

tailed to assist the War Department in road building at the 16 cantonments.

The Forest Service has given assistance to the War and Navy Departments and to other national agencies in locating new sources of wood and in seasoning the product, has assisted in the organization of a regiment of engineers for forestry work abroad, and is now cooperating with the War Department in the organization of a second regiment. The Weather Bureau, in addition to furnishing weather information to the army and navy, has assisted the War Department in the organization of its aerological observation work and of a regiment for gas and flame service.

SCIENTIFIC EVENTS

AMAZON EXHIBITS AT THE UNIVERSITY OF PENNSYLVANIA MUSEUM¹

THERE is now on public exhibition at the University of Pennsylvania Museum a large share of the collections which Dr. Wm. C. Farabee made during his three years' explorations of the Amazon, from which he returned last year. It has taken him a year to go over and catalogue his collections carefully, to label them and to install them in the galleries on the first floor of the museum.

During his three years in South America Dr. Farabee made his headquarters at Para, at the mouth of the Amazon, from which all of his various trips into the interior were made. The first journey was a thousand miles up the Amazon to Manaus, thence almost directly north into the highlands which divide Brazil from the Guianas, thence several hundred miles westward until it was no longer possible to travel by water, from which point he started eastward overland through the southern portion of British Guiana, spending many months among the Carib and Arowak, most of whom had never before seen a white man.

It was here that Dr. Farabee did some of his most important scientific work, since here were grouped a number of entirely distinct tribes of Indians, all of whom are rapidly diminishing in population and some of which are on the verge of extirpation. From

this point, having sent his collection down the Amazon, he made the terrible journey across the divide and down the Corentyne, during which he lost most of his equipment, all of his food and medicine, was obliged to live on monkeys and alligator meat, when even those were available, suffered terribly from fevers and finally reached the coast more dead than alive. Thence he went to the island of Barbados, where he met Colonel Roosevelt just returning from his trip through Brazil.

Dr. Farabee's second tour was up to the head waters of the Amazon River into the lower hills of the Andes in eastern Peru. Unfortunately, about the time he reached this section news of the great European war had come up the river and utterly dislocated all of his arrangements, making it impossible to get money or bring up supplies, so that he was obliged to return to Para, but not until after he had made some highly interesting and important researches and had secured a great number of the finest specimens of Conebo pottery in existence, which he managed to bring down with him and which are now on exhibition.

Subsequent trips were up some of the southern affluents of the Amazon, marching across from one great river to another, and investigating country never before trodden by a white man. Another series of explorations were to the north of the Amazon, not many hundred miles from the coast, where he also found hitherto unknown tribes and where he made collections, especially of large pottery animals used for burial urns. These were deep in the Amazon wood.

The results of all these journeyings are now on exhibition on the first floor of the museum. The room to the left is occupied with ancient and modern pottery and those whoever they were that made this pottery had a very much higher culture than any existing Indians in South America. It is doubtful if the Incas themselves at any time reached as fine a development in the making of pottery, but there is not the slightest clue as to who these people were, whence they came, when nor how they disappeared. None of the Indians who now occupy that portion of the country have even

¹ From *Old Penn.*

any myths about it, and this is the more remarkable because primitive races, as a rule, retain some shadowy recollection or myths of antecedent peoples for a great many centuries. Nowhere else in South America has there been the slightest trace discovered of a culture resembling this, or of several cultures, and it is very unfortunate that just now there does not seem to be any material at hand to solve the mystery. These colossal funeral jars are the most important features of this part of the exhibit. Some of them are large enough to admit two entire bodies seated side by side.

On the other side of the room in which this ancient pottery is shown Dr. Farabee has installed a great collection of several hundred pieces of the Conebo pottery. This is entirely modern and is the most striking pottery of the kind to be found anywhere in the world, and in fact only a few specimens of the smaller kind are to be found in any museum. About half a dozen of these jars are four feet high and about the same diameter, but resting on a very small base and having the general appearance of an inverted, truncated cone. They will hold several barrels each and are used by the natives to hold the beer, which they greatly enjoy.

THE CHEMICAL INDUSTRIES OF THE UNITED STATES

THE annual report of Franklin K. Lane, Secretary of the Interior, gives the data on the growth of the chemical industries in the United States since 1914. Not only have factories sprung up to manufacture products formerly imported but great expansion has taken place to supply the increased demand for all chemical products. The country now manufactures practically everything required along chemical lines.

The increase in capital invested in chemical industries was, in 1915, \$65,565,000; in 1916, \$99,244,000; and up to September, 1917, \$65,861,000 over the preceding year. New chemical industries are now being opened up at an unprecedented rate, owing to war needs and the energy of American chemists and physicists.

Before the war 90 per cent. of the artificial colors and dyes were imported, five or six concerns with 400 operatives producing 3,300 short tons per year. Now there are over 90 enterprises, each making special colors, and 100 concerns making crudes and intermediates.

Sulphuric acid, the chemical barometer, has doubled in production. In 1916, 6,250,000 tons of 50° Bé. were produced. The estimate for 1917 is much greater, and the production for 1918 will again greatly increase.

By-product coking doubled its capacity in the last three years, yet in 1918 the United States will make half her coke in beehive ovens. Light oil, which contains the benzene and toluene needed for explosives, jumped from 7,500,000 gallons in 1914 to 60,000,000 gallons in 1917, and is again being largely increased. Ammonia production has increased 100 per cent. in three years and the visible supply is insufficient to meet demands.

Gasoline production has increased from 35,000,000 to 70,000,000 barrels per annum since 1914.

Potash importation from Germany was stopped by the war, which has stimulated production in this country. The production from January to June, 1917, was 14,023 short tons of potash. This is a small production, but sodium salts have been substituted for almost all purposes except agriculture. Shortage of labor and coal is seriously interfering with the potash-brine evaporation in Nebraska, which was yielding about 90 tons per day.

The production of explosives and consequent consumption of nitric acid has increased enormously. The nitric acid is still almost entirely made from Chili saltpeter, but synthetic nitrogen plants are under process of construction, and we have large quantities of coal-tar ammonia which can be used for munitions if necessary.

Before the war 40,000 tons of barite were imported from Germany for the manufacture of lithopone. Now five companies are producing this article from deposits in Tennessee, Kentucky, Virginia, and Missouri.

The smelting of all metals, iron, zinc, copper, antimony, tin, mercury, etc., and their