subjects. An understanding of the mathematical training which follows high-school instruction should suggest topics for emphasis to the teacher and lend greater authority to his teaching.

Thus the teachers knowledge of high-school mathematics will be extended to contiguous subjects in two dimensions, one might say horizontally and vertically. But there is a third dimension. Knowledge of mathematics is not mere possession of information, more or less systematized. The experience of mathematics as an activity, rather than as a collection of results, is essential to the understanding of mathematics. The characteristic activity of mathematics is problem-solving. Yet very few teachers have had *genuine* experience in problem-solving. It is in this connection that Stanford hopes to make a novel contribution to teacher training in mathematics.

Included in the General Electric Program will be a "Seminar on Problem-Solving," conducted by George Polya. Polya has written extensively on the philosophy and methodology of problem-solving, and his many ideas cannot be discussed here, even briefly. The following outline for the conduct of the seminar which he has written will be of interest, however.

"A plan for such a seminar should not be too rigid. It should have plenty of flexibility to take care of the many relevant points that cannot be assessed in advance: interest, knowledge, personality of the participants. Yet a broad outline can be proposed.

"Problems should be selected from fields with which the participants are already acquainted. The instructor starts with a problem which, for some reason or other, is impressive and uses its solution as a *pattern* for solving several similar problems. The participants, unobtrusively helped by the instructor, should have as great a share as possible in solving these problems in class discussion, and should, as far as feasible, disentangle the 'pattern' themselves.

"After several days' work, the class passes to another initial problem, then to subsequent similar problems, and abstracts another pattern. After two or three such experiences the question of 'very general' patterns is raised. Then the class is prepared for the discussion of such general aspects of problem-solving as generalization, specialization and analogy, the role of guesses, of induction, of plausible reasoning.

"When such questions have been fairly clearly resolved, the final question arises: How should the participants direct the solution of problems in their own classes and reveal the essential methodical ideas? At this stage one of the participants may assume the role of instructor, with the other participants continuing the discussion after his presentation. Then another participant takes the place of the instructor, and so on."

The two courses and the seminar, with occasional lectures on special topics, constitute the academic portion of the program. Coordinate with this will be a program of field trips to university laboratories and General Electric facilities in the vicinity of the university. During these visits, scientific, engineering, and management personnel will present lectures on mathematical aspects of their activities. The information thus acquired about the role of mathematics in contemporary society and, in particular, in the future vocations of his students should provide the teacher with an important means for motivating the study of mathematics.

The principal criterion for the success of the program will be a simple one. If the enthusiasm of the participants is stimulated, then we may expect that it will eventually be transmitted to their students, and the main objective of the program will have been achieved.

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AAAS Theobald Smith Award

The Theobald Smith award of $1000 and a bronze medal, which has been given yearly since 1937 (except for a lapse during the war years) by Eli Lilly and Company of Indianapolis, Ind., under the auspices of the AAAS, will be presented at the association's 124th meeting in Indianapolis, 26–31 Dec. Nominations are now being requested for the award. They may be made by fellows of the AAAS and should be sent to the secretary of the Section on Medical Sciences, Dr. Allan D. Bass, Department of Pharmacology, Vanderbilt University School of Medicine, Nashville 5, Tenn.

The prize is given for "demonstrated research in the field of the medical sciences, taking into consideration independence of thought and originality." Any investigator is eligible who was less than 35 years of age on 1 Jan. 1957 and who is a citizen of the United States. The research is not to be judged in comparison with the work of more mature and experienced investigators.

Nominations must be received *before 1 Sept.* The secretary requests that six copies of all data be submitted. The nomination should include a curriculum vitae, a statement summarizing the nominee's scientific contributions with an evaluation of their significance, and reprints of his or her more important publications. The vice president of Section N–Medical Sciences and four fellows will form the committee of award.

AEC Courses for Faculty

The U.S. Atomic Energy Commission has announced that it will sponsor summer institutes in nuclear energy technology for university faculty at five commission facilities in 1957. Approximately 150 faculty members will attend the sessions at Brookhaven, Argonne, and Oak Ridge National Laboratories, the Ames Laboratory, and the Hanford Plant. Each institute will be conducted by the staffs of commission contractors for a period of 2 months.

Basic courses in nuclear energy technology will be offered at Brookhaven. The curricula will include reactor physics, chemistry and chemical engineering, reactor materials and metallurgy, and reactor instrumentation and controls.

The courses offered at the other four installations will be of a more advanced and specialized nature. Each will require technical education comparable to that gained from participation in the institutes held last summer at the Brookhaven and Argonne laboratories, or the equivalent in work experience.

The AEC will provide cost-of-living stipends up to $750 per faculty member (matching amount to be provided by each participant's academic institution) and will defray travel expenses. These funds will be administered by the American Society for Engineering Education. No tuition will be charged.

The ASEE will also cooperate with the commission in the selection of faculty to attend the institutes. Inquiries concerning enrollment may be addressed to: W. Leighton Collins, Executive Secretary, American Society for Engineering Education, University of Illinois, Urbana, Ill.

U.N. Radiation Committee

The United Nations Scientific Committee on the Effects of Atomic Radiation completed its third session in Geneva, Switzerland, on 18 Apr. A statement issued at the conclusion of the session follows:

"The General Assembly's Special Committee for the study of the effects of nuclear radiation on man and his environment completed its third session today. The meetings were held in private and much of the work was done in specialized subcommittees. Presiding was Prof. Zenon Bacq of Belgium, and Dr. E. A. Watkinson of Canada was vice-chairman.

