engineering in the United States. It is pointed out that through the cooperation of such a large number of leading engineering schools expensive and wasteful duplication of effort will be avoided, and that a maximum utilization of facilities and personnel and a high degree of coordination will result.

In addition to Dean Woolrich other officers of the association are: Dean Earle B. Norris, Virginia Polytechnic Institute, *First Vice-president;* President C. C. Williams, Lehigh University, *Second Vice-president;* Dean R. L. Spencer, University of Delaware, *Treasurer.* Council members of the group are Dean Ivan C. Crawford, University of Michigan; Dean Thorndike Saville, New York University; Dean Samuel B. Morris, Stanford University; Dean F. M. Dawson, the State University of Iowa; Dean N. A. Christensen, Colorado State College, and Dean G. M. Butler, University of Arizona.

This is the first time that the research departments, institutes and experimental stations of technological institutions have been brought together in an organization of this kind. While most of the members are already associated in other professional and educational groups, they have never joined hands for the express intention of coordinating and stimulating engineering research. It brings together in one group institutions with research facilities valued at many million dollars.

SCIENTIFIC NOTES AND NEWS

ORVILLE WRIGHT has been elected an honorary member of the British Institution of Mechanical Engineers in recognition of "his distinguished contributions to mechanical science." It is said in the citation that "his early pioneer research and eminent scientific attainments have richly endowed the annals of science."

THE twenty-seventh annual dinner of the Institute of Medicine of Chicago was held at the Palmer House on December 2. The dinner was in honor of Dr. Ludvig Hektoen and Dr. James B. Herrick, who have been active members of the Board of Governors since the founding of the institute in 1915. Dr. James P. Simonds spoke on "Ludvig Hektoen: A Study in Changing Scientific Interests," and Dr. J. Christian Bay on "James B. Herrick: Youth in Man Makes History."

DR. BERNARD SACHS, neurologist and founder of the neurological division of Mount Sinai Hospital, past-president of the New York Academy of Medicine, who will be eighty-five years old on January 2, was presented at a special ceremony on November 24 with a volume of 700 pages containing eighty-three original papers on the progress of neurology, compiled in honor of his sixty years of medical practice and research. Dr. Foster Kennedy, chief of the Neurological Service at Bellevue Hospital, presided.

DR. F. W. HODGE was elected president of the Western Museums Conference at the recent Los Angeles meeting.

AT the second annual meeting of the Montana Academy of Sciences, held on October 30 and 31 at Helena, the following were elected to office for the coming year: Rev. B. J. Topel, Carroll College, *President;* Dr. Harold Chatland, Montana State University, *First Vice-president and Editor;* Dr. D. Q. Posin, Montana State School of Mines, *Second Vice-president;* Dr. R. W. Hiatt, Montana State College, *Third Vice-president,* and Professor Melvin S. Morris, Montana State University, *Secretary-Treasurer.* The academy, in the organization of which Dr. Gordon B. Castle, of Montana State University, and Dr. Harlow B. Mills, of Montana State College, took a leading part, was planned in 1940 at a general meeting held in Great Falls.

DR. EDWIN F. GILDEA, associate professor of psychiatry at the School of Medicine of Yale University, has become professor of psychiatry and administrative head of the department of neuropsychiatry at the School of Medicine of Washington University, St. Louis.

DR. HAROLD PHILLIPS HILL, clinical professor of medicine at the School of Medicine of Stanford University, San Francisco, has been made professor emeritus. Dr. Victor E. Hall and Dr. John Field, II, in physiology, and Dr. Charles E. Smith in public health and preventive medicine have been promoted to full professorships.

THE enlargement of a program of research into the causes of cancer has been made possible at the University of Minnesota by a gift of $5,500 a year for five years from the Citizens Aid Society of Minneapolis to support what will be known as the George Chase Christian professorship in cancer research. Dr. John J. Bittner, now associate director and vice-president of the board of directors of the Roscoe B. Jackson Memorial Laboratory at Bar Harbor, Maine, has been appointed the first incumbent of the chair. Associated with Dr. Bittner, who will study the cancer problem as a geneticist, will be Dr. Maurice B. Visscher in physiology and Dr. Robert G. Green in bacteriology.

