News and Notes

STUDENTS, SCIENTISTS, AND SELECTIVE SERVICE

The Scientific Advisory Committees appointed by the Director of the Selective Service System have just submitted a joint report, the text of which should be available to every teacher, scientist, and student. The recommendations are not startling, partly because they make such obvious good sense, partly because those affecting college students have already been utilized in dealing with this fall's college population.

The recommendations in Part II relative to personnel already trained have not been adopted, and they do not coincide with General Hershey's thinking on the subject, if the General's speech of October 3 was accurately reported. Much as one can sympathize with the latter's problem, especially in the face of the military's fantastic rejection ratio, it is hoped that the General—and the public—will realize the committees are thinking in the long-range terms of the nation's welfare, not in the short-sighted terms of getting 3,000,000 men in uniform the easiest way.

Full texts of the letter and report follow:

October 5, 1950

Major General Lewis B. Hershey
Director, Selective Service System
1712 G Street, N.W.
Washington 25, D. C.

To advise me on the whole problem in general in the fixing of policies in order that we may classify individuals concerned to the best interest of the national economy and the health, safety and interest of the Nation.

DEAR GENERAL HERSHEY:

The six Scientific Advisory Committees (Agricultural and Biological Sciences, Engineering Sciences, Healing Arts, Humanities, Physical Sciences, Social Sciences) appointed by you in the autumn of 1948 have reviewed the recommendations originally submitted to you on December 21, 1948. With certain minor modifications the committees have unanimously reaffirmed these recommendations.

In the interest of securing widespread discussion and acceptance of the policies recommended and the principles underlying them the committees urge that the full report as here attached be made public.

These recommendations have been developed by the six committees as a committee of the whole to meet the objective indicated in your letter of appointment:

The committees call attention to the fact that their report has been governed by the provisions of existing legislation concerning the Selective Service System (*Public Law 759*) and is in accord

1) with the declaration by Congress in *Public Law 759* "that adequate provision for national security requires maximum effort in the fields of scientific research and development, and the fullest possible utilization of the Nation's technological, scientific and other critical manpower resources"; and
2) with the effective carrying out of the responsibility imposed upon the Selective Service System by the same law which declares "that an adequate armed strength must be achieved and maintained to insure the security of this Nation."

The committees believe that the policies here proposed provide for the most effective possible implementation of the existing legislation and rest upon principles which will remain valid even if the basic legislation should be modified. The committees, therefore, urge the early adoption of these policies and the issuance of local board memoranda necessary to make them effective.

The committees' report presents (1) recommendations concerning the training and utilization of scientific, professional, and specialized personnel, (2) the reasoning behind these recommendations, and (3) alternate proposals considered and rejected by the committees.

Sincerely yours,

M. H. TRYTTEN
General Chairman, Scientific Committees

Roster of Committees

Agricultural and Biological Sciences
- Elmer C. Butler, *Princeton University*
- John S. Nicholas, *Yale University*
- Leland W. Parr (Chairman), *George Washington University*
- Lewis J. Stadler, *University of Missouri*

Engineering Sciences
- George W. Bailey, *The Institute of Radio Engineers*
- Alex C. Monteith, *Westinghouse Electric Corporation*
- Carl Richard Soderberg, *Massachusetts Institute of Technology*
- Stephen L. Tyler (Chairman), *American Institute of Chemical Engineers*

Humanities
- Vincent J. Flynn, *The College of St. Thomas* and *St. Thomas Military Academy*
- Charles E. Odegaard (Chairman), *American Council of Learned Societies*
- Earl Swisher, *University of Colorado*
- Berthold L. Ullman, *University of North Carolina*

Healing Arts
- Donald G. Anderson, *Council on Medical Education and Hospitals, American Medical Association*
- Stockton Kimball (Chairman), *School of Medicine, The University of Buffalo*
- Walter R. Krill, *College of Veterinary Medicine, The Ohio State University*

R. McFarlane Tilley (Chairman), *Bureau of Professional Education and Colleges, American Osteopathic Association*
Gerald D. Timmons, *School of Dentistry, Temple University*
Physical Sciences
Henry A. Barton, *American Institute of Physics*
George O. Curme, Jr., *Union Carbide & Carbon Chemical Corporation*
Roswell C. Gibbs (Chairman), *National Research Council*
Thomas B. Nolan, *U. S. Geological Survey*
Samuel S. Wilks, *Princeton University*
Social Sciences
Charles W. Cole, *Amherst College*
J. Kenneth Galbraith, *Harvard University*
E. Lowell Kelly, *University of Michigan*
Malcolm M. Willey, *University of Minnesota*

Report to the Director of the Selective Service System
by the
Six Committees on Scientific, Professional, and Specialized Personnel

A. Recommendations

I. Recommendations concerning the training of scientific, professional, and specialized personnel

These recommendations are intended to protect the national interest by providing for the further training of those students whose potential ability is attested by a superior score on a general aptitude test and whose educational progress to date is established by a superior academic record. No attempt is made to designate any specific college curriculum or graduate program of instruction as essential or as warranting consideration over and above that given any other curriculum.

1. There should be established within the present Selective Service regulations a special class of registrants (perhaps designated Class II-A (s) in which there should be placed any registrant whose demonstrated educational aptitude is such that it is deemed necessary that his preprofessional or professional training program be continued in order to increase his potential value to the national health, safety, and interest.

2. *Educational aptitude* should be defined as a specified minimum score on a general classification test *and* a record of previous educational accomplishment sufficiently high to indicate special promise of eventual scientific, professional, or specialized competence.

