treatment as vernalization is prolonged is very apparent. Similar results obtained with plants grown in pot culture are given in Table 2.

Replication in this experiment was much reduced by attacks of frit fly; but the numbers surviving were adequate to establish the significant devernalization by heat and the progressive decline in effect of heat with prolongation of vernalization treatment. The higher 'scores' usually found with plants in pot culture[5] have made possible a demonstration of devernalization after two weeks low-temperature treatment.

The leaf numbers for the pot culture plants are entered in Table 3.

TABLE 3. INCREASE IN LEAF NUMBER IN PLANTS VERNALIZED FOR DIFFERENT PERIODS AND THEN HEATED TO 35° C. FOR 3 DAYS. POT CULTURE. NUMBER OF REPLICATES IN BRACKETS

Duration of vernalization	'Scores', Unheated	Heated	Difference
0 (Control)	21·8±0·34 (5)	21·2±0·56 (6)	−0·6±0·98
2 weeks	19·2±1·61 (7)	22·3±0·47 (10)	3·1±1·34
3	16·2±0·38 (8)	19·8±0·73 (9)	3·6±1·09
4	12·7±0·26 (11)	18·0±2·57 (7)	5·3±0·41
6	10·8±0·45 (8)	11·8±0·53 (10)	1·0±0·91

After two, three and four weeks vernalization, subsequent heat treatment has significantly increased the leaf number, which affords conclusive evidence that retardation in flowering results from a true reversal of vernalization rather than from a mere retardation of growth-rate of the plants. A similar increase in leaf number following devernalization by heat has been noted in wheat by Efeikin[6].

Experiments on devernalization have been carried out in four successive years and have given variable results; in 1946 the reversal was insignificant despite the fact that the response to vernalization was quite normal and similar to the values for 1947 presented above. The cause of this variation is still being investigated, and there is evidence to show that the stability of the vernalized condition increases with the degree of development taking place during the low-temperature treatment, since far more reversal occurs when the grains are prevented from growing by restricting the moisture supply during vernalization than when vernalized in moist sand with unlimited water supply. Thus two lots of vernalized grain may be alike in flowering response but differ in stability of the vernalized condition. On the other hand, it is possible that the differences noted were due to revernalization by low temperature encountered after planting out the grain; for Efeikin[6] has pointed out that, in wheat, revernalization after a partial devernalization by high temperature takes place more rapidly than the original vernalization, and a similar result with Petkus rye has been obtained by us, which thus would greatly augment the effect of such low temperatures after planting out.

It is clear that any attempt to formulate the reactions resulting in vernalization must take into account this gradual establishment of an irreversible condition of vernalization; its practical importance in relation to effects of sowing date upon time of flowering of vernalized grain has been indicated elsewhere[5].

[1] Gregory, F. G., and Purvis, O. N., *Nature*, **155**, 113 (1945).
[2] Efeikin, A. K., *C.R. (Doklady) Acad. Sci. U.R.S.S.*, **25**, 308 (1939). **30**, 661 (1941).
[3] Tetjurev, V. A., *C.R. (Doklady) Acad. Sci. U.R.S.S.*, **30**, 189 (1941).
[4] Gregory, F. G., and Purvis, O. N., *Ann. Bot.*, (N.S.), ii, 237 (1938).
[5] Purvis, O. N. (1948, in the press).
[6] Efeikin, A. K., *C.R. (Doklady) Acad. Sci. U.R.S.S.*, **56**, 95 (1938).

U.S. NATIONAL ACADEMY OF SCIENCES

Election of Officers and Members

AT the annual meeting of the U.S. National Academy of Sciences held in Washington during April 26–28, the following officers, members and foreign associates were elected:

Treasurer (July 1, 1948–June 30, 1952): William J. Robbins, director of the New York Botanical Garden. (The other officers of the Academy are: *President:* Alfred N. Richards; *Vice-President:* L. P. Eisenhart; *Foreign Secretary:* Detlev W. Bronk; *Home Secretary:* Fred. E. Wright.)

