

Proposed Course for Midpensula Free University, Menlo Park, California  
Spring 1968(April-May-June) Tuesday Evenings (Tentative)

00. COMMUNICATION THEORY IN THE CAUSE OF MAN -- Frederick B. Wood 8 p.m.

How can we utilize concepts from electrical communication theory, cybernetics, and general systems theory that are currently applied to design weapons systems, to help find a possible path toward peaceful cooperation of the peoples of the world?

This seminar is planned for ten weekly sessions to explore ways in which scientists and laymen can develop the means of communication to refute the prediction made by social psychologist Donald N. Michael in 1962 in his Fund for the Republic Report (Santa Barbara), Cybernation: The Silent Conquest:

"In twenty years, other things being equal,..... the research realm of scientists, the problems of government, and the interplay between them will be beyond the ken even of our college graduates. ....There will be a small, almost separate, society of people in rapport with the advanced computers. These cyberneticians will have established a relationship with their machines that cannot be shared with the average man. ...."

This seminar is organized to examine the steps required to apply R. B. Lindsay's principle of "The Thermodynamic Imperative," which is a technical analog of Albert Schweitzer's principle of "Reverence for Life," to the analysis of a series of social and political problems. A course outline and bibliography will be distributed at the first session.

The first meeting will be on April 9. Registrants will be notified of the place.

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The subjects for the ten sessions are proposed as follows:

- Apr 9 1. Three Eras of Civilization; Problems of Specialization.
- 16 2. Classification of Roots and Segments of Western Civilization.
- 23 3. Scientific Hypotheses and Paradigms; Principles and Models.
- 30 4. Survey of Cybernetic Technology and Decision Processes.
- May 7 5. Feedback Loops, Channel Capacity, and Coding; Ideology.
- 14 6. Thermodynamics, Entropy, and the Thermodynamic Imperative.
- 21 7. Discrete Channel Model, Continuous Channel Model; Democracy and Dynamic Justice.
- 28 8. Library, Publication, and Public Space Allocation; Computing Power Distribution.
- Jun 4 9. Evaluation of Alternative Military Policies; Disarmament Plans
- 11 10. Review of the Status of the "Thermodynamic Imperative" as an Ethical Reference for the Communication Era of Human Civilization

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Communication Theory in the Cause of Man (Continued)

The material of the above outline has been organized from the material of the following unpublished conference papers:

SEPR No. 88-B, "Negentropy and the Concepts of Freedom, Democracy and Justice." Section L of A.A.A.S. and S.G.S.R., Cleveland, Ohio, December 27, 1963.

SEPR No. 92-B, "A General Systems Theoretic Model for the Estimation of the Negentropy of Sociological Systems Through the Application of Two Isomorphic Electrical Communication Networks." The First International Congress of Social Psychiatry, London, United Kingdom, August 17-22, 1964.

SEPR No. 93-J, "Cybernetics and Public Order." Conference on Cybernetics and Society, Georgetown University, Washington, D.C., November 19, 1964.

SEPR No. 96-A, "The Philosophy of General Systems Theory." (Synopsis) Bay Area Systems Group, S.G.S.R., Berkeley, September 25, 1965.

SEPR No. 96, "A Comparison of the Complexity of Testing Thematic Hypotheses in the Physical Sciences and the Social Sciences." (Abstract and Bibliography Only) S.G.S.R. and A.A.A.S., Section L-3: History and Philosophy of Science, Berkeley, December 27, 1965.

