one of the "durable satisfactions" of his life, but he placed his experimental research ahead of it.

For many years he took long trips during his summer holidays. These took him to Japan, Korea, British East Africa, the Altai Mountains in Siberia, and Alaska. He also hunted in our Northwest and in British Columbia, and fished in the Gaspé Peninsula. Some of these trips had a scientific tinge; one, in particular, had as its goal the collecting of ticks from the bodies of mountain goats, which acted as vectors of Rocky Mountain Spotted Fever. Each of these expeditions served to renew his health for the next academic year.

In May 1930 while on a boat to England he was stricken with a ruptured appendix and spent the summer in a hospital. On his return he had to submit to a corrective operation. The whole experience was so severe that he never completely recovered from it. Nevertheless he continued research at a reduced pace, and still carried administrative responsibilities for several years.

His ability to drive himself against the drag of bodily ailments was realized by only a few of his friends. In the notes on his life that have been used for this article he says that he is struck by the number of hours of hard work he has been able to get out of a very imperfect system—that is, himself. The driving power came from within, and is the more impressive when we consider that he never had the spur of being compelled to earn money. Not many men in his circumstances would have labored so devotedly for the advance of pure science as he did.

F. A. SAUNDERS

South Hadley, Massachusetts

News and Notes

A Return to Reason

A very significant article has been published in the July-August issue of *Transactions* (Izvestia) *of the Academy of Sciences of U.S.S.R* [No. 4, Biological Series (1954), pp. 97–120]. Nothing like it has appeared in the U.S.S.R. since August of 1948. It is a review by V. I. Kremiansky on "Certain problems of general biology in modern Western literature. On the status of Morganism." The sense of the article is that Morganism (alias genetics) has made important advances in recent years. Although still not quite acceptable, genetics has evolved in the right direction.

The bibliography of Kremiansky's review contains more than 250 references to recent genetic literature, including some work of authors whose names were not mentioned in the U.S.S.R. for several years. Much attention is devoted to the research on the genetics of microorganisms, adaptive enzymes, physical and chemical mutagens, the problem of crossing-over, chromosome chemistry, cytoplasmic inheritance, heterosis, polyploidy, and chromosomal variations in natural populations. Another review of the modern Western literature concerning evolution is promised to follow.

The review covers so wide a field that Kremiansky's descriptions and comments are of necessity terse but usually to the point. He obviously knows what he is writing about. This does not mean that modern genetics has for him much validity. He is quite skeptical about the theory of the linear arrangement of genes in chromosomes. The concepts of genotype and of norm of reaction are not even mentioned, and the observations of Monod and others on adaptive enzymes are interpreted (though not without hesitation!) as showing inheritance of acquired traits. The high frequency of inversions in populations of many species of *Drosophila* is, curiously enough, taken to contradict the continuity of the chromosomal organization. However, Kremiansky's disapproval of these fundamentals of genetics is based on arguments other than that they disagree with the dicta of Michurin or Lysenko or that they were invented by a wrong sort of people.

Most geneticists will agree that the concepts of this science have changed a great deal during the last 20 years or so. But this is a doubtful warrant for the statement:

> It is no exaggeration to say that if anybody wanted now to return to the theoretical views of 1936–1937, this would be impossible because in place of the old 'fortress' (of genetics) there remain only scattered building blocks—facts without a general theory.

Few geneticists ever thought in terms of "fortresses," and many of them, certainly including the late T. H. Morgan, found a great pleasure in changing "general theories." Similarly overstated is the supposed contrast between the "old" and the "new" genetics given by Kremiansky in a tabular form at the end of his review. But however much one may disagree with Kremiansky about these and other points, his opinions could be profitably discussed and argued with. His closing sentences are worth quoting in full:

> The present state of Morganism is characterized by negation of the old rather than by affirmation of the new. This is an earmark of crisis of a scientific theory. Nevertheless, the direction of change in this field is already clear. Essentially, this is toward the rejection of the theoretical bases of the Morganism proper. This has been unavoidable. Science cannot reconcile itself to distortions of what is objectively valid.

To this last the Morganists will say "Amen."

I am indebted to I. L. Kosin, Washington State College, Pullman, for having called my attention to

Kremiansky's article, and to Leo Gruliow, of the *Digest of the Current Soviet Press,* Columbia University, for the loan of the publication itself.

THEODOSIUS DOBZHANSKY
Department of Zoology, Columbia University

Problems of Comparative Behavior

A seminar on *Problems in Comparative Behavior* was held, with the support of the National Science Foundation, in the Psychological Laboratories, Harvard University, 5–15 July 1954. The seminar was aimed at bringing together for free and informal interchange of experimental data and theoretical problems a small group of active ethologists, neurophysiologists, psychologists, and zoologists. Over the past twenty-odd years two groups of students of animal behavior have been working along parallel lines, but in very little contact with each other. They have, nonetheless, emerged with remarkably parallel findings in both data and theoretical constructions.

The first group includes experimental psychologists who have been objectively studying learning and motivation, sometimes in primates, usually in small mammals (especially the white rat), and latterly, in the pigeon. These psychologists have laid stress on the problems associated with the acquisition of *new* behavior, and the laws governing such acquisition. The second group is made up largely of zoologists, among whom is a very active subgroup, productive of theory, called ethologists. These men have been objectively studying instinctive behavior, usually of a number of varieties of birds and fish. They have stressed the dependence of behavior on genetic and evolutionary variables.

Superficially, the two groups might be expected to show little convergence in either problems or interests although they both define their fields as "the science of behavior." This is not the case. If one examines the yield of the experiments and observations that have been performed by the two groups, it falls into three classes: conclusions peculiar to the ethologists, conclusions peculiar to the psychologists, and conclusions common to both. The third class is remarkably large. More interesting, it is the third class of finding that has determined to a great extent the theoretical structures evolved. In fact, one can demonstrate not only that the two groups share their basic theoretical concepts (to the extent that their technical vocabularies are composed of words that both use, or that are readily translatable), but also that the kinds of theories they have evolved from the data are alike in content, even though they deal respectively with "learned" and "instinctive" behavior.

On examination, the other two areas of research, the areas peculiar to the experimental psychologist and those peculiar to the ethologist, prove to be largely complementary to one another. No contradictory assertions, empirical or theoretical, arise in them, but rather statements about the action of variables neglected by the members of the other group. These variables, neglected though they have been, are of importance to the behavior examined by *both* groups. The "reinforcing stimuli" of comparative psychologists occur in the execution of "instinctive behavior," and the "displacement activities" of the ethologists are observable in the T-maze and in the Skinner-box.

Both groups have somewhat ambiguous relationships with a third group—those neurophysiologists who deal with the internal events that are presumed to be correlated with behavior. Once again, there are areas that overlap or complement each other. But the relationships are somewhat different. Many ethologists emphasize the importance of achieving a neurophysiological model for behavior, and usually try to construct one; however, they seem to lack the experimental tools and the detailed information that are necessary to make one that is verifiable. At the same time, many comparative psychologists deprecate such attempts at theoretical formulations, sometimes without inquiring into the neurophysiological data that may be available. They stand for "psychology without physiology" (as a minority of ethologists propose "ethology without physiology"). Neurophysiologists, on the other hand, engaged in active research on the functioning of the central nervous system, seem to work with either of two points of view—first, studying electrical and other activities as they depend on direct manipulation without reference to behavior, and second, finding whatever events they can that are correlated with behavior. Unfortunately, behavioral data suited to the needs of the neurophysiologist are scanty and inappropriate; the great bulk of them are of no use because of the choice of variables or species. Willy nilly, neurophysiologists are often forced to deal with neurophysiology without behavior.

