

valuable they are intrinsically, unless guarded with extreme care, may produce unfortunate situations. What we call unemployment may be a result, not because research necessarily leads to unemployment but because of the difficulty in attaining immediate adjustment to things which may have great basic values for mankind.

The situation which arises through introduction of new ideas in a world which has not been prepared for them is in some respects not unlike that which may occur in bringing a new biological element, or an element from another region, into a part of the world adjusted through millions of years to a particular biological balance. The mongoose was introduced into Jamaica in order to kill rats. The experiment proved that the mongoose also kills all ground birds and destroys nests and may become an intolerable pest. The rabbit, a peaceful and in many ways useful creature, brought into Australia becomes a serious problem. So a new idea brought into use through physics or chemistry or study of social theory may come into a world not yet prepared for its use, and unless carefully guarded may contribute toward development of an unbalanced situation.

With reference to the possibilities of unbalance, it is my feeling that we are faced at this moment with a need for what might be called conservation of opportunity for science. With the way open for enormous contributions, which may well bring blessings to mankind, we must protect or conserve the positive opportunities for advance through warding off dangers which might lead to restriction of constructive science. The situation of science is endangered by failure to set up such relations as will furnish the most careful guidance in the introduction of new elements arising from creative work. This protection, or conservation, of the opportunity for great achievement, which intelligence has gained after fighting its way through tens of thousands of years, is one of the greatest needs of the moment. Development of means for adjustment in this situation depends in part upon those who study mankind from the point of view of social sciences, in part upon economists and in part upon students of government. There is also an unavoidable responsibility resting upon science itself so to fit the contribution which it makes into the general scheme of human life as to give the greatest advantage with the minimum of possible disturbance.

SCIENTIFIC EVENTS

CONVERSAZIONE OF THE ROYAL SOCIETY

THE Royal Society held a *conversazione* at Burlington House, London, on May 9. According to the *London Times*, a large number of exhibits were on view, illustrating the most recent developments in pure and applied science, and lectures and demonstrations were given by the various exhibitors.

Professor G. I. Finch and Imperial Chemical Industries (Alkali), Limited, showed the precision electron-diffraction camera designed by Professor Finch and Dr. Quarrell in conjunction with the research staff and constructed in the workshops of the Winnington Laboratories. Dr. C. D. Ellis and W. J. Henderson conducted an experiment to show the production and decay of the new radioactive elements discovered by Joliot and Curie, while Dr. Oliphant demonstrated the transmutation effects observed when protons and deuterons are used to bombard layers of lithium and of heavy hydrogen.

A fractional seconds chronograph, exhibited by the mathematical department of the Imperial College of Science, records on paper tape 1-100ths of a second at 1-10th inch scale up to four events simultaneously, by means of a tuning fork controlling a synchronous motor which, through a three-speed gear, gives motion to a printing train and paper feed. The instrument is portable and worked from a 12-volt accumulator. Part of a new apparatus to determine the length of

the meter and the yard in terms of wave-lengths of light was shown by the National Physical Laboratory, with demonstrations of the application of circular interference fringes produced in cadmium radiations measured by an étalon approximately 1-12th of a meter in length, and of the comparison of optical lengths by means of Brewster's fringes produced in white light passing through this étalon and another of one third of a meter.

Studies of coal particles and coal suspensions were provided by the Fuel Research Station, while the Metals Research Association explained the control of structure and soundness of ingot of non-ferrous metals, with particular reference to the effect of casting conditions on brass ingots and the causes and remedies of unsoundness in aluminium alloy castings. A large range of specimens of metallurgical interest, illustrating applications of ferrous metals and alloys, was shown by Sir Robert Hadfield.

Among those present were: The President of the Royal Society (Sir Frederick Gowland Hopkins), Sir Henry Lyons (treasurer), Sir Henry Dale, Sir Frank Smith, Lord Rayleigh. Lord Cecil of Chelwood, the president of the Royal College of Surgeons, Sir Buckston Browne, Sir Hubert Bond, Sir Ernest Benn, Sir William Bragg, Sir Frederick Berryman, Sir Lenthal Cheate, Sir Patrick Duff, Sir Frank Dyson, Sir Archibald Deury, Sir John Flett, Sir

Martin Forster, Sir Richard Gregory, Sir Thomas Heath, Sir Clement Hindley, Sir Herbert Jackson, Sir Henry Miers, Sir Peter Mitchell, Sir John Parsons, Sir Robert Robertson, Sir Isidore Salmon, Sir Gilbert Walker, Sir Cuthbert Wallace, Major-General R. B. Ainsworth and Emile Mond.

EXPEDITION OF THE DEPARTMENT OF TROPICAL RESEARCH OF THE NEW YORK ZOOLOGICAL SOCIETY

THE twentieth expedition of the Department of Tropical Research of the New York Zoological Society, under the directorship of Dr. William Beebe, left New York in May for the sixth year of continuous oceanographic work at Bermuda. After a lapse of a year, the exploration of ocean depths in the Bathysphere will be resumed. This work has been made possible by a grant of funds for the purpose by the National Geographic Society of Washington. Six hundred more feet of cable will permit a descent to 3,000 feet, and new oxygen apparatus will allow the time limit to be extended to five hours.

