

John L. Rice, commissioner of health, and has the hearty endorsement of the university.

The first four floors of the building will be used by the city as headquarters for maternal care, child welfare, nursing and other public health services. The center will be one of the few to offer treatment to both tuberculosis and venereal disease patients.

The laboratories and research rooms above will be so equipped that they may be used for any field of research in public health. A model classroom, built to comply with the standard requirements of a public-school classroom in the city of New York, is situated in the southeast corner of the seventh floor. Besides being used for lectures, the room will provide opportunity for research into procedures necessary to protect the health of school children. The fifth floor will contain a laboratory designed specifically for research into diseases caused by industrial occupations and a statistical office where a complete record of the number, kinds and occurrences of various diseases may be kept. The general laboratory for students and research workers will be situated on the sixth floor.

The seventh floor will also house an air laboratory equipped for the study of the various sources of contamination of air in public places. A bacteriological laboratory, on the same floor, will contain all the modern equipment necessary for the study of bacteriology. The offices of Dr. Haven Emerson, executive officer of the institute, and his staff will be connected with individual laboratories completely furnished with chemical, physical and bacteriological facilities for private research. A water laboratory, a sterile room, a machine shop and three laboratories for general research complete the arrangements for the top floor.

There will also be a library, a student lounge and staff accommodations. The ground floor will contain an auditorium and exhibit hall where public health education will be carried on under the direction of the institute and of the Department of Health.

## SYMPOSIA IN PHYSICS AT THE UNIVERSITY OF CHICAGO

Two symposia of interest to physicists are to be held at the University of Chicago from June 23 to 30, as follows:

I. *Symposium on Liquids and Polyatomic Molecules*, a joint symposium of the chemistry and physics departments, to be held on June 23 and 24 and on June 26 and 27.

The first part of the symposium is devoted to the liquid state (structure of liquids, viscosity, condensation of liquids, the fusion process, two-dimensional liquids, infrared absorption and hydrogen bonding). The second part includes discussion of visible and ultra-violet spectra of complex molecules, the color of dyes, refractivity, optical activity and liquid and molecular viewpoints in nuclear structure. The speakers include K. F. Herzfeld, B. E. Warren, J. G. Kirkwood, O. K. Rice, F. A. Ogg, Jr., J. E. Mayer, H. Eyring, W. D. Harkins, W. H. Rodebush, L. Pauling, R. S. Mulliken, E. Teller, J. Franck, T. R. Hogness.

II. *Symposium on Cosmic Rays*, June 27 to 30. The subjects to be discussed include:

The Intensity and Absorption of Cosmic Rays.  
Geographic and Geomagnetic Effects.  
Time Variations of Cosmic Rays.  
Composition of Cosmic Rays.  
Energy Distribution of Cosmic Rays.  
Showers and Bursts.  
Mesotrons and Other Heavy Particles.

The expected participants include:

P. Auger from Paris; W. Bothe and W. Heisenberg from Germany; P. M. S. Blackett and B. Rossi from England; J. Clay from Holland; G. Herzog from Switzerland; C. Anderson, V. F. Hess, T. H. Johnson, R. A. Millikan, W. F. G. Swann and M. S. Vallarta from elsewhere in the United States, and A. H. Compton, W. P. Jesse, M. Schein and V. Wilson from Chicago.

## SCIENTIFIC NOTES AND NEWS

FIVE members of the Rockefeller Institute for Medical Research, all of them members of the National Academy of Sciences and two of them Nobel laureates, having reached or passed the age of sixty-five years, are retiring from active work. These are Dr. Alexis Carrel, who announced his retirement a year ago; Dr. Florence R. Sabin, who retired early this year; Dr. Karl Landsteiner; Dr. Phoebus A. Levene and Dr. Winthrop J. V. Osterhout. The mandatory retirement rule is being enforced in all organizations with which the Rockefeller foundations are connected. It is stated that pensions will be given and that every laboratory facility will be provided to enable those who retire to

continue their research work on their own responsibility if they desire to do so.

PORTRAITS of ten past presidents of the Explorers Club, New York City, were unveiled on April 9. These were Rear Admiral Robert E. Peary, General A. W. Greely, Dr. Frederick A. Cook, General David L. Brainard, Carl E. Akeley, Vilhjalmur Stefansson (present president), George G. Heye, James B. Ford, Roy Chapman Andrews and Dr. Walter Granger.