The three groups, then, share a broad area of knowledge, and at the same time have each developed special areas peculiar to themselves, though highly relevant to the work of the others. It was thought, then, that an opportunity for free exchange of data, points of view, and techniques, would familiarize members of each group with the work of others (a purpose which, unfortunately, the journals do not seem to serve as well as they might), and might clarify and define the extent of overlap among the fields, so that a more coherent, fuller set of data on behavior would be available to each. Eventually the neurophysiologists' potential contribution may be more fully realized, and purely contextual and verbal differences between ethologists and psychologists in their experimental and theoretical treatment of behavior may be minimized.

The meetings at Harvard were organized and run by a committee of five, consisting of: Frank A. Beach, Harry F. Harlow, C. F. Pribram, W. S. Verplanck (chairman), and Carroll M. Williams. Participants were invited to bring data and reprints for exchange, and to be prepared to talk informally for about an hour on such of their own recent work, experimental or theoretical, as they believed would be of interest

to the group. Whether or not the material had been published was of no concern. It proved new to the majority of the group. The group met morning and afternoon. On each day, two or three members of the group talked. The speakers were so scheduled that the first of them spoke on topics close to the area of overlap of most members of the group, the later ones on the more specialized topics of their own areas.

These informal reports served to set off the vigorous discussions hoped for; discussions usually took their points of departure from issues specifically raised by the report, although there were frequent returns to topics that had been taken up earlier. The meeting established that most of the problems raised, both experimental and theoretical, were shared by all the fields represented. Moreover, the views expressed by various members of the group, though often in conflict, did not separate the members of the group according to the field they represented. An ethologist, a psychologist, and a neurophysiologist often found themselves disputing a point with an "opposition" made up also of an ethologist, a psychologist, and a neurophysiologist. And, unusual in such discussions, more light than heat was generated.

It may be of interest to list the topics about which the most provocative (and longest lasting) discussions rotated: (i) clarification of the meanings and connotations of terms, for example, what is meant by *innate* and *learned*; what psychologists mean by *learning*; (ii) the role of theory, and the use and abuse of experiment in "verifying" theory; (iii) various aspects of the similarities and divergences of specific concepts among the fields represented; (iv) the role of evolutionary theory in biology and psychology; (v) neurophysiology and its current usefulness in the explanation of behavior; (vi) *drive* and *motivation* (two much abused words); (vii) current theories of learning.

This list is not exhaustive, nor were the discussions. In fact, these tended to center on specific issues, and hence to avoid the less fruitful generalities.

This seminar was planned as a series of free discussions, without formal papers. It was designed to establish a community of ideas among a group of people working on much the same subject matter. It was designed not only to make communication possible, but also to stimulate active communication, mutual interest, and hence, implicitly, an exchange of problems and techniques. It was a highly successful meeting with respect to these ends.

The consensus of the group, at its last meeting, was that this seminar had been of unusual interest to its members, that it had been especially stimulating and informative, and that its small size and compatible membership, its informality, and the absence of any obligation to prepare formal papers, publishable or not, had been very important to its success. The results of the conference from these points of view suggest that other such conferences, held in various fields, may be worthy of support in the future.

WILLIAM S. VERPLANCK
Harvard University Psychological Laboratories

Science News

An article appealing for greater **freedom in Soviet scientific research** and for open competition among rival schools of scientific thought was published in January in the journal *Literaturnaya Gazeta* by academicians Ivan L. Knunyants and L. Zubkov. Knunyants, a chemist, is an important figure who has won three Stalin prizes and made a number of discoveries, one being the invention of the Soviet equivalent of nylon. Obviously with the Lysenko genetics case in mind, [*Science* **109**, 404 (22 Apr. 1949); **111**, 389 (14 Apr. 1950)], the authors say that

> . . . the aspirations of any one school toward a monopoly in science should be suppressed with all the force of public authority. . . . Only under conditions of free exchange of ideas, in discussions, in criticism and self-criticism, does vital creative thought pulsate, do the results obtained receive correct evaluation, are new and fruitful scientific ideas conceived.

The article states that the low level of some Soviet scientific discussions also hinders normal relations between Soviet and foreign scientists. The Russian scientific attack on "the great progressive scientist, Prof. L. Pauling," is mentioned with the comment that, though Pauling's contributions to the theory of resonance in chemistry had been correctly criticized, the general scientific value of his research had been "unjustly called into question."

The approach to better relations with foreign scientists follows a trend that has been observed in several fields. For instance, the resolutions of the All-Union Congress of Soviet Writers published recently in Moscow included these three reflections of the trend: (i) they emphasized the importance of wider exchange of information and publications among writers of different countries; (ii) they instructed the newly elected board of the Union of Soviet Writers to promote the "widest translation of the best works of modern writers of all countries into the languages of the peoples of the U.S.S.R.;" and (iii) they called for an international meeting of writers in 1955, organized "on the basis of the widest possible representation."

A 9-yr-old legal controversy over the **tax status of a chemist** operating an analytical laboratory in New York has been decided in favor of the chemist. Because his case was of interest to the entire profession, the American Chemical Society supported Abraham Mirkin against the New York State Tax Commission. According to New York State law, professional men engaged in the practice of their profession are exempt from taxes imposed on unincorporated businesses. In 1946 an exemption was claimed by Mirkin, whose Mirkin Analytical and Pathological Laboratories are at 230 E. 12th St., New York. The claim was rejected on the ground that his laboratory activities did not constitute the practice of a profession. The Tax Commission has now handed down a decision supporting Mirkin's position.

The research vessels *Atlantis* and *Caryn* left Woods Hole, Mass., on 19 Jan. on the first leg of a 4-mo **cruise to the Caribbean Sea.** The vessels, working in tandem, will sail in and out among the Caribbean Islands to study the geology of the islands and to obtain data on the fertility of the Caribbean Sea.

At Bermuda the ships will load quantities of explosives that will be used in acoustic sounding to obtain knowledge of the rockbed below the sea bottom and of the thickness of the overlying carpet of sediment. An echo recorder, developed at the Woods Hole Oceanographic Institution and capable of measuring the depth of the sea to within 1 to 2 ft at an over-all depth of approximately 20,000 ft, has been installed on the ships. Charles B. Officer, Jr., geophysicist, will be the chief scientist during the work in the West Indies. Until he joins the *Atlantis* in St. Thomas, V.I., the ships will be under the leadership of acoustical expert Henry R. Johnson.

