

reached a height of more than 8000 metres (five miles). Two of them had travelled at a rate of 100 miles per hour. The maximum height reached was 17,037 metres, or nearly eleven miles, and the lowest temperature recorded was  $-79^{\circ}$  C., at a height of 14,800 metres.

While Mr. Clayton was crossing the Atlantic to Gibraltar to join M. Teisserenc de Bort and M. Maurice on the cruise of the *Otaria*, he executed six kite flights, and on the cruise nineteen flights were made. From the Azores, Madeira, and Canary and Cape Verde Islands twelve balloons were sent up, and records were obtained of the wind velocity and direction up to altitudes of 13,600 metres. It was demonstrated that the upper return trade winds in the northern hemisphere blow generally from the south, and that the chief features of the vertical distribution of temperature and humidity were the differences between the east and west sides of the permanent anticyclone and the stratification of the atmosphere in the region of the trades and the doldrums (see NATURE, November 16, 1905, and March 8, 1906). These investigations are to be continued to see if the proximity of land influences the upper-air currents over the ocean.

In the tables giving the records obtained by the flights in 1903 and 1904 at Blue Hill, the reading corresponding with the different altitudes of the kites, are all compared with simultaneous readings made in the observatory, and the initial and final readings on the meteorographs are compared also with those at the station at the base of the hill. The height of the kite was determined from its angular height and the length of the wire, with a correction for sag. When the kite was not visible, its height was determined from the corrected readings of the barograph it carried.

In order to eliminate the effect of sluggishness of the instruments, the temperature readings were taken from the records at points which coincided with stationary points in the flight. Humidity was recorded by means of a hair hygrometer, which had been standardised by comparison with a psychrometer before and after the flight. The direction of the current in which the kite was flying was determined by the azimuth of the kite from the reel.

During 1902 and 1903 a long series of observations was made to study the effect of meteorological conditions on atmospheric refraction. From Blue Hill, Boston Lighthouse can be seen more than fourteen miles away, and the difference between the geodetic and observed dip of the line of sight observed three times a day. W. M.

#### SCIENTIFIC WORK IN THE STRAITS SETTLEMENTS AND CEYLON.

THE last number of the Journal of the Straits Branch of the Royal Asiatic Society is full of matter interesting to various classes of readers:—for botanists, Mr. H. N. Ridley's studies on the grasses, sedges, Scitamineæ, and Begonias of Borneo; for zoologists, Mr. P. Cameron's account of the Hymenoptera of Sarawak; for anthropologists, Mrs. Bland's description of the curious Anyam Gila basketry of Malacca, and Mr. Howell's Dyak ceremonies in pregnancy and childbirth, with a list of remarkable taboos imposed upon the woman before and after delivery; and, lastly, for folklorists, several tales collected by Messrs. Maxwell and Laidlaw. The most important contribution to the number is Mr. Ridley's article on the menagerie at the Botanic Gardens, Singapore. This was started by a local society in 1859, taken over by the Government in 1874, and, finally, the valuable collection was dispersed in 1903 on the ground that the authorities could not afford funds for buildings and a modest annual grant for maintenance. It is certainly a misfortune that this institution should have met such a fate. As Mr. Ridley points out, there are few places in the world better suited for a zoological garden than Singapore. Maintenance charges are low, and the vicinity of the source of supply renders it possible to procure specimens at a small cost. Mr. Ridley gives valuable notes on the various genera, and supplies useful hints on the methods of keeping animals in captivity. He lays down as a maxim that "the only way of knowing what an animal thinks is

comfortable and snug is to keep it and observe its ways. It will soon let you know what it likes, which probably does not at all fall in with your ideas of what it ought to like." His notes on the habits of the larger *Quadrumania* are based on first-hand knowledge. A pair of Indian jackals, he tells us, bred in the gardens, which is, to say the least, unusual. The Malay tapir (*Tapirus indicus*) displayed remarkable cryptic characters. When in its young pelage it hid in a palm bush, "and when I went to fetch it, on opening the bush and looking down, I could not see it. I seemed to be looking on the dark brown ground with spots of sunlight through the leaves. The little animal lay in such a position that the yellow spots were exactly where the vertical sun rays would fall, the yellow streaks resembling the slanting streaks of light from the side. It was for a few minutes quite invisible, though I was looking down on it." No. 47 of the journal of the same branch of the society is devoted completely to a Malay manuscript entitled "Hikayat Shamsu'l Bahrain," which, however, has no claims to special interest, being of a common type.

The address delivered by the Hon. J. Ferguson, president of the Ceylon branch of the Royal Asiatic Society, gives an interesting sketch of past and present scientific work in the island. In natural science the most valuable recent publication is that of Prof. Herdman, on the pearl oyster fisheries, with supplementary reports on the marine biology by other naturalists. The mineralogical survey has led to the discovery of many novelties, including thorianite, the only thorium-bearing substance to be found in any British possession. It is much to be regretted that the local government has been unable to provide funds for the establishment of an observatory, the want of which is much felt by the shipping trade, and was obliged to decline the offer of Mr. A. R. Brown, one of the Cambridge school of anthropologists, to undertake a survey of the Veddas. The suggestion made by Sir H. A. Blake, on native authority, that the connection between mosquitoes and malaria was known to Susruta, a Hindu writer of the fourth century A.D., has been examined by Prof. Jolly, with the result that the term Masaka cannot be confined to the mosquito, but includes various other insects popularly believed to cause disease. In regard to membership, the society is in a sound position. In spite, however, of the president's optimism, we gather that the supply of papers is not so large as might be desired, and that some of the enthusiasm which has revived the sister society at Calcutta is needed at Colombo.

#### AGRICULTURAL EXPERIMENTS.

*WISCONSIN Experiment Station Twenty-second Annual Report.*—From the time of Thomas Andrew Knight onwards, horticulturists have remarked the effects of an excessive food supply on variability in cultivated plants, but one seldom hears of a case in which such pronounced results have followed excessive feeding as those which occurred in an experiment described by Mr. E. P. Sandsten in the twenty-second annual report of the Agricultural Experiment Station of the University of Wisconsin. To a batch of tomato seedlings growing in a greenhouse a mixed manure consisting of 800 lb. nitrate of soda, 600 lb. sulphate of potash, and 1000 lb. bone per acre was applied. The seedlings soon began to vary, with the result that out of ninety-six plants scarcely any two were alike. Some plants were dwarfed, others developed internodes of abnormal length; the leaves varied in size and shape; the blossoms were abnormal in form; the stamens were much modified, and in one case became "almost aborted"; the pistils, on the other hand, were greatly overgrown, and some of the plants produced seedless fruits. Two seedless types, a large- and small-fruited, were specially noticeable, and cuttings of these and of some of the other marked variations were made. These were subsequently grown in an ordinary soil, and produced plants which retained all their abnormal characters.

*Variation in the Composition of Milk.*—In Bulletin No. 11 of the Edinburgh and East of Scotland Agricultural College, Dr. Alex. Lauder gives some interesting par-