that, with enough men and facilities, any practical goal may be reached, even when the basic scientific facts are unknown. The truth is that most practical developments rest upon a foundation of basic scientific truth, of ideas developed by men seeking to understand nature. The scientists are convinced that faster progress can be made in applied research by a more generous support of basic research. Scientists fear that basic science is not receiving adequate support and point to the relatively low appropriations for the National Science Foundation as compared with those for applied science. They fear the changeable policies as administrators change. They fear the loss of independence in the conduct of their work. The remedy for these fears is wise administration and sound national policy.

I do not have the space to pursue other aspects of this subject, such as the effect of the large government expenditures on applied research and development in enticing scientists from basic research and from the teaching profession into much more lucrative positions in industry.

The ADX battery additive case disturbs scientists. Science has frequently encountered strong differences of opinions and rivalries, but it settles them by the unquestionable test of observed experimental results. Its findings are based on objective results, with great care to remove bias and prejudice and to secure accurate results. It sees in the ADX case an appeal to politics and to expediency. It contends merely that the merits of a battery additive cannot be settled by the testimonials of laymen or by a political vote. As science, it expresses no judgment on whether the product should or should not be offered in trade.

Still another incident described by Theodore H. White in the article previously referred to is the introduction of security-risk considerations in unclassified grants and contracts. Quoting from White:

> Slowly the administrative masters of the keys have begun to regard funds for science as a favor, a privilege of the patron to give or withhold depending on a man's high-school associations, his choice of friends, the remarks of his brother-in-law.

White tells of an instance in which a grant was withheld when applied for by a certain scientist, but assurance was given that the grant would be approved if applied for in the name of his laboratory assistant.

Still another source of worry is the implication of the Oppenheimer case and, particularly, the attention and debate with respect to Oppenheimer's attitudes toward the thermonuclear bomb and continental defense. White tells of an interview with a young doctoral student who expressed his assessment of the risk of working for the government in these terms:

> It's a hell of a thought to think that you go to work for the government now and fifteen years later any politician can pull the noose around your neck just because he didn't like the clubs you joined at school.

In spite of the uneasiness felt by many scientists with respect to governmental actions and public attitudes, I am convinced that most scientists recognize the source of many of these actions and attitudes in the stresses and strains of the cold war. Most scientists do not wish they had become plumbers. Most scientists accept the necessity of secrecy and security measures in certain areas of science. They realize the necessity of advancing science faster than our enemies and are concerned about our short supply of scientists in training, our shortage of teachers of science in high school and college, our unrealistic selective service policies. They wish to break the shackles that impede our scientific progress, especially in its creative and original aspects. In this task they ask for mutual understanding and assistance of their fellow-citizens.

News and Notes

Communication of Research Results

The Communication of Research Results, a symposium sponsored by the American Institute of Biological Sciences Publications Committee, took place on 7 Sept. during the AIBS annual meetings in Florida. James Bonner (California Institute of Technology) skillfully served as chairman of a program designed to explore new ways of meeting the serious situation that has developed in the publication and assimilation of our ever-expanding research literature.

William R. Duryee (National Cancer Institute), chairman of the AIBS Publications Committee, opened the session with "A blueprint for streamlining biological journal publication." With more than 20,000 biological journals appearing regularly and the number steadily growing, even the abstracting services fail to cover more than a small fraction of the material printed. (*Biological Abstracts* includes some material from less than 2000 journals and complete coverage of only 800.)

The AIBS has established a Publications Plan that looks forward to a reorientation of research publication by 1960. This involves the following steps: 1955, gather ideas from editors and biologists for solving the problem; 1956, formulate a workable and acceptable plan; 1957, promote coordination among the various indexing and abstracting services, with the development of a single standard numbering and indexing system as a prime objective; and 1958–59, promote number coding of articles to allow for machine searching of material, and work with journals to encourage them to simplify titles, shorten papers, and voluntarily send abstracts to *Biological Abstracts.* The ob-

ject of the Publications Plan is not to impose a system but to serve as a clearinghouse for the best thinking. Any plan must be acceptable, must not interfere with dissemination of knowledge, but must result in *fewer* words. Shorter articles could be satisfactory if detailed specialized data were deposited by journal editors in regional libraries coordinated by the Library of Congress; these data would then be available by photoreproduction at the user's expense.

Richard M. Hewitt (Mayo Clinic and the Mayo Foundation of the University of Minnesota), speaking humorously and tellingly on "Better preparation of material," opened his talk with the observation that our research reporting system encourages repetition, orally and in writing, in text, abstract, and review of research results. Thus, a few ideas are buried in a mountain of words. For oral reporting, Hewitt deplored the presentation of illegible slides.

The written reporting of research is part of the research; it is necessary to be as accurate at the desk as at the laboratory bench; each illustration should serve a purpose; duplication of information in text, tables, and graphs is unjustifiable; and too many references are—too many. An experienced author also knows that he should not release what he has written when angry, elated, or depressed, and elation is the most dangerous of these emotions.

