

"Cybernetics and The Disconnected Society"

by

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In this second note in a series of three on Cybernetics, I shall discuss the general relationship of Cybernetics to social problems. In the book The Social Impact of Cybernetics (Univ. of Notre Dame, 1966) edited by Charles R. Dechert, there is an important statement on page 189:

"For example, Lindsay and Margenau have formulated an ethical principle based upon the concepts of thermodynamics and Kant's categorical imperative. This principle, called the "thermodynamic imperative," may constitute the principal ethical implication of cybernetics."

Let us examine Professor Margenau's statement of this principle in his book Ethics & Science (Princeton, 1964), page 83:

"The success of maximum and minimum principles in mathematical physics has induced many similar formulations in ethics --- one wishes to maximize pleasure, freedom, responsibility; minimize pain, poverty, disease. One of the most recent suggestions in this vein, particularly noteworthy because of its specificity and boldness, is contained in R. Bruce Lindsay's thermodynamic imperative, which claims that man, in his ethical behavior, should counteract the natural tendency inherent in the second law of thermodynamics and endeavor to reduce entropy in the environment."

Unfortunately neither Lindsay nor Margenau tell us how to apply the thermodynamic imperative to real cases. Now I shall give you a glimpse of how cybernetics can provide a connection between traditional ethics, the thermodynamic imperative, and a number of other economic and political factors to enable people to measure the probable impact of their decisions against their ethical ideals. In the third note in this series, I shall illustrate the procedure by a specific example.

If we examine the major religious faiths of the world, we can find a striking similarity in some of the principal teachings, for example:

BUDDHISM: "Hurt not others with that which pains yourself."
Udanavarga, 5, 18.

CHRISTIANITY: "All things whatsoever ye would that men should do to you, do ye even so to them, for this is the law and the prophets."
St. Matthew 7, 12.

CONFUCIANISM: "Do not unto others what you would not they should do unto you."
Analects 15, 23.

HINDUISM: "This is the sum of duty: do naught to others which, if done to thee, would cause pain."
Mahabharata, 5, 1517.

ISLAM: "No one of you is a believer until he loves for his brother what what he loves for himself."
Traditions.

JUDAISM: "What is hurtful to yourself do not to your fellow man. That is the whole of the Torah and the remainder is but commentary."
Talmud.

If we include groups whose philosophy does not accept the traditional concepts of revealed religious principles, we have:

ETHICAL CULTURE: "So live as to evoke the best in others and therefore yourself."

EXISTENTIAL PHILOSOPHY: Man exists in a tragic unpredictable world in which he must learn to make an authentic-intuitive-creative-unique response to each situation as it develops --- and so attain freedom and responsibility.

Further we find that in some parts of the world that political parties rather than organized religion promulgate ethical principles:

SOVIET UNION: "Communist morality takes the position that only that which contributes to the abolition of human exploitation, poverty, and degradation, and to the building and strengthening of a system of social life from which such inhuman phenomena will be absent is moral and ethical." trans. from Russian Short Philosophic Dictionary.

Now we can see from the above principles that if any two people of different faiths, such as a Christian and a Moslem or a Buddhist and a Communist or an Existentialist and a Jew were to meet face-to-face that they could work out a reasonable agreement on what is ethical in any specific problem under their direct control. Now a major problem on our planet is that these people do not ordinarily meet face-to-face, but communicate through bureaucratic church, state, party, or corporate organizations. By comparison with cybernetic feedback concepts, we note that there are insufficient communication feedback loops in the way society is organized for the individual to tell immediately whether a decision he has to make will go with or against his ideals. We have a "disconnected" society in which people are disconnected from the communication and control channels of society.

A young Christian-capitalist may work politically to get his government to make economic reforms to help reduce unemployment, and to his surprise, find that these changes disturb some fine balance in the general system and lead to an escalation of war in a far-off country. He is upset, because he cannot determine what decision will lead to results consistent with his Christian ethics.

Similarly a young communist may organize economic reforms in his country to reduce poverty, and find that in connection with his reforms, the bureaucracy sends people who don't understand his

beautiful plans to prison camps. Here he is upset, because his attempt to live up to his ideals of communist morality in abolishing poverty, leads to a contradiction -- namely a degradation of some people in the system -- in violation of his communist morality.

All over the world sensitive people are baffled, angry, resigned, or rebellious over living in a disconnected society. They are hurt, because they have lost the means of finding a connection between their ideals and the choices society makes available to them.

Now Cybernetics isn't going to generate any new ethical principles. Cybernetics can be used as a tool to establish a reasonable connection between an individual's ethical ideals and the socio-political systems that exist today. A glimpse of how this might be done is illustrated in the diagram below.

There are three aspects of the problems of human civilization with their associated methods of analysis, namely the humanistic-intuitive-poetic; abstract-mathematical-philosophical; and the empirical-scientific methods. This "Thermodynamic Imperative" is a working hypothesis that has the form from statistics and statistical communication theory and is consistent with concepts from thermodynamics and biological evolution. To use this hypothesis, we have to know something about the feedback loops in the social system and something about the efficiency of the sets of messages transmitted through the system. This requires that we utilize many of the nineteen cybernetic models and technologies described in last week's article to help us piece together a better understanding of the social-political system. Then we can test different alternatives in terms of the thermodynamic imperative on the basis of empirical-scientific methods, provided the

tentative conclusions are brought to the ethical principles in the humanistic-intuitive-poetic column for checking by people who dare to express their feelings for or against the trial results. If the trial results are doubtful, we must make a second pass through the loop with a finer detail in the structure of the feedback loops considered and in the message distribution examined. Thus we see the possibility of our testing proposed decisions against our ethical ideals with increasing confidence as we cycle through more loops of developing appropriate cybernetic systems models. In the third and concluding note in this series, I shall take an elementary problem through one cycle of the loop.

March 6, 1969

This note is based on seminars given by author in a course on "Communication Theory in the Cause of Man" during the Spring 1968 Semester at the Midpeninsula Free University, Menlo Park, California

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THE "DISCONNECTED" SOCIETY and how CYBERNETICS might be used to help connect decision processes with Ethical Values.

METHODS OR ASPECTS

HUMANISTIC
INTUITIVE
POETIC

ABSTRACT
MATHEMATICAL
PHILOSOPHICAL

EMPIRICAL
SCIENTIFIC

ETHICAL PRINCIPLES
from Religious
Groups, Philosophical
Movements,
Political Parties,
and Individual
Human Beings.

STATISTICS

THERMODYNAMICS

STATISTICAL
COMMUNICATION
THEORY

BIOLOGICAL
EVOLUTION

"Thermodynamic
Imperative"

Structure of
Negative Feedback
Loops in CYBERNETIC
SYSTEMS

Continuous
Channel Model
from Electrical
Communication
Theory.

Measure of
"Dynamic Justice"
of a Balance
Between ORDER and
DIVERSITY for
Optimum Stability.

Applied Theory of Human
Development -- Maximizing
Communication Entropy
(Negative Entropy) for a
Balance of Order and
Diversity Toward PEACE,
FREEDOM & RESPONSIBILITY