The special features of an unusual scientific retreat, the **Center for Advance Study in the Behavioral Sciences, Inc.,** built on a hilltop near Palo Alto, Calif., are described in the January *Architectural Forum.* The center, headed by Frank Stanton, president of Columbia Broadcasting System, and financed and endowed by the Ford Foundation, will be open to selected scientists and specialists who wish to utilize their sabbatical leaves in quiet, concentrated study of man, analyzing his underlying motivations, influences, and behavioral patterns.

The establishment has a motel-type arrangement: groups of small, completely private study buildings surround a cross-shaped central building; each peripheral unit is placed on the slope of the hill so that it will not obstruct the view of any unit above. The central building has large meeting rooms, a dining area, library, and administration offices. The buildings are frame, simple in the extreme, and for the most part constructed of redwood.

The date of early man's first permanent settlement apparently has been pushed back before 5000 B.C. by the discovery of the site of another prehistoric settlement in Iraq by archeologists of the University of Chicago's Iraq-Jarmo Expedition now at work in the Middle East. Robert J. Braidwood, professor of Old World archeology in the university's Oriental Institute and director of the expedition, reports that exploratory digging has uncovered a prehistoric **settlement even older than the village of Jarmo,** until now thought to be the oldest settled village.

The new settlement, considerably smaller and more primitive than Jarmo, is located at M'lefaat, 25 mi east of Mosul in northeastern Iraq near the Iranian border. Test diggings indicate that in prehistoric times a small permanent settlement of "pit houses," pits with floors and hearths but without walls, existed there. The pits may have been covered with tents, or even with sod as are our western sod houses.

The inhabitants apparently had no pottery, but had good flint tools and heavy ground-stone mortars, pestles, rubbing stones, and axes. No sickles were found in the test diggings, which indicates that the inhabitants of M'lefaat had not yet begun to cultivate grain. Finds of fragmentary clay figures show that the people had begun to mold clay figures although they had not yet learned pottery-making.

Main object of the Iraq-Jarmo expedition, a joint project of the Oriental Institute and the department of anthropology, is the study of civilization in the Middle East in the period 7000–10,000 yr ago. The area explored covers about 2400 mi^2. The staff has traveled more than 400 mi, chiefly on foot, but also by collapsible boat on the Zab River and its tributaries.

Members of the group in addition to Braidwood include: Bruce Howe, archeologist from Harvard's Peabody Museum, in charge of the affiliated operations of the Baghdad School of the American Schools of Oriental Research; H. E. Wright, Jr., University of Minnesota geologist; Frederick R. Matson of Pennsylvania State University, specialist in radioactive carbon dating technology; and Charles A. Reed, University of Illinois zoologist. Hans Helbaek, botanist from the Danish National Museum, will join the expedition shortly. The expedition is financed by the University of Chicago and the American Schools of Oriental Research, and by grants from the American Philosophical Society, the Natural Science Foundation, Guggenheim Foundation, the Wenner-Gren Foundation for Anthropological Research, and by private donors.

The **50th anniversary of the U.S. Forest Service** was commemorated this month by a golden anniversary dinner sponsored by the American Forestry Association and the Society of American Foresters. The Forest Service was created in its present form in the U.S. Department of Agriculture on 1 Feb. 1905 during the administration of President Theodore Roosevelt, through merger of the earlier Bureau of Forestry and the forestry division of the General Land Office. Gifford Pinchot was the first chief forester.

The American Forestry Association is a citizens' organization of 25,000 members, formed in 1875. The Society of American Foresters, an organization of 10,000 professional foresters, was established in 1900. Both have their headquarters in Washington, D.C.

In a forthcoming technical article on the **leukemogenic effects of ionizing radiation** on atomic bomb survivors in Hiroshima, William C. Moloney and Marvin Kastenbaum present evidence leading to the following conclusions. (i) Among the survivors age and sex have no measurable effect on the incidence of leukemia. (ii) The incidence of leukemia is higher for those who were closer to the hypocenter than for those farther away at the time of the bombing. (iii) The incidence of leukemia is much higher for those with significant radiation complaints than for those with no significant radiation complaints. (iv) The difference in the incidence of leukemia between the group with and those without significant radiation complaints is not depend-

ent on the distance from the hypocenter. At all distances where cases of leukemia have been found, the incidence of leukemia is higher among the group with significant radiation complaints. (v) It seems apparent from these observations that in man the leukemogenic dose of single total-body ionizing irradiation must be high and is probably in the order of 200 r. (vi) Following the Hiroshima atomic bomb explosion, the neutron flux, as evidenced by biologic effects, was apparently much more extensive and heavier than hitherto estimated. Neutron activity may have been an important leukemogenic factor in atomic bomb survivors.

From 20 to 26 Feb. engineering societies throughout the country will observe **National Engineers' Week,** which is sponsored by the National Society of Professional Engineers, Washington, D.C.

The National Science Foundation has agreed to accept governmental responsibility through fiscal year 1956 for the **Federal rubber research program.** This action will carry out one of the recommendations included in a report that has just been submitted to the Congress by the Rubber Disposal Commission. All of the RDC's recommendations become final unless disapproved by Congress within 60 days.

Alan T. Waterman, director of the NSF, has indicated that the foundation will, as soon as possible, enlist the aid of expert scientific and technical advice in making a thorough review and evaluation of the existing research programs. The rubber research program, which is at present administered by the Office of Synthetic Rubber of the Federal Facilities Corporation, consists of two parts: (i) a basic research program conducted by contract with nine educational institutions and three research organizations; and (ii) a laboratory owned by the Federal Government at Akron, Ohio, and operated under contract with the University of Akron.

A rich **uranium field** has been located near Carcoar, 193 mi west of Sydney, in the province of New South Wales, Australia.

The United States ranks 13th among the national standards organizations of 34 nations in degree of participation in **international standards** work. George F. Hussey, Jr., vice admiral, U.S.N. (ret.), managing director of the American Standards Association, in a report compiled on international standards work for 1954, pointed out that the United States is still lagging far behind other countries.

The United States member of the International Organization for Standardization is the American Standards Association. Through this association the United States holds secretariats of eight technical committees and participates in international standards work in such fields as mechanical, metallurgical, textile, rubber, and plastic industries; in the building trade; photography and motion pictures; and in many other areas, including for instance standards for hospital stretchers and transfusion equipment.

France leads the United States in international standards work by participating in 2½ times as many ISO committees as this country. The French Standards Association takes part in 79 of the 80 committees of the International Organization for Standardization. The United Kingdom, which participates in the work of 72 committees, leads in the number for which it serves as the secretariat nation. It heads 18 committees. Other countries with heavy participation in standards work are the Netherlands (75 committees), Germany (71), Italy (60), and Belgium (57). Russia's participation in the work is 15 percent more than that of the United States.

Scientists in the News

A memorial lecture honoring the late **Lewis John Stadler,** professor of field crops at the University of Missouri and geneticist for the U.S. Department of Agriculture, was held at Columbia, Mo., on 3 Feb. A foreword was given by Henry E. Bent, dean of the graduate faculty, on "Dr. Stadler's contribution to the University of Missouri," and a lecture on "Gene structure and gene function" was presented by George W. Beadle, president of the AAAS and chairman of the division of biology at California Institute of Technology.