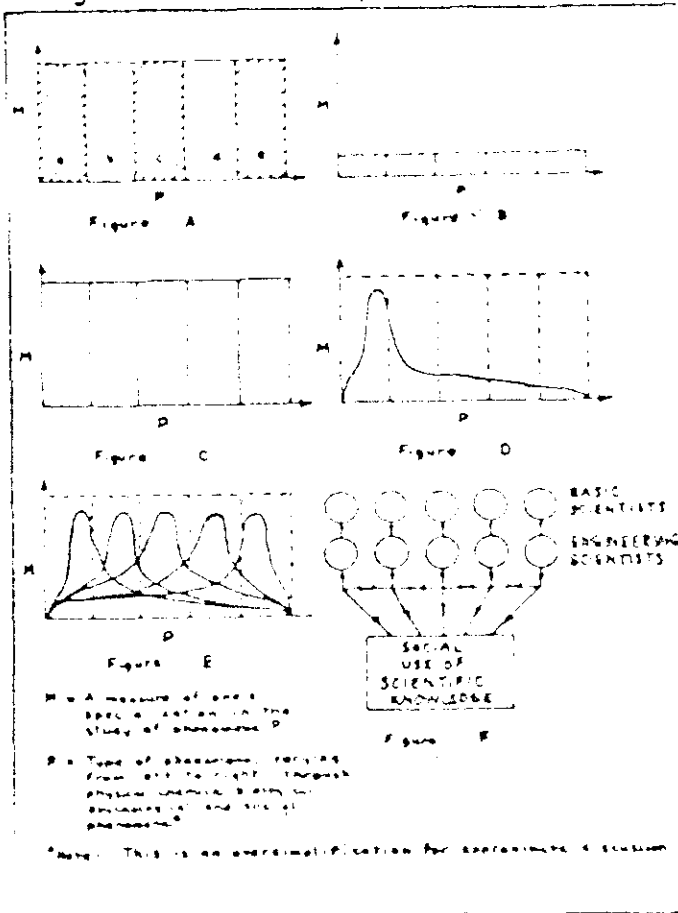
SEPR No. 56-B, "Equilibrium between Order and Diversity as a Crucial Factor in the Development of Democratic Institutions." National Meeting of the American Humanist Association, Asilomar, Pacific Grove, Calif., April 28, 1966.

This seminar series will attempt to integrate certain significant concepts from the following published books:

Norbert Wiener, Cybernetics. N.Y.: Wiley(1948) M.I.T. Paperback 25(\$1.95)  
 Colin Cherry, On Human Communication. N.Y.: Wiley(1957). Also Paper  
 William Willoya and Vinson Brown, Warriors of the Rainbow--Strange and Prophetic Dreams of the Indians. Healdsburg, Calif.: Naturegraph Co.(1962) Paperback(\$1.95)  
 Andrew Hacker, The Corporation Take-Over, N.Y.: Harper & Row(1964) Anchor Paperback (\$1.25)  
 J. Brooke Mosley, Christians in The Technical and Social Revolutions of Our Time. Cincinnati: Forward Movement Publications(1966) (25¢)  
 Alice Mary Hilton, editor, The Evolving Society - First Annual Conference on the Cybercultural Revolution--Cybernetics and Automation. N.Y.: ICR Press(1966). \$3.95  
 David Easton, A Systems Analysis of Political Life. N.Y.:Wiley(1965) \$10.00  
 John Kenneth Galbraith, The New Industrial State. Boston: Houghton Mifflin (1967) \$6.95  
 Charles R. Dechert, editor. The Social Impact of Cybernetics. Univ. of Notre Dame Press(1966). \$7.50 Paper: Simon & Schuster(1967) \$1.95.

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Organization of Special Fields



Overlap of Concepts  
Between Different Fields

Category*	Class I	Class II
Distance	X	
Mass	X	
Electric Force	X	
Entropy	?	?
Beauty		X
Melody		X

Class I: Physically measurable  
Class II: Not reducible to measurable units

\*From Sir A. S. Eddington, The Nature of the Physical World, Cambridge Univ. Press (1928), Reprinted (1948) p. 105.

**THREE ERAS OF HUMAN CIVILIZATION!**

If we sincerely want peace and freedom for the human beings on our planet, we must examine the sociological and technological conditions of the world. When ISAIAH talked about beating swords into plowshares there was no immediate practical hope of such events being feasible in a civilization based on the technology of "FORCE". When the tools of production evolved to another level, namely the "POWER ERA" it was possible for religious leaders to get some concrete action to abolish slavery. As slavery was a characteristic of the Force Era, wars of destruction using power era weapons are a characteristic of the Power Era.

If human civilization is still in the Power Era, all righteous opposition to the U.S.

action in Viet Nam is likely to be fruitless. However, if we are more than halfway into the next era -- called by some the "COMMUNICATION ERA" -- the policies optimal for the previous eras are no longer valid. Then our problem is to find what strategies are valid for the communication era, and proceed to apply them.