Members of the Council of the Academy (for a three-year term ending June 30, 1951): Carl R. Moore, professor of zoology, University of Chicago; and J. Robert Oppenheimer, director of the Institute for Advanced Study, Princeton, New Jersey. (Other members of the Council are: Alfred N. Richards, L. P. Eisenhart, Detlev W. Bronk, Fred. E. Wright, William J. Robbins, W. R. Miles, W. Albert Noyes, jun., I. I. Rabi, and Donald D. Van Slyke.)

Members: Eric G. Ball, professor of biological chemistry, Harvard Medical School; Lloyd V. Berkner, chairman of the Section of Exploratory Geophysics of the Atmosphere, Carnegie Institution of Washington; Felix Bloch, professor of physics, Stanford University; Gerty T. Cori, fellow and research associate in pharmacology and biochemistry, Washington University School of Medicine; Hallowell Davis, director of research, Central Institute for the Deaf, research professor of otolaryngology, Washington University; John R. Dunning, professor of physics, Columbia University; W. Maurice Ewing, head of the Department of Geophysics, Columbia University; Karl Folkers, assistant director of research, Merck and Co., Rahway, New Jersey; Thomas Francis, jun., professor of epidemiology and chairman of the department, School of Public Health, University of Michigan; Edwin R. Gilliland, professor of chemical engineering, Massachusetts Institute of Technology; Haldan K. Hartline, associate professor of biophysics, Hospital of the University of Pennsylvania; Ernest R. Hilgard, chairman of the Department of Psychology, Stanford University; Frank L. Horsfall, jun., member, Rockefeller Institute for Medical Research, New York; John R. Johnson, professor of chemistry, Cornell University, New York; Raymond A. Kelser, dean of the School of Veterinary Medicine and professor of bacteriology, University of Pennsylvania; Cyril N. H. Long, chairman of the Department of Physiological Chemistry, Yale University School of Medicine; Edward J. McShane, professor of mathematics, University of Virginia; Donald H. Menzel, chairman of the Department of Astronomy, Harvard University, and associate director for solar research, Harvard College Observatory; C. W. Metz, chairman of the Department of Zoology, University of Pennsylvania; Curt P. Richter, associate professor of psychobiology, Johns Hopkins University; Hermann I. Schlesinger, professor of chemistry, University of Chicago; Francis O. Schmitt, head of the Department of Biology and Biological Engineering, Massachusetts Institute of Technology; Glenn T. Seaborg, professor of chemistry, University of California, Berkeley; Gilbert M. Smith, professor of botany, Stanford University; Curt Stern, professor of zoology, Univer-

sity of California, Berkeley; Chester Stock, professor of palæontology, California Institute of Technology; James B. Sumner, professor of biochemistry, Cornell University; Edward Teller, professor of physics, University of Chicago; Kenneth V. Thimann, associate professor of botany, Harvard University; Charles A. Thomas, executive vice-president, Monsanto Chemical Co., Dayton, Ohio.

Foreign Associates: Ronald Aylmer Fisher, Arthur Balfour professor of genetics in the University of Cambridge; Prince Louis de Broglie, professor of theoretical physics, University of Paris (Sorbonne).

Medal Awards

Henry Draper Medal. The Henry Draper Medal for 1947 was conferred on Hans Albrecht Bethe, professor of physics at Cornell University, in recognition of his contributions to astronomical physics, more especially his researches on the generation of energy in the sun and stars. Since the first development of the concept of energy, one of the outstanding problems of the physical sciences has been that of the source of the tremendous flow of energy from the sun and stars. Dr. Bethe gave a brilliant, quantitative solution to this problem in terms of the nuclear transformation of hydrogen into helium, with carbon and nitrogen serving as catalysts. Dr. Bethe has furthermore used this solution to extend our knowledge of stellar interiors.

The Henry Draper Fund was established in 1883 for the purpose of striking a gold medal to be "awarded and presented from time to time by the said National Academy of Sciences to any person in the United States of America or elsewhere who shall make an original investigation in astronomical physics of sufficient importance and benefit to science to merit such recognition".