A wise author works from an outline, detailed and carefully prepared. A great deal more time should be spent in the preparation of the outline than on composition. Consistency in the handling of the material and in the use of terms is equally important. One trick of the trade that saves words is the substitution of verbs for stock substantive expressions: not *"Retention* of water occurred in the starved rats," but "The starved rats retained water." And finally, the speaker outlined with graphic examples an array of pitfalls in writing—pronouns used without antecedents, new verbs made from nouns, colloquialisms, nouns used as adjectives, and the incorrect use of words, more often common English words than technical terms.

Robert Bray (Library of Congress), in discussing "Modern reproduction of material," emphasized the flexible use of both new and old methods of reproduction to serve specific needs. Microcards in 3- by 5-in. size are convenient for filing but cannot be enlarged economically, whereas sheet film can be enlarged when needed. The Diazo Process, incorporated in many commercial copying devices used in business firms, provides a method for making single reproductions from single sheets of paper without the use of a lens. The most promising of the new devices is Zerography, because reproduction is achieved electrically, eliminating the disadvantages of chemical processes, and the resulting copy compares favorably in quality with that produced by standard photographic techniques.

The speaker described the experiment in facsimile reproduction, sponsored by AIBS, that is now in operation between the Library of Congress and the National Institutes of Health. Pages of material are transmitted by wire through the use of an electronic scanner; the copy is fairly clear and is usable for most purposes.

The publication system of the American Society of Civil Engineers was described. The society's journal merely lists the titles of technical papers, each with a number, and members order by number, as separates, only the articles of interest to them. The PB report system, operated by the Library of Congress in cooperation with the Office of Technical Services of the Department of Commerce, was also described. In this system the office deposits single copies of reports with the Library of Congress, whose Photoduplication Service sells microfilms or photostats on request. Customers of this service are largely in industry or small business, and the reports are usually technical in nature.

Ralph Shaw (Rutgers University), former librarian of the U.S. Department of Agriculture, discussed "Indexing and rapid differential selecting of material." He emphasized that machines will not replace printed bibliographies and card catalogs or those who make them; however, machines, by saving time and money in searching for material, can release time and funds to achieve a better organization of our knowledge.

Reviewing various kinds of electronic devices, such as digital computers, Shaw pointed out their disadvantages for bibliographic work, disadvantages stemming from the fact that they were not designed for this purpose. The Rapid Selector is at present the only one engineered for bibliographic use; it combines the flexibility of binary electronic searching with high-speed photographic reproduction. By combining a punched-card code and a photocell synchronized with an auxiliary camera, it provides an enlarged print of the data from standard 35-mm film. This corresponds to whatever code number the user wishes to find. Thus, hundreds of thousands of items can be scanned to select all the items desired in a matter of minutes. Not only can greater quantities of material be sifted, but they can be sifted with greater accuracy and without hand-copying.

The success of the Selector does not depend upon agreement on a uniform scheme of classification or listing of the material in all conventional systems of indexing. A system of random numbering permits use of code numbers for the known concepts as they are currently organized in any field, and as new concepts develop additional code numbers can be assigned consecutively with a numbering stamp. Synonyms are given the same code number, and new concepts can be added without fitting them into a numbering sequence. By the use of separate code books and films, the same numbers can be used for different sets of abstracts or for journals in various languages. Some fundamental thinking about the organization of information is needed before full advantage can be taken of this new tool.

Ralph Cleland (Indiana University) presented a most provocative proposal in his paper on "The use of material." He pointed out that the publication of

research papers was designed to serve two purposes, namely, to inform a relatively few individuals of the details of a given research project, and to give a larger audience a summary of the reasonings and findings. This is economically unsound, since a circulation of 2000 to 3000 for an article read in toto by no more than 20 to 100 people may be costing the sponsoring society or group about $10 per reader. To eliminate this expensive procedure and to obviate the necessity of exchanging reprints, it was suggested that a journal might publish a condensed version of a scientific paper and make the complete documented text available to the few who want it in some less expensive form.

Three possible ways of effecting this were proposed. The American Documentation Institute and University Microfilms, Inc. (the latter restricted at present to Ph.D. dissertations), could expand their services to supply microfilm editions of full-length papers if more journals would use their services and adopt the plan of printing only short articles. This might lead to many papers appearing only in the short form, since authors might often find they could say all that was necessary in the condensed version, thus fostering the art of brevity. The third possibility would be to accomplish the same purpose through the use of microcards, a more convenient form in the speaker's opinion. Researchers would buy only what they needed, and by the elimination of exchange of reprints, both money and storage space would be saved. The publication of shorter articles would result in reduced subscription rates. This reduction would enable libraries to have complete sets of microfilms or microcards available to aid a purchaser to decide whether or not he needed a given full text.

A more radical departure would be to combine a large number of journals into a departmentalized newspaper, the editorial selection to be retained by professional groups but the copy editing and publishing to be done by production experts. This paper could be a weekly containing short scientific articles (detailed data supplied as outlined in the preceding paragraph), editorials, symposiums, news items, letters and discussion, book reviews, and advertising. One daily issue of the *New York Times,* selected at random, contained 135,834 words of news material, about twice the number of words published in the *American Journal of Botany* in an entire year. By using rotary presses and newspaper techniques, greater speed and economy would be effected. The economy factor would be enhanced by the attractiveness of the paper for advertisers. Subscription rates could be low, and a reduction in society dues would be possible.