This view of history does not condemn the present leaders of our country as wrong, but says they are following the correct policies for a past era, and perhaps they haven't perceived the changes in the dominant tools of production in human society.

The characteristics of the three eras of human civilization are summarized in the table below:

TABLE: THE THREE ERAS OF HUMAN CIVILIZATION:  
FORCE, POWER, AND COMMUNICATION.

ERA	Characteristic of Major Tools	Notes on Social Implications
Approx. Time Span		
FORCE	Force Amplifying 7000 Years Devices such as levers, pulleys, bows and arrows. Transition: First Industrial Revolution.	Led to the division of labor into agricultural workers, craftsmen, and standing armies. Also the first large cities at major river deltas.
POWER	Power Amplifying 300 Years Devices such as the steam engine, electric motor, gasoline engine, diesel engine, atomic bomb, nuclear power generation, and hydrogen bomb. Transition: Second Industrial Revolution.	Led to the abolition of slavery on the basis that use of power amplifiers could produce more than slaves and that educated technicians were needed to maintain the power amplifiers.
COMMUNICATION	Intelligence amplifying devices such as RADAR, SONAR, electronic computers, television, automated factories and chemical refineries, and communication satellites.	When half of the cost of an automobile consists of data processing and expediting of parts orders in connection with production control, it is safe to say that we are well into the the Communication Era. This communication era gives us the tools which we could communicate with the Viet Cong, Cubans, Red Chinese, and many others to give people technical assistance in a constructive way without the need for military action. Force could be restricted to UN police action in the communication era.

The basic ideas involved in the characteristics of the transitions between these eras are discussed briefly in the following reference:

Anatol Rapoport, Section on Information Theory, p. 1747, Chapter 87, "Mathematics and Cybernetics," in American Handbook of Psychiatry, Volume Two, edited by Silvano Arieti, N.Y.: Basic Books (1959).

A more technical discussion of the concept of "intelligence-amplifiers" can be found in:

W. Ross Ashby, "Design for an Intelligence-Amplifier." Automata Studies, pp. 215-233, edited by C. E. Shannon and J. McCarthy, Princeton University Press (1956), Annals of Mathematics Studies Number 34.

Please address reply to address checked:

RESIDENCE: For personal business, local community projects, religious and political action work.

2346 Lansford Avenue,  
San Jose, California 95125  
Telephone: (408) 269-9327

PHILOSOPHY PROJECT: For discussion of fundamental philosophical questions on the relationship between engineering and society

X Socio-Engineering Problems Reports (SEPR)  
P. O. Box 5095,  
San Jose, California 95150

Memorandum To:

Students Enrolled in the  
MFU Course, Spring 1968  
Quarter: Communication Theory  
in the Cause of Man.

ENGINEERING OFFICE: For electrical engineering and computer-communication systems work.

P. O. Box 66,  
Los Gatos, California 95030  
Telephone: (408) 227-7100 Ext. 5265

Subject: Class Notes

It is my intent to issue a series of notes on basic ideas and lists of references for this course.

The outline of the course with list of subjects planned for each of the ten sessions, references, and source material for the topics of the first lecture is issued as SEPR No. 184-B, 3/10/68.

This report includes some symbolic interpretations of major sections of the course:

Part II: Interpretation of Communication Theory; General Systems Theory; and Cybernetics for the Layman & Decision Maker.  
(Overview of the material of lectures 4, 5, and part of 6)

Part III: An Ethic with Both Humanistic and Technological Roots.  
(Overview of the material of lectures 6, 7, and 10)

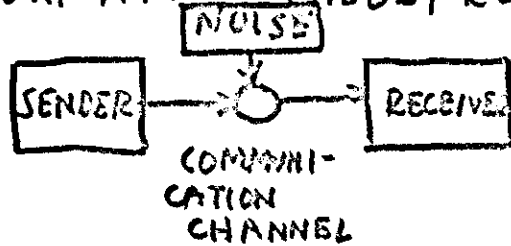
Appendix A: Technical Details. (Overview of material of lectures 7, 8, 9, and 10)

This letter format is part of a one-man experiment in helping maintain democratic procedures in our complex industrial society. Studies in the period 1957-1967 at the Center for the Study of Democratic Institutions, Box 4068, Santa Barbara, Calif., have shown there is an ongoing deterioration in democratic procedures in our country. Their work is summarized in reports such as: "Politics and the Corporation," "Cybernation: The Silent Conquest," etc. The philosophy underlying this experiment is outlined in the Society for Social Responsibility in Science Pamphlet No. 6: "The Social Responsibility of Scientists," available from S.S.R.S., 1545 Winding Road, Southampton, Pennsylvania 18966.

