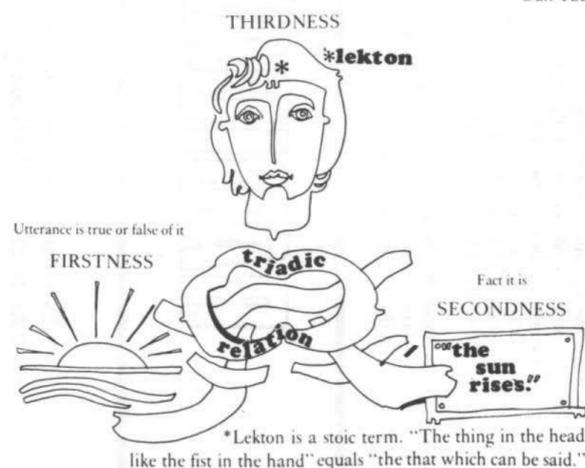
Use the enemies supply. With portable video one can take the Amerikan mythology right off the air and use it as part of a new perceptual collage.

Be flexible. In cybernetics, flexibility, the maintenance of a good guessing way is critical.

Patience. Cybernetics is inherently concerned with timing and time design. It is a protracted war.

Do not repeat a tactic which has gained you victory, but shape your actions in an infinite variety. Water sets its flow according to the ground below; set your victories according to the enemy against you. War has no constant aspect as water has no constant shape.

Sun Tzu



Part II ATTEMPTING A CALCULUS OF INTENTION

Calculus of intention was a concept developed over many years by the cybernetic wizard, Warren McCulloch. He was in the business of brain circuits. McCulloch felt that dialogue breakdowns occurred largely because we lacked a logic that could handle triadic relationships. Here is his description of the problem of the calculus of intention.

The relations we need are triadic, not diadic. Once you give me triadic relations, I can make N-adic relations; but out of diadic relations I can't go anywhere. I can build strings and I can build circles, and there it ends.

The great problem of the nervous system is the one concerning its core, the so-called reticular formation... This reticular core is that thing that decides whether you'd better run or whether you'd better fight, whether you should wait, whether you should sleep, whether you should make love. This is its business and it has never relinquished that business. It is a structure incredibly simple when you look at it, but the problem that I'm up against is the problem of organization of many components, each of which is a living thing, each of which in some sense, senses the world, each of which tells others what it has sensed, and somehow a couple million of these cells get themselves organized enough to commit the whole organism. We do not yet have any theory that is capable of handling such a structure.

Communication: Theory and Research ed. Thayer, Lee, Thomas, Springfield, 1967. McCulloch's commentary on "Logical Structure of the Mind."

I have not made a thorough study of McCulloch. It would take years. I do not know if what follows satisfies that criterion he established for such a calculus. I have maintained a certain organization of ignorance relative to formal cybernetics and formal topology. In fact, what follows would not, it seems, satisfy the kind of discreteness, one-two-three, that McCulloch seemed to want. However, such discreteness may not be necessary.

