

"Engineers and Democratic Institutions"

by

Frederick B. Wood, Ph.D.

This is a short report on the Philosophy Project for the year 1964. A more formal report was prepared as SEPR No. 80-D, "Progress Report 1964." This version was originally prepared as a Christmas letter for Christmas 1964. This is filed near SEPR No. 56 since it shows some progress in sixteen years in the application of engineering concepts to the sociological analysis of democratic and undemocratic institutions.

SOCIO-ENGINEERING PROBLEMS REPORT NO. 56-A

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Merry Christmas 1964 !

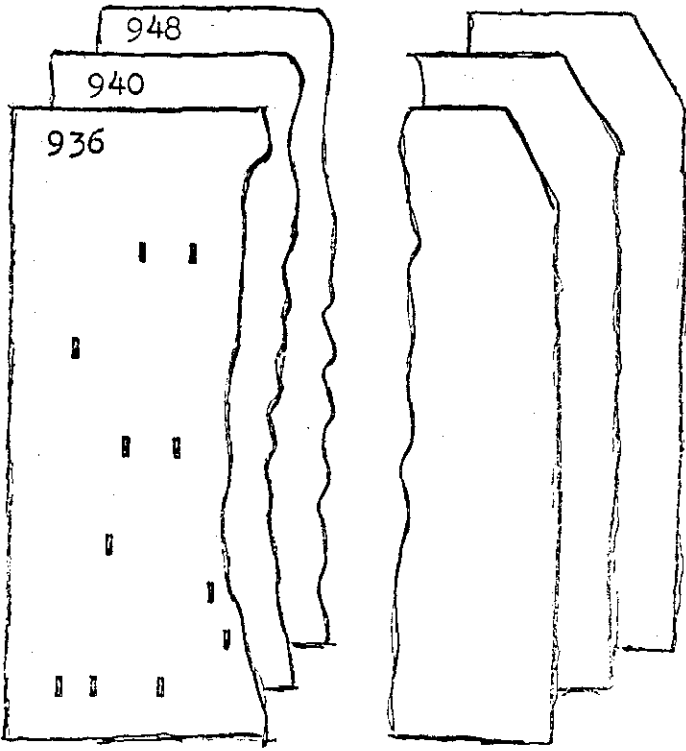
Three Hats Combined
Campbell, Los Gatos, and San Jose
California

Dear Friends,

December 14, 1964

This has been a very exciting year. Being both a participant and observer of the unfolding of history is very exciting and full of unforeseen hazards and rewards. After last Christmas in 1963, I went to the American Association for the Advancement of Science and Society for General Systems Research national meetings in Cleveland, Ohio, where I presented a paper on "Negentropy and the Concepts of Freedom, Democracy and Justice." This paper was an example of the use of the equations for communication entropy of telegraph messages to measure the degree of "democracy" in a country by calculating the negative entropy of a set of human freedoms.

Since my basic engineering work for IBM is company confidential, I shall represent my official IBM work by these blank IBM cards with only department numbers for identification:



In April I felt that the developing problems of automation in the U.S.A. were accelerating without any visible effort of appropriate magnitude, while the Soviet Union although lagging in computer hardware was moving at an increasing rate on a broad philosophical base using the concepts of cybernetics in ways that might overtake us. I reviewed my old stated policy of October 24, 1945, and found it still valid: "I am confident that our political leaders and industrial leaders will be able to work out stop-gap solutions to the most urgent problems facing society, but I am afraid that many errors will be made that will have to be corrected in later years. I wish to help people to make these revisions through evolutionary processes instead of violent processes."

I decided that our established institutions needed a gentle nudge in the direction of adjusting to the new developments in Cybernetics and Information Theory. I considered sending a note to Pope Paul VI at the Vatican, but after assembling a set

of material, I decided that I didn't have to go to that high level, particularly, because of the inclusion of a volume on cybernetics in the Twentieth Century Encyclopedia of Catholicism.

In June I attended the Conference on the Cybercultural Revolution in New York City. There Mr. Ben B. Seligman of the AFL-CIO speaking on "The Costs of Automation," stated:

"Perhaps the most serious social cost stems from distortions of our value system imposed by cybernation, for the philosophic preconceptions in computer technology are thoroughly mechanistic."

I came to the defense of the computer industry by giving an example where the equations from communication theory applied to social systems

give us insights which may help us protect individual uniqueness in the mass society. (SEPR No. 46-B) I also gave a short talk on "Historical Perspective of Cybernetics and Information Theory" (SEPR No. 90-A) which included some observations on current developments in the Soviet Union.

After the conference I joined in the formation of the Institute for Cybercultural Research, but later resigned, because of conflicts between the more promotional aspects of ICR and the non-activist research oriented interests of AFIPS and IEEE members I wished to interest in the activities of the Society for General Systems Research. This year the Bay Area Systems Group of SGSR had ammeeting almost every month and a Los Angeles chapter is being organized.

In August I presented a paper at the First International Congress for Social Psychiatry in London on (abridged title) "Estimating the Degree of 'Democracy' and 'Dynamic-Justice' in States and Countries by Use of the Mathematics of Telegraph Message Transmission Probabilities." In October I became a charter member of the American Society for Cybernetics and in November I presented a paper on "Cybernetics and Public Order" at the Georgetown University Cybernetics and Society Conference. Although these analyses are intimate parts of the thought processes involved in the official engineering design and development work I do for IBM, engineering managers keep trying to artificiaally separate the problems into fragments which block the creative process. (See Norbert Wiener, pp. 18-21, in Machol and Gray, Rec.Dev. Inf.&Dec.Proc.)

At the end of September I sensed that IBM might be responding in a self-destructive way toward some of the social problems of automation. I tested the system in a way similar to applying an impulse function to an electrical circuit to obtain its Laplace transform. I came close to looking for a job elsewhere in the process of the experiment, but the situation stabilized and I found that the analogy of the Laplace transform produced useful information which I intend to keep company confidential so that it can be used to strengthen IBM. However it looks like more business managers in IBM will have to learn more electrical engineering and cybernetics and that more IBM engineering managers will have to learn more political science such as in K. W. Deutsch's The Nerves of Government, before I can communicate the results of the experiment back to them. The problem of the definition of the word "Cybernetics" is well handled by Pierce in Symbols, Signals and Noise, Chap. XI. Another problem in communication in this area is that there is no accepted definition of "Engineering Sociology."

A recurring situation which I have observed and intervened in on a number occasions in the last twenty-one years is the series of crises in which American business leaders have come close to destroying the capitalist-economic democratic-political system of the U.S. and Western Europe on the basis of preserving their "public image."

Well I wish you all a Merry Christmas, and please take a relaxing holiday vacation before starting to study any of the references I have referred you to.

Frederick B. Wood

P.S. If you want to get a short view of what the Russian are doing, see "Cybernetics, Mathematics in the Service of Communism - As Discussed by Prominent Cyberneticians, Mathematicians and Economists" USSR Soviet Life Today, Sept. 1964, pp. 9-17.