ologist; Wilfred E. Hampton, engineer, and Lieutenant Martin Lindsay, surveyor.

The whole project has the warmest assistance of the British and Canadian government departments. The British Air Ministry has lent Lieutenant d'Aets, who is a Royal Air Force officer, while the War Office has lent Captain Lemon, one of its most expert wireless operators. Many government departments are helping with loans of instruments, while the Vickers Aviation Company has offered a Vellore plane for experimental flights and the Royal Geographical Society has helped technically and financially.

A PRIMARY STANDARD OF LIGHT

THE Bureau of Standards has issued the following statement in regard to its work on a primary standard of light: Up to the present time no satisfactory standard has been available. In this country the unit of light (the candle) has been maintained by a group of 45 carbon-filament electric lamps, to which have been assigned definite ratings when burned under specified conditions. To keep the size of the unit of candlepower unchanged with such electric-lamp standards it was necessary that no changes take place in the lamps themselves, a requirement which can not be met indefinitely by any electric lamp or group of lamps.

The new light source consists of a hollow inclosure of fused thoria immersed in a bath of pure freezing platinum. It is reproducible in that it can be set up anew at any time and does not depend upon the unchanging character of any particular pieces of material. It depends only upon the constancy of a natural phenomenon, namely, the fact that pure platinum will always freeze at the same temperature. The light emitted each time the source has been set up anew has been found to be the same, as compared with the bureau's carbon electric lamp standards, within 1 part in 1,000. This is about the limit of accuracy attainable in photometry.

The old electric lamp standards were irreplaceable and their loss or a serious change in their properties, such as must eventually occur, would in the past have been nothing less than a catastrophe. If, however, such a loss occurred now, the bureau could replace these lamps without the assistance of outside laboratories by rating a new set of lamps in terms of the light emitted by the platinum standard. The relation of this light to the present unit of candlepower has been accurately established as one candle for each 1,700 square millimeters of opening.

It happens, fortunately, that the color of the light emitted by the new standard is practically identical with that emitted by the old standard. It is hoped that before very long the new light source will be recognized generally and adopted as an international standard.

REFORESTATION DURING 1929

FOREST planting by all the principal agencies engaged in the work of reforestation in the United States last year restored to tree growth a total of 111,175 acres, as shown by records just completed by the Forest Service.

The total acreage set out in young forest trees in 1929 included 107,557 acres in the continental United States, 2,084 acres in Hawaii and 1,534 acres in Porto Rico. Reforestation activities included the planting of 31,430 acres by 21 states and two territories, 5,920 acres by municipalities, 25,088 acres by industrial organizations, 539 acres by schools and colleges, and 1,516 acres by other organizations. Plantings by farmers for the extension or improvement of farm woodlots and windbreaks amounted to 24,825 acres, and plantings by other individuals, 6,650 acres. The U. S. Forest Service planted 18,027 acres of land on national forests in 1929.

Michigan, with 27,820 acres restored to tree growth, led the states last year in total acreage planted to forests. New York ranked second with 21,135, and Louisiana third with 10,583 acres. Other states which ranked high in forest-planting activities were Pennsylvania with 6,318 acres; Washington, 4,400 acres; Massachusetts, 3,938 acres; Ohio, 3,428 acres, and California, 3,023 acres.

Industrial forest plantings in 1929 included 10,060 acres planted by pulp and paper companies, 8,732 acres by lumber companies, 3,189 acres by water and power companies, 1,561 acres by mining companies, 100 acres by railroad companies and 1,446 acres by other industrial organizations.

To the end of the calendar year 1929, the cumulative total of all forest planting in the United States of which the Forest Service has record was 1,653,308 acres. This included 274,385 acres of national forest land planted by the federal government, 200,553 acres by states, 46,282 acres by municipalities, 193,262 acres by industrial organizations, 16,335 acres by other organizations, 5,215 by schools and colleges and 917,276 acres by farmers and other individuals. In cumulative acreage planted, Iowa led with 242,260 acres, Nebraska was second with 219,088 acres, Kansas third with 201,190 acres and New York fourth with 183,369 acres.

YALE UNIVERSITY AND THE BERNICE P. BISHOP MUSEUM

YALE UNIVERSITY and the Bishop Museum, Honolulu, have entered into a new agreement which will bring about a closer affiliation of the two institutions.

