adapted, Bull Island has had an unprofitable history over 250 years. It has repeatedly failed as a cotton plantation, becoming later a timber reserve.

A wooded hill ten miles long and four miles wide on an average, the island is some eighteen miles northeast of the port of Charleston. The Atlantic lies off its outer shore. The inner shore overlooks a waste of marsh grasses and tidal currents out of which, after some miles, the solid farming land of Charleston County emerges.

As far back as colonial days chroniclers remarked upon, and attempted to classify, the flocks of wild fowl which frequented the fresh-water ponds that dotted the island. In 1935, after a lapse of hundreds of years, an agent of the Biological Survey, recommending the purchase of the property by the government for the uses of wildlife, noted that the center of the island is still a primeval forest where a great variety of birds can be found throughout the year.

Some of the most frequent visitors to the refuge are the great blue heron, the American egret, the snowy heron, the green heron, the Louisiana heron, the black-crowned night heron, the long-billed and Hudsonian curlews, the laughing and the ring-billed gulls, plovers of many species, the oyster catcher, the brown pelican and the royal tern. Besides these and other birds which frequent the area, Bull Island is a haven for ducks of many species, wild turkey, shore birds, deer and wild hogs. Canvasbacks are found there in considerable numbers, this being probably their southern flight limit in large flocks, on the Atlantic coast.

Among the hundreds of thousands of acres of submarginal land recently taken over in various parts of the country by the Biological Survey as nesting and feeding grounds for wildlife, Bull Island stands out as an area in which animals are still abundant. Most of the newly acquired areas have been partially or wholly deserted by birds and four-footed game and must be restored as havens.

Measures to maintain the attractions to wildlife on the island and to facilitate its administration as a sanctuary are now being carried out by the survey. Sand ridges on the outer shore of Bull Island will be rebuilt. Fresh-water ponds on the island will be newly dyked and impounded. Some new aquatic plants which have been established elsewhere as a natural duck-food will be imported and sown. Radio telephones are contemplated as a connection between the island and the refuge headquarters on the mainland ten miles away. General improvements being made on the entire Cape Romain Refuge include new docks projected both on Bull Island and on the mainland.

SUMMER CONFERENCES ON SPECTROSCOPY AND COLOR AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

THE Massachusetts Institute of Technology has recently announced a special summer program on applied physics which will feature a conference on spectroscopy and its application, to be held on July 20, 21 and 22, and a conference on color to be held on July 23, 24 and 25. These two conferences have been planned as a unit, since the two subjects are closely related.

During the first three days of the week, morning and afternoon sessions will be held, with discussions by qualified experts on spectroscopic analysis of materials, and on other applications of spectroscopy to biology, medicine, chemistry, metallurgy, mineralogy and to industrial and engineering problems.

During the Color Conference, morning and afternoon meetings will be held with discussions by eminent authorities on the subject of color and its various applications. This conference will be devoted to spectrophotometry, colorimetry and the applications of color measurements to industrial problems. Detailed consideration will be given to the behavior and control of the color of dyes and pigments, and their application in such fields as the paint, ink, paper, textile and the ceramics industries.

These conferences come at the conclusion of the courses on spectroscopic analysis of materials which are being offered during the six weeks from June 16 to July 24. These deal principally with applications of spectroscopy to biology, chemistry, geology, metallurgy, physics and other branches of science.

There is no charge for attendance at the meetings of the conferences, copies of the detailed programs of which will be sent on request to any one interested. The object of the conferences is to promote cooperation between investigators in different fields who have found or may find useful the technical methods of spectroscopy and color. Information in regard to the conferences should be addressed to Professor G. R. Harrison, of the department of physics.

THE WASHINGTON CONFERENCE ON THEORETICAL PHYSICS

SCIENTIFIC men from American and foreign universities gathered in Washington on Monday, Tuesday and Wednesday, April 27, 28 and 29, for the second Washington Conference on Theoretical Physics under the joint auspices of the Carnegie Institution of Washington and the George Washington University.

These annual conferences are an outgrowth of the

researches in fundamental physics begun some years ago by the Carnegie Institution and the work which is being done at the George Washington University. Dr. M. A. Tuve and Dr. L. R. Hafstad, of the Department of Terrestrial Magnetism, and Dr. Gregory Breit, Jr., formerly of the department and now at Princeton University, are in charge of the work in this field at the Carnegie Institution; while at the George Washington University it is in charge of Dr. George Gamow, professor of theoretical physics, and Dr. Edward Teller, visiting professor of theoretical physics.