"The two principal subjects discussed were the question of the genetic effects of radiation, and the committee's report to the General Assembly, which is to be submitted in July 1958. Also studied were measurements of radiation levels,

particularly with respect to radioactive fallout and strontium-90. The committee did not attempt at this time a quantitative assessment of the genetic hazards of radiation. The fundamental purpose of the discussion on this topic was to obtain a consensus of opinion on a number of fundamental points which enter into the field of assessing genetic hazards of radiation. An equally important objective was to define and to exchange views on certain gaps in the existing knowledge of this matter.

"Before the committee were 74 reports submitted by 27 governments up to 8 April 1957, as well as the report of a study group of the World Health Organization and a report from the World Meteorological Organization. A free exchange of ideas on a purely scientific level was held. This discussion was very useful and revealed that there was little divergence among the participating scientists.

"It is hoped that the first draft of the committee's report to the General Assembly will be prepared between now and the committee's next session, which is expected to take place at the end of 1957. The committee fully expects that further information received from governments during this period may cause it to change this preliminary draft but feels that the draft will be most useful as a working paper for the next session. A tentative decision was taken to subdivide the report into the following chapters: Introduction; General; Radiological Data and Methods of Measurement; Fundamental Cellular Radiobiology; Genetic Effects; Somatic Effects; Collected Evaluations; Conclusions and Recommendations.

"It is expected that the somatic effects of radiation will be the principal topic of discussion at the committee's next session."

First South Pole Temperature Report

The results have been announced of the first soundings of the temperature at the 10,000-foot-high Amundsen-Scott South Pole Station of the International Geophysical Year. Temperatures of −71°F at the surface, −31°F at 3300 feet, and −62°F at 11,500 feet above the surface were reported on 27 Mar. The temperatures were taken by a thermometer attached to a balloon sent aloft with a radiosonde, an instrument that broadcasts information in the form of tone signals to a listening post on the ground.

Because late March roughly corresponds to September in the Northern Hemisphere, temperatures are expected to drop further as the South Pole midwinter approaches. The station scientific leader, Paul Siple, has estimated that the temperatures may go down to -120°F.

The lowest temperature observed thus far at the South Pole is −89°F on 2 Apr. 1957. This temperature exceeds the lowest ever recorded for North America, −81°F observed at Snag, Yukon Territory, Canada, in February 1947, and is 1° above the all-time world's record of −90°F set in northeastern Siberia in February 1933.

The study of temperatures and the circulation of air in the Antarctic will yield knowledge of the polar icecap and its effect on the world's weather and, over a longer period of time, world climate. Comparison of the relatively clean air of the Antarctic with the atmosphere of coal and oil-consuming regions is expected to give data on the suspected "greenhouse" effect caused by the release of large amounts of carbon dioxide.

Meteorological data from all the IGY Antarctic stations are relayed to the Weather Central at Little America Station, where for the first time in history twice-daily weather maps of the Antarctic are being prepared. The results of the first South Pole sounding were given to Harry Wexler, chief scientist of the US-IGY Antarctic Program, by Edwin C. Flowers of the U.S. Weather Bureau, chief meteorologist at the IGY Amundsen-Scott South Pole Station.

Occupational Health Information Exchange

To help industry protect its workers from health hazards arising from the great number of chemicals introduced each year, an Occupational Health Information Exchange is now being set up by the U.S. Public Health Service. The Exchange will be part of the Occupational Health Field Headquarters in Cincinnati, Ohio.

It is estimated that from 1000 to 10,000 new compounds are being developed annually for industrial application. There is need for one central agency to collect and disseminate specific information on the toxicity of these new materials as well as on the substances and processes that have long been used in industry. Sickness absenteeism in industry is equivalent to 2 million workers being off the job each day. Part of this absenteeism is directly related to occupation.

A fund of unpublished information is available from scattered sources. By bringing together this information, it will be possible to predict answers to questions on how new materials and processes may be related to occupational diseases.

The Occupational Health Information Exchange will serve as a clearinghouse on the nature and extent of new disease problems in industry, total occupational health resources available, and methods for stimulating research in problems under investigation. Data will be provided by industrial establishments, insurance companies, private research organizations, governmental occupational health programs, labor unions, and other federal agencies.

Scandinavian Nuclear Research

The foreign ministers of Sweden, Norway, Denmark, and Finland announced in April that their countries would cooperate in atomic research and that a Scandinavian institute for atomic research would be established in Copenhagen. The four nations also plan to form a joint organization for the exchange of practical applications of nuclear energy.

Radiation Biology

Argonne National Laboratory has announced a special summer course in radiation biology, 1–26 July, at Lemont, Ill. Intended primarily for a limited number of persons with previous experience in biological research, the course will stress general experimental theory and design. Dosimetry and instrumentation needed in doing bioresearch with ionizing and low-energy radiations, and the effect of these radiations on widely diverse biological systems, will be a part of the course. Although not intended as comprehensive preparation in health physics or isotopic tracer techniques, certain special topics of basic interest to these fields will be presented—for example, very low level radiation measurements; multiple tracer techniques; and biosynthetic methods utilizing plants.

Inquiries about the course, for which the fee will be $25, should be addressed to the Office of the Director, Division of Biological and Medical Research, Argonne National Laboratory, Lemont, Ill. Applications will be accepted from foreign countries as well as the United States. Applications, accompanied by a brief account of educational background, must be received *by 1 June.*

Army Radio Transmitter

The Department of the Army has announced that a powerful new short-wave transmitter that is effective even when there is severe interference has been developed and will be installed for use by the Pentagon. Called the "World Spanner," the transmitter was designed for the Army's international communication network by the U.S. Army Signal Engi-