Based on actual figures for a typical newspaper with a circulation of 50,000, the speaker calculated that a paper, combining the contents of 10 journals and having a circulation of 15,000, would cost the subscriber only $3 to $5 per year. This would be no more than a tenth of the present cost for the same amount of journal material. (An article based on Cleland's paper will appear in a forthcoming issue of *Science.*)

The large attendance at the symposium and the lively discussion offered strong evidence of the interest in the critical problem of research publication.

JOHN A. BEHNKE *for*
Publications Committee of the AIBS
American Association for the Advancement of Science, Washington 5, D.C.

Science News

The **American Society of Plant Physiologists** passed this resolution during its annual meeting in Gainsville, Fla., in September.

> It has come to the attention of the American Society of Plant Physiologists that political criteria are now being employed by the Department of Health, Education and Welfare in the awarding of research grants through the U.S. Public Health Service. We deplore this practice for we feel the introduction of such political considerations into scientific effort to be contrary to American tradition and to be harmful to science as a whole. We respectfully urge a return to former selection procedures, in which only the scientific merit of the research proposal and the integrity and research record of the investigator are judged.

To implement its program of attack on trachoma and certain other eye diseases, the Arabian American Oil Co. has begun a joint 5-yr, $500,000 research program with Harvard University. The research group will be headed by John C. Snyder, dean of the School of Public Health and head of the department of microbiology, assisted by Edward S. Murray and Shih-man Chang, specialists in virus diseases. Arabian American will make available the facilities of its new medical center in Dhahran, Saudi Arabia, including three modern laboratories. Harvard will provide the professional and technical staff for the scientific work.

The United States did not take part officially in the 4th **World Forestry Conference** that opened at Dehra Dun, India, on 11 Dec. Tom Gill of Washington, D.C., delegate from the Society of American Foresters, said the State Department decided against official participation because the Chinese Communists were sending a delegation.

The results of preliminary spectrographic investigation of 24 samples of ash taken from Kansas coal showed that the **germanium content** ranged from 0.0036 to 0.0680 percent in the ash and from 0.00069 to 0.00480 percent in the total coal. Using the price of germanium at $295 per pound, as it was in February of this year, John A. Schleicher and William W. Hambleton of the University of Kansas determined that the germanium content of the Kansas coal was worth from $4.06 to $28.40 per ton of coal. One sample, which contained 21.8 oz of germanium per ton of ash, was valued at $401.20 per ton of ash, if no germanium were lost in the processing. This compared

favorably with both present domestic and foreign prices of the metal.

The chief source of domestic germanium has been the residues derived from the smelting of zinc ores. In Germany, England, and Japan, there are several plants already in operation that recover the metal from the fly-ash and residual ash of coal. In this country there has been some questions about the practicability of obtaining germanium from coal because the thick veins of eastern coal show low concentrations of the metal. However, Kansas coal seams are much thinner and this might be a factor in the high concentration found in the study. The U.S. Geological Survey is planning to conduct further investigations of the germanium in Kansas coal next spring.

A record ratio of **1 doctor for every 730** persons in the United States has been reached during 1953–54 through the graduation of 6861 physicians, the largest group in history.

At a special conference held in New York on 9 Dec. the legislative committee of the **American League Against Epilepsy** discussed and recommended reform of outmoded state laws requiring sterilization of epileptics, prohibiting their marriage, limiting their employment opportunities, and forbidding them to operate motor vehicles. The committee indicated that these laws had long caused profound economic deprivation and moral despair among hundreds of thousands of citizens who, with their seizures partially or wholly controlled, were for all practical purposes normal human beings.

The four major recommendations for changes in state legislation were made in the light of a 2-yr study conducted by Roscoe L. Barrow, dean of the College of Law of the University of Cincinnati. Barrow's study was supported by a grant from the National Institute of Neurological Diseases and Blindness. These recommendations may be summed up as follow: (1) eugenic sterilization laws should be amended to render them inapplicable to epileptics; (2) eugenic marriage laws should be amended to render them inapplicable to epileptics; (3) motor vehicle licenses should be considered for those epileptics whose seizures have been completely controlled for a period of 2 yr; (4) workmen's compensation laws should be amended so that employers are protected from liabilities resulting from injuries to or by epileptics caused by epileptic conditions.

Some 25 young **West German scientists** are to come to the United States at the invitation of the Government to study for 2 yr in American institutions. The program is aimed at strengthening German science and its industrial application. Atomic energy will be one of the chief fields of study, for the U.S. has agreed to help Germany in developing atomic energy for peacetime use. This country also is shipping a considerable quantity of nuclear research equipment to Germany.

In an article in the December issue of *Harper's Magazine,* Leonard Engel medical writer, says that many cancer investigators find serious flaws in the statistical evidence linking **cigarettes and lung cancer.** He reports that William C. Heuper, chief of environmental cancer research at the National Cancer Institute, has pointed out that the lung cancer mortality rates in various countries should parallel the national consumption of cigarettes. However, in Central Europe the rise in lung cancer began before the turn of the century and not in 1920 when cigarette smoking became widespread.