# PART II:

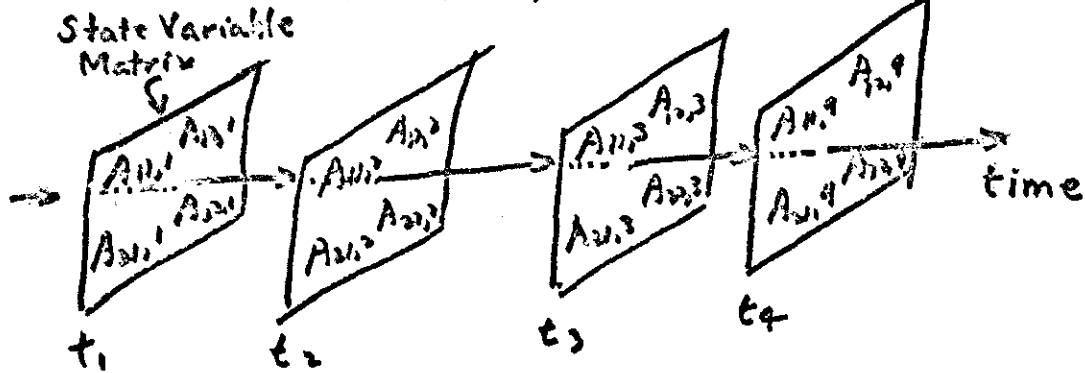
## INTERPRETATION OF COMMUNICATION THEORY; GENERAL SYSTEMS THEORY; AND CYBERNETICS FOR THE LAYMAN & DECISION MAKE

### COMMUNICATION THEORY (INFORMATION THEORY):

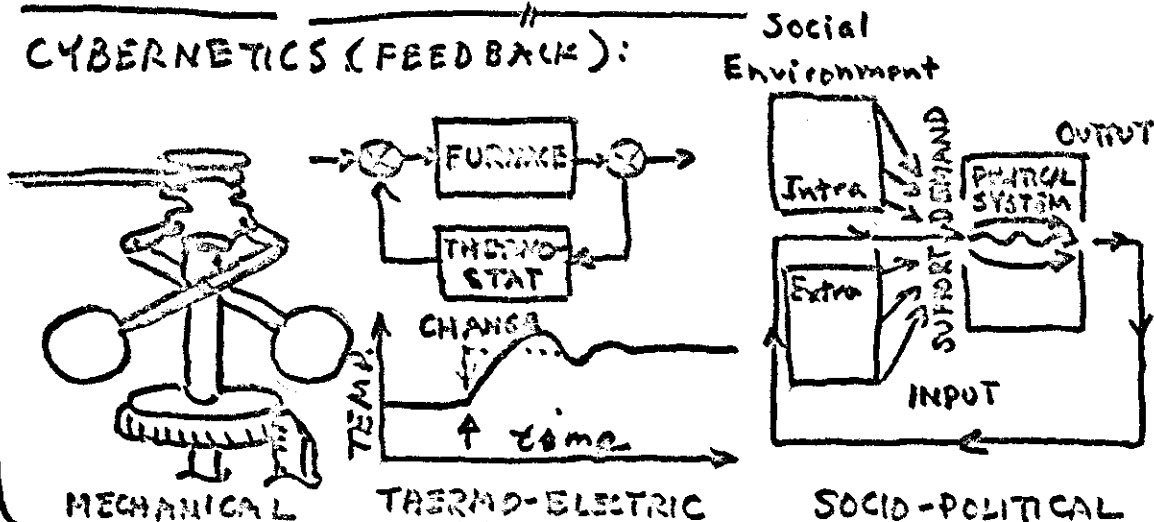


$$\left\{ \begin{array}{l} \sum_i p_i \log p_i \\ \int p \log p \, dp \end{array} \right.$$