The lecture was arranged under the auspices of the University of Missouri chapters of Sigma Xi and Gamma Sigma Delta and will be published by the university, together with a complete bibliography of Stadler's scientific papers.

Dirk Brouwer, Munson professor of natural philosophy and astronomy and director of the observatory at Yale University, will receive the two highest honors of the Royal Astronomical Society of Great Britain. He has been named the society's George Darwin lecturer and the recipient of its gold medal. He will go to England this spring for a presentation ceremony and to deliver the Darwin lectures. Earlier this year Brouwer was awarded a U.S. Educational Exchange grant for study and research in Australia; he will leave for that country next summer.

Charles Watson-Munro, professor of physics at Victoria University College, Wellington, New Zealand, has been named head of Australia's Atomic Energy Commission. One of his first responsibilities in his new post will be to direct the building of a $12-million reactor. He was instrumental in the construction of Britain's first atomic pile, and he also directed control equipment for the first Canadian pile.

On 25 Jan. **Hendrik S. van Klooster,** since 1925 professor of physical chemistry at Rensselaer Polytechnic Institute, retired. Except for a 5-mo leave during World War II as a member of the Alsos mission, he has been connected with the institute for 36 yr. He expects to spend some time in travel, both here and abroad.

Among those to receive the U.S. Department of the Interior's highest honor, the distinguished service award, are the following.

Irwin B. Hosig, "upon retirement after an eminent career in engineering with the Bureau of Reclamation for more than forty-nine years, the longest service on record for the Bureau."

Edward I. Loud, Jr., "in recognition of fifteen years of outstanding service in the Geological Survey."

John D. Northrop, "in recognition of more than forty years of outstanding service with the Geological Survey."

Harold S. Kennedy, "in recognition of an eminent career of approximately thirty-five years of outstanding service in the furtherance of the helium program of the Bureau of Mines."

Walter I. R. Murphy, "in recognition of outstanding scientific contributions to the advancement of petroleum and oil-shale technologies in furtherance of the efficient utilization and conservation of these natural resources."

Vernon F. Parry, "in recognition of outstanding scientific and technical contributions . . . in the field of coal processing."

Stephen M. Shelton, "in recognition of outstanding leadership in metallurgical research in the Bureau of Mines."

John S. Ball, "in recognition of outstanding research on the composition of petroleum and shale oil."

Jesse L. Nusbaum, "in recognition of outstanding service in the preservation of archeological sites on Federal lands."

Richard D. Leitch, "upon retirement after thirty-three years of outstanding service in reducing hazards and promoting safety in the Bureau of Mines."

Ralph A. Tudor, Under Secretary, "for outstanding public service."

A. E. Whitford, director of the University of Wisconsin's Washburn Observatory, is taking leave during the second semester to visit the Mount Wilson and Palomar Observatories in California, where he will further his research on the light of distant galaxies.

The American Society of Civil Engineers has announced the establishment of the **Ernest E. Howard** award in honor of the late past president. Mr. Howard, senior partner of the Kansas City, Mo., and New York firm of Howard, Needles, Tammen and Bergendoff, consulting engineers, died on 19 Aug. 1953. The award, which has been made possible by funds donated by his widow, will be made annually "to recognize a civil engineer who has made a definite contribution to the advancement of structural engineering through either writing or performance."

Philip Veneziano has joined the staff of Northwestern University, Evanston, Ill., as a research associate in experimental embryology. Veneziano was formerly a chemist with the Water Resources Division, U.S. Geological Survey, in Austin, Tex.

Alexander A. Wolsky, former professor of zoology at the University of Budapest and director of the Hungarian Biological Research Institute at Tihany, has been named professor of experimental embryology in the department of biology at Fordham University. For 6 yr prior to this appointment, Wolsky was with UNESCO as principal scientific officer for southeast Asia. He is the author of *Genetics and the Origin of the Species, Biological Lexicon,* and many other scientific works.

Linwood A. Walters, a specialist in research and development in the resins and plastics field since 1940, has been appointed development manager of the Durite department of the Borden Company's chemical division. A graduate of the University of Florida in chemical engineering Walters aided in the development of thermosetting molding materials for the Bakelite Corp.

Orren D. Chapman, a member of the department of microbiology at New York State University College of Medicine, Syracuse, has arrived in Amman, Jordan, where he will remain 2 yr on commission from the U.S. Public Health Service assigned to FOA as chief of cooperative health and sanitation in Jordan.

Three scientists and Science Service, Inc., received the 1955 awards of the American Meteorological Society.

The award for extraordinary scientific accomplishment went to **Jerome Namais,** chief of the U.S. Weather Bureau's extended forecast section for his "contribution to, and stimulation of, research in the principles and application of extended and long-range forecasting techniques."

Charles F. Brooks, director of Harvard University's Blue Hills Observatory, Milton, Mass., who organized the society in 1919, was honored for his lifetime of service to the society.

Horace R. Byers of the University of Chicago received an award in appreciation of his service as society president during 1953–54.

Watson Davis, director of Science Service, Inc., accepted the award for his organization, which was cited for its "extensive coverage and accurate reporting of current developments in theoretical and applied meteorology."

Two scientists of the U.S. Department of Agriculture's Eastern Regional Research Laboratory in Wyndmoor, Pa., have retired. **Jerome S. Rogers** served the Government for 26 yr, and **Elias Yanovsky** for more than 30 yr. Rogers, who received a B.S. degree from Syracuse University in 1907 and an M.S. degree from the University of Illinois in 1909, was head of the hides, tanning materials, and leather section. His 45 yr in leather research began in 1909 when he entered the USDA's former Bureau of Chemistry as a junior chemist. He left the bureau in 1918 to work in the leather manufacturing industry. In 1937 he

returned to Government service in the Bureau of Chemistry and Soils in Washington, D. C., where he joined a group of scientists working on leather and tanning materials. He was transferred to the Eastern Regional Research Laboratory with this team in 1941, and in 1945 was made head of the group. He is author or coauthor of 53 publications. He has served successively as council member, vice-president, and president of the American Leather Chemists Association.

Rogers is succeeded by **Sam R. Hoover,** a member of the staff since 1939. Formerly supervisor of the denaturation and hydrolysis unit of the protein division, he has conducted fundamental research on casein and other milk proteins.

Yanovsky, a specialist in carbohydrate chemistry, was born in St. Petersburg, Russia, and received his undergraduate training in chemistry at the University of St. Petersburg. He came to the United States as a young man and earned his doctor's degree at Clark University in 1913. After a brief period in industry he, too, joined the staff of the USDA Bureau of Chemistry. In 1918 he resigned to engage in industrial research and later to establish his own laboratory. In 1929 he returned to Government research in the carbohydrate division of the Bureau of Chemistry and Soils. In 1943, when the bureau was decentralized, Yanovsky was transferred to the carbohydrate division of the Wyndmoor Laboratory, where he conducted research on allyl starch and other starch derivatives and on the chemical composition of potatoes. As the time of his retirement he was in charge of the potato composition unit of the fruit and vegetable section. Yanovsky is author or coauthor of some 50 publications and patents. He was leader of the group that won the USDA Superior Service award for developing allyl starch, a varnishlike substance that can be made from potatoes.