A British scientist, Sidney Russ, states that Denmark, Switzerland, and the United States have nearly identical death rates from lung cancer, but the Swiss and Danes smoke only half as many cigarettes per capita as we do. Again, cigarette consumption in England and Wales is 30 percent below the level of the U.S.; but lung cancer mortality in these areas is almost two and a half times as great.

Engel writes that the "most puzzling inconsistencies" are to be found in the proportions of men and women dying of lung cancers. As a whole, cancer of the lung is a masculine disease, theoretically because men have been smoking longer and in larger numbers than women. Curiously, however, the disproportion is growing in the U.S. and several other countries —though a larger proportion of women now smoke.

On 27 Nov. the **first experimental reactor** to be built in Sweden was officially shown to an assembly of scientists, industrialists, and other notables headed by King Gustaf Adolf and two cabinet ministers. The reactor's present 10-kw capacity will soon be increased to 300 kw, and plans have been formulated for the construction of a 20,000-kw reactor within 3 to 4 yr.

Foot-and-mouth disease, a virus that infects cattle, has been transmitted by inoculation to young chicks in the laboratory. Heretofore, it had been believed that both domestic and wild fowl are resistant to the disease. H. H. Skinner of the Research Institute (Animal Virus Disease), Pirbright, Surrey, England, reported in the 4 Dec. issue of *Nature* that he inoculated young chicks intramuscularly and chick embryos intravenously with strains of the disease taken from cattle, mice, and guinea pigs. He recovered the virus from the blood and observed characteristic lesions of the tongue in both newly hatched chicks and birds 2 to 4 mo old.

In chickens of all ages there was no severe systemic disturbance in the course of the infection. The affected tongue tissue usually was flaked off in 1 or 2 days and the tongue left without a blemish. Both the cardiac and skeletal muscles of the chicks inoculated in the embryo stage were observed to show signs of the infection, as is the case in the infection of the young of many other species.

Skinner also reported a successful attempt to infect chick embryos 7 to 10 days old with the virus of vesicular stomatitis, a disease with symptoms similar to

those of foot-and-mouth disease. " . . . adult and young birds were highly susceptible to infection with the virus of vesicular stomatitis when this was inoculated intradermally into the tongue."

The government expects soon to introduce a new game bird into the United States. It is the black francolin (*Francolinus francolinus*), a beautiful, nonmigratory bird from Pakistan that will probably be "planted" in the southwest. Gardiner Bump, Fish and Wildlife Service biologist in charge of **foreign bird introductions,** is now in Karachi. He hopes to send back a few hundred black francolins, several times the minimum number necessary to make a successful plant.

The black francolin is closely related to the 194 gray or brown francolins introduced into Arizona from Pakistan last year. A Federal-State program, financed by excise taxes on sporting arms and ammunition, seeks to restock game birds in the United States, mostly in the dry southwestern portion where there are now few upland game birds. Under the program the Government has brought in more than 3700 chukor partridges from Turkey in the last 3 yr. Stemming from the same family as the bobwhite, the chukors were sent mainly to Arizona, New Mexico, and Utah.

Other game birds finding new homes in the United States in the last 3 yr include nearly 270 Spanish red leg partridges for southeast Colorado, which the Government hopes will soon be increased by 600 newcomers; 40 seesee partridges from Pakistan and Turkey for New Mexico, with more expected to follow; 55 Hungarian partridges from Turkey, of a race adaptable to southwestern conditions; 5 sand grouse from Turkey for Arizona; and 3 Turkish pheasants, owned by the State of Missouri and now on a Tennessee game farm. The most famous game bird transplanted into the United States is the pheasant, successfully imported from China in 1880.

Scientists in the News

Paul E. Klopsteg has resigned as associate director of the National Science Foundation, effective 31 Dec., to return to his home in Glenview, Ill., where he is establishing an office for consulting activities in research and education in science and engineering. He will continue as a member of the Personnel Security Review Board of the Atomic Energy Commission, and will serve as special consultant to the National Science Foundation and to the dean of the Technological Institute at Northwestern University [See *Science* **120**, 592 (15 Oct. 1954)].

At its 35th annual meeting the Swedish Academy of Engineering Sciences awarded gold medals to the following scientists: **Erik Stemme,** for directing the team that in 3 yr built the binary electronic computing machine, BESK; **Gunnar Jancke,** for his role as leading engineer in the design and development of Sweden's new network of 380,000-v transmission lines between the Lapland waterfalls and the central and southern parts of the country; **Erik Bergstrand,** for designing the geodimeter, an instrument for measuring geographic distances by determining the distance traveled by light reflexes; **Olle Wernholm,** for his work in perfecting electron accelerators. **John Chipman** of Massachusetts Institute of Technology, the first non-Swede to be so honored, received the Academy's Brinell medal for his important achievements in metallurgy and metallography.

A. Nelson Dingle has joined the staff of the University of Michigan, where he will be associated with E. Wendell Hewson and others in establishing a program of applied meteorology. The group is undertaking to develop the interdisciplinary phases of meteorology in such fields as medicine, public health, engineering, and biology. A teaching and research laboratory is being built by the university to provide a center for these studies.