Agassiz Medal. The Agassiz Gold Medal and Honorarium for 1947 were conferred on Felix Andries Vening Meinesz, professor of geodesy and geophysics in the University of Utrecht, and president of the Netherlands Geodetic Commission, for his contributions to oceanography (see *Nature*, **160**, 169; 1947).

The Sir John Murray Fund was established in 1911 "for the purpose of founding an Alexander Agassiz gold medal, to be awarded for original contribution in the science of oceanography to scientific men in any part of the world, whenever and as often as the President and the Council may deem desirable".

Walcott Medal. The Charles Doolittle Walcott Bronze Medal and Award for 1947 were conferred on Dr. Alexander G. Vologdin, of the Palæontological Institute in Moscow. Dr. Vologdin was chosen because of his studies of Pre-Cambrian and Cambrian algæ, and particularly because of his researches on that most distinctive and enigmatic group of Cambrian organisms, the Archæocyatha. When Dr. Vologdin began his studies these early organisms were supposed to be rare and unimportant in the U.S.S.R., but he soon saw in collections brought back from central Siberia and from the southern Urals a rich field for investigation. His early results stimulated interest, and new discoveries of Cambrian formations were made in rapid succession from the Urals to the Altai and from Mongolia to Arctic Siberia. Dr. Vologdin personally made large collections of algæ and Archæocyatha from certain of these deposits, but his collections grew also by the additions from other field parties. Meanwhile, his first large monograph, "The Archæocyathinæ of Siberia", in 1931 almost doubled the known fauna of these organisms for the world. So early as 1937, when the known Archæocyatha of the world totalled approximately 400 species, some 250 were due to Dr. Vologdin. As a result of his brilliant achievements the Government of the U.S.S.R. in 1943 established a special laboratory at Moscow expressly for research in the Archæocyatha and the Pre-Cambrian and early Palæozoic algæ.

The Charles Doolittle Walcott Fund was established "to encourage and reward individual achievement in advancing our knowledge of Pre-Cambrian and Cambrian life in any part of the world". The deed of gift provides that nomination be made by a board of five, one of whom shall be appointed by the Royal Society of London, one by the Institut de France, two by the president and council of the U.S. National Academy of Sciences, and the secretary of the Smithsonian Institution.

NORMAN LOCKYER OBSERVATORY OF THE UNIVERSITY COLLEGE OF THE SOUTH WEST OF ENGLAND, EXETER

THE arrangements for transferring control of the Norman Lockyer Observatory to the University College of the South West (see *Nature* of January 3, p. 15) came to fruition on May 1, when the transfer was formally completed at a joint meeting of the two institutions. Sir Richard Gregory (chairman of the Observatory Corporation) gave possession, control and management of the Observatory to the College, and this was accepted on behalf of the College by Sir William Munday, deputy president. A new stage has thus been reached in the history of a unique attempt to develop, by private enterprise, an institution for pure research with no industrial applications.

The Observatory was founded in 1912 through the energy and foresight of Sir Norman Lockyer who, with Lady Lockyer and a small band of enthusiasts, presented land, money, instruments and practical services to the new enterprise. These early benefactors included, among others, Sir Francis McClean and his brother, Capt. W. N. McClean, who has acted as honorary secretary since the foundation. They were later joined by others and formed a Corporation under the Companies (Consolidation) Act, 1908, with articles of association approved by the Board of Trade. In spite of severe setbacks occasioned by the two world wars, the Observatory has not only survived but even developed to a considerable extent with the help of occasional short-term grants and the generosity of additional donors. Among the latter may be mentioned Sir Robert Mond, who made considerable gifts of money and equipment; also Lady Lockyer, who bequeathed the whole of her residuary estate to the Observatory, finally bringing the capital funds of the Observatory to about £40,000 in addition to about 44 acres of freehold land and much valuable equipment.

The astronomical equipment includes two twin equatorial refractors, each with a visual telescope of 10 in. aperture and an objective prism telescope (apertures 12 and 9 in. respectively) for photographing stellar spectra; also an astrographic instrument with four Zeiss lenses for direct photo-