

"Historical Notes on the Preparation of the  
'Communication Theory in the Cause of Man'  
Book Proposal."

by

Frederick B. Wood, Ph.D.

---

This letter of June 23, 1963, following the Spring  
Joint Computer Conference in Detroit, Michigan,  
summarizes the history of the proposal reviewed  
in SEPR No. 65-E.

FILE NO. 65-F

Date: May 1963 6/23/63 11/2/65 1/31/67

Stage: SJCC Letter File 65-F Reissue  
Detroit

Frederick B. Wood, Ph.D., Box 5095, San Jose, Calif. 95150

P. O. Box 85  
Campbell, California  
June 23, 1963

Dr. Oliver Selfridge  
M.I.T. Lincoln Laboratory  
Lexington 73, Massachusetts

Dear Dr. Selfridge:

I intended to reply more promptly to your question at the May 24th Cybernetics Committee meeting in Detroit. As I recall your question related to the relevance of the example marked 'Allocation of Public Exhibit Space by Negentropy of Membership Statistics' on pages 5-6 of Socio-Engineering Problems No. 65-E, "Abstract of A Research Plan for a Book on 'Communication Theory in the Cause of Man'," May 22, 1963.

First, it was a pleasant surprise, to have you challenge the relevance of my statements instead of attacking my right to discuss the subject matter.

Second, I should have marked the sections of SEP No. 65-E with indications of the stage of development of the ideas. I am enclosing an earlier report\*in which the same tables and diagrams were originally proposed, where the material is labeled 'stage E of A through T.' (\*SEPR No. 7.) These stages of development of an idea in the processes of testing of hypotheses is discussed in a note, "Why A Working Paper Draft?" in SEPR No. 6, which is also enclosed.

Third, I feel it would be useful to give some historical background covering my engineering work and the interaction between the concepts of human freedom and responsibility discussed in church groups with the mathematical concepts encountered in my engineering work. However at this time I shall give only some fragments of the historical background which relate closely to the material in SEP No. 65-E.

My concern over church meeting and exhibit space comes from a series of experiences since World War II principally in California in which churches have been forced out of strategic locations through the state's use of eminent domain for expansion of schools and freeways, and the disabling of the role of the churches as a conscience for society by actions of manufacturer's associations who don't want to tolerate criticism and by loyalty oath requirements such as the California loyalty oath for church tax exemption.

In these situations I was not an impartial observer on the outside, like most social scientists attempt to be, but a participant in the social process, as a "social engineer" or "engineering sociologist." In the church loyalty oath cases I, as the treasurer of the San Jose Unitarian Church, signed the original protest, delivered the tax money under protest to the tax collector, and conferred with the lawyers on the strategy for the legal battle.

Juries and local judges understand financial injustices easily and thus have corrected any unfair awards in eminent domain actions to take church facilities for public use. However it is hard for people to understand the real significant role of the churches in our civilization as a kind of social conscience. Even <sup>the</sup> some churches may be a generation behind in adjusting to the advances of modern science, discussions of the problems of our civilization in church discussion groups serves an important role <sup>in</sup> developing understanding of the problems of society. During this period there was a general failure of the American people to protect their religious liberty which their ancestors fought so hard to obtain.

During the five year struggle over the church loyalty oath cases, only a small number of citizens, organizations, legislators, etc., could be interested in the problem. It seemed to me that a situation had developed in which the majority of the people didn't understand what was happening, somewhat similar to the situation in the middle ages in Europe where only a few could read and write. Now where everyone can read and write, we seem to have moved to a higher level of complexity in human civilization, where people try to use the same psychological reactions useful in hand to hand combat with swords in the atomic age.

Gradually I began to realize that Information Theory and Cybernetics offer potential concepts for use in breaking through this communication barrier. I <sup>saw</sup> the possibility of a modern equivalent of the communication through art, sculpture, stained glass windows, architecture, wood carvings, etc., which the priest and artist of the middle ages used to communicate with people who could not read or write. If you want more information on this please ask me for a copy of SEP No. 18-B, "The Lost Symbols and..."

Since the time constants in the equivalent circuits from Cybernetics that might be useful in developing better models of society are of the order of magnitude of ten years, it is difficult to develop research proposals which meet the present standards of government, industrial, and university research agencies. In fact hypotheses proposed by one researcher may be tested by others in the next generation of scientists.