Arthur G. Milnes, a specialist in magnetic amplifiers and principal scientific officer of the British Ministry of Supply, has joined the faculty of Carnegie Institute of Technology as visiting associate professor of electrical engineering. His 1-yr leave from the Royal Aircraft Establishment at Farnborough is supported by an FOA fellowship granted by the Royal Society of London in conjunction with the National Academy of Science in Washington. He will work with L. A. Finzi, who is also an authority on magnetic amplifiers.

Harold A. Wilson, professor emeritus of physics and former head of the department at Rice Institute, was honored by colleagues and friends at a formal dinner on his 80th birthday. Wilson was one of the original members of the Rice faculty. He is a fellow of the Royal Society of London and of the American Philosophical Society, as well as a member of the Cambridge Philosophical Society, the London Physical Society, and the American Physical Society. Annually former students of Rice contribute to the H. A. Wilson memorial award given to the graduate student doing the best research in physics.

The Society of American Foresters presented two of the forestry profession's highest awards during the society's meeting in Milwaukee, Wis. **William L. Hall** of Hot Springs, Ark., received the Gifford Pinchot medal. Hall was a cofounder with Mr. Pinchot of the society, and is the owner and manager of extensive timberlands in Arkansas. At the age of 81, he is the oldest professional forester in America in active practice.

Tom Gill, executive director of the Charles Lathrop Pack Forestry Foundation, Washington, D.C., was presented the Sir William Schlich memorial medal. Schlich (1840–1925) was inspector general of forests

in India, professor of forestry at Oxford University, and author of the *Manual of Forestry,* an early work on forest management. Gill was honored for distinguished service to international forestry. He has been a forestry consultant to several governments in Central America and the Orient, and is a special forestry adviser to the Food and Agriculture Organization of the United Nations.

Wallace E. Pratt, of Carlsbad, N.M., former vice president and director of the Standard Oil Co. (New Jersey), is the 1954 recipient of the American Petroleum Institute's Gold Medal award for distinguished achievement.

Hans Schwerdtfeger, mathematician of the University of Melbourne, Australia, is spending a year as a visiting professor at Queen's University, Kingston, Ontario, Canada. He is completing a book on the geometry of complex numbers, in collaboration with Peter Scherk of the University of Saskatchewan. Schwerdtfeger is planning to visit New York University in January and several other American institutions at later dates.

A. E. Pierce, a principal scientific officer of the Agricultural Research Council of Great Britain, stationed at the Institute of Animal Physiology, Cambridge, is utilizing a 1-yr fellowship in veterinary protozoology at the McMaster Animal Health Laboratory in Sydney, Australia. One of his particular fields of interests has been bovine trichomoniasis and he spent 2 yr as Wellcome research fellow at the University of Wisconsin studying the chemotherapy of this disease.

Vesto M. Slipher has become director emeritus of the Lowell Observatory, Flagstaff, Ariz., after 53 yr of continuous service, the last 38 of them as director. His outstanding work in astronomical spectroscopy, including his discovery of the red-shift in the spectrums of extragalactic nebulas, led to his receiving the gold medal of the Royal Astronomical Society, the Bruce medal of the Astronomical Society of the Pacific, and many other honors. He plans to continue his planetary and nebular studies.

Slipher is succeeded by **Albert G. Wilson,** who has been assistant director since 1953. Wilson was previously on the staff of the Mount Wilson and Palomar Observatories and a member of the faculty of California Institute of Technology. During 1949–53 he was astronomer in charge of the National Geographic Society–Palomar Observatory Sky Survey.

Donald H. Hale, colonel, has been named deputy commanding officer of the Chemical Corps Research and Engineering Command, Army Chemical Center, Md. He succeeds **Alexander Grendon,** colonel, who retired last month. Hale will assist the commanding general of the Research and Engineering Command, John R. Burns, in the direction and control of the Chemical and Radiological Laboratories, Medical Laboratories, and Engineering Agency, all at the Chemical Center, as well as Dugway Proving Ground, Utah, and the Chemical Corps installation at Muscle Shoals, Ala.

Ralph D. Bennett, senior scientist and technical director at the U.S. Naval Ordnance Laboratory, Silver Spring, Md., resigned on 1 Dec. after 14 yr of service to accept a position as manager of the technical department of the Knolls Atomic Power Laboratory, Schenectady, N.Y., research facility managed by the General Electric Co.

L. L. Thurstone, research professor of psychology and director of the Psychometric Laboratory of the University of North Carolina, recently returned from Sweden, where he was awarded an honorary doctorate by the University of Gothenburg. Last spring he was visiting professor of psychology at the University of Stockholm.

Howard A. Eder, an investigator in the metabolism laboratory of the National Heart Institute, has been appointed associate professor of medicine of the State University of New York College of Medicine, Brooklyn, effective early in 1955.

