

servatory for several years past. The advantages which kites have over balloons up to a height of at least 10,000 feet, whenever there is wind, were pointed out. It was reported that, besides their use in the United States, kites were being employed to obtain meteorological records at St. Petersburg and near Paris. M. Tacchini proposes to try them on Mounts Cimone and Etna, and Professor Hann hopes to obtain data in this way above the Sonnblick, the highest permanently occupied observatory in Europe. The Conference recommended kites as being of great value to meteorology, and desired that they should be used at the chief observatories, together with the kite-balloon (described hereafter) for continuous observations. The Committee was enlarged by the addition of the following persons: M. Teisserenc de Bort and Prince Roland Bonaparte, of Paris; Professor Hildebrandsson, of Upsala; Professor Pernter and Lieutenant Hinterstoisser, of Vienna; Captain Moedebeck, of Strassburg, and Lieutenant von Siegsfeld, of Berlin. The next meeting will be at Paris in 1900.

During the Conference there were two trials of the kite-balloon—a captive balloon which, unlike the ordinary spherical one, is not driven down or carried away by strong winds. It is the invention of Lieutenants von Parseval and von Siegsfeld, of the German army, where it is used for reconnoitering, but the smaller Strassburg balloon, constructed by Mr. Riedinger, of Augsburg, for Professor Hergesell and Captain Moedebeck, is the first to lift self-recording meteorological instruments. It consists essentially of a cylinder of varnished linen, having a volume of 7,770 cubic feet, so attached to the cable that its upper end is inclined towards the wind, which thus tends to raise the balloon. The cylindrical form is preserved, notwithstanding leakage of gas, by admitting wind into an auxiliary envelope at the rear end, which also serves

as a rudder, stability about the axis being secured by lateral wings. The instruments are contained in a basket, with open ends, hung far below the balloon. The azimuth, angular altitude and traction of the cable are recorded continuously by an ingenious dynamometer. In spite of unfavorable weather and gas of insufficient lifting power, the experiments were fairly successful, and previously the balloon had been maintained during several days above the city.

The Committee also witnessed an ascent of the *ballon-sonde* 'Langenburg,' carrying self-recording instruments. This silk balloon, when inflated with 14,000 cubic feet of coal gas, had an initial lifting force of 440 pounds in excess of its load. Owing to a premature start, the ballast was left behind, and the sudden plunge upward not only emptied some of the gas, but stopped the clock movements of the thermographs. The ascent was made in the late afternoon, and the balloon, which soon disappeared in the clouds, was found the next day about sixty miles southeast of Strassburg, having risen more than six miles, as was determined from its barometric record.

A. LAWRENCE ROTCH.

THE FIELD COLUMBIAN MUSEUM.

THE Field Columbian Museum is making fast progress and doing effective work in the various departments. The Zoological Department is busy with the rich collection brought back by Professor Elliot's expedition to Somaliland. Two notable groups have been installed in the West Court, viz.: the lesser koodoo (*Strepsiceros imberbis*) and Waller's gazelle (*Lithocranius walleri*). The first is said to be the largest and most complete of its kind in the world, and in fact the only one in existence giving a full representation of this beautiful spe-

cies. It consists of an old and a young bull, an old and a young cow and two young of different ages. The most striking accessory is an ant hill upon which is perched an African owl. The representatives of the scant plant life are faithfully executed, and, although the area is limited, the impressions of the desert are forcibly conveyed to the spectator.

The same is true of the second group, consisting of two males, two cows and two young. With its long neck, large eyes and slender body, this gazelle, the *cerenuk* of the natives, is graceful in form, if not in movement.

A third group, now almost ready, will represent the Oryx antelope (*Oryx beisa*) and consist of a family of five. This species will be in marked contrast to the others, on account of its rather clumsy form, that is offset, however, by its remarkably long, straight, dangerous horns, carried by both sexes. The center will be occupied by another of those ant hills which constitute so conspicuous a feature of the landscape in many parts of Africa. It is generally built around a tree, completely enclosing the trunk and nearly all the branches. After the ants have eaten the tree the hill is abandoned to be blown down by the winds. Some of them reach a height of forty feet. Together with the imposing musk-ox group, the two already finished have been attracting an ever increasing attention from visitors, who are outspoken in their admiration of the artistic skill displayed by the taxidermist, even if they fail to appreciate their scientific value.

The ultimate idea is to give most of this wing up to African collections, some sixteen groups in all having been planned, headed by a family group of polar bears, towards the center and rounded up in the rear by the musk-ox group, now in front. The final value of these and other groups as a means of creating interest in scientific re-

search in this busy metropolis of the West can hardly be overrated.