A NEW Hall of Optical Science, part of the Division of Light, Vision and Optics, was opened on April 20 at the New York Museum of Science and Industry in

Rockefeller Center. The opening of the exhibition was marked by an anniversary luncheon in honor of William Bausch, vice-president of Bausch and Lomb Optical Company, whose experiments in optical glass manufacture, begun just twenty-five years ago, have resulted in notable achievements in this branch of American industry. Following the luncheon, the guests inspected the new exhibition, after which it was opened to the public.

THE doctorate of laws was conferred on April 14 on Dr. James Bryant Conant, president of Harvard University, at the Founders' Day ceremonies at Tulane University.

DR. ROBERT HEGNER, professor of protozoology at the Johns Hopkins University, has been elected a corresponding member of the Belgian Society of Tropical Medicine.

THE Order of Balboa was conferred on April 10 by the President of the Isthmus of Panama on Dr. William M. James, chief of the medical clinic at Panama Hospital, in recognition of his "work on tropical medicine, especially malaria and dysentery." Dr. James was formerly a member of the Health Department of the Canal Zone.

THE King of England has approved the award by the Royal Geographical Society of the Royal Medals as follows: The Founder's Medal to Arthur Mortimer Champion, for his surveys of the Turkana Province and the volcanoes south of Lake Rudolf; the Patron's Medal to Professor Hans Ahlmann, of Stockholm, for his exploration and glaciological studies in the Arctic. The Council awarded the Murchison Grant to Robert Bentham, for his mapping and geological investigations in Ellesmere Land; the Back Grant to Lieutenant Commander R. E. D. Ryder, R.N., for his captaincy of *The Penola* and his marine surveys on the British Graham Land Expedition; the Cuthbert Peek Grant to W. Vaughan Lewis, for his physiographical studies in Great Britain and Iceland; the Gill Memorial to J. V. Harrison, for many years' exploration in Central and South America and Southern Iran.

DR. PAUL W. BOUTWELL, professor of chemistry at Beloit College, was elected president of the Wisconsin Academy of Sciences, Arts and Letters at the recent annual meeting, held at the University of Wisconsin.

MR. ELLIOT, British Minister of Health, has been made president of the Public Health Congress to be held at Hastings by the Royal Institute of Public Health and Hygiene from May 23 to 27.

RICHARD WINGATE LLOYD has been elected a vice-president of the Franklin Institute, and Philip H. Ward, Jr., a member of the museum and of the memorial committee, has been elected a member of

the board of managers. Mr. Lloyd has been a member of the board since 1934 and chairman of the museum and memorial committee since 1935.

PROFESSOR W. SPENCER HUTCHINSON, head of the department of mining engineering at the Massachusetts Institute of Technology, will retire at the close of the academic year. He has been a member of the faculty for seventeen years and has been head of the department since 1927, when he succeeded Dr. Waldemar Lindgren.

DR. S. W. FLETCHER has been appointed acting dean of the Pennsylvania State College and Experiment Station. He succeeds Dr. R. L. Watts, dean and director since 1912, who retired on January 1 with the title emeritus. Dr. Fletcher will continue to assist in the program of the Cooperative Wildlife Research Unit, which is sponsored jointly by the college, the Pennsylvania Game Commission and the U. S. Bureau of Biological Survey.

ARTHUR L. COOK has been appointed director of the School of Science and Technology of Pratt Institute, Brooklyn. He was head of the department of electrical engineering until last May, when he became acting director of the school.

DR. HUGH S. CUMMING, formerly Surgeon General of the United States, sailed on April 12 to attend medical conferences in Paris, Geneva and Scarborough, England. In Paris he will attend the meeting of the Permanent Health Office on April 23, in Geneva the Conference Health Committee of the League of Nations, beginning on May 4, and in England the International Medical Congress, which opens on July 1.

DR. WALTER T. SWINGLE, of the Bureau of Plant Industry, U. S. Department of Agriculture, sailed on April 8 for Rio de Janeiro. He went on the invitation of Dr. Oswaldo Aranha, Minister of Foreign Affairs of Brazil. Dr. Swingle will confer with Brazilian experts about the possibilities for the establishment of new agricultural industries, especially for export purposes. He will be gone for three months.

LLEWELYN WILLIAMS, curator of economic botany at the Field Museum, Chicago, who is now on leave in Venezuela to aid the government botanist, Dr. Henri Pittier, in the botanical exploration of that country, recently made a trip from Caracas across the Venezuelan Guiana, by way of Ciudad Bolivar and La Paragua. He was accompanied by Captain Felix Cardona, of the Venezuelan Frontier Commission. They journeyed in canoes up the Caroni River to regions very little explored botanically.