Benjamin Thomas, a geographer at the University of California, Los Angeles, has just returned after a year's absence during which he traveled more than 18,000 mi in Africa studying recent developments in trade and transportation, on that continent. His work was sponsored by the Office of Naval Research.

Lyndon E. Lee, Jr., former director of cancer control for the Puerto Rico Department of Health and professor in the University of Puerto Rico School of Medicine, is now director of surgery at the Wayne County General Hospital and Infirmary, Eloise, Mich. He retains his affiliation with his Puerto Rican offices as a consultant.

Thomas J. Kehoe, former senior associate with Pomeroy and Associates, Consulting Engineers of Pasadena, Calif., has been appointed application engineer for Beckman Instruments, Inc. He will travel extensively and will be concerned principally with industrial *p*H in the waste and process control fields and in flow colorimetry.

Necrology

William J. Agnew, 63, retired deputy chief of the Navy's Bureau of Medicine and Surgery, San Diego, Calif., 25 Jan.; **Isaac A. Bigger, Jr.,** 61, author, editor, chief of the surgical services at the Medical College of Virginia, Richmond, Va., 27 Jan.; **Raymond Clark,** 85, former clinical professor of medicine and chief of medical service at Long Island College Hospital, New York, 23 Jan.; **Joseph Felsen,** 62, pathologist, authority on dysentery and ulcerative colitis, author, director of laboratories and research at Bronx Hospital, New York, 27 Jan.; **Edgar G. Hill,** 71, engineer, authority on natural gas, retired vice president and director of Ford, Bacon & Davis, Inc., New York, 20 Jan.; **Edgar S. Kennedy,** 57, director of textile research for the American Viscose Corp., Philadelphia, 23 Jan.; **Leon J. Menville,** 73, past president of the Radiological Society of North America, author, professor emeritus of radiology at Tulane University Medical School, New Orleans, La., 24 Jan.; **Ernest C. Moore,** 83, educator, author, retired professor of education and philosophy at the University of California, Los Angeles, 23 Jan.

Meetings

On 1–2 Mar. the first **International Congress on Air Pollution,** sponsored by the American Society of Mechanical Engineers, will take place at the Hotel Statler in New York. Theme of the meeting will be *A New Frontier—Air Pollution Control.* A special feature that has been arranged is the presentation of the Calvin W. Rice lecture by Hugh E. C. Beaver, chairman of the British Government committee of inquiry that is investigating the London smog of 1952. The technical program has been published in *Mechanical Engineering* [**76,** 1048 (Dec. 1954)].

The **Montana Academy of Sciences** will hold its annual meeting at the Montana School of Mines in Butte, 15–16 Apr. Inquiries may be addressed to Leroy H. Harvey, Dept. of Botany, Montana State University, Missoula.

An attendance of 40,000 is expected for the 1955 **Institute of Radio Engineers** national convention to be held 21–24 Mar. in New York. There will be 55 technical sessions and 704 engineering exhibits, covering almost every new development in communications and electronics. The centers of activity will be the Waldorf-Astoria Hotel, Kingsbridge Armory, and Belmont Plaza Hotel. The radio engineering show exhibits will fill the 4-acre floor of the armory and overflow into the Kingsbridge Palace, 1½ blocks away.

Among the features of the convention will be the annual meeting of the I.R.E. on the opening morning, which will feature a talk by A. V. Loughren, director of research for the Hazeltine Corp., and the annual I.R.E. banquet at which Matthew B. Ridgway, Chief of Staff of the U.S. Army, will be the principal

speaker. The technical program will be highlighted by two special symposiums *Magnetic Recording for the Engineer* and *Trends in Automatization of Procedures and Processes in Business and Industry.* The remainder of the program will cover a wide variety of topics such as spurious radiation, remote control of space stations, and designing machines to simulate the behavior of the human brain.

Approximately 250 educators, representing 16 medical schools, 8 dental schools, 115 liberal arts colleges, and 8 professional societies and educational foundations in the New England and Middle Atlantic states attended the **Conference on Premedical and Predental Education** held in New York on 7–8 Jan. Sponsored by Alpha Epsilon Delta, the national premedical honor society, the conference was devoted to a discussion and evaluation of the findings and recommendations of the Severinghaus Committee on Preprofessional Education of the Survey of Medical Education, which were recently published as a report entitled *Preparation for Medical Education in the Liberal Arts College.*

A definite effort was made to explore ways and means by which the results of this survey could be used constructively by the medical, dental, and liberal arts colleges to improve the program of premedical and predental education. A summary of the conclusions of the round-table discussion groups will be published in *The Scalpel* of Alpha Epsilon Delta and a copy may be obtained on request to the society, 7 Brookside Circle, Bronxville 8, N.Y.

An **International Symposium on Electrical Discharges in Gases** will be held at the Technical University in Delft, Netherlands, 25–30 Apr. The following speakers have accepted invitations to give featured lectures: H. S. W. Massey, London, "Fundamental primary processes in gas discharges"; L. B. Loeb, Berkeley, Calif., "Field measurements in glow discharges with a refined electron beam probe and automatic recording"; Chr. van Geel, Delft, "On the internal self-induction of gas discharges"; S. C. Brown, Cambridge, Mass., "Breakdown in gases at microwave frequencies"; M. A. Biondi, East Pittsburgh, Pa., "Microwave and optical techniques for gas discharges"; W. Lochte-Holtgreven, Kiel, "Arc discharges"; J. M. Meek, Liverpool, "Spark discharges."

The languages to be used are English, French, and German; however, English will be preferred for the discussions. Inquiries should be addressed to the secretary of the symposium committee, Ir A. W. van Wagensveld, Mijnbouwplein 11, Delft, Netherlands.

Animal caretakers and users of experimental animals from all parts of the United States and several foreign countries gathered in Chicago at Northwestern University for the meeting of the **Animal Care Panel,** 1–2 Dec. In 16 technical papers and related discussions they heard the latest methods of animal procurement, disease control, housing, and utilization.

Jan Schwartz of the Jewish Hospital Association, Cincinnati, revealed that internal fungus infections in animals are much more prevalent than previously believed. These infections have been missed because of difficulty in making diagnoses. Schwartz explained that specific skin tests can be helpful in making preliminary diagnoses and that serologic tests may be of confirmatory value, but a positive culture is the only reliable proof of a fungus infection. The common fungus diseases of laboratory animals are actinomycosis, histoplasmosis, blastomycosis, sporotricosis, and coccidiomycosis.

Common street or barn pigeons are playing very important roles in experimental research, W. F. Hollander of Iowa State College reported. The pigeons are used in nutritional and endocrine physiology, psychology, disease and parasite vector studies, genetics, embryology and feather development analysis, and immunology. A motion picture showing animal care facilities in some British medical research laboratories was shown by D. J. Short of The British National Institute for Medical Research.

The Institute for Fluid Dynamics and Applied Mathematics of the University of Maryland, in cooperation with the Office of Scientific Research, Air Research and Development Command, will hold a conference devoted to **differential equations,** ordinary and partial, 17–19 Mar. Programs are available on request.