For the present, the committees recommend the following specific provisions:

a) To be eligible for classification in the proposed Class II-A (s), a student must have a score on a general aptitude test equivalent to a score of 120 or above on the Army General Classification Test.

b) To be eligible for such classification he must also be certified by the school, college, or university authorities as giving promise of definite progress in higher education; such certificates may be issued only in the following cases, the certificate stating in each case the relevant limitation:

i) If the registrant is a student in high school or preparatory school, his record to date must be acceptable for admission to one or more accredited colleges or universities. (An accredited college or university, as herein interpreted, is one which offers an educational program leading to an academic degree at the end of four years and which is approved by the Department of Education in the state or territory in which it is located. Teachers colleges and junior colleges are included within the meaning of this recommendation when their students conform to the limitations set herein.)

ii) If the registrant is a full-time first-year student (freshman), he must be enrolled in a curriculum which leads, either in the same or, after transfer, in another institution, to a degree granted normally at the end of at least four years of college work.

iii) If the registrant is a full-time second-year student (sophomore), in an accredited college or university, and is enrolled in a curriculum as defined in "i" above, he must have maintained a scholastic record which placed him above the 50th percentile of the first-year class in the university or college (or in a school or curriculum thereof) in which he was previously enrolled.

iv) If the registrant is a full-time third-year student (junior), in an accredited college or university, and is enrolled in a curriculum as defined in "i" above, he must have maintained a scholastic record which placed him above the 33rd percentile of the second-year class in the university or college (or in a school or curriculum thereof) in which he was previously enrolled.

v) If the registrant is a full-time fourth-year student (senior) or a full-time fifth-year student in those five-year programs which lead to a baccalaureate degree, and is enrolled in a curriculum as defined in "i" above, he must have maintained a scholastic record which placed him above the 25th percentile of the class in his previous year in university or college (or in a school or curriculum thereof).

vi) If the registrant is enrolled as a full-time student in the first year of a graduate or professional program leading to a graduate or professional degree in an accredited college or university, he must have maintained a scholastic record in his last undergraduate year which placed him above the 50th percentile of his class in an accredited college or university (or in a school or curriculum thereof). (The meaning of a full graduate status shall be determined by the existing rules and regulations of the college

or university concerned. These rules are based upon the general recognition in American graduate education that part-time assistantships in teaching or research are a normal part of the graduate educational process.)

vii) If the registrant is enrolled as a full-time student beyond the first year in a graduate or professional program leading to a graduate or professional degree in an accredited college or university, he must be certified by the college or university as making satisfactory progress and as likely to complete all degree requirements for the degree program in which he is currently enrolled.

c) Whenever a student who has been classified II-A (s) under the above provisions fails to pursue his course in a manner justifying this classification, the college or university shall immediately notify his local board of that fact.

3. Classification of students between academic years. Prior to the completion of his course of training, a student who has been classified in II-A (s) should be retained in that class in the established interval between academic years only if:

a) He presents evidence of his intention to continue full-time training the following year;

b) He has been certified by the testing agency and by a college or university as provided above; and

c) He presents evidence that the interval between academic years will be utilized in a manner which has been approved by the college or university as forwarding his training program.

II. Recommendations concerning the utilization of scientific, professional, and specialized personnel

The pool of scientific, specialized, and professional personnel includes those who have completed their training at some time in the past and those who are becoming available through the completion of current training. The following recommendation by the committees covers both groups:

1. A registrant who has been classified in II-A (s) should be retained in that classification for a period of four months after he has completed his training.

2. He should then be considered eligible for classification in Class II-A if (*a*) he is fully engaged in a professional pursuit in an activity for which generally the nature and degree of his training are requisite and (*b*) the activity itself is one that is essential to the national health, safety, or interest.

3. A registrant who was graduated in 1950 or before and has specialized training, similar in character and quality to that covered by Class II-A (s) should be considered eligible for classification in Class II-A, if he satisfies the same two conditions.

4. To facilitate classification by the local draft boards of trained scientific, professional, and specialized personnel, it is recommended that the Selective Service System expand its central administrative organization to include special advisory committees. Each of these committees, of which there should be five or more covering the major areas of specialized training, should consist of six qualified members, including at least one member familiar with the specialized needs of the armed services in the fields covered by the committee.

5. Each committee should be assisted by a full-time executive secretary qualified in the field of the committee and attached directly to the office of the Director of Selective Service.

6. It should be the responsibility of these committees (*a*) to advise the Director of Selective Service and through him the State Directors and local draft boards on specialized personnel needs of military and essential civilian activities; (*b*) to make recommendations to local and appeal boards on the disposition of cases involving specialized personnel.

7. It should be the responsibility of each advisory committee continuously to define the functions within its fields and to evaluate the needs, both civilian and military, for personnel with specialized training within those fields.

8. The chairmen of the several committees should constitute a coordinating committee to review frequently general procedural problems relating to the activities of all the committees.

B. Basis of the Committees' Recommendations

The committees take for granted the now generally accepted conclusion that modern nations, to survive in peace or war, must have an adequate number of scientific, professional, and specialized personnel in both civilian and military pursuits. Therefore, suitable steps must be taken to recruit, train, and maintain in professional activity an adequate flow of competent individuals. Furthermore, the composition of these committees is testimony to the fact there is now a larger recognition than formerly of the wide variety of fields of higher learning which were called upon in World War II. The engineering sciences, the physical sciences, the biological sciences, the social sciences, the humanities, and the healing arts all made significant and essential contributions to the successful prosecution of the last war and will continue to be vital to the national defense as well as to the national welfare. If we are to maintain our civilization, we cannot permit any one of these areas of knowledge to be seriously crippled. If we are to maintain our nation's security and to defend it in extreme emergency, we must not allow any of them to become undermanned.

The two sets of recommendations presented above grow out of these basic principles. Both permit flexibility and discretion in the distribution of specialized personnel and take cognizance of the wide variety of training required for the maintenance of essential civilian and military activity.

The recommended plans for training and for utilization are adaptable to changing circumstances, so that in increasing emergency more manpower could be utilized, if necessary, for immediate military needs. The training plan calls for two cutoff points in the classification of students for further training which may be raised or lowered by modifying the standards on either or both of

the two variables: the minimum score on a general classification test and the requirements for certification of academic progress. The utilization plan similarly provides for variations in the distribution of trained personnel through the continuing policy recommendations of the Advisory Boards which would take account of changing relative needs of the essential civilian and military services.