### GENERAL SYSTEMS THEORY:

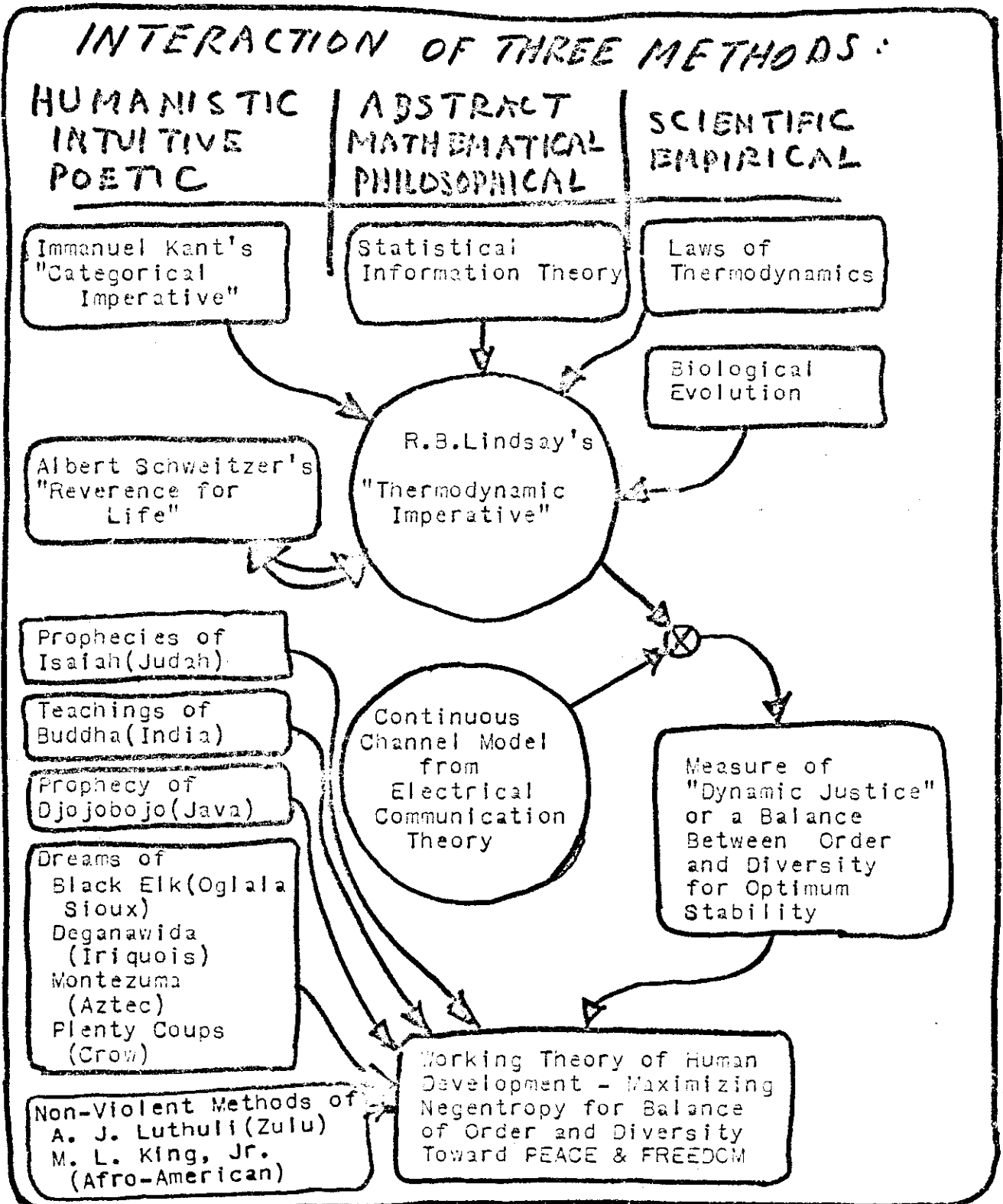


### CYBERNETICS (FEEDBACK):



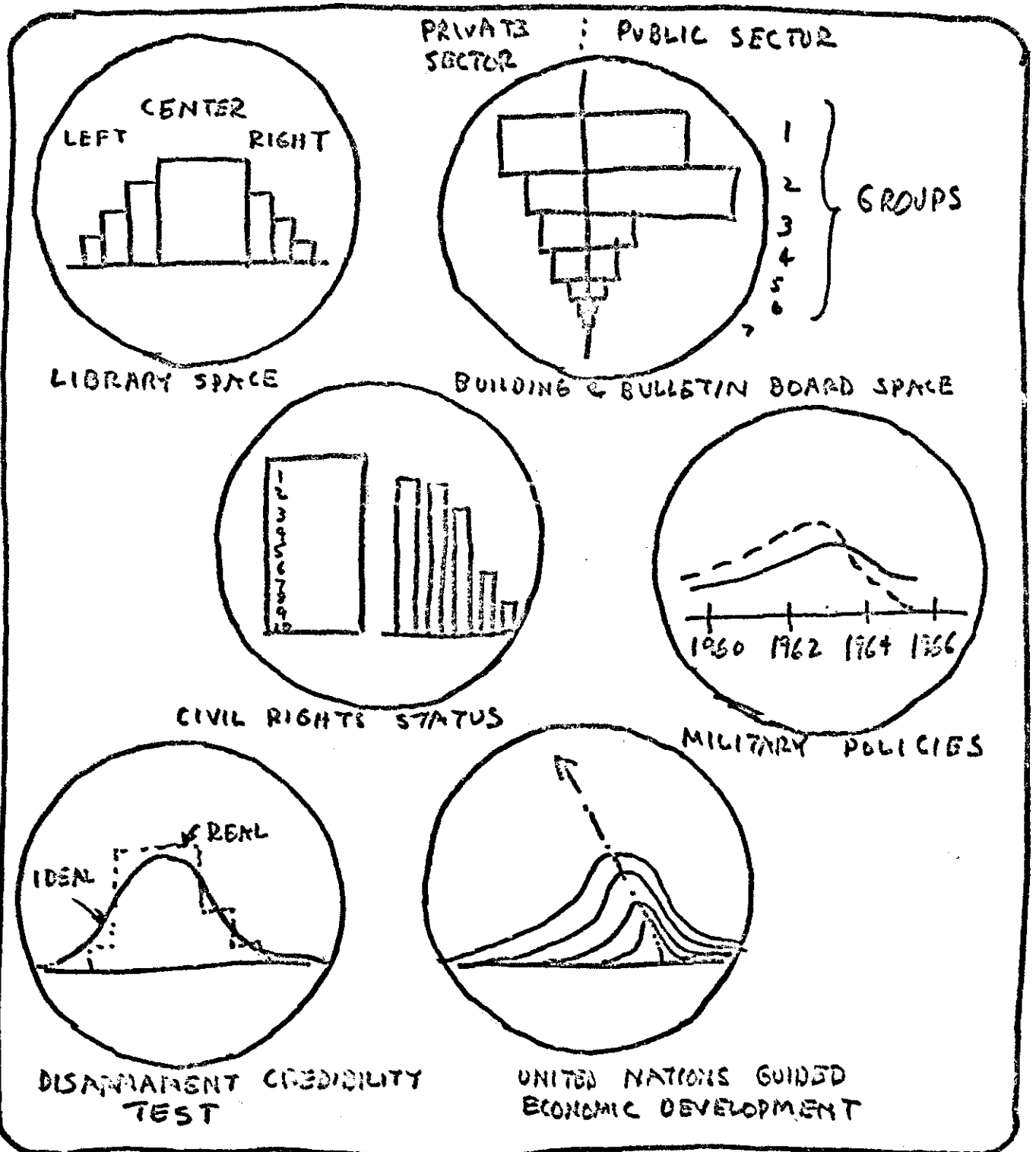
# PART III:

## AN ETHIC WITH BOTH HUMANISTIC AND TECHNOLOGICAL ROOTS.



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# APPENDIX A: TECHNICAL DETAILS



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