DR. W. M. MANN, director of the National Zoological Park, Washington, D. C., sailed on April 7 for South America with a consignment of animals that he plans

to present to zoological parks in South American countries. He also will collect animals to bring back to the park in Washington.

DR. R. RUGGLES GATES, professor of botany in the University of London, King's College, took part in the celebrations in honor of Spallanzani at Pavia, held from April 10 to 14. He was a delegate from the Royal Institution and gave an address on "The Nature of Genic Differences."

THE title of the Pilgrim Trust Lecture to be delivered by Sir William Bragg at 8:30 P.M., on Monday, April 24, at the Washington meeting of the National Academy of Sciences is "History in the Archives of the Royal Society."

DR. W. F. G. SWANN, director of the Bartol Research Foundation at Swarthmore, gave a report of the work of the foundation at a meeting of the Franklin Institute in Philadelphia on April 19.

THE James Arthur Lecture on Time and its Mysteries at New York University will be given in the auditorium of Gould Memorial Library, University Heights, on April 26, at 8:30 P.M., by Dr. Arthur H. Compton, professor of physics at the University of Chicago. The subject of the lecture will be "Time and the Growth of Physics."

DR. CHARLES A. SHULL, professor of plant physiology at the University of Chicago, on March 30 addressed a joint meeting of the University of Kansas chapters of the Sigma Xi and the Phi Sigma and the Kansas Academy of Science. He spoke on "The Plant in Relation to the Water System of Its Environment."

PROFESSOR CARL C. SPEIDEL, of the School of Anatomy of the University of Virginia, gave an address entitled "Living Tissues in Action" before the New York University Chapter of Sigma Xi on April 4.

At a colloquium in the department of zoology of Columbia University on April 11, Dr. Robert Cushman Murphy, of the American Museum of Natural History, presented an illustrated paper entitled "Insular Isolation Among Birds: a Discussion and Inquiry."

JEROME ALEXANDER addressed the Sindicato dos Quimicos do Rio de Janeiro on March 16 on "Colloid Chemistry and Some of Its Applications." A dinner followed at Pax Hotel, with about seventy-five chemists present.

A SERIES of popular science lectures sponsored by the Illinois State Museum for the season of 1938-39 was brought to a close on March 30 when Dr. J. Marvin Weller, of the Illinois State Geological Survey, spoke on recent experiences "Behind the Lines

in China." The lectures were free to the public and were given monthly from October to April. The speakers, in addition to Dr. Weller, were: Dr. J. Harlen Bretz, glaciologist, University of Chicago; Dr. W. M. Krogman, physical anthropologist, University of Chicago; Dr. John A. Wilson, director of the Oriental Institute; Dr. George D. Fuller, plant ecologist, University of Chicago; Dr. Henry B. Ward, zoologist, University of Illinois.

THE twentieth annual meeting of the American Geophysical Union and its seven sections (Geodesy, Seismology, Meteorology, Terrestrial Magnetism and Electricity, Oceanology, Volcanology and Hydrology) will be held in Washington, D. C., on April 26, 27 and 28. At the regular sessions of the sections, scientific papers will be presented. The principal feature of the general assembly, which will be held in the auditorium of the National Academy and Research Council Building on the afternoon of April 28, will be a symposium on geophysical prospecting. At this symposium papers will be presented as follows: geophysical methods in petroleum exploration, by J. Brian Eby; electrical and magnetic exploration in the mining industry, by Sherwin F. Kelly; and geophysical prospecting by the Federal Government, by F. W. Lee, J. H. Swartz and Irwin Roman. On the evening of April 27, a smoker will be held in Building D of the George Washington University, 2013 G Street, N.W.

THE *Experiment Station Record* states that the eighteenth International Congress of Agriculture will be held in Dresden from June 6 to 12, under the auspices of the International Confederation of Agriculture. It will be organized into sections of agrarian policy and farm management; agricultural instruction and propaganda; agricultural cooperative societies; cultivation of plants; viticulture, fruit growing and the cultivation of special plants; animal production; agricultural industries; rural life and the work of the countryman; and agricultural sciences (including the organization and encouragement of research in the field of agriculture).