The recommendations with regard to the utilization of specialized personnel recognize that those who have received special training have a continuing responsibility to put that training to effective use in the national interest. Their reclassification after a four-month period implies that they, in common with others, will be subject to general military service unless there is a higher priority for their service in other essential activity.

It is recognized that, in addition to those persons trained in ROTC programs and therefore immediately available to the military services, there will be needs within the armed services to be met from the pool of specialized personnel. The presence on the advisory board of members familiar with these needs of the armed services insures the consideration of military needs by the boards. As a matter of policy it is recommended that whenever possible these military requirements be met from among those who become available at the conclusion of their training.

The principle of selection which underlies the committees' recommendation with regard to training may be stated briefly. Men vary in their aptitudes and in their interests. Scientific and professional ability is only one of many kinds of competence needed by a people, but it can be developed only by a long period of training. The purpose of the committees' recommendations is to keep in training persons who, by reasonably objective standards, demonstrate their probable capacity to reach the level of scientific, professional, or specialized competence.

The bare minimum of training necessary for such competence is the completion of the usual four-year college or university course; in almost all fields, however, additional years of graduate or professional training are required. Any policy which stops the flow of persons to the higher levels of learning and skill is extremely hazardous, since our national security and welfare depend upon the maintenance of a supply of persons equipped with highly specialized learning and skill.

The committees also recognize that the immediate manpower needs of the military may require the induction of a large portion of the student age groups. The policy recommended by the committees would make considerable numbers of students immediately available for induction, while others would be classified for further training, thus maintaining a needed flow of scientific, professional, and specialized personnel. It is estimated that the committees' recommendation would result in the additional deferment of not more than 3 per cent of the men in any age group. In a nation whose security has come to depend upon essential civilian as well as military personnel, this group could be logically considered as the civilian counterpart of the military ROTC groups.

The committees' plan would not produce major or undesirable dislocations in the educational system; it permits the continued development of the wide variety of fields of learning and science associated with the maintenance of our civilization and of our security, and it does not encourage the development of too narrow curricula. The committees call attention to the fact that opportunities to go to college are not evenly distributed in our population. The committees also call attention to the following two observations:

1. Any analysis of the manpower problem reveals the nation's need of constant recruiting and training of scientific and specialized personnel. Such persons cannot be made available for service to the nation unless opportunities for training in colleges and universities continue to be available. The Selective Service System must therefore allow for a continuing flow of persons through our colleges and universities.

2. The committees do not believe that an unwise manpower and Selective Service policy should be adopted because of an inadequate national policy with regard to the distribution of educational opportunity. The committees urge in the strongest possible terms that the Director of Selective Service recommend to the appropriate agencies a national scholarship program so that any individual who has the educational aptitude required for classification by Selective Service for further training as here proposed, and who has the desire to procure such training by attendance at a college or university, would be given, upon successful examination, scholarship support by the government. The evil of unequal educational opportunity for men of ability should be faced directly and cured within the limits of the national capacity rather than permitted to push the nation into a use of its manpower which is unwise and unsafe for the future of the United States.

C. Alternate Proposals Considered and Rejected by the Committees

No induction of college students. To insure that there shall continue to be an adequate supply of scientific, professional, and specialized personnel, some have advocated publicly that *all* college students should be exempted from military training or service during their college course. The committees are opposed to such a recommendation. Any plan adopted by Selective Service should be capable of ready adjustment to make possible the induction of larger and larger numbers of the student age groups in case of increasing emergency. This plan is inflexible, is regarded as inflexible and unrealistic and, therefore, impracticable.

No exemption of college students. Others have proposed publicly that all undergraduates should be subject to induction on the theory that after twenty-one months of military service the former students could return to college. The committees are unable to accept this plan for the following reason among others. Our nation is already suffering from a serious shortage of scientific, professional, and specialized personnel resulting from constrictions applied during World War II. Full-scale induction of college students which would result from this proposal, would virtually stop the production of su-

perior scientific, professional, and specialized personnel for a period of at least two years. Furthermore, many of those entering military service would not return to institutions of higher learning for training, especially if an intensification of the emergency resulted in a prolongation of their military service. This proposal would lead to a serious hiatus in the continuing supply of critically needed specialized personnel and thus constitutes such great danger to the national security that the committees cannot subscribe to a policy of no deferment for college students.

Exemption of students on the basis of "essential" occupations. A frequent proposal has been the recommendation that those students who are preparing for "essential" sciences and professions be permitted to continue their training. The committees declare that two fallacies underlie this recommendation.

1. The first fallacy is the idea that one can identify the "essential" sciences. If one knew the exact character of the particular emergency which the nation might face at a given period in the future, one might be in a position to hazard some guesses as to essential fields of knowledge—but then one would also have to know the nature of coming developments in the sciences themselves. It is quite possible that fifteen years ago nuclear physicists would have been dismissed as a scientific luxury—as a group of theoreticians not essential to the national defense. The professor of Japanese language and literature who served in combat intelligence during World War II would certainly have been viewed earlier as a luxury. Fortunately for our own safety in the future, the experiences of World War II have changed our perspective. Proponents of the plan of preserving a flow of personnel for the "essential" sciences are quick to state the essentiality of the fields of learning with which they are themselves concerned, though as reasonable men they generally recognize that there are other fields which may also be essential. Even so, such proposals are to be viewed as somewhat irresponsible until their proponents are willing to state and document that "these are the essential fields of learning," and "those are the nonessential fields." To prepare such a list calls for an omniscience which sane men hesitate to claim. If any group elects to present such a list and it becomes the basis of national policy, it must be remembered that the very list will form the shape of things to come, largely extinguishing some fields of knowledge or stopping their growth, and predetermining the lines of the nation's scientific and cultural development in the coming years. The nation which has guessed wrong will be all wrong if this policy is followed.