F. W. PARKER, of E. I. du Pont de Nemours and Company, Inc., has for the duration of the war become chief of the Division of Fertilizer Research of the Bureau of Plant Industry. He succeeds R. M. Salter, who has been made chief of the bureau.

DR. D. P. MORGAN, chemical consultant for Scudder, Stevens and Clark of New York, has been appointed director of the chemicals division of the War Production Board.

DR. WALLACE H. WULFECK, formerly associate director of marketing research at the Psychological Corporation of New York, has been appointed director of research for the Federal Advertising Agency of New York.

DR. WILLIAM T. ANDERSON, JR., for nearly twenty years director of the radiation research laboratory of the Hanovia Chemical and Manufacturing Company, has been granted leave of absence to enable him to accept a commission as a lieutenant in the Naval Reserves.

DR. S. A. SALETORE has been appointed director of the Laxmi Narayan Institute of Technology at Nagpur, India. Dr. A. Nagaraja Rao, of the Imperial Institute of Sugar Technology, Cawnpore, has been appointed professor of applied physical chemistry in the same institute.

LIEUTENANT COLONEL G. R. ENSMINGER, of the Safety and Security Branch of the U. S. War Department, has been appointed a member of the Sectional Committee of the American Standards Association on Allowable Concentrations of Toxic Dusts and Gases. The committee will determine and promulgate the allowable concentration limits of harmful gases, vapors, fumes, dusts and mists in the atmosphere of working places, from the viewpoint of the prevention of occupational disease.

HENRY ROY DEAN, F.R.S., professor of pathology at the University of Cambridge, has been elected representative of the university on the General Medical Council for the next five years.

THE first annual Robert J. Terry Lecture was delivered before the St. Louis Medical Society on December 1 by Dr. Stuart Mudd, Philadelphia. He spoke on the "Morphology of Pathogenic Bacteria and Viruses as shown by the Electron Microscope, with Some Practical Implications." The lecture was established through a bequest of $5,000 in the will of Dr. William T. Coughlin, who died in May, 1940.

DR. IRVINE MCQUARRIE, professor of pediatrics at the Medical School of the University of Minnesota, delivered on November 3 and 4 addresses of the Porter Lectureship in Medicine of the School of Medicine of the University of Kansas. His subjects were "Experiments of Nature and the Advancement of Medical Knowledge," "Medical Experiences in Besieged China" and "Diseases of Adrenal Glands in Children."

DR. A. F. BLAKESLEE, formerly director of the Department of Genetics, Carnegie Institution of Washington at Cold Spring Harbor, now William Allan Neilson professor at Smith College, gave two lectures at Toronto on November 21, one in the series of Saturday evening public lectures of the Royal Canadian Institute on "Controlled Development of Plants" and the other to members and friends of the Botanical Club of the University of Toronto on "Segmental Interchange in the Evolution of Chromosomes."

DR. A. J. CARLSON, of the University of Chicago, spoke before the Syracuse Chapter of Sigma Xi on December 2. His address was entitled "Some Unknowns in the Physiological Pathology of Aging."

DR. ALEXANDER SILVERMAN, head of the department of chemistry of the University of Pittsburgh, will make an address at the Franklin Institute on December 16. He will speak on "Glass and the War."

DR. E. D. MERRILL, administrator of botanical collections at Harvard University and director of the Arnold Arboretum, delivered from November 12 to 18 a series of lectures at Cornell University on the origin of cultivated plants, under the auspices of the Joseph H. Schiff Foundation. In connection with the three lectures in this series he also conducted a seminar on problems of botanical bibliography and one on the botanical work of C. S. Rafinesque.

DR. COLIN M. MACLEOD, of New York University, and Dr. Alphonse R. Dochez, of Columbia University, will participate on the evening of December 7 in a discussion on "The Atypical ('Virus') Pneumonias" at the College of Physicians and Surgeons, New York. This is the second program arranged by the New York Bacteriologists' War Research Projects Group to review bacteriological problems of importance for the war in order to formulate research projects to be undertaken by members of the group.