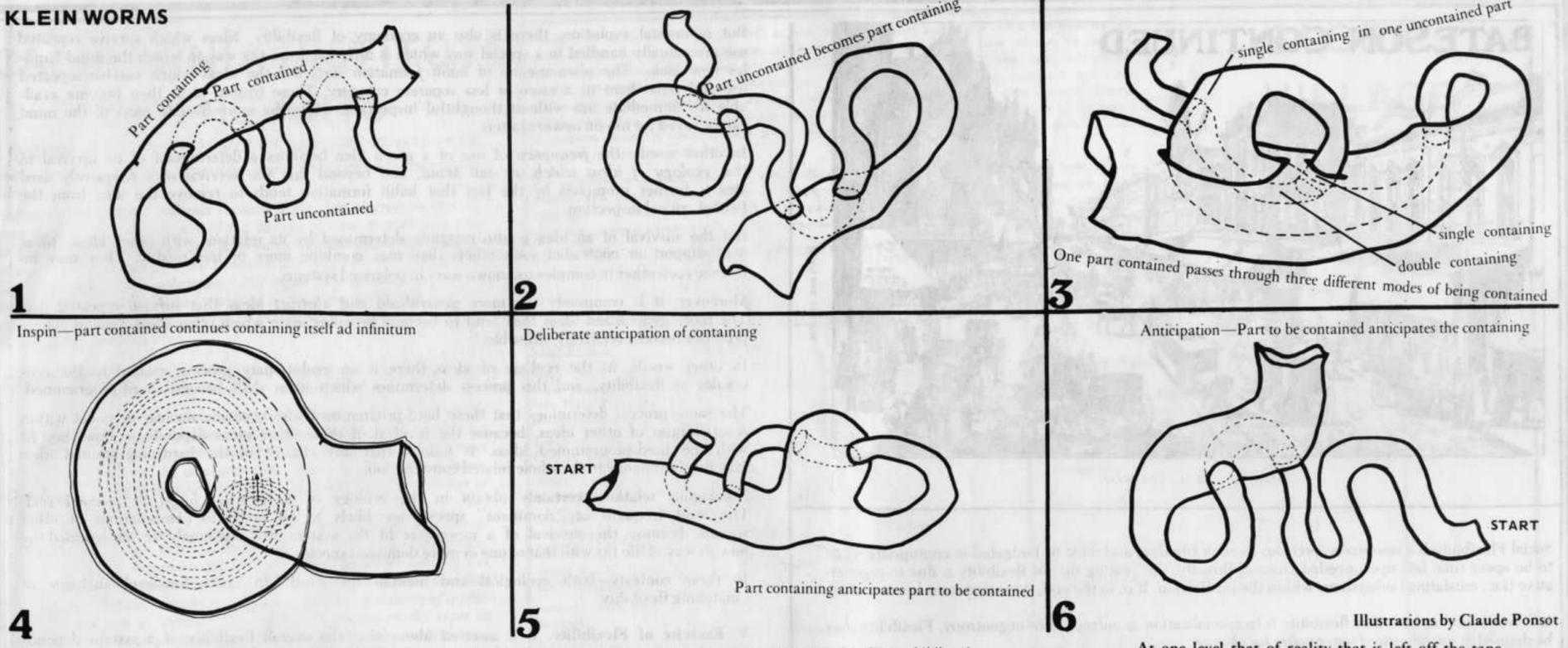
My approach stems from work with McLuhan that preoccupied me with the problem of how to maintain congruence between our intentions and our extensions. McLuhan talked of orchestration of media and sense ratios. Neither cut it. Orchestras just aren't around and sense ratios or *sensus communis* is a medieval model, essentially a simile of meta touch. Gibson's book on the senses considered as perceptual systems is richer in description of the process. It includes McLuhan's personal probing ability as an active part of the perceptual system.

While the following formulations may not in fact work as a calculus of intention I put them forth both because they have been exciting and useful for me and because the calculus itself seems a critical problem in terms of cybernetic guerrilla warfare. Dialogue degenerates and moves to conflict without an understanding of mutual intent and non-intent. While it does not seem that we can work out such a common language of intent with the people pursuing the established entropic way of increasingly dedifferentiated ways of eating bullshit; it is critical we develop such a language with each other. The high variety of self organizing social systems we are working toward will be unable to co-cybernetate each other re the ecology without such a calculus of intent.

This calculus of intention is done in mathematical topology. **Topology is a non-metric elastic geometry. It is concerned with transformations of shapes and properties such as nearness, inside and outside.** Topologists have been able to describe the birth of a baby in terms of topological necessity. There is a feeling among some topologists that while math has failed to describe the world quantitatively, it may be able to describe the world qualitatively. Work is being done on topological description of verbs that seem common to all languages. Piaget felt that topology was close to the core of the way children think. Truck drivers have been found to be the people who are most able to learn new jobs. While driving truck for Ballantine one summer, it became apparent to me why. Hand an experienced driver a stack of delivery tickets and he could route in five minutes what would take you an hour. It was a recurring problem of mapping topologically how to get through this network in the shortest amount of time given one way streets etc.

I should say that my own topological explorations have a lot to do with a personal perceptive system that never learned phonetics, can't spell or sing, and took to topology the way many people seem to take to music. The strangest explicit experience with topology I've had came via a painter friend, Claude Ponsot, whose handling of complex topological patterns on canvas convinced me that a non-verbal coherent graphic thing was possible. The following transformations on the klein bottle—klein worms, if you will—came in the context of working with Warren Brody on soft control systems using plastic membranes. Behind that are three years of experience infolding videotape. I checked these formulations with a Ph.D. topologist. He had not seen them before, questioned whether they were strictly topological. As far as I know, they are original.

KLEIN WORMS



There are three specific areas where I think this topological calculus of intention can be of use: acid metaprogramming, a grammar of video infolding and perceptual sharing, and in soft control structures using plastic membranes.

Relative to acid metaprogramming I am not recommending LSD-25 to anyone nor am I endorsing Leary's approach. I am simply looking at some of the work that John Lily has done and suggesting this calculus might be useful in that context. Both in *Programming and MetaProgramming in the Human Biocomputer* and in *Mind of the Dolphin* Lily uses the notion of interlock to describe communication between people and between species. In *Programming and MetaProgramming* he describes a personal experience with acid that in some way undercuts the metaphor of interlock, and to me suggests that the Klein worms might be a better way to describe the process he calls "interlock." Here is Lily's description of that experience he titles "the key is no key."