The research program of the museum, the only institution which devotes its energies solely to a study of the Pacific area, will be integrated with the activities of those departments of the Yale Graduate School

whose work bears on the scientific problems of the Pacific. This is expected to improve the work of the museum by bringing it under the supervision of the scientific men at Yale, and will strengthen the educational program of the Graduate School by making available for purposes of instruction and research materials obtained by the museum through its field study of Pacific problems.

To give effect to this purpose it has been agreed that the director of the museum shall be a member of the faculty of the Graduate School assigned to duty in Hawaii. The present director is Professor Herbert E. Gregory. Each year the museum will send to Yale a visiting professor to give instruction and direct research in the problems of the Pacific area. A standing committee of the Graduate School will undertake to supervise the research program of the museum, to correlate this with the activities of the scientific departments at Yale, and to plan and direct the work of the visiting professor. To stimulate among graduate students interest in the problems of the Pacific, fellowships of large stipend will be awarded annually to students who are qualified to engage in research under the direction of the museum.

President Angell points out that "the research activities of the Bishop Museum in the natural and social sciences have been of the highest scientific value. By reason of its central position it is strategically placed to study the cultural, geological and zoological problems of the Pacific area. This it does through scientific expeditions to the islands and bordering mainlands which gather data of great importance to the anthropologist, the social scientist and the scholars interested in different branches of the natural sciences. Hereafter these activities will be a part of the general program of the Yale Graduate School."

The Bernice P. Bishop Museum has given much attention to the native races of the Pacific. The studies entered upon by Yale and the museum have led to the discovery of ruins of great antiquity in the Mariana islands, between Hawaii and the Philippines, which indicate a vanished civilization in the Pacific comparable to that of the ancient mainland. These ruins are expected to throw light on the origin and immigration of the Pacific people. By some routes in the distant past these people left the Asiatic continent and spread over an area 8,000 miles long and 6,000 miles wide. To trace these routes and to find out who these early people were is one of the problems which the investigators at Yale and the museum are trying to solve. It was in investigating a probable route from Mongolia through Japan to the Marianas and thence to Samoa and Hawaii that these significant ruins were discovered.

FURTHER ACADEMIC DISMISSALS IN MISSISSIPPI

THERE were recorded in the issue of SCIENCE for July 18 the professors dismissed from the University of Mississippi.

On July 5, 1930, the Board of Trustees of the University and Colleges of Mississippi, without warning, giving of reasons, or preferring charges of any sort, dismissed the members of the faculty of the Mississippi College of Agriculture and the Mechanic Arts, as listed below. It is said that the board plans to take similar action at the Experiment Station.

Charles F. Briscoe, professor of bacteriology.
F.-J. Weddell, professor of English.
F. D. Mellen, professor of public discourse.
H. W. Moody, dean of the School of Engineering and professor of physics.
M. L. Freeman, professor of drawing.
J. C. C. Price, professor of horticulture.
Hal Fox, professor of mathematics.
J. R. Gulledge, librarian.
F. H. Herzer, associate professor of dairying.
A. G. Burg, associate professor of agronomy.
G. F. Barnes, associate professor of physics.
C. B. Cain, associate professor of veterinary medicine.
R. G. Dauber, assistant professor of physical education.
L. S. Lundy, assistant professor of mathematics.
G. B. Drummond, assistant professor of mathematics.
J. R. Ricks, director of experiment stations.
R. S. Wilson, director of extension.
J. W. Willis, assistant director of extension.

The president, B. M. Walker, and the vice-president, J. C. Herbert, had been displaced at an earlier meeting. Many secretaries, stenographers and others were among those dismissed.

SCIENTIFIC NOTES AND NEWS

DR. STEPHEN MOULTON BABCOCK, emeritus professor of agriculture and chemistry at the University of Wisconsin, the inventor in 1890 of the Babcock milk test which revolutionized the dairy industry, is to receive the Capper award of $5,000 and a gold medal at the annual meeting of the American Country Life Association, to be held at the University of Wisconsin from October 7 to 10.

THE University of Freiburg has conferred the honorary degree of doctor of natural philosophy upon Dr. F. W. Aston, of Cambridge, in recognition of his work on isotopes and other subjects.