CALENDAR

Jan. 13. and Feb. 15.	12:30 pm "	Monthly luncheons at Simeone's Restaurant 21 Brookline St., near Central Square, Cambridge, Mass.
Feb. 1,	10:00 am	SSRS Council Meeting, open to all members. At the home of A. Hilton, 420 E. 72 St., N.Y.C.

LETTERS

TO REDUCE THE STERILITY OF SCIENCE

I have read B. De Leon's article "Is Science Morally Sterile?" in the SSRS Newsletter (June-July 1968) and in the **Bulletin of the Atomic Scientists** (May 1968). I agree with the conclusions, so I will comment on how do we go about aiding science to reintroduce human goals.

When I finished my B.S. (U. of Calif., Berkeley) in electrical engineering in 1941 and proceeded to do research on radar at the MIT Laboratory there was a close association of human goals with the radar projects in respect to trying to direct our efforts in a direction that would at least temporarily stop the trend of world civilization toward barbarism long enough so that social scientists could make a stab at solving some of the major problems of the world. In the fall of 1945 I was shocked at the contrasting attitude of the corporation recruiters who came to MIT to interview engineers and scientists, saying "...now is the time to get in on the killing. Our lawyers have found loopholes in the anti-trust laws, etc."

In 1946 I saw a general reversal of the role of the civilian scientists perceiving the total problem and suggesting to the military taking the lead with the scientists following. In 1947 I saw the National Association of Manufacturers mount a multi-million dollar campaign to influence political leaders, religious leaders, and the public to leave the destiny of our country in the hands of businessmen. This NAM program was successful in removing most of the congressmen and state legislators who were truly responsive to the needs of the people.

In 1947 (or early 1948) the economics professor from whom I was taking a course in Berkeley said that Mr. Thomas J. Watson, Sr., then president of IBM Corporation, questioned some of the NAM operations to the extent that he withheld the IBM contributions to the NAM that year. The professor next reported that the NAM contacted the largest commercial customer of IBM and had them send a vice-president to tell Mr. Watson that they would switch to a competitor if IBM didn't go along with the NAM. The professor said that it was a bad year financially for IBM, so IBM reluctantly kicked in the contribution to the NAM.

In the past 20 years I have observed many other things, but I shall get on to the main point. There is a way that scientists can get into examination of human goals in small steps. If we make interdisciplinary systems analyses of electrical communication systems, biological systems, political systems, social systems, etc., and look for parameters that should be maximized or minimized in each type of systems, we may find some interesting relationships.

For example, in a political system we may want to maximize human freedom or we may want to optimize the balance between freedom and stability. If we then look at a telegraph system and see how we design a set of messages for better efficiency or how we select the allowable signal waveforms for minimum error, etc., we find that the entropy (or communication entropy) of the statistical distribution of the messages or waveforms is the key parameter to work with in improving the electrical communication system. Now if we can find parameters of the political systems for which we can define the communication entropy, we have the possibility of using an analogy from electrical communication theory in the analysis of a political system.

Prof. R.B. Lindsay of Brown U. has tried something like this in his book, **The Role of Science in Civilization.**

(In a chapter on Information Theory and concepts from Thermodynamics, Dr. Lindsay asks if there can be a science of ethics. He reviews the Golden Rule, the Ten Commandments, Kant's Categorical Imperative, and then proposes the following "thermodynamic imperative":

> All men should fight always as vigorously as possible to increase the degree of order in their environment, i.e., consume as much entropy as possible, in order to combat the natural tendency for entropy to increase and for order in the universe to be transformed into disorder, in accordance with the second law of thermodynamics.
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> — Ed. note)

In his published reports Professor Lindsay does not go into sufficient detail to test his concept of the "thermodynamic imperative". There are conference and unpublished papers available in this country in which the next level of detail is developed. If you want information on how to locate such, please let me know.

When the distribution of computer power in this country meets certain conditions, I think that the exceeding of a certain quantity of computing power per capita will trigger a qualitative change in the application of the equations from information theory used to measure the efficiency of computer-communications systems. It is important that we learn what such conditions are.

—Frederick B. Wood
San Jose, Calif.

Aug. 11, 1968

Correction

Through a regrettable error, the SSRS Newsletter for October 1968 listed "Carl Bechert" instead of Werner Luck who is the correct Regional Delegate of the German SSRS Chapter. Karl Bechert is Delegate-at-Large to the Council.

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