The arbitrary limitation of the fields of learning with the branding of certain fields as essential is likely to result in a narrowing of curricula at an even earlier phase of education than now exists. The committees are convinced that highly specialized persons, to be useful in the national welfare and defense, need in addition to their specialty a broad basis of knowledge of men, things, and affairs. It is this broad range of information, combined with intelligent imagination and specialized competence, which enables men to meet new situations and to devise new techniques of control which will work in nature and in human society. Loss of adaptability will come inevitably with a narrow range of training, and if there is anything a nation cannot now afford to lose, it is ingenuity in planning and research at a higher level.

2. The second fallacy underlying the suggestion that only those students who are preparing for essential sciences and professions should be permitted to continue their training has to do with the students themselves. Very few college freshmen know with an exactitude that could be of use to Selective Service which science, profession, or special field they wish to enter or for which they are best qualified, and still fewer subsequently enter the fields they may have chosen as freshmen. Therefore, college students in the first and second years can rarely be expected to make intelligent choices among specific fields. There is little reason to believe that university authorities can choose correctly for them.

About People

Gladys M. Keener, Executive Editor of THE SCIENTIFIC MONTHLY, was appointed Executive Editor of the Association journals by the AAAS Executive Committee at its meeting on October 15. Mrs. Keener assumed editorial direction of SCIENCE upon the resignation of **Beth Wilson** last summer.

Charles S. Bridgman, for the past two years head of the Human Engineering Branch, U. S. Navy Special Devices Center, Sands Point, N. Y., has been appointed associate professor and chairman of the Department of Psychology, in the University of Wisconsin's Extension Division. Dr. Bridgman will direct the division's Bureau of Industrial and Applied Psychology, formerly headed by Carl H. Wedell, who was killed in an automobile accident last winter.

Director of the hospital at the new North Carolina State University Medical Center is **Robert R. Cadmus,** formerly assistant director of the University Hospitals, Cleveland. **Elizabeth L. Kemble,** former director of the Department of Measurement and Guidance of the National League of Nursing Education, is dean of the School of Nursing.

Saul G. Cohen has been appointed associate professor of chemistry at Brandeis University, Waltham, Mass. Dr. Cohen comes to Brandeis from the Polaroid Corporation.

J. R. Ewalt, administrator of hospitals and professor of neuropsychiatry at the University of Texas Medical Branch, Galveston, has accepted the post of dean of the university's Postgraduate School of Medicine. Recent appointees at the university's M. D. Anderson Hospital for Cancer Research and the Postgraduate School of Medicine, Houston, are **Jack B. Trunnell** as associate internist in the Department of Medicine and assistant professor of medicine; **E. Staten Wynne,** as research bacteriologist in the Department of Experimental Pathology and assistant professor of bacteri-

ology; and **Henry J. Nicholas** as biochemist in the Department of Experimental Medicine and assistant professor of biochemistry. Dr. Trunnell formerly was assistant at the Sloan-Kettering Institute for Cancer Research, instructor in medicine at Cornell Medical School, and a member of the staff of the New York Hospital. Dr. Wynne was an assistant professor in the Department of Plant Sciences at the University of Oklahoma, and Dr. Nicholas was assistant professor of zoology at Brigham Young University.

Eugene M. Farber has been appointed director of the Division of Dermatology and associate professor of dermatology (medicine) at Stanford University School of Medicine. He also is chief of dermatology at Stanford University hospitals.

A new member of the Department of Zoology at Indiana University is **David G. Frey,** formerly of the University of North Carolina. Dr. Frey will also serve as director of the Indiana Lake and Stream Survey and of the Biological Station.

Yale David Koskoff, senior neurosurgeon, has been appointed director of research and medical and surgical services at the Montefiore Hospital, Pittsburgh, Pa.

Herman C. Lichstein, formerly of the University of Tennessee has been named associate professor in the Department of Bacteriology, Medical School, University of Minnesota, where he will develop a program of microbial physiology and metabolism.

Horace W. Norton, formerly statistician with the Atomic Energy Commission at Oak Ridge, has accepted an appointment with the Illinois Agricultural Experiment Station as professor of agricultural statistics.

Frederick W. Ross has been appointed professor of aeronautical engineering at the University of Detroit. Dr. Ross was formerly assistant director of the Aeronautical Research Center at the University of Michigan, where he also served as member of the Technical Steering Committee and of the Supersonic Wind Tunnel Committee.

Raymond F. Sletto has been appointed chairman of the Ohio State University Department of Sociology. Dr. Sletto succeeds **Perry P. Denune,** who has retired as chairman after serving on the university staff since 1921.

J. N. Spuhler, formerly assistant professor of anthropology and zoology at Ohio State University, has been appointed research associate in the Institute of Human Biology, University of Michigan. Dr. Spuhler will initiate a five-year study of assortative mating in a city community under a grant of $100,000 provided by an anonymous donor.

Richard K. Winslow, science writer of the New York *Herald Tribune* since 1947, has joined the staff of the RCA Department of Information in New York City. His assignment will be to cover scientific activities of RCA Laboratories Division.

Henry E. Wirth, former vice chairman of the Department of Chemistry at Ohio State University, has been named chairman of Syracuse University's Department of Chemistry, and began his duties last month. Dr. Wirth succeeds **W. Conrad Fernelius,** who resigned in January, 1948. **A. J. King,** professor of chemistry, was acting chairman until Dr. Wirth's appointment.

Florian Znaniecki, widely known sociologist and scholarly writer, has joined the faculty of Wayne University as a temporary professor in the Department of Sociology and Anthropology of the College of Liberal Arts.