Necrology

Ernest B. Babcock, 77, pioneer in experimental taxonomy and professor emeritus of genetics at the University of California, Berkeley, 8 Dec.; **Charles F. Daniels,** 39, thoracic surgeon and codesigner of the Chamberlain-Daniels vacuum pump, New York, 8 Dec.; **John Eiman,** 67, pathologist and director of laboratories at Abbington Memorial Hospital, Philadelphia, 3 Dec.; **Charles W. Elmer,** 82, astronomer, lecturer, and founder of the Custer Institute for Scientific Research, Greenport, N.Y., 7 Dec.; **Vladimir V. Golubev,** 70, mathematician, authority on aerodynamics, and author, Moscow, 5 Dec.; **Harry C. Gossard,** 70, mathematician and former dean of Eastern New Mexico University, Portales, N.M., 6 Dec.; **Edmund J. Longyear,** 90, mining explorer, Los Angeles, 4 Dec.; **Edmund B. Montgomery,** oldest practicing physician in the United States and yellow fever expert, Quincy, Ill., 8 Dec.; **Charles Palache,** 84, crystallography expert, former president of the Geological Society of America, and professor emeritus of mineralogy at Harvard University, Cambridge, Mass., 5 Dec.; **Stephen B. L. Penrose, Jr.,** 46, former professor of physics, author, and president of the American University of Beirut and International College, Beirut, Lebanon, 9 Dec.; **Frank J. Remy,** former instructor of oral hygiene at Columbia University, New York, 6 Dec.; **Florence Robertson,** 45, professor of geophysics and geophysical engineering in the Institute of Technology of St. Louis University, St. Louis, 18 Nov.; **Julius V. Sommer,** 66, former analytical chemist for the Esso Research Laboratories, Linden, N.J., 6 Dec.

Meetings

International medical authorities visited the University of Pennsylvania 8–9 Dec. to attend a series of conferences for consideration of the muscular disorder known as myasthenia gravis. The meeting was held under auspices of the **Myasthenia Gravis Foundation,** New York. George D. Gammon, professor of clinical neurology at the University of Pennsylvania School of Medicine and vice chairman of the foundation, arranged the program. Among the foreign visitors was Andrew Wilson of the University of Liverpool, England, who spoke on the action of extracts of the thymus on myasthenia gravis; H. D. Churchill-Davidson of St. Thomas Hospital, London, who described neuromuscular transmission in myasthenia gravis; and Eleanor Venning of McGill University who discussed endocrine changes in normal pregnancy.

The School of Agriculture of Michigan State College is sponsoring a centennial symposium, **Nutrition of Plants, Animals, and Man,** 14–16 Feb. 1955. The program is designed to interest people professionally concerned with nutrition rather than the general public, to review current experiments, and to assess present knowledge concerning the influence of soil fertility on the nutritive value of animal and human food. It is hoped that the inclusion of speakers with national and international reputations will add to the interest of the meeting.

The program the first day will be devoted largely to a consideration of the chemical composition and nutritional quality of plants. L. A. Maynard, A. G. Norman, and K. C. Beeson will be the principal off-campus speakers. The second day will be devoted to animal and human nutrition with these specialists participating: W. A. Albrecht, E. N. Todhunter, W. J. Darby, and L. E. Clifcorn. On the third day, H. D. Anderson, A. B. Keys, O. V. Wells, and Alice Smith will consider the public health aspects of the problem and, with other speakers, will conduct a panel discussion on all phases of the symposium.

Each day members of the Michigan State College staff will contribute their findings. In addition to the above specialists, other experts will be invited to participate. Attendance will be limited in order that discussion may be as free as possible. For information write Continuing Education Service, Kellogg Center, Michigan State College, East Lansing. The proceedings of the symposium will be published.

The 5th conference of the **Chemical Engineering Division, Chemical Institute of Canada,** will be held 7–9 Mar. 1955 in Ottawa. Under the chairmanship of Paul E. Gishler, 2 days will be devoted to technical papers—including a half-day on atomic energy developments, a half-day on the fundamentals of drying, and a half-day on general chemical engineering topics.

One of the features of the meeting will be a trip to the Chalk River Plant of Atomic Energy of Canada Ltd. by a limited number of participants who must have security clearance. Inquiries regarding the trip should be mailed to Dr. W. M. Campbell, Box 323, Deep River, Ont.

The spring meeting of the **Committee for the Scientific Study of Religion** is to be held in New York 16 Apr. 1955. The general theme is *Psychiatry and Religion.* Social scientists with research to report in the general area of religion should send three copies of 300-word abstracts of 15-min papers to the secretary, Walter Houston Clark, Hartford Seminary Foundation, Hartford 5, Conn., *before 1 Mar.*

Society Elections

Indiana Academy of Science: pres., A. H. Meyer, Valparaiso University; v. pres., Willis H. Johnson, Wabash College; chair. of program committee, John Mizelle, University of Notre Dame; sec., W. A. Daily, Eli Lilly and Co., Indianapolis; treas., Frank J. Welcher, Indiana University.

Academy of Psychosomatic Medicine: pres., William Kaufman, Bridgeport, Conn.; v. pres., Bernard B. Raginsky, Montreal, Canada; sec., Ethan A. Brown, Boston, Mass.; treas., Alfred J. Cantor, Flushing, N.Y.

Instrument Society of America: pres., Warren H. Brand, Conoflow Corp., Philadelphia; treas., Justus T. Vollbrecht, Energy Control Co. The vice presidents are A. A. Anderson, Swissomatic Products, and W. H. Fortney, Humble Oil and Refining Co.