Insufficient time has elapsed since the enactment of the McCarran Act to verify the equivalent circuit and time constants involved in this part of the social process, i.e., thirteen years is not long enough to make a definitive test. However there are indications that a proper use of the analogy of maximizing the negentropy of a communication channel could give an indication of what direction we should go in amending the McCarran Act in order to optimize the development of our society. To utilize such concepts we need to make application of the work philosophers of science such as Dr. Gerald Holton have done in organizing and defining the development and testing of "thematic hypotheses."

To get back to the example which you questioned, the economic trends and city planning policies of large American cities result in the 'socialization' of an increasingly larger fraction of the property in the center of our cities. If a new religious group should develop in a typical large American city, it would very difficult for them to acquire a strategic site for their central temple. We may have a conflict between the principle of separation of church and state and the guarantee of religious liberty when the percentage of publicly owned property in the centers of our cities exceeds a certain fraction. If you want an example, ask me for SEP No. 2, "San Jose, 2008, A.D. (Sociology-Fiction)."

When this level of 'socialization' exceeds a certain critical fraction, it may be necessary for the "state" or city to allocate supplemental space in the form of bulletin board space, space for monuments, or eventually limited meeting space to different religious and philosophical groups. The table and diagram in SEPR No. 7 and on pp. 5-6 of SEP No. 65-E are offered as a working hypothesis for determining such allocation of bulletin board space;

If you want more information on how I would proceed on developing the basic hypotheses required for these applications of Cybernetics and Information Theory, please ask for a copy of SEP No. 65-D, "Proposed Research Plan on 'Communication Theory in the Cause of Man'."

Sincerely yours,

*Frederick B. Wood*

Frederick B. Wood

enc: SEPR Nos. 6&7

Stage M of  
A to T.

A Working Paper Draft  
Not To Be Reproduced Without Permission  
All Rights Reserved

SEPR No. 65-G  
March 5, 1966

SOCIO-ENGINEERING PROBLEMS REPORT NO. 65-G

Outline of a  
Manuscript of a Book Being Written  
Under the Pseudonym  
Joaquin E. Murrieta,  
"COMMUNICATION THEORY IN THE CAUSE OF MAN."

A Study of the Potential Use of  
General Systems Theory and Analogies  
from Cybernetics and Information  
Theory to Aid in the Development of  
Democratic Institutions.

|        |   |   |                        |                                       |                                     |                                   |                  |  |  |
|--------|---|---|------------------------|---------------------------------------|-------------------------------------|-----------------------------------|------------------|--|--|
| Date:  | 2/11/37   | 4/1/42  | 10/24/45               | 10/8/46                               | 1/10/47                             |                                   |                  |  |  |
| Stage: | Why?<br>SEP 52                                      | Correlation<br>SEP 37-A                       | Proposal<br>SEP 4F     | Plan<br>SEP 43                        | Specialization<br>SEP 13-A          |                                   |                  |  |  |
| Date:  | 5/21/47   | 5/26/47                                       | 12/49                  | 12/10/54                              | 8/13/56                             | 1/23/57                           |                  |  |  |
| Stage: | AE Dev<br>SEP 15-A                                  | EM Theory<br>SEP 11-A                         | Soc Engin<br>SEP 57-58 | Church Tax<br>Loy Oath<br>File 59     | Rigidity<br>SEP 16-A                | Feedback<br>SEP 3                 |                  |  |  |
| Date:  | 2/18/57   | 7/7/57  | 8/27/58                | 3/5/59                                | 5/11/60                             | 6/29/60                           | 3/3/61           |  |  |
| Stage: | CommTh<br>SEP 19-A                                  | Lost Sym<br>SEP 18-A                          | SocRes<br>SEP 1        | Soc Res<br>SEP 27-A                   | Prof Eng<br>SEP 27-C                | Soc Imag<br>SEP 28-A              | Hist P<br>SEP 34 |  |  |
| Date:  | 5/18/61   | 9/24/61                                       | 11/20/61               | 5/17/62                               | 10/29/62                            | 12/27/63                          |                  |  |  |
| Stage: | Soc Act<br>SEP 45                                   | Book Outl<br>SEP 65                           | Spiral<br>SEP 66       | Seminar<br>SEP 81-85                  | NIH Prop<br>GM-11277-01<br>SEP 65-D | Freedom<br>AAAS Clev<br>SEPR 88-B |                  |  |  |
| Date:  | 6/20/64   | 8/19/64                                       |                        | 11/19/64                              | 5/2/65                              | 9/25/65                           |                  |  |  |
| Stage: | Hum Freedom<br>SEPR 46-B                            | Dyn Justice<br>Soc Psych, London<br>SEPR 92-B |                        | Cybernetics<br>Pub Order<br>SEPR 93-J | Soc Imag<br>SEPR 28-B               | Phil GST<br>BASG 26               |                  |  |  |
| Date:  | 12/27/65  |   |                        |                                       |                                     |                                   |                  |  |  |
| Stage: | Thematic<br>Hypotheses<br>AAAS, Berkeley<br>SEPR 96 |   |                        |                                       |                                     |                                   |                  |  |  |

