as to remove all danger of accidental fertilization. The eggs were then allowed to lie in sterilized sea-water for an hour and a half, during which time they showed no sign of having been fertilized. Individual eggs were then cut horizontally, one by one, into an upper nucleated fragment containing the maturation figure, and hence the two centrosomes, and a lower non-nucleated fragment. The latter was subjected to a solution of calcium chloride in sterilized sea-water. After an hour they were replaced in ordinary sterilized sea-water. As a result of this experiment, many, indeed almost all of the non-nucleated fragments produced asters, sometimes single, sometimes in large numbers (in one case more than a score of asters were observed in a single fragment). Many, practically all, asters contained centrioles. No cytasters developed in the control eggs allowed to remain in sterilized sea-water. Sections of the non-nucleated fragments thus treated showed that the asters and centrioles are identical in structure with those of an entire egg subjected to a solution of calcium chloride, while preparations of the corresponding nucleated half demonstrated the presence of the two original centrosomes. No other conclusion, therefore, is possible than that the centrioles of the non-nucleated half have been formed *de novo*. The experiment, I think, verifies the conclusion reached in Wilson's experiment, and is contrary to the negative result recently published by Petrunkewitsch. A detailed presentation of the evidence will be given hereafter.

N. Yatsu.

EARLIEST NOTICE OF AMERICAN PROBOSCIDEA.

The opinion is current and appears to be well founded that vertebrate paleontology in this country had its beginning in Thomas Jefferson's description of 'mammoth' remains from Virginia in 1787,* and of the bones of Megalonyx a dozen years later.

So far as scientific investigation goes, this is undoubtedly true, yet it is interesting to recall that fossil elephant remains have been known from the western world for a much longer period, and from Europe (Sicily) since at least the days of Empedocles of Agrigentum.

Not only was Columbus particularly enjoined by the Spanish sovereigns to bring back with him from America all manner of natural products, but in later years Hernandez, private physician to Philip II., and other distinguished functionaries were sent to Mexico for the special purpose of reporting upon the vegetable and zoological curiosities of the country. It was by these travelers, amongst the most prominent of whom besides the afore-mentioned were Oviedo, Acosta and Garcilaso, that fossil proboscidean remains were collected on the elevated plateaux of Mexico, Peru and elsewhere.

Detailed references are given in the second volumes respectively of Cuvier's 'Ossemens Fossiles' and Humboldt's 'Cosmos' to various old Spanish works in which these fossils were described as belonging to a race of human giants, the localities furnishing them being called '*Campos de Gigantes.*' The absurd discussions of '*Teutobochus rex*' in the early part of the seventeenth century are of interest only for revealing the crude state of natural science at that period. C. R. E.

*'Notes on the State of Virginia' (London, 1787).

CURRENT NOTES ON METEOROLOGY.

TEMPERATURE IN CYCLONES AND ANTICYCLONES.

At the 1904 meeting of the British Association, Mr. A. Lawrence Rotch summarized the results of observations obtained at Blue Hill Observatory during 34 kite flights, at different seasons, in areas of high and low pressure, up to about 12,000 feet. The mean decrease of temperature, computed by stages of 1,600 feet, is nearly constant, averaging 1° F. in 376 feet of ascent. Whether the whole column of air in a cyclone is warmer than the corresponding air in an anticyclone (as the convectional theory requires) depends chiefly upon whether its initial temperature at the ground is higher than that of the anticyclone, which is usually the case. If the data obtained from kite flights on consecutive days be plotted for the same height, as was first done at Blue Hill in 1899, it is seen that up to the height of 12,000 feet it is generally warmer at all levels over

areas of low barometric pressure than it is over the adjacent areas of high pressure. Kite flights on Blue Hill are now usually made once a month—upon the day fixed by the International Committee for Scientific Aeronautics.

CYCLONIC DISTRIBUTION OF RAINFALL.

Too much attention has always been paid to the annual, monthly and daily rainfalls, while far too little study has been made of the distribution of rainfall in individual cyclones. Cyclones are not regular in their occurrence, that is true, but they are our great rain-producers and from that point of view they deserve more attention. An important paper by Dr. H. R. Mill, 'On the Unsymmetrical Distribution of Rainfall about the Path of a Barometric Depression,' read before the British Association last August, deserves special mention as an investigation of a kind of which we have far too few. Ten instances of severe and widespread cyclonic rains have been investigated by Dr. Mill, and maps have been drawn showing the amounts of rainfall in each case, and the paths of the depression which brought the rain. It is found that the belt of cyclonic rains is much wider on the left of the path than on the right, and the heaviest falls occur in advance of the center. One of the most remarkable facts discovered is that the widespread cyclonic rains appear to bear no relation to the physical features of the country (*Symon's Met. Mag.*, October, 1904).

MORE LIGHT ON ANTARCTIC METEOROLOGY.

METEOROLOGY is coming to the aid of the geography of the lands in rather an interesting way in the Antarctic. To the *Geographical Journal* for August, Dr. Drygalski, leader of the German Antarctic Expedition, contributes a paper on some of the notable results obtained by the expedition. Dr. Drygalski believes that the new land discovered by the *Gauss*—Kaiser Wilhelm II. Land—is a part of the Antarctic continent, basing his opinion largely upon the meteorological conditions, especially the frequency and uniformity of the easterly gales. These gales have a *fœhn*-like character, and sweep down from the south over the vast, uniform, and but slightly inclined surface of the inland ice. The gales raged through nearly all of May and August, and were numerous in April and September. They even occurred in midsummer, but while they sometimes lasted from three to five days in winter, they only lasted for a day or two in summer. These storms were always accompanied by a heavy snowfall, and were a great obstacle in the way of scientific work.

THE PHYSICS OF THE FREE AIR.

UNDER the general supervision of Drs. Assmann and Hergesell, a new publication has been issued under the title, 'Beiträge zur Physik der freien Atmosphäre,' which is to be devoted to a discussion of the results obtained by means of balloons and kites. Mention has so often been made in these columns of the importance of the meteorological observations made in the free air during the last few years that there is no need of emphasizing the matter further at present. That there should be a field for an independent journal devoted solely to balloon and kite meteorology is very significant. There is a strong corps of associate editors, including Messrs. Rotch and Clayton, of Blue Hill Observatory, who have done so much work in 'sounding the ocean of air' in this country. In the same list we note also the following: Hann, von Bezold, Hildebrandsson, Pernter, Sprung, Abbe, Köppen, Shaw and others. The first number appeared in August, 1904, and is a quarto of 54 pages. The price per volume is 15 Marks.

NOTE.

IT is announced that the arrangement and discussion of the meteorological records obtained by Dr. Sven Hedin during his travels in Central Asia have been intrusted to Dr. Nils Ekholm, of Stockholm. The observations are to be ready for publication at the end of this year; the discussion is expected to appear next spring. R. DEC. WARD.

THE ISAAC NEWTON STUDENTSHIPS AT CAMBRIDGE.

PROFESSOR G. H. DARWIN writes as follows to the editor of the London *Times:* In 1891