

"The Engineer in a Democratic Society"

by

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In April 1948 I prepared the following statement:

"The Engineer In A Democratic Society.

The engineer in a democratic society has a special responsibility as an interpreter of science in terms of human needs. He has a three-fold responsibility:

(1) To find what are the most important human needs, a task that may often require considerable knowledge of the social sciences,

(2) To apply the scientific knowledge discovered by the pure scientists to the design and construction of such structures, machinery, and instruments that are of immediate or potential help in meeting human needs,

(3) To advise the people, using the best scientific knowledge available, as to the advantages and disadvantages of the alternative systems for using the equipment which he designs."

Then I prepared the following more specific statement of the proposed Engineers' Branch of the National Council of the Arts, Sciences and Professions:

"The engineer in a democratic society has a special responsibility as an interpreter of science in terms of human needs. Since the organization of our industrial society does not always permit us to meet our responsibility properly in connection with our jobs, we meet together to fulfill our responsibility in the study of particular problems such as the electric power shortage, the monopoly control of radio, the international oil situation, and other problems of current importance."

The East Bay Chapter of the National Council of the Arts, Sciences and the Professions was relatively unsuccessful in recruiting engineers to work on the problems of our civilization. A draft report prepared in April 1948 is reproduced below:

Engineers Group, ASP

The engineers group has been unsuccessful in getting recruits. After selecting people on the basis of some previous indication of liberalism, the most probable prospects for membership in ASP were interviewed, but none agreed to join. A sample of response is tabulated below:

	Join	Cooperate	Scowl	Indifferent	Oppose
Engineers	none	2		1	3
Others	none		2		1

We have some ideas for projects, but only two engineers to work on them. We think that a study of "what is wrong with engineers?" might be appropriate at the present stage of development.

A preliminary investigation shows that in the training of engineers the ethical principles of the Hebrew-Christian tradition of Western civilization and the scientific method are learned to a varying degree and in most cases remain unintegrated so that the engineer is usually not able to apply them to the contradictions he encounters in the capitalist society to which he belongs.

Although the engineering societies have high sounding statements about our obligation to serve humanity, for all practical purposes the average engineer serves the corporation for which he works. Inasmuch as the path to high executive positions lies more and more through engineering, engineers are in a strategic position to retard or accelerate such changes in industrial practice that the people need.

It seems that the most important project for the engineering section to do is to analyse the attitude of engineers and to develop a plan to correct the attitude of engineers. This means the engineering section will need the cooperation of psychologists and other social scientists. It also means that the engineering section will have to take on long-term responsibilities while depending upon other sections to carry a greater burden of the short-term responsibilities. This type of division of labor is one of the features that made the MIT Radiation Laboratory so successful in designing radar equipment for the ~~various~~ different needs of different stages of World War II.

Our objective in studying the attitude of engineers is to determine how the scientific method implicit in engineering work can be extended to the whole life of the individual instead of isolated through restriction to specific tasks.

In areas of human experience where the scientific method has not resulted in positive proof, we tentatively accept the working hypothesis that explains phenomena more adequately than the other known hypotheses. When new data is obtained we modify the working hypotheses, if the data so indicates. In the field of ethics and even for some phases of psychology we take our heritage of Hebrew-Christian teachings as our present working hypothesis supplemented with by some phases of Marxism.

We seek to employ terminology and procedure³ familiar to the engineer and make reference to the work of great engineers as such as Stammetz who are respected as great leaders in engineering.

- We seek to present the study of community problems in which full use of the scientific method is used as "social engineering" which is related to the ~~the~~ recognized fields of civil, electrical, and mechanical engineering.

Thus we propose to raise the dormant potentialities of Hebrew-Christian ethics and the scientific method out to the surface and to join them in contact with the urgent problems of our day. We also hope to gather data for a more leisurely but more profound analysis of American society in the context of the unfolding history of our universe in which the application of the theory of functions of real variables has scarcely been touched.

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