Frederick B. Wood

55,000 words(estimate)

P.O.Box 5095, San Jose, Calif. 95150

Page 1

"COMMUNICATION THEORY IN THE CAUSE OF MAN"

by

Joaquin E. Murrieta

A Study of the Potential Use of  
General Systems Theory and Analogies  
from Cybernetics and Information  
Theory to Aid in the Development of  
Democratic Institutions.

# Three Main Stages In Development of Civilization<sup>a</sup>

## FORCE ERA

**Characteristic:** Man had his own strength plus the possibility of adding others to his team as slaves.

**Technology:** Amplification of force through the invention of the lever and pulley.

**Ideal:** Teachings of prophets, like Isaiah 2:4 -  
"....and men shall beat their swords into plowshares, and their spears into pruning hooks; nation shall not lift up sword against nation, neither shall they learn war anymore."

## POWER ERA

**Characteristic:** Invention of the steam engine, electric motor, gasoline engine, etc., gave man power amplifiers which brought more power to the organizers without need for individual slavery, but kept some countries in retarded stage of development as suppliers of raw materials. [Related to processes which increase entropy]

**Technology and Science:** Vast explosion of man's development of understanding of Nature.

**Ideal:** Teachings of leaders like Woodrow Wilson and Abdul Baha: The colonial powers can gradually develop a world league of nations which will establish international justice and guide the growth of colonies toward independence.

## COMMUNICATION ERA

**Characteristic:** Development of radar which settled World War II followed by television, computer data processing and space communication techniques. [Related to processes which decrease entropy]

**Technology and Science:** Intelligence-amplifiers through use of computer-communication systems and synthesis of special fields of science through integration of cybernetics and information theory with general systems theory.

**Ideal:** Transition from Power Politics to a Theory of Human Development [Based on maximizing negentropy]

<sup>a</sup> Notes and references are collected together at the back of books

## PREFACE

I am an electrical engineer struggling to maintain a degree of individuality in a world civilization that tries to turn each individual into a tool of the party, the corporation, or the nation-state. The principal device used to castrate individual conscience among scientists and engineers in my country is the concept of specialization by which we are trained to restrict our public comments to the special fields in which we are accepted as experts. This specialization was necessary for the development of science and to protect young branches of science from conflict with religious and political autocrats. Science has developed to the stage where similarities are becoming apparent between some features of physical, biological, and social systems, so that it is now possible for a scientist or engineer using general systems concepts to understand a spectrum of phenomena in several fields of science. This means that concepts of efficiency of physical systems have some relationships to concepts of stability in biological systems and optimization of the balance between order and diversity in social systems. When investigated thoroughly on a deeper level it turns out that these physical concepts lead to perceptions of social systems which give us glimpses of how human individuality and diversity can be nourished and protected in a highly organized civilization.

This book is written under a pseudonym for a number of reasons. First I have been insulted by representatives of the technical press



by their assertion that if I were to publish this material under my true name, that they would not consider it as a statement of an individual engineer, but as a fragment of the science public relations strategy of Corporation X, the organization for which I work. Therefore to write as an individual, I must find a new name not associated Corporation X, or Political Party Y, or University T, or Nation-State Z. in order to make it clear that this book is written by an individual who takes sole responsibility for what is said therein.

Second I am getting into political and social questions and I wish to protect the company for which I work from feeling that they must make political and sociological judgements as a part of their business decisions. Legally Corporation X is a fictitious person which organizes business and engineering managers to structure the design and manufacture of electronic equipment. It is up to the customers -- private industry, universities, and government agencies -- to decide to what use they will put this electronic equipment. A corporation as a fictitious person is not expected to have a conscience, but each knowledgeable individual in the organizational structure does have a conscience and is responsible as an individual human being to society for the social consequences of his acts. Writing under a pseudonym helps prevent identification of my ideas as representing the corporation.

A third aspect is that the material touches upon ethical questions more from the standpoint of the convergence of the more profound ethical thought of Western Civilization, of India, and of China. In some more specific aspects the "engineering code of ethics" is involved. To separate these issue from the more operating procedure questions of "business ethics" it seems logical to use a pseudonym.

