General Secretary: Geo. T. Moore, Missouri Botanic Garden, St. Louis, Mo.

Nine men were elected members of the committee on grants, as follows: N. L. Britton, Louis I. Dublin and J. McK. Cattell for one year; G. N. Lewis, W. B. Cannon, and R. T. Chamberlin for two years; and Henry Crew, Joel Stebbins, and G. H. Parker for three years.

To fill vacancies in the council of the association Drs. N. L. Britton and J. McK. Cattell were reelected and Dr. J. C. Merriam was elected as a new member. Dr. E. F. Buchner was appointed to represent the association in the American Council of Education, and J. C. Merriam, H. B. Ward, and Stewart Paton were elected to serve for three years on the Committee on Policy.

The report for 1918 of the treasurer of the association, Dr. Robert S. Woodward, showed total cash receipts of $7,747.27 and disbursements $7,786.00, including the purchase of $4,000 Liberty Bonds. The total funds of the association are now $116,605.45.

The financial report of the permanent secretary, L. O. Howard, for the period November 1, 1917, to October 30, 1918, showed receipts $43,784.49 and expenditures of $36,209.04, leaving a balance of $7,575.45.

The two financial reports will be printed in full in a later issue of SCIENCE.

O. E. JENNINGS,
General Secretary.

SCIENTIFIC EVENTS

THE KATMAI NATIONAL MONUMENT

PRESIDENT WILSON has created by proclamation the Katmai National Monument. This reservation incloses what the explosive eruption of June, 1912, left of Mount Katmai, on the southern shore of Alaska, together with several neighboring valleys of steaming vents, the largest of which the National Geographic Society, which explored it in June, 1917, named the "Valley of Ten Thousand Smokes."

The two features are intimately related. Rock strata superheated since the great eruption underlie Katmai near enough to the surface to turn to instant steam the spring and drainage waters of many a surrounding mile of foothills. Thus originates the steam which bursts from the myriad valley vents. The phenomenon is familiar in the neighborhood of most volcanoes which still are classed as active. Steaming springs, a later stage of the vents in this valley, are found upon the flanks of several of the most prominent of our Cascade volcanoes, and are numerous around the base of Lassen Peak.

The comparison, however, between Katmai's steaming valleys and the geyser basins of Yellowstone is especially instructive because Yellowstone's basins once were what Katmai's steaming valleys are now. The "Valley of Ten Thousand Smokes" is probably a coming geyser field of enormous size. The explanation is simple. Bunsen's geyser theory, now generally accepted, presupposes a column of water filling the geyser vent above a deep rocky superheated chamber in which trickling spring water is being rapidly turned into steam. When this steam becomes plentiful enough and sufficiently compressed to overcome the weight of the water in the vent, it suddenly expands and hurls the water out. That is what makes the geyser play.

Now, the difference between the Yellowstone geyser fields and Katmai's steaming valleys is just a difference in temperature. The entire depth of earth under these valleys is heated far above boiling point, so that it is not possible for water to remain in the vents; it turns to steam as fast as it collects and rushes out at the top in continuous flow. But when centuries or hundreds of centuries enough elapse for the rocks between the surface and the deep internal pockets to cool, the water will remain in many vents as water until, at regular intervals, enough steam gathers below to hurl it out. Then these valleys will become

basins of geysers and hot springs like Yellowstone's.

The crater of Katmai is very large. Its circumference, says Robert F. Griggs, who headed the expeditions which explored the entire area, is 8.4 miles, measured along the highest point of the rim.

The area is 4.6 miles. The precipitous abyss, which does not extend to the rim of the southwest side, is somewhat shorter, measuring 2.6 miles in length, 7.6 miles in circumference, and 4.2 square miles in area. The milky blue lake at the bottom is 1.4 miles long and nine tenths of a mile wide, with an area of 1.1 square miles. The little cresent-shaped island in the lake measures 400 feet from point to point. The precipice from the lake to the highest point of the rim is 3,700 feet.

Mr. Griggs estimates the capacity of the hole at 4,500,000,000 cubic yards. If this hole were filled with water, there would be enough to supply New York City for 1,635 days. The great eruption blew out 11,000,000,000 cubic yards of material, more than forty times the amount removed in the construction of the Panama Canal.

AGRICULTURAL PRODUCTION IN THE UNITED STATES

How American farmers responded to the food needs of the United States and the countries with which it was associated in the war is described in detail in the annual report of the Secretary of Agriculture, David F. Houston, just made public.

For wheat and other leading cereals and for potatoes, tobacco and cotton, farmers in 1918 planted 289,000,000 acres, an increase over the preceding record year of 5,600,000. It is especially noteworthy, the secretary points out that, while the acreage planted in wheat in 1917 was slightly less than for the record year of 1915, it exceeded the five-year average (1910–14) by 7,000,000; that the acreage planted in 1918 exceeded the previous record by 3,500,000; and that the indications are that the acreage planted during the current fall season will considerably exceed that of any preceding fall planting.

Notwithstanding adverse climatic conditions in 1917, especially for wheat, and in 1918 especially for corn, the secretary reports that only 1915 has exceeded either 1917 or 1918 in the aggregate yield of wheat and other leading cereals.

"The estimated total for 1917," he explains, "was 5,796,000,000 bushels and for 1918, 5,638,000,000 bushels, a decrease of approximately 160,000,000 bushels. But the conclusion would be unwarranted that the available supplies for human food or the aggregate nutritive value will be less in 1918 than in 1917. Fortunately, the wheat production for the current year—918,920,000 bushels—is greatly in excess of that for each of the preceding two years, 650,828,000 in 1917, and 636,318,000 in 1916, and is next to the record wheat crop of the nation. The estimated corn crop, 2,749,000,000 bushels, exceeds the five-year pre-war average by 17,000,000 bushels, is 3.4 per cent. above the average in quality and greatly superior to that of 1917."

Turning to live stock, the secretary notes that the number of pounds of beef for 1918 is given at 8,500,000,000 pounds, as against 6,079,000,000 for 1914, the year preceding the European war; and that the total for 1918 of beef pork and mutton is given at 19,495,000,000 pounds, as against 15,587,000,000 pounds for 1914.

On the basis of prices that have recently prevailed, the secretary says, the value of all crops produced in 1918 and of live stock on farms on January 1, including horses, mules, cattle, sheep, swine and poultry, is estimated to be $24,700,000,000, compared with $21,325,000,000 for 1917 and $11,700,000,000, the annual average in the five-year period 1910 to 1914. This greatly increased financial showing, the secretary explains, does not mean that the nation is better off to that extent, or that its real wealth has advanced in that proportion. Considering merely the domestic relations, the true state is indicated rather in terms of real commodities. The increased values, however, do reveal that monetary returns to the farmers have increased proportionately with those of other groups of producers in the nation and that their purchasing power has kept pace in the rising scale of prices.