of the Legion of Honor of France and an honorary member of the Franklin Institute of America. He died at Worthing in October, 1936.

With the death of William Arthur Parks on October 5, the society loses a great Canadian and a great scientist. He was born at Hamilton and graduated at the University of Toronto, in which he was afterwards professor of paleontology. He joined the geological staff of the university in 1893, and touched on nearly every aspect of geology during his career. His exploration of Northern Ontario broke new ground, and his report on the building and ornamental stones of Canada is well known. But his favorite subject was undoubtedly paleontology, and to the world outside Canada he will be remembered chiefly for his classical work on dinosaurs. He became director of the Royal Ontario Museum of Paleontology in 1913; in 1926 he became president of the Royal Society of Canada. He was elected to our fellowship in 1934.

Thomas Martin Lowry, professor of physical chemistry in the University of Cambridge, died on November 2, 1936, at the age of sixty-two years. In his early days he was a pupil of, and an assistant to, Professor H. E. Armstrong and laid the foundation of his lifelong studies on optical rotatory power by discovering the mutarotation of nitrocamphor and the stereoisomerism of a number of halogen derivatives of camphor. He traced the mutarotation of nitro-*d*-camphor to the passage of equilibrium of two constitutionally different forms of the substance, and showed that the rate of change of the one form to the other could be influenced by the addition of traces of catalytic agents. By much careful work he established that the presence of an amphoteric agent is a factor in bringing about the isomeric change. Thus, whilst the mutarotation of tetramethyl-*d*-glucose can be arrested in the hydroxylic solvent, cresol, and the basic solvent, pyridine, it proceeds very rapidy in a mixture of these two solvents. On the basis of this and much other work, Lowry founded his now well-known theory of prototropy, according to which the migration of a hydrogen ion, in compounds such as nitrocamphor and the sugars, depends on the addition and removal of a proton at opposite poles of the molecule. It is largely due to Lowry's work that the conception of dynamic isomerism advanced by van Laar became generally accepted.

Concurrently with his chemical work on mutarotation, Lowry took up the study of optical rotatory dispersion which had been much neglected since the death of Biot in 1862; he demonstrated the validity of Drude's equation for simple substances and showed that it also covered the anomalous rotatory dispersion of *d*-tartaric acid and the tartrates. This work formed the subject of the Bakerian lecture given by Lowry and Austin in 1921. His later very precise determinations of the rotatory power of quartz in the visible and violet provided valuable data by which the validity of the Drude equation was further extended.

Lowry later extended his studies of the rotatory power of transparent media to that of absorbent media, namely of the Cotton effect, and was able to develop equations which are adequate to express the dispersion throughout the absorption band. Whilst occupied with the study of optical rotatory power, Lowry carried on parallel lines of research; his earlier verifications of Drude's equations were combined with corresponding measurements of magneto-rotatory dispersion and, in his search for possible relationships between diverse optical phenomena, he carried out a series of investigations on the refractive dispersion of organic compounds.

(To be concluded)

SCIENTIFIC EVENTS

BRITISH GOVERNMENT GRANT TO THE ROYAL SOCIETY

AT the dinner given on the occasion of the 274th anniversary meeting of the Royal Society, London, Neville Chamberlain, chancellor of the exchequer, announced the intention to make a treasury contribution towards the establishment of an institute of chemo-therapy. In the course of his address he said:

In order to show that the Government was not indifferent to the duty of one generation to carry on investigations, the result of which perhaps might benefit only the generations which would succeed it, he would like to say that only within the last week or so he had consented to give a grant of £30,000 a year towards the establishment of an institute of chemo-therapy. Perhaps when he said that that allocation was in response to a request from the Medical Research Council, backed up by the Department of Scientific and Industrial Research and supported by his colleague the Lord President of the Council, they would think that that was no spontaneous act but merely the more or less graceful yielding of a movable object to the pressure of an irresistible force. He assured them that he could bring good evidence to show that the object in question was not always movable and that to move it there must be internal as well as external force at work.

It was difficult to foresee all the possibilities of the new institute. Unfortunately all the money that he had to find could not be devoted to objects which were so agreeable to himself. It was an unhappy but necessary feature of the present situation that a large part of the Government's activities had to be devoted to the defence of the country. That activity was reflected in the sums which were allocated to research for defence.