The dives in the Bathysphere will take place in July when best weather conditions are most likely. The earlier program includes further work on deep sea fish and on the occurrence and development of pelagic fish eggs. Headquarters will be established at the Bermuda Biological Station, the field work being carried on at the Zoological Society's laboratory, New Nonsuch and on the chartered vessels, *Gladisfen* and *Ready*.

In addition to Dr. and Mrs. Beebe, the group which sailed for Bermuda included the regular staff of the department, John Tee-Van, Gloria Hollister and Jocelyn Crane. Mr. Otis Barton, two artists and two Dartmouth graduates will follow later.

The Bathysphere is now in New York undergoing a thorough reconditioning by the generosity of the Air Reduction, the General Electric, the Bell Telephone and the Watson-Stillman Companies.

FELLOWSHIPS OF THE NATIONAL RESEARCH COUNCIL

THE Fellowship Board in Physics, Chemistry and Mathematics of the National Research Council at its meeting held late in April made appointments and re-appointments for a second year as shown by the attached list:

APPOINTMENTS MADE APRIL 22, 1934

REAPPOINTMENTS—None to Exceed Eight Months

Physics

- Allen, John F. (Ph.D. Toronto, 1933)
- Bradley, Charles A. (Ph.D. Columbia, 1932)
- Heydenburg, Norman P. (Ph.D. State Univ. Ia., 1933)
- Kurie, Franz N. D. (Ph.D. Yale, 1932)
- Lewis, Charlton M. (Ph.D. C. I. T., 1933)
- McKellar, Andrew (Ph.D. California, 1933)

- McMillen, James H. (Ph.D. Washington, 1930)
- Parratt, Lyman G. (Ph.D. Chicago, 1932)
- Shortley, George H., Jr. (Ph.D. Princeton, 1933)
- Van Atta, Chester M. (Ph.D. New York U., 1933)
- *Wheeler, John A. (Ph.D. Johns Hopkins U., 1933)
- Whitford, Albert E. (Ph.D. Wisconsin, 1932)

Chemistry

- †Bear, Richard S. (Ph.D. California, 1933)
- Benedict, William S. (Ph.D. M. I. T., 1933)
- Cross, Paul C. (Ph.D. Wisconsin, 1932)
- Deitz, Victor (Ph.D. Johns Hopkins U., 1932)
- Gilfillan, Edward S., Jr. (Ph.D. Harvard, 1932)
- Hicks, John F. G., Jr. (Ph.D. California, 1933)
- Hultgren, Ralph R. (Ph.D. C. I. T., 1933)
- Kimball, George E. (Ph.D. Princeton, 1932)
- †Sherman, Albert (Ph.D. Princeton, 1933)
- Smith, Howard A. (Ph.D. Illinois, 1931)
- Spielman, Marvin A. (Ph.D. Minnesota, 1933)
- Trenner, Nelson (Ph.D. New York U., 1932)
- Wright, George F. (Ph.D. Iowa S. College, 1932)

Mathematics

- Barber, Sherburne F. (Ph.D. Rochester, 1933)
- *Blumenthal, L. M. (Ph.D. Johns Hopkins U., 1927)
- Cameron, Robert H. (Ph.D. Cornell, 1932)
- Hull, Ralph (Ph.D. Chicago, 1932)
- Lewis, Daniel C., Jr. (Ph.D. Harvard, 1932)
- Montgomery, Deane (Ph.D. Iowa, 1933)
- Nathan, David S. (Ph.D. Cincinnati, 1933)

NEW APPOINTMENTS—For a Period of Twelve Months

Physics

- Bonner, Tom W. (Ph.D. Rice, 1934)
- Brown, Frederick W. (Ph.D. Illinois, 1933)
- Jacobs, Robert (Ph.D. C. I. T., 1934)
- Jordan, Edward B., Jr. (Ph.D. California, 1934)
- Serber, Robert (Ph.D. Wisconsin, 1934)
- Shaw, Charles H. (Ph.D. Johns Hopkins, 1933)
- *Uehling, Edwin A. (Ph.D. Michigan, 1932)

Chemistry

- Benedict, Manson (Ph.D. M. I. T., 1934)
- Frevel, Ludo K. (Ph.D. Johns Hopkins, 1934)
- Gould, Robert G., Jr. (Ph.D. Harvard, 1933)
- Gulbransen, Earl A. (Ph.D. Pittsburgh, 1934)
- Helmholz, Lindsay (Ph.D. Johns Hopkins, 1933)
- Long, Earl A. (Ph.D. Ohio State, 1934)
- Steffens, Carsten C. (Ph.D. C. I. T., 1934)
- Voge, Hervey H. (Ph.D. California, 1934)

Mathematics

- Martin, William T. (Ph.D. Illinois, 1934)
- Murray, Francis J. (Ph.D. Columbia, 1934)
- Myers, Sumner B. (Ph.D. Harvard, 1932)
- Robertson, Malcolm I. S. (Ph.D. Princeton, 1934)
- Webber, G. Cuthbert (Ph.D. Chicago, 1934)

* May work abroad on U. S. basis.

† For four months.