GENERAL SCIENCE

## Ethics of Science Evolved With Man

➤ SCIENCE participates in the evolutionary scheme of things by teaching man to adapt to his environment and to control his environment to meet his own needs.

Science is man's tool for his own advancement and according to Dr. Bentley Glass is "ineluctably involved in questions of values, is especially committed to standards of right and wrong, and unavoidably moves in the large toward social aims."

The man who sees science as a body of absolute truths and the scientist as an objective seeker of knowledge has a view distorted by its limitations. Dr. Glass, chairman of the Biological Sciences Curriculum Study, and academic vice president and distinguished professor of biology at the State University of New York at Stony Brook, discusses the subjectivity of science in his new book, "Science and Ethical Values" (Univ. of N.C. Press).

He finds man dependent in his understanding of the world, on his sense perceptions, his ability to learn from experience, his genetic make-up and his environment—factors which make him necessarily a subjective being.

What we consider the objectivity of science depends, according to Dr. Glass, upon the ability of different observers to agree about their data and thought processes. It requires every scientist to present his knowledge to his colleagues so that they can verify his conclusions by examining his procedures and thinking.

"What science has done is to refine and extend the methods of reaching agreement."

Thus science is not a "solitary pleasure" but a pursuit of knowledge that will ultimately affect the social order. Dr. Glass reminds his reader that science "rests upon the scientist's integrity."

It stands on ethical values which can be summarized as the four commandments of science to the scientist: "to cherish complete truthfulness; to avoid self-aggrandizement at the expense of one's fellow-scientist; fearlessly to defend the freedom of scientific inquiry and opinion; and fully to communicate one's findings through primary publication, synthesis and instruction."

Dr. Glass' view of science is that of a geneticist seeing man's development in the survival of the fittest, the strengths in the diversity of populations from natural selection and the influence of environment on the realization of genetic potentialities.

The environment can foster or destroy these potentialities, "and that is why the geneticist, fully recognizing the differences between individuals and races, demands equal opportunity for all."

Because man is conditioned by the environment science gives him the means to change, science partakes of its social order and cannot stand objectively apart.

• *Science News, 89:299 April 23, 1966*

GENERAL SCIENCE

## Copyrights for Computer Publication Urged

➤ THE RIGHTS of computers and their participation in publication makes necessary major revisions in the copyright laws.

This is suggested by Curtis G. Benjamin, chairman of the board of the McGraw-Hill Book Company of New York, in a communication to Science 152:181, 1966.

The present copyright law does not recognize computers and their tapes as a method of publication. Mr. Benjamin suggests that any work first produced with the aid of an automated mechanism such as a computer should be covered, even if, as in the case of some drawings or even poems, the author of the publication could be considered as a machine rather than a human being.

"Though few people will allow that a machine can actually create an original literary or scientific work, it must be allowed that a computer when properly programmed can produce a compiled or derivative work that is copyrightable," Mr. Benjamin contends.

"In this tangled matter of human authorship versus machine performance, the Copyright Office has taken a liberal view. It has stated that where human direction has guided the computer in producing a work, either proximately or through one or more programs aimed at the result, or where the computer output was edited or arranged by human beings, the mere use of a computer would not of itself prevent copyright registration."

Revisions of the copyright law, the present version of which dates from 1909, are before Congress, and Mr. Benjamin urged that the effect of computers upon publications, as well as information handling, be recognized.

He pointed out that it should be quite possible, under present law, for a library or a corporation to put into a computer the whole of a handbook; then the practice of buying one copy and having the computer produce it as desired would circumvent the payment of a fee for the use of the material, even though it was originally copyrighted in regular book form.

• *Science News, 89:299 April 23, 1966*

GENERAL SCIENCE

## Five Scientists Given AEC's Lawrence Award

➤ THE ATOMIC ENERGY Commission announced that five young U.S. scientists have been named to receive the Ernest Orlando Lawrence Memorial Award for 1966.

The five scientists were honored for recent meritorious contributions in the field of atomic energy. Each will receive a medal, a citation and $5,000.

The award is made by the Commission upon the recommendation of its General Advisory Committee and with the approval of the President.

Recipients of the award are:

Dr. Harold M. Agnew, Weapons Division Leader, Los Alamos Scientific Laboratory, Los Alamos, N. Mex.; Dr. Ernest C. Anderson, member of biophysics staff, Los Alamos Scientific Laboratory; Dr. Murray Gell-Mann, professor of physics, California Institute of Technology, Pasadena; Dr. John R. Huizenga, senior scientist, Argonne National Laboratory, Argonne, Ill.; and Paul R. Vanstrum, member of technical management staff, Oak Ridge Gaseous Diffusion Plant, Union Carbide Corporation, Oak Ridge, Tenn.

The award was established by the Commission in December 1959, in honor of the late Dr. Ernest O. Lawrence.

• *Science News, 89:299 April 23, 1966*