

practices, and testing and evaluation procedures. These programs, the group indicated, are all "essential services for our industrial society" which must be expanded if the nation's needs are to be met.

The committee's report was made public on October 15th by Secretary of Commerce Sinclair Weeks. Formed in the midst of the controversy over the forced resignation of A. V. Astin as NBS director, the committee was headed by M. J. Kelly, president of Bell Telephone Laboratories. At the height of the storm Dr. Astin was asked by Mr. Weeks to remain temporarily in his post until his successor had been chosen and until the Kelly committee had submitted its report, but on August 21st Mr. Weeks, in a surprise announcement, stated that Dr. Astin had been fully reinstated as director of the bureau. Assistant Secretary of Commerce Craig R. Sheaffer, who has been popularly credited with having played a heavy role in the original dismissal of Dr. Astin, has since resigned his Commerce Department position and has returned to private life.

In its report to Secretary Weeks, the Kelly committee pointedly questioned the wisdom of recent cutbacks in the bureau's basic programs, noting that "there is an urgent need for increased funds in the years immediately ahead" both for increasing the bureau's scientific staff and for expanding its facilities.

NBS received the largest cut in funds (percentage-wise) of any of the nonmilitary federal agencies concerned with research and development. Congress appropriated only \$6.4 million for the bureau for the 1954 fiscal year as opposed to the \$8.2 million appropriated for 1953.

The Kelly committee praised the loyalty and competence of the bureau's staff, but added that it "views the future professional personnel outlook of the Bureau with great concern" unless the downward trend of NBS appropriations is reversed.

As indicated earlier by Mr. Weeks, the committee recommended that the ordnance research and development activities carried on by the bureau for the Department of Defense be transferred to the armed services. That recommendation was acted upon in July when the Secretaries of Commerce and Defense issued a joint statement announcing the transfer of four NBS ordnance divisions to the Defense Department.

In commenting on the bureau's practice of serving other federal agencies at their request by conducting tests of commercial products, the committee said:

"While the volume of this work is extremely small in relation to the bureau's total basic problems, it is the area that most frequently brings the bureau to the attention of the general public.

"The current 'battery additive' evaluation is typical of others that have sporadically occurred throughout the bureau's history where its findings have been challenged and wide public attention directed to them.

"The committee recommends that policy and procedures of a nontechnical nature, particularly with other agencies of the Government, for handling commercial product tests be reviewed by the Secretary of Com-

merce and appropriate members of his staff with the director of the Bureau of Standards.

"The committee recommends that the policy and establishment of the nontechnical procedures on commercial product tests be the responsibility of the Secretary of Commerce."

Electron Microscopy

Bibliography in Preparation

A bibliography of world literature on all phases of electron microscopy is in the process of being issued on Keysort cards (3.5" x 7.5") by the New York Society of Electron Microscopists. The first issue, covering the years 1950, 1951, and 1952 (approximately 700 cards), is now available, and plans have been announced for the early publication of material for 1953 and for quarterly publications on current literature thereafter. Articles containing multiple subjects can be located immediately by each subject as well as by author, according to the Society, and no order of filing is necessary for the cards because they are selected by needle.

Compilation of the bibliography was begun in February 1952 and continued in 1953 by means of grants from the Lillia Babbit Hyde Foundation; continuation of the work has been assured by the combined support of the Farrand Optical Company, the North American Phillips Company, the Optical Film Engineering Company, and the Radio Corporation of America. The circumstances of its preparation make it possible to offer the bibliography at very nearly the cost of production. Unesco coupons accompanying orders from abroad will be recognized. Further details may be obtained from the Society at The New York Academy of Sciences' Building, 2 East 63rd Street, New York 21, N. Y.

Letters to the Editor

Third Summer Session at Les Houches

The third annual session of the Summer School for Theoretical Physics, which is located near Les Houches in the French Alps, was held from July 6 to August 29, 1953. As in preceding years there were thirty students, half of them French and most of the others from nearby European countries. Represented this year were Belgium, Germany, Great Britain, Italy, Sweden, Turkey, Ireland, Portugal, Egypt, and China.

