Mental Health and Atomic Energy

A study group of the World Health Organization, at a meeting held in Geneva, announced late in November that it has examined reports from many countries concerning the emotional impact of developments in atomic energy as reflected in everyday life, in public statements, in the press, and in letters to leaders in the atomic, health, and political fields. Members of the group found that, in general, irrational fears were expressed far more often than irrational hopes and suggested that this might be owing to the fact that people were first made aware of radiation as a means of diagnosing or treating two dreaded diseases, tuberculosis and cancer. It was found, further, that the use of atomic energy as a weapon has aroused a deep sense of fear and, in some people, also of moral involvement and guilt.

The group considered that there are also other factors that have influenced public attitudes toward atomic energy. One is the aura of mystery that surrounds the subject of atomic power. Atomic radiation is invisible, unheard, unfelt, apparently infinitely powerful, and yet it springs from a very small source and, as far as ordinary people are concerned, is uncontrollable. It is credited with almost countless potentialities for both good and evil and represents man's most amazing success in his search for power. Ancient myths and legends common to many races show that man's quest for power often results in terrible divine punishment: Prometheus stealing fire from the gods, Pandora unleashing forces she could not control, Faust evoking the Devil, the alchemists of the Middle Ages—all paid a heavy penalty for their daring. These tales were found in one form or another in nearly all cultures, as witness an ancient Egyptian saying: "When man learns what moves the stars, the Sphinx will laugh and life will be destroyed."

Perhaps the most terrifying aspect of atomic energy, in the popular imagination, is the possibility that its tremendous power may get out of control. People are also beginning to fear a biological chain reaction: fall-out and atomic wastes would poison air, water, and soil, then plants and cattle, then the men who eat them, and, above all, their children and their descendants. This, the study group found, is a deeper and more subtle fear than that of the unleashing of energy that might destroy the universe.

The WHO study group further found that there is a widespread sense of disorientation in regard to atomic energy matters and a mistrust of most sources of information. For this state of affairs, they said, there are many past and present causes: wars, psychological warfare, political propaganda, and so on. Even competitive commercial advertising has contributed its share. Furthermore, science today has lost the reputation for infallibility which it possessed in the 19th century, and the publicizing of disagreements and contradictions among scientists—about polio vaccine or the cancer-producing effects of tobacco, for example—have contributed to this mistrust. Although a certain section of public opinion will always continue to place confidence in authoritative declarations, one can note in many countries a general mistrust of scientific pronouncements. This mistrust is often reflected in deliberately antiscientific attitudes.

Among other factors which have contributed a disturbing background in the emergence of atomic energy is science fiction, which has steadily stressed the horror of scientific power, the "death ray," and the "mad scientist."

These, according to the study group, are some of the more serious obstacles in the way of establishing public confidence in the peaceful uses of atomic energy and underlie the unreasonable fears aroused by this new source of power.

Unreasonable hopes also exist among people in both the developed and the underdeveloped countries, and these may lead not only to local dissatisfaction but also to a real danger for the whole world. Many people expected immediate returns from atomic energy in terms of prestige, conveniences, and a higher standard of living that would, for the first time, put poor countries on a par with the richest and most highly developed. They pressed urgently for these benefits and were bound to be disappointed, because new ways of life and many technical skills were needed before changes could be accomplished. The disparity between aspirations and results could well be catastrophic and lead to hostile attitudes. It is perhaps in this aspect of the problem of atomic energy that the greatest potential danger is to be found, according to the study group.

Members of the study group found that, in many countries and at many levels of society, and even among scientists, there is a feeling that there are no mental health, or even morale, aspects of the problem of atomic energy. This may be in part a sign of the general disinclination to face psychiatric problems —a disinclination against which the mental health movement has had to struggle for years. But the experts feel that avoidance and rejection of the subject is probably in itself a sign of anxiety, exemplifying the fact that rational thought is sometimes blocked for emotional reasons. The group expressed the fear that this denial of the problem could lead to over-confidence and to further difficulties and added that research into this matter is of urgent importance.

