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).
>
> The program that will be outlined by the latter report may prove sufficiently comprehensive to justify further action by the union.
>
> 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-

lined in the preliminary announcement (SCIENCE, November 27).

As originally planned, the morning will be devoted to the meetings of various committees, boards and similar organizations. The Secretaries' Conference, which includes in membership secretaries of all sections and affiliated societies, together with the officers of the association, will meet at 10 A. M. for their annual session. At noon this group will be tendered an official luncheon by the association. The luncheon will be closed promptly to permit members to participate in the afternoon program.

A demonstration symposium on "The Moving Picture in the Service of Science" will be held from 2 to 4 on Friday afternoon. Two sections will convene in separate rooms on the thirteenth floor of Haddon Hall.

In the Benjamin West room Dr. William Beebe will show reels on "Bathosphere Embryonic Eels and the Animation of Deep Sea Fish." This film was made under the auspices of the New York Neurological Society. This will be followed by Perry Burgess, president of the Leonard Wood Memorial, who will show the sound movie "Miracles in the South Sea." This is a sound drama of deep interest, portraying the bright side of the leper colonies on the shores of the China Sea.

The series in the Viking room starts with "Whaling for Science," by Professor E. M. K. Geiling, of the University of Chicago, and L. L. Robbins. Dr. Geiling will describe the general biology of the whale and his search for specimens of the pituitary gland.

This will be followed by a film entitled "A Health Educator with a Cine-Kodak in the Orient," by Dr. C. E. Turner, of the Massachusetts Institute of Technology. His motion picture in natural color deals with modes of life and scenic marvels in the countries visited. Brief comment concerning the problems of population and sanitation in these regions will accompany the film.

Following this, a film on "High Speed Motion Pictures of the Flight of Birds and of Bullets," by Dr. Harold E. Edgerton, of the Massachusetts Institute of Technology, demonstrates in striking fashion the significance of high-speed motion picture technique in making difficult measurements for scientific and engineering research.

At 4:30 in the Vernon room, Haddon Hall, will be given an address on "Changes and Modifications in the Conception of Carcinoma," by Dr. Walter Schiller, of the University of Vienna, Austria.

On Friday evening at 8:30 the association is to have a special private showing of "The Human Adventure," an eight-reel talking picture sketching man's rise from savagery to civilization. This film was produced under the direct scientific supervision of the late Dr. James Henry Breasted. The accompanying sound record contains in the second reel a record in Dr. Breasted's own voice.

Admission to the demonstrations will be by ticket, but complimentary cards may be obtained at the registration desk in Atlantic City.

HENRY B. WARD,
Permanent Secretary

SATURDAY'S PROGRAM AT PHILADELPHIA

ON Saturday, January 2, members of the association and its affiliated societies are invited to visit Philadelphia as the guests of The American Philosophical Society, The Academy of Natural Sciences and The Franklin Institute.

The train leaving Atlantic City at 8:10 A. M. reaches the Market Street Wharf, Philadelphia, at 9:10; one leaving at 8:25 A. M. reaches Market Street Wharf at 9:45. It is a short walk or ride from the foot of Market Street to the hall of the American Philosophical Society, 104 South Fifth Street. Here many historic records of the oldest scientific society in America will be on view. From 10 to 12 o'clock a series of papers on "Viruses and Virus Diseases" will be presented in the lecture room by some of the younger and more active workers in this field. This subject is one of the newest and most important in the whole realm of biology and medicine. Among the speakers on this occasion are Dr. W. M. Stanley and Dr. Ralph W. G. Wyckoff, of the Rockefeller Institute, Princeton, New Jersey, who will report on the crystallization of virus and its concentration by centrifugal force; Dr. Stuart Mudd, of the University of Pennsylvania Medical School, will speak on bacterial antigens and their preparation and preservation. Dr. Yale Kneeland, Columbia University Medical Center, will report on the virus of the common colds; Dr. George Berry, of the University of Rochester Medical School, on the transformation of the virus of one form of benign tumor into that of another malignant one.

At 12:30 a buffet lunch will be served in the hall of the society and at 2 o'clock visitors will be taken to the Academy of Natural Sciences at 19th Street and the Parkway and shown the new museum and the library, which is one of the best in its field in America. At 3 o'clock there will be a visit to the magnificent new building of the Franklin Institute at 20th Street and the Parkway. After inspecting the museums, laboratories and planetarium there, tea will be served to visiting scientists and their families at 4 o'clock. Those who wish to do so may visit other scientific educational or art institutes of Philadelphia, such as the Wistar Institute of Anatomy and Biology, the University of Pennsylvania, the University Museum, the Art Museum, etc.