The session was divided into two parts, with two "basic" courses given in each. During July, E. W. Montroll of the University of Maryland gave a course in statistical mechanics, while B. S. De Witt of the University of California Radiation Laboratory lectured in quantum mechanics. During August, R. E. Peierls of the University of Birmingham presented a course in solid state physics, while a course on elementary particles was given by G. F. Chew of the University of Illinois. A number of seminar speakers also contributed to the Summer School. Aspects of field theory were discussed by M. Levy of the Ecole Normale, by C. Möller

ENGINEERS and PHYSICISTS

To those interested in advanced academic study while associated with research and development in industry, the following practical programs are offered:

1 HUGHES COOPERATIVE FELLOWSHIP PROGRAM

for Master of Science Degrees



This program is to assist outstanding individuals in studying for the Master of Science Degree while employed in industry and making contributions to important military work. It is open to students who will receive the B.S. degree in Electrical Engineering, Physics or Mechanical Engineering during the coming year and to members of the Armed Services being honorably separated and holding such B.S. degrees.

Candidates must meet entrance requirements for advanced study at the University of Califor-

nia at Los Angeles or the University of Southern California. Participants will work full time at the Laboratories during the summer, and 25 hours per week while pursuing a half-time schedule of graduate study at the university.

The salary will be commensurate with the individual's ability and experience. Tuition, admission fees and books for university attendance will be provided. Provision is made for an allowance to assist in paying traveling and moving expenses from outside the Southern California area.

A group of participants in the Hughes Cooperative Fellowship Program (above left). Fellows study for Master of Science degrees at either University of Southern California (center) or University of California at Los Angeles (right).

2 THE HOWARD HUGHES FELLOWSHIPS

in Science and Engineering



Eligible for these fellowships are those who have completed one year of graduate study in physics or engineering. Successful candidates must qualify for graduate standing at the California Institute of Technology for study toward the degree of Doctor of Philosophy in physics or engineering. In summers they will work full time in the Hughes Laboratories in association with scientists and engineers in their fields.

Fellows may pursue graduate research in the fields of physics, electronics engineering, electronic computing, aerodynamics, propulsion engineering, mechanical engineering, or information theory.

Each appointment is for twelve months and provides a cash award, a salary, and tuition and research expenses. A suitable adjustment is made when financial responsibilities of the Fellow might otherwise preclude participation in the program.

(From left to right) Hughes 1952 Fellows Truman O. Woodruff and Allen I. Ormsbee discuss tube processing station in Electron Tube Laboratory with 1953 Fellows Roy Gould and Baxter H. Armstrong. Their advanced study is at California Institute of Technology (above).

Assurance is required that the relocation of the applicant will not cause the disruption of an urgent military project.

HOW TO APPLY: *For complete information concerning either of these Hughes Fellowship programs, write directly to us. Indicate the particular program in which you are interested. A detailed explanatory brochure and application forms will be mailed promptly.*

Address all correspondence to

HUGHES

**RESEARCH AND DEVELOPMENT LABORATORIES
COMMITTEE FOR GRADUATE STUDY
Culver City, Los Angeles County, California**

of Copenhagen, and by S. Deser of Harvard. Nuclear physics received attention in seminars by J. H. D. Jensen of Heidelberg and M. Verde of Turin. Special topics in solid state physics were covered by C. J. Gorter of Leyden, W. Shockley of the Bell Telephone Laboratories, and A. Herpin of Paris, while W. Pauli of Zurich delivered lectures on the H -theorem. Regular courses were held in the morning, six days a week, and seminars were given in the afternoon. Students attending the session worked very hard, having only Saturday afternoons and Sundays for relaxation.

As in previous years, the principal support for the Summer School was provided by "La Direction de l'Enseignement Supérieur" (France) through the University of Grenoble. The Summer School also received assistance from the Swedish government and from the United States Educational Commission for France. This year, for the first time, Fulbright grants were made available for the regular lecturers from America.