Some 25 leading educators in college **physics, mathematics, and mechanics** met at New York University, 23–26 Jan., to try to make room in the current 4-yr engineering program for courses in nuclear physics and solid state physics. The conference was conducted by N.Y.U. and the American Society for Engineering Education under a grant from the National Science Foundation. Results will be referred to the A.S.E.E. for action at its annual meeting in June.

Society Elections

American Society of Hospital Pharmacists (to be installed in May): pres.-elect, Claude Busick, Stockton, Calif.; v. pres.-elect, Milton Skolaut, Bethesda, Md.; treas.-elect, Sister Mary Rebecca, Ogden, Utah.

American Pharmaceutical Association (to be installed in May): pres.-elect, John B. Heinz, Salt Lake City, Utah; first v. pres.-elect, Troy C. Daniels, San Francisco, Calif.; second v. pres.-elect, George C. Roberts, Greenwood, Miss.

The **International Commission on Zoological Nomenclature** has announced the election of the following members of the Commission:

K. H. L. Key, principal research officer, Division of Entomology, Commonwealth Scientific and Industrial Research Organization, Canberra, A.C.T., Australia, succeeding Joseph Pearson, resigned.

Alden H. Miller, professor of zoology and director of the Museum of Vertebrate Zoology, University of California, Berkeley, succeeding J. L. Peters, deceased.

Ferdinand Prantl, vice-director, Národni Museum, Prague, Czechoslovakia.

Wilhelm Kühnelt, professor, Zoologisches Institut der Universität, Vienna, Austria.

F. S. Bodenheimer, professor, department of zoology, Hebrew University, Jerusalem, Israel.

Ernst Mayr, Alexander Agassiz professor of zoology at Harvard College.

Enrico Tortonese, professor of zoology, Istituto e Museo di Zoologia, Universita di Torino, Italy, succeeding Lodovico di Caporiacco, deceased.

The American Ornithologists' Union: pres., Alden H. Miller, Museum of Vertebrate Zoology, University of California; 1st v. pres., Ludlow Griscom, Museum of Comparative Zoology, Harvard University; 2nd v. pres., Ernst Mayr, Museum of Comparative Zoology, Harvard University; sec., Harold F. Mayfield, 2557 Portsmouth Ave., Toledo 13, Ohio; treas., Charles G. Sibley, Cornell University; editor, Robert W. Stroer, Museum of Zoology, University of Michigan.

Education

Emory University announces the organization of a program of graduate studies in the recently formed Division of Basic Sciences in the Health Services; the division includes the departments of anatomy, bacteriology, biochemistry, pharmacology, and physiology. Students are admitted to the division rather than to departments, and the program of graduate studies and research of the student is directed by a committee with representation from all the departments. Additional features of the program are a tutorial system for each student, a program of divisional faculty-student seminars for the consideration of topics of interest to all departments, and a program designed to give the student experience and training for teaching in any of the departments.

The Division of Basic Sciences was formed by the consolidation of the professional school departments into single university departments. The division is a primary faculty unit of the university; Arthur P. Richardson is the director.

The Tissue Culture Association is again sponsoring a course of instruction in the principles and techniques of **cell and tissue culture.** The course will be under the direction of Charles M. Pomerat, University of Texas Medical Branch, and will be given in the laboratories of the Mary Imogene Bassett Hospital, Cooperstown, N.Y., 2–27 Aug. Tuition will be $100.

The five basic methods of cell culture are employed in the laboratory work. The morning work includes a review of the principles and techniques pertaining to the main event of the laboratory work and a demonstration of the procedures to be used. Each participant prepares and manages his own cell cultures. Afternoons afford opportunity for library work and for consultation with the staff concerning the projects contemplated by each of the class members. Evening lectures to broaden horizons are given by members of the staff and by distinguished guest lecturers.

The course is designed specifically for postgraduates (M.D. or Ph.D.) who plan to use cultured tissues in their research or teaching. Requests for application forms should be addressed to Dr. Mary S. Parshley, College of Physicians and Surgeons, 630 W. 168 St., New York 32, and *should be completed and returned to her not later than 1 May.*

The 20th session of the **Norelco x-ray Diffraction School** for research and industrial registrants who can visit the New York City area will be held at the plant of North American Philips Co., Inc., 750 South Fulton Ave., Mount Vernon, N.Y. during the week of 4–8 Apr. Registration will be limited to 125 persons for the first 4 days and to 150 on Friday, the day devoted to actual application problems when guest speakers discuss methods currently in use by researchers and industrial plants.

The evening division of **Adelphi College,** Garden City, N.Y., is expanding its course of study. A new program leading to the bachelor of science degree in general studies—with concentration in the sciences—is open for enrollment immediately. Twelve science concentration courses will be offered this spring in conjunction with the program. They may be selected from the fields of biology, chemistry, mathematics, and physics.

Applications for enrollment in the 1955–56 session of the **Oak Ridge School of Reactor Technology** (ORSORT) are now being accepted. Enrollments for the 50-wk course, which begins in September, *will close on 14 Mar.* The school is a part of Oak Ridge National Laboratory, which is operated for the Atomic Energy Commission by Union Carbide and Carbon Corp. Industrial organizations may enroll a limited number of their technical personnel in ORSORT. The Atomic Energy Commission, aware of the growing need for competent nuclear reactor engineers, has made this participation possible to encourage nuclear progress in industry. The tuition is $2500 for students from industrial firms other than AEC operating contractors. Additional information may be obtained from the Director, Oak Ridge School of Reactor Technology, P.O. Box P, Oak Ridge, Tenn.

The **Cape Haze Marine Laboratory,** a new marine biological station, opened at Placida, Fla. in January. Situated on Gasparilla Sound, it offers opportunities for studying the fauna and flora of the Gulf of Mexico to both senior investigators and students. The laboratory is the first part of a cultural center planned for Cape Haze by William H. and Alfred G. Vanderbilt. A museum collection of local fishes and facilities for keeping living specimens are also features of the development. Director of the laboratory is Eugenie Clark, research associate, American Museum of Natural History.

Available Fellowships and Awards

The **Committee on Disaster Studies** of the National Academy of Sciences–National Research Council in its last meeting emphasized the need to encourage research by competent representatives of the social sciences and related disciplines who wish to advance knowledge in their own fields and contribute to the solution of disaster problems. The committee is interested in the effects of disaster upon individuals, groups, communities, and societies; human response to the threat and impact of disaster, ranging from the individual to the national level; the human aspects of such problems as communications, warning organization, rescue, welfare, medical care, evacuation, and logistics; and the long-term effects and recovery problems of disaster.

The committee can support this development to a limited extent by providing financial assistance for investigations and analyses. Assistance will be similar to grants-in-aid and will normally range from $200 to $2000. Projects requiring larger sums, those that are especially meritorious and pertinent to the committee's interests, can be considered. Proposals from graduate students, faculty members, and other qualified investigators will be entertained. Inquiries should be directed to the Committee on Disaster Studies, Division of Anthropology and Psychology, National Academy of Sciences–National Research Council, 2101 Constitution Ave., Washington, D.C.