The group found that every type of psychological reaction to atomic energy is met with—acute and marked fear, belittling of the importance of the whole situation, or ridicule. But except for those who show apathy—and this in itself may be an unhealthy sign—atomic energy never fails to make people react.

The WHO authorities think that the complexity of underlying emotions in the changing environment of the second industrial revolution, brought about by the atomic age, needs to be recognized more widely by leaders of thought and action. The first task, they said, seems to be to establish what might be termed a culture of change, in which change and reorientation can take place without upheaval. The chief effort will have to be directed toward securing for adults a greater intellectual grasp, and thus a better understanding, of the new situation.

The group feels, however, that the main duty of the present generation is toward its children. Their upbringing must enable them to put up with insecurity and to face reality. This upbringing must be free from anxiety and hate and must produce self-reliance and a sense of responsibility toward others. And those who hold responsible positions in public life—doctors, teachers, the clergy, government authorities—must be educated in mental health requirements.

So far as local action is concerned, the group discussed a draft plan for the education of the community in matters pertaining to atomic energy. In essence, the idea is to form small teams consisting, for example, of a psychiatrist, a psychologist, a sociologist, and a journalist. This team would study local conditions and contribute to the planning of new atomic enterprises and to their acceptance by the people.

With regard to the press, the group was impressed by the general standard of integrity with which journalists handle atomic energy news. Yet, regrettably, this news is often presented under scare headlines, which contribute to the anxiety of the reading public. They felt that journalists could be educated to understand more of the implications of the news they had to handle and suggested that authorities in the atomic energy field provide a really effective information service for the benefit of the press.

In conclusion, the group stated that its findings are in no way alarming. It is, however, convinced that they are concrete enough to warrant the attention of those in authority. The group hopes that persons in authority will be prepared to accept its conclusion that the behavioral sciences can make a valuable and concrete contribution to man's adaptation

to the advent of atomic power, making this adaptation as painless and harmless as possible and allowing man to reap a rich harvest from the seed his inventive genius has sown.

The WHO Study Group on the Mental Health Aspects of the Peaceful Uses of Atomic Energy included: Austen M. Brues, Argonne National Laboratory, Lemont, Ill.; Brock Chisholm, former director-general of WHO, Victoria, British Columbia, Canada; A. H. Leighton, Center for Advanced Study in the Behavioral Sciences, Stanford, California; J. S. Riach, Marie Curie Hospital, London; Kenneth Soddy, assistant director, World Federation for Mental Health, London; Ritchie Calder, science writer, London; Hans Hoff, University of Vienna, *chairman*; P. J. Reiter, Kommunehospitalet, Copenhagen; and A. M. Tubiana, Institut Gustave Roussy, Villejuif, France. The secretariat was composed of E. E. Krapf, chief, Mental Health Section of WHO, and Maria Pfister, medical officer, Mental Health Section of WHO.

News Briefs

P. R. Mallory & Co., Inc., Indianapolis, Ind., has received the 1957 AAAS Industrial Science Achievement Award for the development of the Steelmet process, which extends the use of powder metallurgy to entirely new fields. The Steelmet process eliminates the expensive multiple pressing and sintering required by other powder metallurgy processes and obtains dense structural parts from inexpensive raw materials. This annual award, which was established in 1956, is administered by the AAAS Industrial Science Section.

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During the past 6 months, the Biological Sciences Division of the Office of Naval Research has awarded a total of 122 research contracts. Of these, 30 support work in physiology, 15 in biochemistry, 25 in microbiology, 28 in medicine and dentistry, and 24 in biology.

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In order to facilitate the exchange of information, the Psychology Branch of the Aero Medical Laboratory at Wright-Patterson Air Force Base is interested in discovering all individuals and organizations, both private and governmental, who are engaged in or interested in human engineering work. Such people are requested to send their names, the organization involved, its address, and particular areas of specialization or interest to the Psychology Branch, Aero Medical Laboratory, Directorate of Laboratories, Wright Air Development Center, Wright-Patterson Air Force Base, Ohio, Attention: F. H. Rohles. A list of these individuals and organizations will be compiled, and copies will be sent to each participant.