Mathematical transformations were next tried in the approach to the locked rooms. The concept of the key fitting into the lock and the necessity of finding the key were abandoned and the rooms were approached as "topological puzzles." In the multidimensional cognitive and visual space the rooms were now manipulated without the necessity of the key in the lock. Using the transitional concept that the lock is a hole in the door through which one can exert an effort for a topological transformation, one could turn the room into another topological form other than a closed box. The room in effect was turned inside out through the hole, through the lock leaving the contents outside and the room now a collapsed balloon placed farther from the self metaprogrammer. Room after room was thus defined as turned inside out with the contents spewed forth for use by the self-metaprogrammer. Once this control "key" worked, it continued automatically to its own limits.

With this sort of an "intellectual crutch" as it were, entire new areas of basic beliefs were entered upon. Most of the rooms which before had appeared as strong rooms with big powerful walls, doors, and locks now ended up as empty balloons. The greatly defended contents of the rooms in many cases turned out to be rela-

tively trivial programs and episodes from childhood which had been over-generalized and over-valued by this particular human computer. The devaluation of the general purpose properties of the human biocomputer was one such room. In childhood the many episodes which led to the self-programmer not remaining general purpose but becoming more and more limited and "specialized" were entered upon. Several levels of the supra-self-metaprograms laid down in childhood were opened up.

The mathematical operation which took place in the computer was the movement of energies and masses of data from the supra-self-metaprogram down to the self metaprogrammatic level and below. At the same time there was the knowledge that programmatic materials had been moved from the "supra-self position" to the "under self-control position" at the programmatic level. These operations were all filed in meta-program storage under the title "the key is no key."

*Programming and MetaProgramming,
Lily, pp. 42-43*

Relative to video infolding it is near impossible to describe in words even using Klein worm graphs what I'm talking about. The following will mean little to anyone except those who have had some experience of taping with themselves at different levels.

Taping something new with yourself is a part uncontained
To replay the tape for yourself is to contain it in your perceptual system
Taping yourself playing with the replay is to contain both on a new tape
To replay for oneself tape of self with tape of self is to contain that process in a new dimension
Parts left out of that process are parts uncontained
All of this is mapable on computer graphic terminals.

At one level that of reality that is left off the tape is the part uncontained
Raw tape replayed is part contained in the head
If it is somebody else's tape you are watching you can to an extent share in this live perceptual system via the tape he took.
To watch another's edited tape is to share in the way he thinks about the relation between his various perceptions in a real time mode. This enters the realm of his intention.
If you are editing some of your tape along with tape somebody else shot and he is doing the same thing using some of your tape then it is possible to see how one's perceptions relate to another's intentions and vice versa.

Relative to sharing perceptual systems it is somewhat easier to talk about since there are parallels with photography and film.

The most explicit experience of this mode of perceptual sharing came in the early days of Raundance when Frank Gillette, Ira Schneider, Michael Shamberg and myself "shot" twelve rolls of tape on earth day. Both in replay that evening (we laughed our heads off digging each others tape while the old perceptual imperialist, Walter Cronkite explained Earth Day for us) and in the edits that followed each of us got a good idea of how each saw and thought about the events vis-a-vis the others.

Relative to soft control systems using plastic membranes I am thinking mostly of the soft cybernetic work being done by Warren Brody, Avery Johnson and Bill Carrigan. The sense of the sacred and the transcendental that surrounds some of the inflatable subculture is to me a kind of pseudomythology. Consciousness might be better invested in designing self-referencing structures where awareness is imminent in the structure and its relation to the users; not by being invested in a religious way to a "special" structure that does not relate intelligently to the users.

A Klein Worm couch is a suggestion of a possible way of moving in that direction. It could be built of strong polyurethane, filled with air, perhaps by a constant flow from a pump. People might interrelate kinetically through the changes in the air pressure. Design of the actual couch could be arrived at experimentally by combinations and transformations of the structures described above.

Illustrations by Claude Ponsot

RESTRUCTURING THE ECOLOGY of A GREAT CITY
 by Gregory Bateson



Originally prepared for a symposium of city planning, Oct. 26-31, 1970, sponsored by the Wenner-Gren Foundation for Anthropological Research.

This position paper consists of the following parts: 1. A rather lengthy gathering of generalities about biological systems; and 2. An attempt to apply these generalities to practical problems. Since I know little about Manhattan, I have chosen two books by authors who are involved in problems of city life and planning and have applied the touchstone of theory to these books.

First, it will be convenient to have not an ultimate goal but some sort of abstract idea of what we might mean by ecological health. Such a general notion will both guide the collection of data and guide the evaluation of observed trends.

I suggest then that a healthy ecology of human civilization would be somewhat as follows:

A single system of *environment combined with high human civilization* in which the flexibility of the civilization shall match that of the environment to create an ongoing complex system, open-ended for slow change of even basic (hard-programmed) characteristics.