Visitors

Eduardo Braun-Menendez, professor of physiology at the University of Buenos Aires, gave a series of special lectures and seminars at the University of Texas Medical Branch, Galveston, last week on cardiovascular and renal studies. He will also visit Southwestern Medical College of the University of Texas, Dallas, and will hold special conferences at Galveston with H. G. Swann, professor of physiology, on factors involved in renal pressure. Dr. Braun-Menendez, a former Hertzstein lecturer, visited the University of California School of Medicine, San Francisco, early in October. He is in the U. S. to review new developments in research on heart disease.

As the result of arrangements made by Unesco, a group of researchers in basic biology recently organized in Montevideo, Uruguay, are being assisted by **Torbjörn Caspersson,** of the Carolinian Institute's Department of Cell Research and Genetics. After a short visit in the U. S. the Swedish biologist left for the Uruguayan capital, where he is spending two months attending a cell-physiological forum of representatives from several South American nations and another month visiting different institutes as a consultant.

S. H. Crowdy, of Bristol University Horticultural Research Station, Long Ashton, England, is serving as visiting associate professor of plant pathology at Rhode Island State College, October 1950–June 1951. Dr. Crowdy's principal interests are in systemic fungicides and in virus diseases of stone fruits.

Recent visitors at the National Bureau of Standards were **J. M. Burgers,** professor of hydro- and aerodynamics, Laboratorium voor Aero- en Hydrodynamica der Technische Hoogeschool, Delft, Holland; **Louis Deffet,** director, Institut Belge des Hautes Pressions, Brussels; **Frank J. Kerr,** senior research officer, Radiophysics Laboratory, Commonwealth Scientific and Industrial Research Organization, Chippendale, N.S.W., Australia; **Robert W. R. Muncey,** senior research officer, Division of Building Research, Commonwealth Scientific and Industrial Research Organization, Melbourne, Australia; **K. V. Ratham,** chemical ceramics technologist, Indian representative, Steel Company of Canada, Ltd., Hyderabad, India; **J. M. Buist** and **W. J. S. Naunton,** of the Imperial Chemical Industries, Ltd., Manchester, England; **Sir Charles Darwin,**

former director of the National Physical Laboratory at Teddington, England; **Sydney Goldstein,** professor of mathematics, University of Manchester, England; and **Kaarlo Stahlberg,** professor in chemical engineering, Finlands Institute of Technology, Helsinki.

Robert B. Hunter, professor of materia medica, pharmacology, and therapeutics at the University of St. Andrews, Scotland, is visiting lecturer at Boston University School of Medicine during the current semester.

This year's Hitchcock Foundation lecturer at the University of California was **Heinz Hopf,** professor of higher mathematics at the Swiss Federal School of Technology, Zurich, and co-author with P. Alexandroff of *Topologie I.* The series of public lectures on the Berkeley campus began October 5.

Grants and Awards

The Republic of Syria has sent K. G. Wakim, of the Mayo Clinic, Rochester, Minn., the medal of highest order of merit in appreciation of his services to the medical school of the National University in Damascus. This is the second honor conferred upon Dr. Wakim in recognition of his recent services in the Near East. The first was decoration with the gold medal of the highest order of merit by the Republic of Lebanon in recognition of his contributions to medical education in the Near East and in the U. S.

The U. S. Atomic Energy Commission announced on October 1 that 148 new predoctoral fellows have been appointed under the AEC regional fellowship program for the 1950-51 academic year. Thirty-seven of the new fellows were appointed by Associated Universities, Inc., of New York, to study at institutions located in the Northeast; 10 were appointed by the Oak Ridge Institute of Nuclear Studies, to study at institutions in the Southeast; 71 were appointed by the Midwestern AEC Fellowship Board, Chicago, for study at institutions in the Midwest; and 30 were appointed by the Western AEC Fellowship Board, established by the University of California, for study at institutions located in the West.

The Committee on Award of The Society of the Sigma Xi and The Scientific Research Society of America has awarded the following grants-in-aid of research for 1950:

George Anastos, Miami University, publication of "The Ixodid Ticks of the Netherlands East Indies"; Stanley S. Ballard, Tufts College, study of the extension of thermal conductivity of optical crystals at low temperatures; Alexander S. Bartha, Juniata College, research on staining techniques as used in parasitology and serological diagnosis; James R. Beer, University of Minnesota, study of the requirements for successful hibernation in cave bats; Arthur M. Chickering, Albion College, studies of the spiders of Panama; Kenneth A. Christiansen, Harvard University, study of Collembola of the Nearctic; Demorest Davenport, Santa Barbara College, research on the physiology of commensalism; John J. Donohue, Rutgers University, study of littoral sediments along the coast of Maine; Tilly Edinger, Harvard University, study of the origin and evolution of frontal sinuses; Frank E. Egler, Aton Forest, Norfolk, Conn., research on regional vegetation; Walter R. Hibbard, Jr., Yale University, purchase of special apparatus for a study of wire and compression textures of body-centered cubic metals; Taylor Hinton, Amherst College, studies on the gene position effect in *Drosophila* raised under aseptic conditions; Malcolm Jollie, University of Idaho, study of the anatomy and phylogeny of Falconiformes; Irving A. Kaye, Brooklyn College, to continue a study of the preparation of α thienyl-β substituted amino-alcohols and derivatives as potential pharmaceuticals; Albert R. Mead, University of Arizona, field studies on the *Achatina* problem in the Pacific; Lorus and Margery Milne, University of New Hampshire, assistance in their investigation of invertebrate photoreception and photoreceptors; Cornelius Muller, University of Santa Barbara College, study of critical collections of American oaks in herbaria in Paris, Geneva, and Madrid; Margaret R. Murley, Wilson Junior College, publication of her study on "Seeds of the Cruciferae of Northeastern North America"; Raymond A. Paynter, Jr., Yale University, to continue a field study of avian-zoogeography of the Yucatan Peninsula; Sherman K. Reed, Bucknell University, work on the synthesis of fluorine substituted amines; Paul M. Ruoff, Syracuse University, study of the effect of plant hormones on specific enzyme systems; John W. Sease, Wesleyan University, purchase of an ultraviolet scanning device; J. R. Shah, India, purchase of apparatus for a study of magnetic lenses at the National Bureau of Standards; Royal E. Shanks, University of Tennessee, study of the seasonal course of tree growth; Lora M. Shields, New Mexico Highlands University, field study of leaf xeromorphy; Donn L. Smith, University of Colorado, pharmacological study of traumatic shock in the rat; Joseph Steigman, Polytechnic Institute of Brooklyn, study of the effect of high-intensity soft x-radiation on polymerization; Kathryn F. Stein, Mount Holyoke College, research on the possible influence of heredity in malocclusion; Calvin L. Stevens, Wayne University, purchase of a refractometer for approved research in chemistry; B. G. L. Swamy, Harvard University, publication of his investigation of the comparative morphology of the Santalaceae; Richard E. Tashian, Purdue University, field study of the avifauna of southeastern Guatemala; and George C. Wheeler, University of North Dakota, morphological and taxonomic study of ant larvae.