WORKERS with the electron supermicroscope held a symposium in Chicago on November 27 under the leadership of Professor G. L. Clark, of the University of Illinois. The symposium was planned as part of the National Chemical Exposition. In addition to representatives of the laboratories already having electron microscopes, many government and industrial laboratories sent representatives. The symposium was the first opportunity that workers in this

field have had to exchange ideas and information about techniques and problems. It may lead to a permanent organization. Among the subjects discussed were problems of operation, of mounting specimens, enlarging electron micrographs, interpreting the micrographs and of using the electron microscope for electron diffraction and in the examination of bacteria, cells, rubber, synthetic rubber, cellulose, colloids, powders, clays, ores, smokes, oils, etc. The latest types of electron microscopes were exhibited. Dr. V. K. Zworykin, associate director of RCA Research Laboratories, gave a lecture on the relation of the electron microscope to chemical research.

THE Committee on Meteorological Education of the American Meteorological Society, Professor A. F. Spilhaus, chairman, recently organized a panel of readers from members of the society who are willing to review manuscripts of meteorological books for publishers who may wish to use this service of the society. The panel consists of a number of professional meteorologists, each an expert in one or more phases of the field. Publishers wishing to avail themselves of the services of the panel are asked to address inquiries to the chairman of the Committee on Meteorological Education, stating the type of manuscript to be reviewed. The committee will suggest the individual or individuals on the panel who would be best suited to make the review. In Canada this procedure will be cleared through Dr. Andrew Thomson, the Canadian member of the committee.

THE new plant for the manufacture of electronic tubes of the National Union Radio Corporation at Lansdale, Pa., was formally opened recently with ceremonies in which Army and Navy officers participated. The National Union Company was welcomed to Lansdale by Floyd B. Kulp, president of the borough council, and S. W. Muldowny responded for the company. The plant, representing the most advanced design and construction, is 40,000 square feet in area. Included in it are offices, laboratories and complete manufacturing facilities. All activities are carried out on a single level.

As of November 28, 397 staff members of the University of Illinois had entered the military and navy armed services, while 31 others had been granted leaves for the war service other than in the armed forces. These include members of the university at Urbana and of the Colleges of Medicine, Dentistry and Pharmacy at Chicago.

AT the request of the National Research Council, Washington, D. C., the department of botany of Field Museum, Chicago, is preparing manuals of plants of the tropics which are likely to be of special interest or concern to soldiers, sailors and marines at posts in Latin America. The manuals describe and figure plants which are poisonous or otherwise noxious, as well as those which are valuable as sources of food for enlarging the diet or as emergency rations. The manual on the plants of the Guianas and Brazil, of which a section on poisonous plants has already been printed, is being prepared by Dr. B. E. Dahlgren, chief curator of the department. The manual of plants of Central America is in the hands of Paul C. Standley, curator of the herbarium.

THE Yale chapter of the Society of the Sigma Xi has announced the election of 95 new members and associates who come from 20 states and Argentina and Canada. Of those chosen, 12 are faculty members and research fellows, 44 are graduate students, and 39 are undergraduates. Six undergraduates in Yale College, the School of Engineering and the Sheffield Scientific School received the extraordinary honor of election in their junior year.

DISCUSSION

THE OLD STARFISH-CLAM QUESTION

THE question as to how a starfish can open a clam so as to insert the starfish's stomach between the valves and thus digest the clam has been discussed for generations.

Any one who has tried to pry open the valves of a clam or oyster will feel sure that no starfish could force the valves apart by any sudden pull. During some recent experiments the writer tested the force necessary to open average-sized oysters and little-neck clams (*Venus*) by inserting a steel hook in a notch ground in each valve and then pulling with a large spring scale. One oyster, after having been subjected to a pull of 1,500 grams for 40 hours required 22 pounds pull with the scale before the adductor muscle was torn apart. Another oyster under similar conditions required a pull of 30 pounds. Several clams subjected to a pull of from 23 to 26 pounds were still intact when the shells broke. It would seem, therefore, that instead of being able to resist a sudden pull of 4,000 grams, as has been stated, these bivalves may withstand a pull of from 10,000 to 14,000 grams, or more. It is to be noted, also, that the hooks used in the above experiments were attached to the middle of the margin of the shells, where the greatest leverage was exerted, while only a relatively small number of