We now proceed to consider some of the terms in this definition of systemic health and to relate them to conditions in the existing world.

I. A High Civilization. It appears that the man-environment system has certainly been progressively unstable since the introduction of metals, the wheel, and script. The deforestation of Europe and the man-made deserts of the Middle East and North Africa are evidence for this statement.

Civilizations have risen and fallen. A new technology for the exploitation of nature or a new technique for the exploitation of other men permits the rise of a civilization. But each civilization, as it reaches the limits of what can be exploited in that particular way, must eventually fall. The new invention gives elbow room or flexibility, but the using up of that flexibility is death. (I owe this insight to Mr. Philip Wylie.)

Either man is too clever, in which case we are doomed, or he was not clever enough to limit his greed to courses which would not destroy the on-going total system. I prefer the second hypothesis.

* Notes on the Syntheses of Form by Christopher Alexander, Harvard University Press, 1964; and *The Uses of Disorder: Personality and City Life* by Richard Sennet, Knopf, 1970.

It becomes then necessary to work towards a definition of "high."

A. It would not be wise (even if possible) to return to the innocence of the Australian aborigines, the Eskimo and the Bushmen. Such a return would involve loss of the wisdom which prompted the return and would only start the whole process over.

B. A "high" civilization should therefore be presumed to have, on the technological side, whatever gadgets are necessary to promote, maintain (and even increase) wisdom of this general sort. This may well include computers and complex communication devices.

C. A "high" civilization shall contain whatever is necessary (in educational and religious institutions) to maintain the necessary wisdom in the human population and to give physical, aesthetic and creative satisfaction to people. There shall be a matching between the flexibility of people and that of the civilization. There shall be diversity in the civilization, not only to accommodate the genetic and experiential diversity of persons, but also to provide the flexibility and "pre-adaptation" necessary for change (e.g., the heterozygosity of wild species.)

D. A "high" civilization shall be strictly limited in its transactions with environment. It shall consume unreplaceable natural resources *only* as a means to facilitate necessary change (as a chrysalis in metamorphosis must live on its fat). For the rest, the metabolism of the civilization must depend upon the energy income which Spaceship Earth derives from the sun. In this connection, great technical advance is necessary. With present technology, it is probable that the world could only maintain a small fraction of its present human population, using as energy sources only photosynthesis, wind, tide, and water power.

II. Flexibility. To achieve, in a few generations, anything like the healthy system dreamed of above or even to get out of the grooves of fatal destiny in which our civilization is now caught, very great flexibility will be needed. It is right, therefore, to examine this concept with some care. Indeed, this is a crucial concept. We should evaluate in our survey, not so much the values and trends of relevant variables, as the relation between these trends and ecological flexibility.

Following Ross Ashby, I assume that any biological system (e.g., the ecological environment, the human civilization and the system which is to be the combination of these two) is describable in terms of inter-linked variables such that for any given variable there is an upper and a lower threshold of tolerance beyond which discomfort, pathology and ultimately death must occur. Within these limits, the variable can move (and is moved) in order to achieve *adaptation*. When, under stress, a variable must take a value close to its upper or lower limit of tolerance, we shall say, borrowing a phrase from the youth culture, that the system is "uptight" in respect to this variable, or lacks "flexibility" in this respect.

But, because the variables are interlinked, to be uptight in respect to one variable commonly means that other variables cannot be changed without pushing the uptight variable. The loss of flexibility thus spreads through the system. In extreme cases, the system will only accept those changes which change the tolerance limits for the uptight variable. For example, an over-populated society looks for those changes (increased food, new roads, more houses, etc.) which will make the pathological and pathogenic conditions of over-population more comfortable. But these *ad hoc* changes are precisely those which in longer time can lead to more fundamental ecological pathology. (For a discussion of the *ad hoc* problem, see attached "Statement on Problems Which Will Confront the Proposed Office of Environmental Quality Control.")

The pathologies of our time may broadly be said to be the accumulated results of this process—the eating up of flexibility in response to stresses of one sort or another (especially the stress of population pressure) and the refusal to bear with those by-products of stress (e.g., epidemics and famine) which are the age-old correctives for population stress.

The ecological analyst faces a dilemma: on the one hand, if any of his recommendations is to be followed, he must first recommend whatever will give the system a positive *budget of flexibility*; and on the other hand, the people and institutions with which he must deal have a natural propensity to eat up all available flexibility. He must create flexibility and prevent the civilization from immediately expanding into it.

It follows that while the ecologist's goal is to increase flexibility, and to this extent he is less tyrannical than most welfare planners (who tend to increase legislative control), he must also exert authority to preserve such flexibility as exists or can be created. At this point (as in the matter of unreplaceable natural resources), his recommendations must be tyrannical.