The **Medical Library Association** has approved two scholarships of $150 each to be offered in the 1955 summer course on Bibliography of Bio-Medical and Physical Sciences at the University of Southern California School of Library Science. Similar scholarships were announced earlier at Columbia and Emory universities. These scholarships are the first such to be offered on the West Coast.

The course lasts from 20 June to 29 July. It consists of selecting, evaluating, and using books and specialized reference and bibliographic tools in biomedical and scientific literature. For application blanks and further information, write to Acting Director, School of Library Science, University of Southern California, Los Angeles 7.

Case Institute of Technology is offering 50 **General Electric science fellowships** to preparatory- and high-school teachers of physics from north-central states for a special 6-wk study program. The fellowships, sponsored by the General Electric Co., are open to qualified teachers from the following states: Illinois, Indiana, Iowa, Kentucky, Michigan, Missouri, Minnesota, Ohio, Western Pennsylvania, Tennessee, West Virginia and Wisconsin.

Applicants must be college graduates, possess experience in preparatory- or high-school science teaching, and be certified to teach in their respective states. The all-expense fellowship program will run from 19 June to 20 July. Funds will cover living expenses on the Case campus, books, tuition, fees, and traveling expenses to and from Cleveland, Ohio. Applications may be obtained from Dean Elmer Hutchisson, Case Institute of Technology, 10900 Euclid Ave., Cleveland 6, Ohio.

In addition to the study program at Case, G.E. will also offer summer courses for high-school mathematics teachers at Rensselaer Polytechnic Institute; a summer program for high-school mathematics teachers at Purdue University; and summer courses for secondary-school chemistry and physics teachers from northeastern states at Union College.

The **Grass Trust for Research in Neurophysiology** will provide one or two fellowships for work at the Marine Biological Laboratory at Woods Hole, Mass., during the summer of 1955. The stipend will be $500 to $1000, depending upon the financial needs of the candidate. Two candidates may apply jointly to work together with stipends of $500 each. The fellowships are designed for young investigators in the predoctoral or early postdoctoral stage. Applications may consist of a brief letter, preferably from some senior investigator who knows the candidate well, describing his qualifications and giving a brief account of his plans for research and how he would use this fellowship. Reprints of published work will also be helpful to the selection committee. Letters and supporting material in triplicate should be sent to Dr. Robert S. Morison, Room 5500, 49 W. 49th St., New York 20. *The closing date for applications is 1 Mar.*

Francis W. Davis, inventor of power steering for automobiles, has established a **Lionel S. Marks Fellowship Fund** at Harvard University to honor a professor "who made his students work hard and made them enjoy it." Mr. Davis, a member of the Harvard Class of 1910 who studied mechanical engineering with Prof. Marks, called his $50,000 gift "a token of my high regard and friendship for an inspiring teacher and a great personality." The new fellowship will provide support for graduate study of mechanical engineering in Harvard's division of engineering and applied physics.

The Marks fund actually was established some weeks before Prof. Marks' sudden death in January. Prof. Marks, an authority on engine design and editor of the widely used *Mechanical Engineer's Handbook,* retired from the Harvard faculty in 1940 after 46 yr of teaching.

With support from the National Heart Institute, the U.S. Public Health Service, and the American Heart Association, the Medical College of Georgia, Augusta, is offering **a 12-mo postgraduate cardiovascular research and training program** in its departments of physiology and pharmacology. The program is under the direction of W. F. Hamilton, department of physiology, and R. P. Ahlquist, department of pharmacology. Graduates in medicine or related sciences who are recommended and who are acceptable to

the program directors will be appointed for 1 yr, effective 1 July 1955, to the faculty rank of research associate. The stipend is $3400 with an additional $350 for each dependent. For additional information and application forms, write Dr. W. F. Hamilton or Dr. R. P. Ahlquist, Medical College of Georgia, Augusta.

A national competition for fellowships for **high school teachers** of chemistry, physics, and biology throughout the United States and Canada to attend a special program at Massachusetts Institute of Technology during the summer has been announced. Generous assistance from the Westinghouse Educational Foundation will make possible a total of 50 fellowships of $250 each to help meet the costs of attending a special program. This program, from 27 June to 5 Aug., will provide a review of fundamental subject matter in physics, chemistry, and biology, and a survey of recent scientific developments not only in these fields but also in meteorology, geology, and aeronautical engineering. Further information on the Science Teachers' Program, and application blanks for the Westinghouse fellowships may be obtained from the Summer Session Office, Room 7-103, Massachusetts Institute of Technology, Cambridge 39, Mass. *All applications must be filed by 1 Apr.*

For the summer of 1955 10 National Science Foundation predoctoral scholarships will be offered for course or research work at the **Duke University Marine Laboratory,** Beaufort, N.C. The scholarships are sufficient to cover tuition, board, and room for 6 wk. Graduate students from any university may apply. Selections will be based upon undergraduate and graduate transcripts and three letters of recommendation.

Four postdoctoral grants of $500 each will be made to biology faculty from colleges and universities of the Southeast, other than Duke University, for 12 wk of research at the laboratory. Inquiries should be addressed to the director, Dr. C. G. Bookhout, Zoology Dept., Duke University, Durham, N.C.

Wesleyan University, Middletown, Conn., will increase its annual stipends for graduate assistants in the sciences from $1300 to $1500 in 1955–56. Fellowship grants for graduate assistants will also be raised on a sliding scale from the present $325 to a maximum of $600 yearly. There are usually about 18 assistants in residence, both men and women, working toward the master's degree in one of the sciences. Each science department will also make available two $500 summer research grants for graduate fellows.

Grants and Fellowships Awarded

The following postdoctorate fellows are conducting research in the laboratories of the **National Research Council of Canada.** Only those in their first term of appointment are listed. They represent 42 universities, including 8 Canadian institutions and 34 located in 14 other countries.