Fourth I have encountered hostility in some academic and engineering society circles to the concepts developed in this book. In fact an engineer who was both chairman of the electrical engineering department of one of our countries leading academic institutes and the same time an officer of the Institute of Radio Engineers, upon reviewing an earlier draft of some of this material said "I still call it larceny." Well this suggested taking the pseudonym of an early California bandit -- Joaquin Murrieta. If I am stealing ideas from the "technological elite" of our increasingly bureaucratic managerial society to make the concepts of a branch of science -- electrical communication theory -- more accessible to the citizen, I am proud to be "stealing" from the false obscurantism of the managerial elite who are contemptuous of democratic institutions. A few years ago I was deeply shocked to hear a brilliant engineer say "Oh well perhaps democracy is only a passing phase in the history of civilization."

Fifth the pseudonym Joaquin Murrieta has certain emotional ties with me, since Murrieta's Spanish-Mexican-Indian association with a number of cultures that were destroyed by the European colonizers of North and South America. The Indians of New England were conveniently decimated by smallpox and other diseases. Hispaniola which had one hundred thousand inhabitants when Columbus discovered America was reduced to fifteen thousand after Spanish occupation of the island. This drastic reduction in population caused the Spanish settlers to resort to importing slaves from Africa to provide enough slave-labor since the decimation of the Indians reduced the native source of slaves. The leader of the Six Nations of Indian Tribes <sup>South-</sup> west of the Virginia Colony, Christian <sup>IV</sup> Puerber was captured and imprisoned in <sup>Frederica Georgia.</sup> Roanoke, Virginia. There is no trace of what happened to the

manuscript of the book he was writing on the principles by which mankind could live in peace. In about 1702 the British massacred the Spanish Franciscan Priests and the leaders of the Apalachee Indians in Florida, selling the remnants of the Apalachees into slavery. Under the guidance of the Jesuits, the <sup>Guarani</sup> ~~Guarani~~ Indians of Paraguay in one generation learned to use the technology of Europe of that time (1608-- ) and built cities with printing shops and schools. The examples of the <sup>achievements of the</sup> /Guarani Indians was a threat to the authority of the neighboring Spanish and Portugese colonial administartors, so pressure was applied to remove the Jesuits and military expeditions were sent to destroy the achievements of the Guarani Indians.

Well as we move further into the "Information Era" of human civilization, it no longer necessary for one race or nation to live off the backs of others in order to advance one group's rising standard of living. Perhaps the Viet Cong are operating by the rules of the "Force Era" while the United States is trying to operate by rules appropriate to the "Power Era," while both are failing to use the tools available in the "Information Era" to develop a more human civilization. It is my aim in writing this book to show how some concepts from electrical communication theory can help us build a scaffolding around which we can organize a number of theoretical tools in a practical way to ease the transition from the "Power Era" to the "<sup>Communication</sup> ~~Information~~ Era."

JOAQUIN E. MURRIETA

Near Murrieta Caves, California  
January 30, 1966

"COMMUNICATION THEORY IN THE CAUSE OF MAN"

TABLE OF CONTENTS

|  |        |
|--|--------|
| Cover  |        |
| Frontispiece   |        |
| Title Page   | i      |
| Preface  | ii-v   |
| Table of Contents  | vi-vii |
| Part I. INTRODUCTION   |        |
| 1. Problems of Industrialization and Specialization<br>in Science                | 1-     |
| 2. Role of Electrical Communication Theory In<br>Protecting Western Civilization | 10-    |
| 3. Need for an Ideology to Maintain a Viable<br>System                           | 20-    |
| Part II. GENERAL SYSTEMS THEORY  |        |
| 4. Survey of Cybernetic Technology for the Layman                                | 30-    |
| 5. Decision Processes for the Decision Maker                                     | 40-    |
| 6. Interdisciplinary Communication Between<br>Specialists                        | 50-    |
| 7. Multidisciplinary Concepts  | 60-    |
| Part III. QUALITATIVE MODELS OF SOCIAL PROCESSES                                 |        |
| 8. Role of Positive and Negative Feedback Loops                                  | 70-    |
| 9. Ideology and Coding of Messages   | 80-    |

TA  
Part IV. QUANTITATIVE MODELS OF POLITICAL SYSTEMS.  
AN

10. Discrete Channel Models of Social Systems. 90-
11. Continuous Channel Models of Social Systems. 100-
12. Leontief Matrices as Time Samples of  
Complex Feedback Models 110-

Part V. APPLICATION OF ELECTRICAL COMMUNICATION  
THEORY TO POLITICAL AND SOCIAL PROBLEMS.