The Chemistry Branch, Physical Sciences Division, Office of Naval Research, has announced the following new contracts during the 15 months ending September 30, 1950:

University of Alabama—R. B. Scott, Jr., mechanism of various organic reactions; University of Arkansas—E. S. Amis, the electrostatics of ion-dipolar molecule reaction rates; Bryn Mawr College—H. Kwart, physical chemical investigation of the Diels-Alder reaction; California Institute of Technology—L. Zechmeister, organic fluorescing substances in marine organisms; Emory University—O. R. Quayle, synthesis of cyclopropanone rings; George Washington University—J. Farago, oxidation of oximes; Howard University—L. M. Ferguson, studies of aromatic bromination with the aid of infrared spectroscopy; University of Illinois—H. S. Gutowsky, use of nuclear magnetic resonance absorption in structural and nuclear spin studies; University of Illinois—W. H. Rodebush and A. M. Buswell, fundamental properties of water and the liquid state; University of Kansas—E. Griswold and J. Kleinberg, stabilization of low-oxidation states; Michigan State College—M. T. Rogers, a magneto chemical investigation of adsorption; National Bureau of Standards—H. S. Isbell, infrared spectra of sugars; National Bureau of Standards—M. M. Davis, measurement of acidity and basicity in organic solvents; Northwestern University—F. G. Bordwell, reactions of alpha-halo sulfones; University of Oklahoma—J. H. Wender, identification studies on flavonoid pigments; Pennsylvania State College—P. J. Elving, new analytical methods for studying organic reactions; Pennsylvania State College

—C. I. Noll, chemistry of nitramide; Polytechnic Institute of Brooklyn—F. C. Collins, diffusion and reaction rate; Rutgers University—W. Rieman, III, separation of alkali metals by ion exchange; St. Olaf College—A. E. Finholt, preparation and properties of inorganic hydrides; Tennessee Agricultural and Industrial State College—C. R. Dillard, organic derivatives of tin hydrides; Tuskegee Institute—C. T. Mason, halogenated ethers; University of Washington—B. S. Rabinovitch, reactions and properties of the alkyl free radicals.

During this period the Chemistry Branch has had the advisory collaboration of three panels: in inorganic chemistry, P. W. Selwood, A. B. Burg, W. C. Fernelius, L. L. Quill, W. Conway Pierce; in organic chemistry, M. S. Newman, R. T. Arnold, P. D. Bartlett, W. E. Hanford, Herbert E. Carter, and W. M. Lauer (alternate for Dr. Arnold); in physical chemistry, F. A. Long, A. O. Allen, W. O. Baker, Paul C. Cross, Malcolm Dole, P. H. Emmett, John G. Kirkwood, J. E. Willard. The personnel of these panels for the current fiscal year will be announced at a later date.

Research Funds

The New York Academy of Medicine announces the availability for 1950 of **The Louis Livingston Seaman Fund** of $1,600 for the furtherance of research in bacteriology and sanitary science. This fund has been made possible by the terms of the will of the late Louis Livingston Seaman and is administered by a committee of the academy. The committee will receive applications from either institutions or individuals up to *December 15*. Communications should be addressed to Dr. Wilson G. Smillie, Chairman, Louis Livingston Seaman Fund, 1300 York Ave., New York 21. The fund will be expended only on grants-in-aid for investigation, or on scholarships for research in bacteriology or sanitary science. The expenditures may by made for securing of technical help, aid in publishing original work, and purchase of necessary books or apparatus.

The Office of Naval Research again intends to make available limited funds for the support of pure research in astronomy and astrophysics. The National Research Council, at the request of ONR, has appointed an advisory committee of astronomers to recommend specific projects for support by ONR. The committee has suggested that the average cost per project should be about $3,000, with a maximum not appreciably in excess of $5,000. When a proposal is selected for support by ONR, negotiations will be entered into for a contract between the U. S. Navy and the institution at which the research will be conducted. Applications for the support of projects to be considered this winter should be received by ONR not later than *December 15*. These should be addressed to Chief of Naval Research, Washington 25, D. C., Att.: Dr. Mina Rees, Director, Mathematical Sciences Division.

NRC News

A symposium on burns will be held at the National Academy of Sciences–National Research Council in Washington on November 2–4. The symposium, arranged by the council's Division of Medical Sciences at the request of the Research and Development Board, comprises five sessions of papers on the physiology, biochemistry, and treatment of thermal burns.

The first session, I. S. Ravdin presiding, will consider the scope and importance of the burn problem, special considerations with respect to atomic bombs and flame throwers, and the laboratory production of high- and low-temperature burns. The afternoon session of November 2, Donald D. Van Slyke presiding, will comprise papers on fluid and electrolyte requirements in burns. The physiological disturbances resulting from severe thermal burns, and the early treatment of the burned area, will be the subject of the third session, with Dickinson W. Richards, Jr., presiding. The afternoon session of November 3, A. R. Dochez presiding, will consider the further care of the burn patient, with papers on infections in burns, nutritional care, and methods of early debridement of burn wounds. The final session, William S. Stone presiding, will discuss the plastic repair of burned areas, and disaster problems and civil defense planning. A general summary of the symposium will be given by Everett Evans, chairman of the council's Subcommittee on Burns.