Dr. Gamow, formerly of the Institute of Mathematical Physics and the Academy of Sciences at Leningrad, is the pioneer in the theoretical investigation of atomic nuclei and first formulated the modern theory of radioactivity. Dr. Teller is a Hungarian theoretical physicist whose researches, devoted to the theory of molecule-structure and the dynamics of chemical reaction, are of great significance to experimental chemists in the field of physics and chemistry. Both Dr. Gamow and Dr. Teller have worked at the principal European centers—at Munich with A. Sommerfeld, at Copenhagen with Nils Bohr, at Leipzig with W. Heisenberg and at Göttingen with Born. Before going to the George Washington University last fall Dr. Teller spent a year at the University of London working with Dr. F. G. Donnan.

Among those who attended the conference were: Linus Carl Pauling, California Institute of Technology; Robert S. Mulliken, University of Chicago; Harold Urey, Columbia University; G. Placzek, Institute of Copenhagen; Hans A. Bethe, Cornell University; Hertha Sponer, Duke University; Irving Langmuir, the General Electric Company; Hubert Maxwell James, Edwin Crawford Kemble, J. H. Van Vleck and E. Bright Wilson, Jr., Harvard University; James Holley Bartlett, University of Illinois; Donald Hatch Andrews, Gerhard Heinrich Dieke, James Franck, Karl Ferdinand Herzfeld, Maria Goeppert Mayer, Joseph Edward Mayer, the Johns Hopkins University; John Clarke Slater and George E. Kimball, Massachusetts Institute of Technology; David Mathias Dennison, University of Michigan; Gregory Breit, Edward Uhler Condon, Henry Eyring, R. H. Fowler and Hugh Stott Taylor, Princeton University; Lothar Nordheim and Gertrude Nordheim, Purdue University; Eugene Paul Wigner, University of Wisconsin.

Topics discussed included: Chemical bond, reaction velocities, magnetism, Van der Waal's forces, molecular vibrations and isotopes.

CENTENNIAL CELEBRATION OF THE PENNSYLVANIA GEOLOGIC SURVEY

THE first Pennsylvania Geologic Survey was created by act of the Legislature on March 29, 1836. In commemoration of the centennial, a fitting celebration is to be held at Harrisburg on Friday and Saturday, June 12 and 13. Delegates and invited guests will register on Friday morning at the survey offices, on the sixth floor of South Office Building. Here will be seen an exhibit of the progress of geologic work in the state, publications and maps of the four surveys, collections of fossils, rocks and minerals, and other matters of geologic interest. Tours of the capitol, the State Museum and other buildings and of the capitol grounds will be arranged.

The official program will open at 1:30 on Friday afternoon in the forum of the Education Building with addresses of welcome from state officers. These will be responded to by representatives of various geologic organizations. Two addresses are to follow, the one dealing with early scientific work in Pennsylvania, and the second with the development of geology in the state, particularly, the work of the survey. A reception to delegates and invited guests is to follow the formal program. Friday evening will be devoted to a symposium, "The Relation of the Mineral Industry to the Geologic Survey," in which leading authorities in various fields will participate.

On Saturday, June 13, field excursions in the vicinity of Harrisburg will be conducted. A choice of three is offered. The region is particularly interesting with its examples of Paleozoic stratigraphy ranging from the Cambrian through the Pennsylvanian. The Triassic sediments and igneous rocks are well exposed south of the city, and the crystallines of South Mountain are within easy reach. Much of interest to the economic geologist and mineralogist is at hand. The region is also of great physiographic interest, and Appalachian structures are beautifully illustrated, particularly in the Susquehanna and Juniata valleys. Following the field trips, tea will be served at the residence of the state geologist. Visiting ladies may participate in the field trips, but for those desiring to remain in Harrisburg, entertainment will be provided.

Hotel reservations should be made personally. The Penn-Harris and Harrisburger offer first-class accommodations, and many smaller hotels are available. Communications should be addressed to the State Geologist, Department of Internal Affairs, Harrisburg, Pa.

BRADFORD WILLARD

THE TWENTY-FIFTH ANNIVERSARY OF THE NEW YORK STATE COLLEGE OF FORESTRY

THE twenty-fifth anniversary of the founding of the New York State College of Forestry at Syracuse University, of which Dr. Samuel N. Spring is dean, was