The founder and director of the Summer School, Cécile Morette De Witt, the co-director, Jean-François Detoeuf, and all those who work with them in the Summer School are to be congratulated for its continuing success.

G. F. Chew
University of Illinois

Art and Form in Science

The Renaissance Society of the University of Chicago is planning, as one of its regular art exhibitions, a display illustrating artistic form in the scientific research laboratory. The exhibit will be composed of specimens, apparatus, photographs, models, records, and the like (including working demonstrations), all of which are to be indigenous to the laboratory though they will be selected by a group of artists solely on the basis of intrinsic form. It is hoped that it can be as widely representative of modern scientific material as possible. Examples of the kind of material that will be suitable include crystal structure models, diffraction patterns, optical and electron micrographs, research anatomical preparations, chromatography strips, a cloud chamber, domains in ferroelectric crystals under polarized light, and the maze of wiring in an electronic computer. Scientific movies of artistic interest will be welcomed.

Readers of *Physics Today* who can suggest unusual material that they believe to be appropriate for this exhibition are invited and urged to communicate with the undersigned at the Institute for the Study of Metals, University of Chicago, Chicago 37, Illinois, or with Mrs. Frances S. Biesel, Exhibition Director of the Renaissance Society, Goodspeed Hall 108, 5845 Ellis Avenue, Chicago 37, Illinois. An acknowledgment will be made of the source of all material that is displayed, and the cost of transportation and insurance can be met.

Cyril Stanley Smith
University of Chicago

National Science Foundation

3rd Annual Graduate Fellowship Program

More than seven hundred students with special abilities in science will be selected for a year of graduate scientific study during the academic year 1954-55 in the National Science Foundation's Third Annual Graduate Fellowship Program. The closing dates for receipt of applications are December 15, 1953, for postdoctoral applicants, and January 4, 1954, for graduate students working toward advanced degrees in science. The selections will be announced on or before April 1, 1954.

The fellowships will be awarded to American citizens who will begin or continue their studies at the graduate level in the mathematical, physical, biological, medical, and engineering sciences during the 1954-55 academic year. Selections will be made solely on the basis of ability. The majority of the fellowships will go to graduate students seeking master's or doctor's degrees in science, although a limited number of awards will be made to postdoctoral applicants. Graduating college seniors in the sciences who desire to enter graduate school are encouraged to apply for the awards. The rating system for selection of predoctoral fellows will be based on: (1) test scores of scientific aptitude and achievement; (2) academic records; (3) written evaluations of each individual from his faculty advisors and other qualified observers. Postdoctoral applicants will not be required to take the examinations. Applicants will be rated by special fellowship boards, established by the National Academy of Sciences. Final selection will be made by the National Science Foundation.

Stipends for NSF graduate fellowships will vary with the academic status of the fellows. First-year fellows (students entering graduate school for the first time or those who have had less than one year of graduate study) will receive annual stipends of \$1400. Fellows who need one final academic year of training for the doctor's degree will receive annual stipends of \$1800. Fellows between these groups will receive stipends at the rate of \$1600 annually. The stipends for postdoctoral fellows will be \$3400 per year. Dependency allowances will be made to all married fellows. Tuition and laboratory fees and limited travel allowances will also be provided. NSF graduate fellows may attend any accredited nonprofit institution of higher education in the United States or similar institutions abroad.

A total of 624 selections were made from slightly less than 3000 applicants in 1952-53, the first year of the Foundation's fellowship program. Last year 557 selections were made out of 3300 applicants. Also, 1274 individuals were named on an honorable mention list, which was made available to deans of graduate schools.

Applications for the 1954-55 NSF Fellowship Program may be obtained from the Fellowship Office, National Research Council, Washington 25, D. C.

NSF Mineral Research Panel Appointed

The Science Foundation has established a permanent Advisory Panel on Minerals Research to advise NSF in