University, on "Mechanism of Tuberculin Hypersensitiveness: The Bacterial Factors Which Promote the Tuberculin Type of Hypersensitiveness." Other speakers who will present papers at these sessions are Ruth R. Puffer, Department of Health of Tennessee; Dr. George L. Waldbott, Detroit, Michigan; Dr. Malcolm H. Soule, University of Michigan; Dr. R. H. McClellan and F. C. Messer, Pittsburgh, Pennsylvania; Dr. Louis F. Bishop, New York City; R. C. Grauer and G. H. Robinson, Pittsburgh, Pennsylvania.

The American College of Dentists is planning a program for Saturday. Morning, afternoon and evening sessions will be held, the last to be preceded by a dinner.

The Section on Agriculture (O) will present programs on Friday morning and afternoon on the general subject of agricultural planning. As a part of this symposium at 9:30 A. M. Dr. A. R. Mann, of Cornell University, retiring vice-president, will deliver an address on "Agricultural Planning as an Aspect of State and National Planning." It is purposed to have the administrative aspects of the subject presented by one of the national administrators of the A.A.A. Other subjects to be discussed include population trends, land inventories and land classification, live-stock problems, horticultural aspects, the place of forestry in agricultural planning, soil erosion control, the meat-packing industry and taxation changes in relation to planning. These subjects will all be discussed by leaders in the various fields.

The American Society for Horticultural Science plans joint sessions with other organizations as follows: (1) With the American Society of Plant Physiologists on Friday morning, the program being devoted to physiological problems with horticultural plants; (2) with the Potato Association of America on Friday afternoon.

The Northeastern Section of the American Society of Agronomy is planning to present a program on Saturday, which will probably consist of a discussion of various soil research problems, pasture problems and possibly one or two problems on the microchemical tests of soil.

The Section on Education (Q) plans three joint programs and three sectional meetings. On Thursday afternoon will be held a joint session of Section C (Chemistry) and Section Q (Education) with the cooperation of the Division of Chemical Education of the American Chemical Society. The central theme of the program will be "The Rôle of Chemistry in Education." The Friday morning session will consist of detailed reports on selected experimental problems in education. The Friday afternoon session will be held jointly with the Section on Psychology and will relate to "Psychological Theories of Learning." At the annual dinner of the Section on Psychology and Education, to be held on Friday evening, the retiring vice-presidents of the two sections will present the customary addresses. On Saturday reports of research from members of the section will be included in programs of two sessions.

THE NEW OBSERVATORY AT PRINCETON UNIVERSITY

By Dr. FRANK SCHLESINGER
DIRECTOR OF YALE OBSERVATORY

THE period immediately following our civil war was one of great activity in telescope building and gave this country a high standing with regard to astronomical equipment that it has maintained ever since. It was during these years that the great refractors at Princeton (23-inch), Washington (26-inch) and the University of Virginia (26-inch) were erected, each of them for a time unsurpassed as to size and power and all of them the product of Alvan Clark's unprecedented skill in making great lenses. A good lens resembles a precious stone in never losing its value, and though its setting may be badly worn or otherwise out of date the stone itself does not deteriorate. The three glasses we have mentioned, as well as some older ones, are still busily engaged in astronomical work, but almost all of them have been reset in modern mountings. This has just become true of the Princeton telescope. The gift of General Halsted, this instrument was erected in 1867 on land donated by Dr. Cortlandt van Rensselaer not far from the center of the campus, a location that grew less and less advantageous as the university expanded, and more and more desirable from other academic points of view. Two years ago the trustees tore down the old observatory and erected in its place a handsome dormitory. The New Observatory, as it is now officially to be called, is in the center of a large field east of Palmer Stadium far removed from the city's lights and other similar disturbances. Furthermore, the trustees have given assurance (and such assurance is essential) that no buildings that could interfere with the work of the telescope will be erected within the extensive "observatory area."