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The Society of Protozoologists announces the publication of "A Catalog of Laboratory Strains of Free-living and Parasitic Protozoa." Sources from which protozoans may be obtained and directions for maintenance are included. The catalog will appear as an integral part of the February 1958 issue of the *Journal of Protozoology*. Reprints of the catalog will be sold at a nominal cost. Orders should be sent to Dr. D. M. Lilly, Treasurer, Society of Protozoologists, Department of Biology, St. John's University, Jamaica 32, New York.

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The U.S. National Committee for the International Union of Biochemistry is now operating within the Division of Chemistry and Chemical Technology of the National Research Council. This eight-man committee represents the biochemists of the United States in matters relating to national participation in the International Union of Biochemistry and, specifically, makes nominations in the selection of U.S. delegates to the general assemblies and international congresses of the IUB. R. H. Barnes is the committee's chairman and S. W. Fox is secretary-treasurer.

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Harvey Mudd College has been awarded a grant from the Fund for the Advancement of Education to be used to survey experimental curricula in colleges of science and engineering throughout the United States. The award, which comes during the college's first year of operation, will enable members of the faculty to visit a number of colleges that are currently considering the revision of their curricula in the physical sciences and engineering.

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Argonne National Laboratory has received authorization from the U.S. Atomic Energy Commission to proceed with design studies for a 12.5-Bev zero gradient proton synchrotron. Cost of the facility is estimated at $27 million, and the AEC has made available $1.5 million for detailed design work.

Scientists in the News

At its ninth session in Geneva on 19 December 1957, the Council of CERN, the European Organization for Nuclear Research, elected FRANCOIS DE ROSE of France as its president for 1958. In compliance with the terms of the CERN convention, which limits tenure of office to three successive years, De Rose succeeds Sir BEN LOCKSPEISER, who has presided over the governing body of CERN since October 1954. J. WILLEMS of Belgium and W. HEISENBERG of Germany have been elected vice presidents. They succeed DE ROSE and HOLTSMARK of Norway.

E. AMALDI of Italy has assumed the chairmanship of the Scientific Policy Committee, succeeding Heisenberg, and J. H. BANNIER of the Netherlands has succeeded Willems as chairman of the Finance Committee.

HERBERT L. ANDERSON has been named director of the University of Chicago's Enrico Fermi Institute for Nuclear Studies. He succeeds SAMUEL K. ALLISON, who has directed the institute since it was organized in 1946. Both men are professors in the department of physics and in the institute. Allison resigned his administrative duties to devote more time to his studies of low-energy particles.

ALBERT B. SABIN, professor of research pediatrics at the University of Cincinnati College of Medicine, has received the Phi Lambda gold medal and plaque for his contributions to the advancement of medical science. The award was made by the medical fraternity at its 50th annual convention dinner in the Waldorf-Astoria Hotel, New York. Sabin is known for his work in orally administered vaccine for the control of poliomyelitis and for his research in infectious diseases.

SOLOMON LEFSCHETZ, professor emeritus, department of mathematics, Princeton University, was recently elected corresponding member of the Academie des Sciences of Paris.

The U.S. Atomic Energy Commission has given its Distinguished Service Award, the highest honor it can bestow, to CHARLES L. DUNHAM, director of its Division of Biology and Medicine, and to SAMUEL R. SAPIRIE, manager of its Oak Ridge, Tenn., Operations Office.

FREDERICK D. ROSSINI, head of Carnegie Institute of Technology's department of chemistry and director of the school's Chemical and Petroleum Research Laboratory, was one of the principal speakers at the Indian Science Congress, which opened on 6 January in Madras. The Indian Science Congress Association is an organization that is similar to the AAAS.

JOHN TROAN, science editor of the *Pittsburgh* (Pa.) *Press*, has been named science writer for the Scripps-Howard Newspaper Alliance, with headquarters in Washington, and member of the Scripps-Howard editorial advisory board.