D. P. Burma, Calcutta. Div. of applied biology; plant physiology.

A. B. Callear, Birmingham. Div. of applied chemistry; applied catalysis.

R. G. Chambers, Cantab. Div. of physics; low temperature and solid-state physics.

D. M. J. Compton, Oxon. Div. of pure chemistry; photoconductivity of organic crystals.

C. Deb, Calcutta. Div. of applied biology; animal physiology.

A. Y. Drummond, Oxon. Div. of applied chemsitry; physical organic.

E. L. Falconer, McGill. Div. of applied biology; carbohydrates and fat chemistry.

E. Fawcett, Cantab. Div. of physics; low temperature and solid-state physics.

A. W. Frank, McGill. Div. of pure chemistry; organic chemistry.

H. Gesser, McGill. Div. of pure chemistry; photochemistry.

E. D. Goddard, Cantab. Div. of pure chemistry; thermochemistry.

T. T. Harding, Nottingham. Div. of pure chemistry; intermolecular forces and physical properties.

E. R. Hardwick, U.C.L.A. Div. of pure chemistry; photochemistry.

K. E. Hayes, Oregon. Div. of applied chemistry, applied catalysis.

T. J. Hugo, Stellenbosch. Div. of pure physics; spectroscopy.

K. Ito, Nagoya. Div. of pure chemistry; molecular spectroscopy.

A. H. Jackson, Cantab. Div. of pure chemistry; organic chemistry.

C. J. D. Jarvis, Edinburgh. Div. of physics; cosmic rays.

S. W. Kennedy, Belfast. Div. of applied chemistry; corrosion.

F. R. Lipsett, London. Div. of radio and electrical engineering; dielectrics.

J. S. Mackie, Aberdeen. Div. of applied chemistry; high-polymer section.

D. G. H. Marsden, Oxon. Div. of pure chemistry; mass spectroscopy.

D. L. Martin, London. Div. of physics; low-temperature and solid-state physics.

T. W. Martin, Northwestern. Div. of pure chemistry; photochemistry.

M. Martin-Smith, New Zealand and Rochester. Div. of pure chemistry; organic chemistry.

D. E. McElcheran, Leeds. Div. of pure chemistry; photochemistry.

D. W. McKee, London. Div. of applied chemistry; applied catalysis.

A. Morgan, St. Andrews, Scotland. Div. of pure chemistry; organic chemistry.

A. Nickon, Alta. and Harvard. Div. of pure chemistry; organic spectrochemistry.

J. V. Ramsay, Sydney and London. Div. of physics; metrology.

G. S. Rose, Birmingham. Div. of pure chemistry; surface chemistry.

H. C. Rowlinson, Oxon. Div. of applied chemistry; applied catalysis.

K. Sargeant, Liverpool. Div. of pure chemistry; organic chemistry.

J. Schmorak, Hebrew Univ. and Geneva. Div. of applied biology; carbohydrate and fat chemistry.

B. A. Stone, Melbourne and London. Div. of applied biology; fermentations and enzymology.

R. L. Strong, Wisconsin. Div. of pure chemistry; photochemistry.

E. J. Tarlton, New Brunswick and Harvard. Div. of pure chemistry; organic chemistry.

H. W. Taylor, Man. Div. of pure physics; cosmic rays.

Y. Ting, Ohio State. Div. of pure physics; spectroscopy.

R. Tremblay, Montreal. Div. of applied chemistry; colloids.

E. Vance, Glasgow. Div. of applied chemistry; high-polymer section.

J. E. Vandegaer, Louvain. Div. of applied biology; biological macromolecules.

P. K. Watson, Birmingham. Div. of radio and electrical engineering; dielectric section.

R. V. Webber, Dalhousie and Wisconsin. Div. of applied biology; biophysics.

G. C. Wood, Leeds. Div. of applied biology; biological macromolecules.

A. Zehnder, Zurich. Div. of applied biology; plant physiology.

In the Laboratories

Ground was broken recently for the $4 million research laboratories building of the **Missile Systems Division of Lockheed Aircraft Corp.** The first earth was turned on the project when a buried powder charge was touched off by an electronic signal from Lockheed's missile test base at Holloman Air Development Center, Alamogordo, N.M.

Elwood R. Quesada, vice president and general manager of the Missile Systems Division, who telephonically directed his aides in New Mexico to set off the powder blast, said the four-story, 74,000-ft² building is the first step in a long-range plan to develop optimum weapons systems for the nuclear era. Head of the research laboratory is Ernest H. Krause, nuclear physicist, formerly associate director of research at the Naval Research Laboratory, Washington, D.C.

Harris Research Laboratories, Washington, D.C., celebrated its 10th anniversary in December. Organized by Milton Harris, formerly a chemist at the Bureau of Standards, the laboratory was sponsored by the Textile Foundation at its inception. Since then it has broadened its interests to include not only a range of fiber and cosmetic research, but numerous other fields. The laboratory also sponsors research of its own and has developed, patented, and licensed processes for shrinkproofing, bleaching and "stripping" the color from wool. Recently, the organization published the *Harris' Handbook of Textile Fibers,* a compilation of technical and economic data considered the first of its kind in the fiber field.

Hooker Electrochemical Co. of Niagara Falls, N.Y., manufacturers of a diversified list of more than 100 heavy and fine chemicals used in manufacturing and processing, and developers of important polyesters, recently announced merger plans with **Durez Plastics and Chemicals, Inc.,** of North Tonawanda, N.Y. Durez, a producer of phenolic, plastic, and related molding compounds sold to the automotive, electric, packaging, and other industries, would be operated as a division of Hooker, retaining the Durez name. The merger is planned on a share-for-share basis. Hooker observes its 50th anniversary this year.

Miscellaneous

The ***Engineers' Job Directory,*** a new annual publication has just been released by Decision, Inc., of Cincinnati, Ohio. Oliver P. Bardes is president and publisher. This is the first guide of its type directed specifically toward supplying job information to young engineers. Some 129 participating companies present key facts about their organizations—year founded, products, number of employees, whom to contact, and so forth. The directory also includes an extensive index. Companies indicate the types of engineers they want—for example, chemical, electrical, mechanical—and another section lists the companies interested in undergraduates for summer jobs.

The report of the **Southeastern Conference on Biology Teaching** held at the University of Florida, 28 Aug.–6 Sept., has been published as the January issue of *The American Biology Teacher.* The 64-page report summarizes the recommendations of the 96 persons in attendance on how to improve biology teaching in high schools and colleges and how state departments of education can assist in the development of strong biology programs, particularly in the Southeast. The conference was sponsored by the National Association of Biology Teachers in conjunction with the annual meeting of the American Institute of Biological Sciences on a grant from the National Science Foundation.

Single copies of the report are available free from Dr. Richard L. Weaver, Co-Director, School of Natural Resources, University of Michigan, Ann Arbor. Those interested in the N.A.B.T. should write to Paul Webster, Secretary, Bryan High School, Bryan, Ohio. Conference reports are being sent to all members.

G. P. Woollard, professor of geophysics at the University of Wisconsin, and G. F. Hanson, Wisconsin state geologist and staff member of the university, are the authors of a report, Bull. 78 in the Wisconsin Geological Survey series, on the solutions of subsurface geologic problems in Wisconsin. The report, **"Geophysical methods applied to geologic problems in Wisconsin,"** is the result of 4 yr of investigations. Its aim is "to show the degree to which geophysical studies can be of assistance in resolving some of the problems of subsurface water supply, mineral exploration, engineering, and subsurface geology encountered in Wisconsin." The bulletin is available through the office of the State Geologist, Science Hall, University of Wisconsin, Madison.

A survey of the nuclear-energy field for industries interested in that area is being distributed this week as the first contribution of the University of Michigan's new industry program. Called ***A Peacetime Survey of Nuclear Energy from an Industrial Viewpoint,*** the manual is a condensation of information from many unclassified publications as well as from original investigations. It was written by Joseph J. Bulmer and Marx Weech, research associates in the Engineering Research Institute, with the assistance of a third research associate, John G. Lewis, and of Harold A. Ohlgren, professor of chemical engineering, who is in charge of the industry program.

The survey shows where every industry can find a role in the nuclear-power field—the mining and preparation of fuel ores, utilization of power nuclear reactors, use of radioactive materials produced in the reactors, chemical processing of "used" fuels, manufacture of instruments to measure and control atomic energy. At the same time, the study points out the places where industry can expect to encounter difficulties, such as in the handling and storage of intensely radioactive by-products.