The sessions are open to persons having a professional interest in burn research or responsibility for medical preparedness in military or civil defense. Advance registration is not required, but those planning to attend should notify the Secretary, NRC Division of Medical Sciences, 2101 Constitution Ave., Washington 25, D. C.

Data on Chemicals for Ceramic Use can be obtained from the Publications Office of the NRC for $5.00. The bulletin was compiled by the council's Committee on Chemical Data for Ceramists, and lists more than 3,000 substances of interest in ceramics. In addition to the name, formula, formula weight, and color of the compound, each listing includes such information as the density, melting point, boiling point, sublimation point, decomposition temperature, refractive index, crystal form, and available x-ray diffraction data.

An annotated bibliography on dolomite is available without charge from the Division of Geology and Geography of the NRC. The compilation, containing more than 500 references on dolomite and dolomitic minerals, was prepared by Virginia Edith Clee, of the University of Wisconsin, under the auspices of the division's Committee on Sedimentation.

A Survey Report on Basic Problems of Underwater Acoustics Research is available without charge from the Publications Office of the NRC. The report was prepared by the Panel on Underwater Acoustics of the council's Committee on Undersea Warfare. The report considers the generation and reception of underwater sound, including transducer types; standards and calibration methods for measurements; ambient noise, soniferous marine life, and noise from ships; transmission and scattering of un-

derwater sound; fluctuations in underwater sound; and the recognition of underwater sounds.

Meetings and Elections

The Coordinating Council for Cerebral Palsy will conduct a two-week institute beginning November 6, for qualified physicians and nurses, and for physical, occupational, and speech therapists, social service and guidance workers, and teachers. Lectures, clinical demonstrations, and seminars will be included. Opportunities for a three-month in-service training course will be available to a limited number of physicians and therapists, after the institute. Further information may be obtained from Miss Marguerite Abbott, Executive Director of the Council, 270 Park Ave., New York 17.

The 46th annual meeting of the **American Society of Refrigerating Engineers** will be held in New York City, December 3–6, at the Hotel Commodore. Clarence A. Mills, professor of experimental medicine, University of Cincinnati, and Vilhjalmur Stefansson, arctic explorer and author, will be among the speakers. Plenary technical sessions of the convention will be held Monday, Tuesday, and Wednesday mornings. Conferences on specialized aspects of refrigerating engineering are planned.

The 1950 convention of the **Association of Military Surgeons of the United States** will be held November 9–11, at the Hotel Statler, New York City. The programs will deal with civil defense, the defense role of the physician, aviation medicine, rehabilitation, military medicine, surgery, sanitation, and discussions on the use of the newest therapeutic and prophylactic agents in emergency conditions. Provision has been made for section meetings of dental, nursing, veterinary, and other specialty groups.

The Mineralogical Society of America will hold its annual meeting in conjunction with the annual meeting of the **Geological Society of America** at the Hotel Statler, Washington, D. C., November 16–18.

The Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center will give a four-week's advanced course in physical rehabilitation methods for physical therapists from November 27 to December 22, January 8–February 2, and April 9–May 4. The sections of the courses are severe disabilities and their rehabilitation, skills and methods of functional activities, and clinical experience. The tuition fee is $62. Applications and requests for further information should be sent to Miss Edith Buchwald, Director of Rehabilitation Courses for Physical Therapists, Institute of Physical Medicine and Rehabilitation, 325 E. 38th St., New York 16.

The American Academy of Dental Medicine will hold its annual midwinter meeting at the Hotel Statler, New York City, on December 3.

Lectures and round-table discussions on dental-medical subjects will follow a business session. All members and interested dentists and physicians are invited. For program and reservations write Dr. William M. Greenhut, National Secretary, 124 East 84th St., New York 28.

The American Academy of Optometry will hold its annual meeting December 16–19 at the Drake Hotel in Chicago. There will be four days of technical papers, and section meetings on aniseikonia, contact lenses, and orthoptics. The annual round-table banquet will be held the evening of December 18. Henry A. Imus, Office of Naval Research, Washington, D. C., will be the banquet speaker.

The Archaeological Institute of America will hold its annual meeting on December 27–29 in Toronto, Ontario, with headquarters at the Royal York Hotel.

The American Society for Horticultural Science elected the following officers for the year 1950–51 at the annual business meeting at Columbus, Ohio, September 11, 1950: president, A. F. Yeager, University of New Hampshire; vice president, Kenneth Post, Cornell University; and secretary-treasurer, Freeman S. Howlett, Ohio Agricultural Experiment Station, Wooster. The next meeting of the organization will be held at the University of Minnesota, Minneapolis, in 1951.

The Mycological Society of America elected the following officers at its annual meeting in Columbus, Ohio: president, K. B. Raper, Northern Regional Research Laboratory, Peoria, Ill.; vice president, J. C. Gilman, Iowa State College; secretary-treasurer, Leland Shanor, University of Illinois; and councilors, A. H. Smith, University of Michigan, and Roderick Sprague, Washington State College.

Social physics will be the subject of a discussion at the December, 1950, meeting of the **American Association for the Advancement of Science,** at Cleveland, Ohio. The program will be sponsored jointly by Section M (Engineering) and Section K (Social Science).

Four papers, to be presented December 27, at the Allerton Hotel, are: "What is Social Physics?"—John Q. Stewart, Princeton University; "Dynamics of Economic Growth"—W. F. Sutherland, Toronto Hydro-Electric System; "Dimensional Analysis in Social Physics (with Testing of Gravitation Dimensions)"—Stuart Carter Dodd, University of Washington; and "The American Chemical Industry—Empiric Regularities in its Production, Distribution, Competition, and Product Distribution"—George Kingsley Zipf, Harvard University.