American Society of Ichthyologists and Herpetologists: pres., Edward C. Raney, Cornell University; sec., Arnold B. Grobman, Florida State Museum; treas., Coleman J. Goin, University of Florida; publications sec., N. Bayard Green, Marshall College. The vice presidents are Robert C. Stebbins, University of California; L. M. Klauber, San Diego, Cal.; and Ernest A. Lachner, U.S. National Museum.

The **American Orthopsychiatric Association, Inc.:** pres., Simon H. Tulchin, New York; v. pres., Elizabeth H. Holmes, Boston, Mass.; sec., Jessie Edna Crampton, Brooklyn, N.Y.; treas., William S. Langford, New York; past pres., Hyman S. Lippman, St. Paul, Minn.; pres.-elect, Exie E. Welsch, New York; editor of journal, George E. Gardner, Boston Mass.

Mycological Society of America: pres., William W. Diehl, Bureau of Plant Industry, Beltsville, Md.; pres.-elect, Ralph Emerson, University of California, Berkeley: v. pres., Josiah L. Lowe, Syracuse University; sec.-treas., E. S. Beneke, Michigan State College.

American College of Dentists: pres., James H. Ferguson, Baltimore, Md.; v. pres., C. V. Rault, Washington, D.C.; pres.-elect, Kenneth C. Pruden, Paterson, N.J.; treas., William N. Hodgkin, Warrenton, Va.; sec., Otto W. Brandhorst, St. Louis, Mo.

Education

With the financial support of the National Science Foundation, a **visiting lectureship program** is being administered by the Mathematical Association of America during 1954–55. The object of this program is to assist teachers in colleges and universities in introducing modern ideas into undergraduate mathematics and in improving the quality and increasing the quantity of their mathematics students—not only those students who will become research mathematicians but those who will apply the subject in other fields, teach it in secondary schools and colleges, or become part of the generally informed public.

With this end in view, the lecturers are prepared not only to give formal lectures but to confer with students and faculty singly and in groups. They will be glad to advise students on future opportunities in study and employment, to discuss teaching problems and curriculum with members of the staff, and to throw what light they can on practices in comparable institutions.

There will be five lecturers: R. H. Bing, University of Wisconsin; W. L. Duren, Tulane University; Tomlinson Fort, University of South Carolina; George Polya, Stanford University (emeritus); D. V. Widder, Harvard University. Polya will tour the area roughly west of the Mississippi River for 3 mo. The other lecturers will for the most part remain east of the Mississippi. Widder will be available from 27 Mar. to 1 May; Bing for parts of the fall semester; Fort in February 1955; Duren in the fall semester. A detailed itinerary is to be found in the December (1954) issue of the *American Mathematical Monthly*.

Dedication ceremonies were held recently for the new $723,480 Barnard Free Skin and Cancer Hospital, located in the **Washington University-Barnes Hospital Medical Center**, St. Louis. The new building has five floors and a 42-bed capacity. The fifth floor will house a tumor clinic operated by the Washington University Clinics. This clinic recently received gifts totaling $130,000 for construction and equipment. Of this amount, $50,000 was received from the Donald L. Barnes Foundation and Mr. Barnes personally for equipment, approximately $60,000 came from an anonymous donor, and about $15,000 to be used for construction was received from the university's department of radiology. The project to build the fifth floor was initiated by an additional pledge of $10,000 by Wendell G. Scott, associate professor of clinical radiology and his associates in that department, and also by some of their patients who are interested in increasing the opportunities for research in the field of cancer and malignant tumors.

A 24-million volt betatron, purchased and operated by the Mallinckrodt Institute of Radiology, is on the ground floor of the building. The Mallinckrodt Institute also will provide radiological services for the hospital. Research laboratory space has been provided on the second floor, and patients will be housed on the third and fourth floors.

Available Fellowships and Awards

The **International Academy of Proctology** has announced its 1954–55 contest for the best unpublished contribution on proctology or allied subjects. The winner will receive $100 and a certificate; certificates will also be awarded to other especially deserving entries. This competition is open to all physicians in all countries, whether or not affiliated with the academy. The formal presentation of the first prize and of the certificates will be made at the annual convention of the academy on 26 Mar. 1955 at the Plaza Hotel in New York.

The academy reserves the exclusive right to publish all contributions in the *American Journal of Proctology*. All entries are limited to 5000 words, must be typewritten in English, and submitted in quintuplicate. *Entries must be received no later than 1 Feb. 1955*. They should be addressed to the International Academy of Proctology, 147–41 Sanford Ave., Flushing 55, N.Y.

Candidates for the $2500 **Merck graduate fellowship in analytical chemistry** are now being sought for 1955. The fellowship is sponsored each year by Merck and Co., Inc., Rahway, N.J., and administered by the American Chemical Society. The applicant believed capable of contributing most to the advancement of the theory and practice of analytical chemistry during his course of study and in the future will be awarded the fellowship, contingent upon the candidate's acceptance by the institution and professor selected for the proposed study program. An outline of the proposed academic program and the name of the professor must accompany the application.

The institution selected must be one whose undergraduate instruction in chemistry is approved by the American Chemical Society. In Canada, the institution must also be approved by the Chemical Institute of Canada. A student will be eligible to have the fellowship renewed twice, but no student may hold it for more than 3 yr.