Not only is the new location much better than

the old, but the mechanical arrangements have been immeasurably improved. A new mounting and a new dome have been installed by J. W. Fecker of Pittsburgh. The eye-end of a large telescope varies in its distance from the floor of the observatory, depending upon whether the object observed is high or low in the sky. To reach it in all its positions a glorified step-ladder was the best expedient that the early designers for such telescopes could provide. When the Lick Observatory was erected on Mount Hamilton in the late eighties, this problem of reaching the telescope in all positions became acute on account of the great length of the tube. A distinguished amateur astronomer, A. A. Common, of London, England, suggested that the Lick Observatory floor be made movable in height like an elevator sixty feet in diameter. This expedient was adopted and proved so successful that it has been employed for almost all large telescopes erected or remounted since that time. Such a "rising floor" has been installed in the New Observatory at Princeton together with all the other mechanical improvements that modern practise has shown to be so conducive to rapid and accurate observation with one of these great engines of research. A novel feature of this telescope is an iris diaphragm in front of the lens, in principle like that on an ordinary camera. This will enable the observer to alter the effective aperture of the telescope at will.

The Princeton Observatory has had two distinct periods of fruitful activity. The first fell in the closing two decades of the last century when Charles Augustus Young pursued with such signal success his pioneer work in solar spectroscopy. The second began about a quarter of a century ago and is still in healthy progress. It was then that Professor Raymond S. Dugan, who is in immediate charge of the telescope, began a remarkably careful and thorough investigation of stars that vary in their light. More than to any other single factor we owe to his persistence in adhering under unfavorable circumstances to his original program our minute knowledge of eclipsing variables. It is a matter of satisfaction to all astronomers that he and his pupils are to continue this work under such vastly improved conditions.

In another field the observatory and the department of astronomy at Princeton have made a striking record. In spite of the difficulties of handling the old telescope, or possibly because of them, the institution has sent out a steady flow of competent astronomers. These include among others H. N. Russell himself, the eminent head of the department since 1912; J. Q. Stewart, also at Princeton; the late J. M. Poor, of Dartmouth; Daniel, at Allegheny; Joy and Dunham, at Mount Wilson; Shapley and Menzel, at Harvard; Kovalenko, at Swarthmore; Sitterley, at Wesleyan, and Bennett at Yale.

OCEANOGRAPHICAL WORK AT BERMUDA OF THE NEW YORK ZOOLOGICAL SOCIETY

By Dr. WILLIAM BEEBE

1934 marks the sixth year of oceanographic work at Nonsuch, Bermuda, by the Department of Tropical Research of the New York Zoological Society. Sponsored by the National Geographic Society, the bathysphere was again put into commission.

The great steel ball was brought from Chicago, where it has been on exhibition for a year, and completely overhauled. With the expectation of remaining submerged for several hours and reaching a depth of three thousand feet, it was found necessary to replace all the quartz windows and remodel the oxygen and purifying apparatus. Mr. Barton joined me, his special province being, at his request, an attempt at abyssal photography.

After several thorough tests in the field we made two deep dives, Numbers 30 and 32, on August eleventh and fifteenth, to depths, respectively, of 2,510 and 3,028 feet. These figures, merely as new records, are of little importance in themselves, but in the course of the dives several interesting generalizations came to notice.

The publicity given to these descents has been all by indirect reporting, and so confused in details that a brief, preliminary statement seems worth while. As I am still making dives to 1,500 and 2,000 feet as well as contour dives, no opportunity has offered itself of working over the specific observations.

The day of the first dive was an exceedingly brilliant one, and the surface of the sea very calm. In consequence, light was still visible to the eye at 1,900 feet, 200 feet farther than on any previous dive to this depth. At 2,000 feet not the slightest hint of illumination was observable.

A problem of color not yet explained is that from 200 feet down, through the spectroscope, the blue is gradually replaced by violet, until at a depth of 400