Three courses in the techniques of using radioisotopes in research will be given by the Special Training Division of the Oak Ridge Institute of Nuclear Studies during the winter and spring of 1951. Dates for the courses are: January 8–February 2, February 19–March 16, and April 16–May 11.

The courses are designed to acquaint research workers with the safe and efficient use of radioisotopes in research, and will consist of laboratory work, lectures on laboratory experiments, general background lectures, and special-topic seminars.

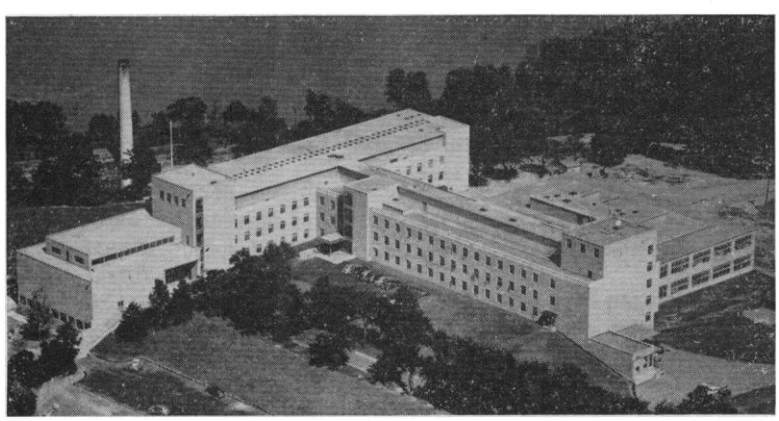
Experiments will be conducted covering the use and calibration of instruments, the purification and separation of radioactive materials from inert and other radioactive materials, measurement and use of carbon 14, pile activations, radioautographs, and the like. Seminars will include such topics as the use of radioisotopes in animal experimentation, use of radioisotopes in human beings, principles and practice of health physics, design of radiochemical laboratories, and effect of radiation on cells.

The Special Training Division can accommodate 32 participants at each of the three courses. A registration fee of $25 is charged, and participants will bear their own living and traveling expenses. Additional information and application blanks may be obtained from Dr. Ralph T. Overman, Chairman, Special Training Division, Oak Ridge Institute of Nuclear Studies, P. O. Box 117, Oak Ridge, Tenn.

The **Registry of Rare Chemicals**, 35 West 33rd St., Chicago 16, Ill. lists the following wanted chemicals: cuprous acetate, zinc ammonium nitrite, molybdenum silicide, barium ferrocyanide, silver chlorate, potassium hexaniobate, tetracosane, alpha-bromoisocaproyl bromide, hemimellitic anhydride, vinyl fluoride, 2,3-dichlorodiphenylamine, 2-methyl-5-n-butyl pyridine, 4-chloro-1,2-dimercaptobenzene, chloropentafluoroethane, methylene fluoride, norephedrine, 6,7-dichloro-9-ribityl-isoalloxazine, D-epigalactose, vulbocapnine, galactoflavin, and 1,1,1-tribromoethane.

The New York Botanical Garden –H. R. Kunhardt expedition has left for Venezuelan Guiana for studies in the Guayana Highlands. Explorations will be concentrated in the Orinoco headwaters, and studies will be made particularly of Haumacari and Yacapana, two of the sandstone plateaus. Neither has been explored botanically, and, as far as is known, Haumacari has never been scaled. Bassett Maguire, curator of the Botanical Garden, left September 23 and will later join the British Guiana Forest Department in an expedition to the easternmost end of the Pacaraima Range, terminating with the Kaieteur Plateau. Mrs. William Phelps, Jr., of Caracas, has been appointed a New York Botanical Garden collaborator for Venezuelan botany, in recognition of her assistance in studies of the Guayana Highlands.

Nuclear charts showing approximately 325 new kinds of atoms discovered or created during the past two years by American scientists are available from Westinghouse Electric Corporation's School Service Department. The charts, a revision of those published in 1948, are printed in color on heavy stock, and consecutively portray the basic particles in nuclear physics; how atoms are put together; natural and man-made nuclear reactions; methods of detecting and measuring atomic energy; fields of application; and the major engineering and scientific contributions to nuclear science. Further information may be obtained from Louis M. Stark, School Service Department, Westinghouse Electric Corporation, East Pittsburgh, Pa.



New General Electric Research Laboratory at "The Knolls," near Schenectady, N. Y., was dedicated on October 9 in the presence of members of the National Academy of Sciences, which for the first time in its 88-year history, held its sessions in an industrial laboratory. (Abstracts of all the papers presented at this meeting are being printed by SCIENCE in its October 13 and October 20 issues.)

Beginning with this issue, SCIENCE will adopt the system of abbreviation used in the *List of Periodicals Abstracted by Chemical Abstracts.* Citations of literature will not necessarily be arranged in alphabetical order, but may be listed, by number, in the order of their mention. In the subsequent issues of the present volume, there will be some discrepancies in style because of the number of articles already in type.

Organized science at the world-wide level reaches its apex in the **International Council of Scientific Unions**, a federation of 10 separate international unions, and of the principal academic or research councils of 42 countries. ICSU, an independent and private organization, has a working agreement with Unesco whereby the latter makes annual appropriations of some $200,000, thus providing for a permanent staff and for grants to various union projects. President of ICSU is A. Von Muralt, and the general secretary is F. J. M. Stratton, of Gonville and Caius College in Cambridge, England. The union has recently issued a descriptive bulletin outlining the work of the member unions. Copies may be obtained from Professor Stratton.

The international unions comprising ICSU represent astronomy, biology, chemistry, crystallography, geodesy and geophysics, geography, history of science, mechanics, physics, and radio. The Executive Committee, of some 20 members, meets annually, and the General Assembly convenes once every three years.