Application blanks may be obtained from the American Chemical Society, 1155 16th St. NW, Washington 6, D.C. They should be completed and returned to the Merck Fellowship Committee, at the same address, along with letters of recommendation and transcripts of credits. *Deadline date for receipt of all material is 1 Feb. 1955.*

Applications for **Atomic Energy Commission fellowships** for 1955–56 in radiological physics and in industrial hygiene are now being received by the Oak Ridge Institute of Nuclear Studies. The two fellowship programs have taken on increased importance in view of increased industrial participation in the atomic energy program and the impending development of power reactors for the generation of electricity and for propulsion purposes.

The industrial hygiene fellowship program supports individuals who are studying for the master's degree in this field at either the Harvard University

School of Public Health or the University of Pittsburgh Graduate School of Public Health.

Radiological physics fellowships are carried out in three separate programs as follows: At Vanderbilt University and Oak Ridge National Laboratory, at the University of Rochester and Brookhaven National Laboratory, and at the University of Washington and the Hanford Works. In each case 9 mo of course work at the university is followed by 3 mo of additional study and field training at the cooperating AEC installation. Up to 25 fellows may be appointed in each of the three programs, and course work may be applied toward an advanced degree. Six-month extensions may be granted in some cases for completion of work on the master's degree.

Basic stipend for both fellowships is $1600, with an allowance of $350 for a spouse and $350 for each dependent child. Tuition and laboratory fees are paid as a part of the fellowship. Industrial hygiene fellows may receive an additional allowance of $200 if they have already completed a year of graduate study or have appropriate work experience. Application forms and additional information may be obtained from the Fellowship Office, University Relations Division, Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.

Miscellaneous

The **National Society of Professional Engineers** expects to occupy new headquarters on K St. NW, Washington, D.C., by the early fall of 1955. The basement and first two floors will be occupied by the society, and the top two floors will be rented as office and meeting-room space. The building will also house the offices of the *American Engineer,* monthly periodical published by the society.

Any teacher or industrial chemist interested in directing a new project in the **National Cooperative Undergraduate Chemical Program** (NaCUR) should write to Mrs. Ethaline Cortelyou, Armour Research Foundation, Chicago 16, Ill., *before 20 Jan. 1955,* if the project is to be listed for the 1955–56 college term in the annual article that appears in the May or June 1955 issue of the *Journal of Chemical Education.* For the 1954–55 college year NaCUR offered 20 projects for student participation—7 of them analytic; 12, organic; and 1 biochemical.

The NaCUR program was organized at the St. Louis meeting of the American Chemical Society in 1948 to stimulate undergraduate research and to supply chemical data. The major premise of the program is that usable chemical information can be obtained from duplicating work done by two or more undergraduate students in different colleges, independent of and unknown to one another.

Early in the 6 yr of its active existence, it became obvious that an additional purpose served by the program is to stimulate or revive research interest in teachers of small colleges who previously have felt handicapped by limited funds, facilities, time, and research quality students. A fourth aim, recently added, is to give industry an opportunity to participate in the stimulation of undergraduate chemical research to help insure for itself a continuing supply of young chemists and chemical engineers.

The program is set up under a system of research projects that are simple and objective enough for undergraduate work. Each project is subdivided into research units. Each research unit is of such a nature that acceptable results and a report can be expected in 50 laboratory hours, the equivalent of one semester hour of college credit. Each unit is assigned to two or more students in different schools and is reassigned until check results are obtained or the project director is convinced it is not feasible. When sufficient data have been collected the director will report it in a paper for publication, giving full credit to the participating students and their schools.

George Meade has contributed his natural history library and a sum of money to the department of zoology, Tulane University. The library will be incorporated with that of the department to form a nucleus for the continued expansion of the research library, to be called the **Meade Natural History Library.** The microcarding of out-of-print herpetologic materials is now in progress; a limited number of microcards of the following publications are available: George A. Boulenger, *Catalogue of the Amphibians and Reptiles in the British Museum* $17; Egid Schreiber, *Herpetologia Europaea. Eine systematische Beareitung der Amphibien und Reptilien, welche bisher in Europa aufgefunden sind,* $5.

The Veterans Administration has **openings for clinical psychologists** at from $5940 to $10,800 a year. To qualify, applicants must have completed all the requirements for the doctoral degree in a course of study emphasizing psychology. In addition, they must have had at least 2 yr of experience in clinical psychology in a medical setting. Teaching experience in clinical psychology at the graduate level may be offered to meet a part of the experience requirement. Full details and application forms may be obtained from most post offices, or from the Civil Service Commission. Applications will be accepted until further notice and must be filed with the Board of U.S. Civil Service Examiners, Veterans Administration, Washington, D.C.

A series of 20-sec films for use on television has been produced by the **National Society for Medical Research** of 208 N. Wells St., Chicago 6, Ill., and is now being seen on TV stations across the nation. Twenty-two sets of the films are now in distribution and in great demand.

The society's sound and color reel, *Which Fate,* has been reduced to a 20-min film and is now available for loan or print purchase. *Which Fate* tells the story of the stray dog, both as anonymous pound victim and hero of medical research.