This year they would be spending £3,800,000 upon this

subject, an increase of £1,300,000 over what they were spending two years ago. But a great part of that expenditure, as he was sure they would all know, although primarily made for the purpose of defence, would nevertheless have its effect on many departments of civil life. Under the heading of defence came money spent on the Royal Observatory, on the Meteorological Office, the hydrographic surveys of the Navy, and the construction and manning by the Admiralty of a non-magnetic ship for the purpose of observing magnetic variations. They might remember that improvements in the engines of warships, developments in the design of military aircraft, or the evolution of the military tank were all speedily translated into forms which added to the resources of civil life. In civil research proper the contributions from the Exchequer also continued to show a steady increase. Grants to universities and colleges in 1914 were less than £500,000. They now amounted to £2,300,000. That was exclusive of the sum that was being allocated to the post-graduate medical school. Ultimately the grant to that school would be made through the University Grants Committee when the school became a recognized school in the University of London. Contributions to civil research proper amounted to £1,660,000.

PUBLIC EXHIBITION AND LECTURES OF THE CARNEGIE INSTITUTION OF WASHINGTON

THE annual exhibition, lectures and radio talks relating to the research activities of the Carnegie Institution of Washington were held on December 12, 13 and 14. The exhibits, which illustrated the work of the various departments during the year, are given below:

The Present-Day Maya Indians of Yucatan, by the Department of Genetics, in cooperation with the Division of Historical Research and the Nutrition Laboratory.

Archeology of the Guatemalan Highlands, by the Division of Historical Research.

Pinocytosis—The Drinking of Fluids by Cells, by the Department of Embryology.

The March of Forests in Response to Changing Climate, by R. W. Chaney.

Protection and Use of a Primitive Natural Area at Point Lobos, California, by N. B. Drury and R. W. Chaney.

Recent Cave Explorations in the Southwest, by Chester Stock.

New Factors in Animal Metabolism, by E. G. Ritzman.

Exploration of the Earth's High Atmosphere with Radio Waves, by the Department of Terrestrial Magnetism.

Absorbing Material in Space, by the Mount Wilson Observatory.

Formation of Copper Ores, by the Geophysical Laboratory.

The Publications of the Institution, by the Office of Publications.

A program of radio talks was arranged as follows: "Carnegie Institution Researches," included in the news program of the U. S. Office of Education; "Early Man," by Chester Stock; "Supergravitation in the Atom," a round table led by Dr. W. F. G. Swann; "Advances of Science as Illustrated in the Annual Exhibition of Carnegie Institution of Washington," by President John C. Merriam and John B. Kennedy.

Public lectures on December 12 were opened with "Introductory Remarks" by Dr. John C. Merriam. He was followed by Ralph W. Chaney on "Why Our Forests Differ," and by Sinclair Smith on "The Local Group of Galaxies"; on December 13, lectures were given by Warren H. Lewis on "The Eating, Drinking and Locomotion of the Macrophages, the Great Scavenger Cells of the Body"; by John A. Anderson on "The Design of Large Telescopes," and by Chester Stock "On the Trail of Ancient Man in the Southwest." On December 14, H. A. Spoehr spoke on "The Point Lobos Natural Reserve," and E. G. Ritzman on "Genetic and Seasonal Factors in Metabolism."

THE UNION OF AMERICAN BIOLOGICAL SOCIETIES

A MEETING of the Council of the Union of American Biological Societies is called for 8:00 P.M., on Monday, December 28, in Room 104, Hotel Ambassador, Atlantic City. Professor Winterton C. Curtis, president of the union, writes:

> The question of future activities for the union will be considered, in addition to a report from *Biological Abstracts* and a report from a committee recently appointed to consider what can be done to remedy the conditions described in the address of Dr. Oscar Riddle, delivered as retiring vice-president of Section F of the American Association for the Advancement of Science in December, 1935 (SCIENCE, Vol. 83, January 17, 1936).
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> The program that will be outlined by the latter report may prove sufficiently comprehensive to justify further action by the union.
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> Election of new officers seems desirable to the present incumbents in view of circumstances that will be explained at the meeting.

If council members can not be in Atlantic City at the time indicated, it is hoped that such members will communicate promptly with the officers of their respective organizations in order that at least one representative of each society may be in attendance.

The meeting will be open to any biologist who may be interested and particularly to the officers of member societies, although official action must be by council members.

FRIDAY'S PROGRAM AT ATLANTIC CITY

SOME necessary changes have been made in the plan for the program of the general association meeting at Atlantic City on Friday, January 1, as originally out-