13. Library and Publication Allocation Problems 120-
14. Public Space Allocation in City Planning 130-
15. Civil Rights Progress Evaluation 140-
16. Evaluation of Alternative Military Policies 150-
17. Application to Disarmament Problems 160-
18. Application to a United Nations Balance of  
Economic and Political Development 170-

Part VI. CONCLUSIONS

19. The Role of Electrical Communication Models  
as Scaffoldings Around Which to Organize a  
Philosophy of Human Development 180-

Part VII. APPENDICES ON PHILOSOPHICAL  
AND ETHICAL CONCEPTS.

20. History of Ethical Views Against A  
Multidisciplinary Perspective 190-
21. History of Psychological and Social Developments  
Against A Multidisciplinary Perspective 200-

Part IX. APPENDICES ON TECHNICAL DETAILS

22. Calculation of Examples on Library and City  
Planning Problems 210-
23. Calculation of Examples of Military Strategies 220-
24. Example of Criterion in Disarmament Discussions 230-

Part X. SCIENCE AND MATHEMATICS APPENDICES.

|   |      |
|---|------|
| 25. Testing of Scientific Hypotheses                                      | 240- |
| 26. The Role of the Paradigm in Development<br>of New Scientific Theories | 250- |
| 27. Mathematical Appendices   | 260- |
| NOTES AND REFERENCES  | 270- |

"Outline of Supporting Arguments for  
the Development of a Book on the  
Application of Analogies from  
Electrical Communication  
Theory to Sociological Problems."

by

Frederick B. Wood, Ph.D.

---

This is a bare outline of the discussion presented to a committee in September 1962. The chart numbers refer to flip charts kept with this file. The slide numbers refer to slides corresponding to the figures in SEPR Nos. 81-85.

FILE NO. 65-H

Date: Sept. 1962

1/8/67

Stage: Oral Presentation File 65-H

Frederick B. Wood, Ph.D., Box 5095, San Jose, Calif. 95150

Notes on Presentation of Plan for Book Project  
"Communication Theory in the Cause of Man,"

(Presented to review group at IBM, San Jose,  
September 1962)

These notes were compiled by abstracting the  
flip charts used in the presentation.

Chart 1: COMMUNICATION THEORY in the Cause of MAN

Application of  
Cybernetics  
Information Theory  
Statistical Decision Theory

for the optimum benefit of all mankind.

To understand better the creative process of communication between  
human groups. ... through use of analogies from the physical sciences  
at a stage earlier than the present rate of development of the social  
sciences.

Slide 2, 3

Chart #2: from Harvard Business Review

1952 articles on  
Interaction of Religion and Capitalism  
1958 Fortune Moral Failure of Businessman (Finkelstein)  
1961 concept of decline and fall of civilization (Toynbee)  
1962 concept of "Age of SYNTHESIS" *slide 6*  
Gap of Ignorance  
Analysis  
Ideology  
Enlightenment  
Reason  
Adventure  
Belief

Slide 4 Schweitzer  
5



Chart 3: Classification as Prelude to Synthesis (Slide 8)

Communication Theory as Threads to tie together pieces  
(Slide 9)

Sequence predicted by Cullito in HBR.

A Particular Example.

Channel Capacity

Telegraph (Slide 10)

Human (Slide 11)

Biological Systems (Slide 12)

Chart 4: Word Frequency Distribution  
To Recode Foreign Policy  
Statements To Bring  
Within Channel Capacity  
Of Human Decision Makers.

Stanford Study of  
Sino-Soviet Relations.

Chart 5: Charts of Sino-Soviet Perceptions  
(from Stanford Project)

Jan 1960

May 1960

Chart 6: Cybernetic Models

USA } Economic and Political (Slides 14, 15)  
USSR }

Coding and Ideology (Slide 17)

Discrete Distribution } Max. Negentropy  
Continuous Distribution }  
(Slides 18-20)

Example of Public Space Dist. to  
Religious Groups

Chart 7: POTENTIAL BENEFITS

- 1) Improve Understanding of International Relations  
.....Reduce probability of WAR
- 2) Improve Communication between National Political Groups
- 3) Improve Understanding of Communication between Levels  
Within a Corporation.
- 4) MARKET FOR COMPUTER SERVICES
  - a) Political Interaction Studies
  - b) Simulations in "Social Planetaria"
  - c) Decision Making Studies.
- 5) INSIGHTS INTO TYPE OF COMPUTER SYSTEMS WHICH ENHANCE  
DEMOCRACY AND FREEDOM.

TYPE 1/8/67