The Anthropological Department has undergone thorough rearrangements of late, the idea being to give more prominence to the geographical distribution of the human races. Dr. Dorsey, the acting Curator, in December last, undertook a second trip to the Pueblo of Oraibi, accompanied by the sculptor Mr. F. B. Melville, for the purpose of securing plaster casts from life of Moki Indians, as well as completing the ethnological collections secured on a former trip.

The first results of this very successful expedition will soon be accessible to the public in the shape of two groups representing a Moki maiden grinding corn and a woman baking 'piki,' or paper bread. These are both to be shown in the interior of a Moki house, every surrounding detail of which will be as genuine in the reproduction as in the original. Material is on hand for another group representing a woman making pottery and a child reposing in a cradle board; for two weavers at work in their 'kivi,' or underground apartment, and for a splendid boomerang thrower. The most picturesque group, however, will probably be a Moki bride arrayed in all the splendor of her marriage finery; as also two representations of the 'kacina,' or masked dancers.

Ultimately the still more difficult task of giving some representation of the famous snake dance may be undertaken, but not until another visit to Oraibi shall have been made. On the whole, it can be confidently predicted that the Moki hall in the Field Columbian Museum, when completed, will bid fair to be unique in its kind, and will certainly prove a formidable rival in popular interest to the animal groups in the Zoological Department and the monographic representations of the forest trees of North America, fairly started in the Botanical Department.

Professor Farrington, Curator of the Geological Department, accompanied by Mr. E. S. Riggs, of Princeton University, is conducting an expedition in the Bad Lands of South Dakota for the purpose of collecting vertebrates from the White River beds. Gratifying success has attended the work of the expedition thus far. There have been secured one nearly complete small *Titanotherium* skeleton, four well preserved skulls and many miscellaneous bones of other individuals of the same genus. *Crocodyle* and *Aceratherium* remains have been found in the same beds. The party will later seek to secure specimens of *Dæmonelix* from northwestern Nebraska and close the season with a visit to some newly discovered *Equus* beds in Montana.

President Ayer has just returned from his annual trip to Europe and Africa, and has brought back an even richer harvest for the Museum than on former occasions. Among the most interesting may be mentioned a sitting mummy of great antiquity and in a splendid state of preservation, several figure heads and busts carved in stone, and a collection of Egyptian and Etruscan jewelry. In Rome he secured two very curious incinerating tomb boxes, made from tufa in the general shape of temples, the largest being six feet long, three feet wide and two feet high, both highly decorated in archaic drawings of griffins, dogs, geese, lotus flowers and scrolls. They are thought to be of Etruscan origin and date back to from 700 to 900 B. C. The new accession will certainly prove a valuable addition to the already very respectable collections representing Italian and Egyptian archæology.

CURRENT NOTES ON PHYSIOGRAPHY.

YUKON GOLD DISTRICT.

A REPORT on the Alaskan expedition of Messrs. Spurr, Goodrich and Shrader in the summer of 1896, written chiefly by Spurr, is

lately published (18th Ann. Rept. U. S. G. S., 101-392). The most important physiographic contributions are in Chapter IV., by Spurr and Goodrich, in which crustal movements are inferred from the topographic forms and drainage features. Extensive pre-Neocene denudation wore down the older rocks to gentle slopes, between which the rivers meandered in broad and shallow valleys. Now elevated, this denuded region forms the 'Interior Plateau,' which, when seen from an elevated point, appears like a gently undulating plain, above which hills and mountains rise to moderate height, and beneath which the deep valleys are incised. The region about Forty-mile creek exhibits these features with remarkable distinctness; the steep-sided valley, several hundred feet deep, curves about as if incised from a meandering stream on the former valley floor; the sharp turns of the stream being known to the prospectors by the suggestive name of 'kinks.' The elevation by which the present cycle of denudation was introduced is thought to have taken the form of broad, flat folds, accelerating some streams and retarding others.

Additional information on Alaska is found in a 'Map of Alaska,' with text prepared under the direction of S. F. Emmons, published by the U. S. Geological Survey; and in Bulletin No. 16, Department of Labor, chiefly occupied with an account of a tour in Alaska by S. C. Dunham.

PHYSICAL GEOGRAPHY OF WORCESTER, MASS.

THE Physical Geography of Worcester, Massachusetts, by J. H. Perry, with illustrations by J. C. Lyford (published by the Worcester Natural History Society, 1898), is one of a class of essays that are rarer than they should be in the best interests of home study. Here we find a good explanatory account of the dissected uplands of southern New England and their glacial