THE Section on Education of the American Association for the Advancement of Science will hold a series of meetings and symposia and a dinner at the summer meetings of the American Association for the Advancement of Science, which are to be held in Milwaukee, Wis., from June 19 to 24. The meetings of Section I will take place on Tuesday and Wednesday, June 20 and 21. The program is in charge of Dr. Hulsey Cason, of the department of psychology of the University of Wisconsin, who is acting as secretary *pro tem*. All members and fellows of the association who wish to read papers at these meetings are urged to send abstracts of not more than 150 words to Dr.

Cason, so as to be received by him not later than May 20.

WEDNESDAY, July 13, has been designated as Engineers' Day at the Golden Gate International Exposition by the San Francisco Engineering Council, which is sponsoring it as a red-letter day in the history of engineering achievement. The engineering profession is invited to attend this commemoration of the engineer's contribution to human welfare. This celebration will occur during the week of national conventions of the American Society of Mechanical Engineers and the American Institute of Mining and Metallurgical Engineers. It closely follows the national conventions of the American Institute of Electrical Engineers, the Institute of Radio Engineers and the American Association for the Advancement of Science. It closely precedes the national convention of the American Society of Civil Engineers and West-

ern Chemical Congress. As all these meetings are to be held in San Francisco or vicinity, the time and place is particularly appropriate. The program calls for a morning assembly on Treasure Island with an address by an internationally known speaker, an afternoon inspection of the outstanding engineering and industrial exhibits at the exposition and an evening banquet.

THE herbarium of the late Professor Glen P. Van Eseltine, botanist, of the N. Y. State Experiment Station at Geneva, has been given to Keuka College, New York, and is now installed. Professor Van Eseltine had made a special study of *Carex* for some twenty-five years and the herbarium contains a large number of critically named specimens both of his own collection and of others obtained by exchange. The other specimens represent a large number of species found around Washington, D. C., and in central New York.

## DISCUSSION

### A CLASSIFICATION OF WEEDS AND WEED-LIKE PLANTS

A SERIES of discussions with various geneticists has led me to suggest a classification for weeds and weed-like plants. The word "weedy"—oftentimes used in quotation marks (Babcock and Stebbins,<sup>1</sup> 1938, p. 61)—does not always carry the same connotations to cytogeneticists as it does to taxonomists. The classification suggested below or some similar classification should remove the difficulty. While weeds and cultivated plants are included as two kinds of peregrinators, the initial division has been made on the spreading capacities of a species rather than on its association with man. The amount to which a species travels from place to place, whatever the cause, will determine the extent to which may be broken down the external barriers between previously isolated groups (species, races, populations, etc.). Plants which spread *with* man may be expected to exhibit the same cytological and taxonomic phenomena which are shown by those spread *by* him.

#### PEREGRINATORS (weeds and weed-like plants):

- A. Cultivated plants  
Plants intentionally grown by man
- B. Weeds  
Plants unintentionally grown by man, in fields, gardens, pastures, lawns, etc.
- C. Ruderals  
Plants spreading into man-created habitats (barnyards, roadways, dumps, etc.) though not actually cultivated.
- D. Nomads

<sup>1</sup> E. B. Babcock and G. L. Stebbins, Jr., *Publ. Carnegie Inst. Wash.*, 504: 1-199, 1938.

Plants spreading widely and rapidly even when not associated with man. Here belong many potential weeds and here apparently was the source of many of our weeds. Species for the most part of river valleys, seashores and other habitats marked by bare and shifting soils. This group forms a series of transitions to

#### NON-PEREGRINE SPECIES:

The bulk of indigenous floras

It is a remarkable fact (with very natural explanations) that geneticists have worked largely with peregrinators and taxonomists largely with non-peregrine species. In order to obtain the necessary pedigree cultures geneticists have had very largely to limit themselves to the adaptable, easily germinated cultivated plants like maize, snapdragons and primroses; to weeds and ruderals like *Datura*; or to genera like *Nicotiana* and *Crepis* the bulk of whose species are among the peregrinators of one class or another.

The ability to spread beyond external barriers which has made the peregrinators good material for genetic experiments has at the same time made them taxonomically difficult. When a taxonomist says that a species is "weedy" he usually means not that it necessarily grows in cultivated fields, but that it has the taxonomic phenomena associated with most weeds. These phenomena, while they have scarcely been discussed in scientific literature, certainly exist. When I recently pressed an able taxonomist for a working definition of a weed, he immediately replied, "A species which is very common, very aggressive, very variable and which clutters up herbaria."

Correlated investigations in taxonomy and cyto-