

Marsh described a small Artiodactyle with a pair of small conical horn-cores upon the parietal bones, which he named *Protoceras celer*, expressing the opinion that it represented a new family. Upon the supposition that this type might also be a female of the same species to which the heavily-horned type belonged, the second skull was taken to the Yale Museum, and carefully compared point by point. It proved to be identical in every respect. In this way the discovery was made that in *Protoceras*, as in so many other Artiodactyles, the male and female skulls differed widely from each other in their cranial armature. The male was as described above; the female exhibits merely a pair of very small conical processes upon the parietals, with perfectly smooth frontals, and maxillaries either of the normal type or with smaller protuberances than in the male.

The dentition at first suggests relationship to *Tragulus* and *Hyomochus*. The premaxillaries are edentulous as in the ruminants; but in the lower jaw there are four small teeth shaped like incisors, the outermost of which represents the canine. The upper canines are large,

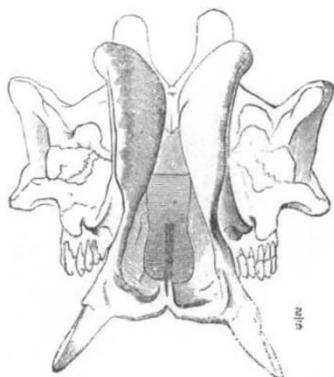


FIG. 3.—Front view of Skull.

pointed, and recurved. The molar teeth are of the short-crowned, or brachyodont type, with a distinctly crescentic pattern.

The structure of the feet also suggests the Tragulines, in the fact that the fore-foot has four well developed toes, while the hind-foot has two toes with the lateral pair very much reduced. As in the *Tragulidae*, the fore-foot and probably the fore limb was very much shorter than the hind foot and limb. The hind foot, moreover, shows a tendency to co-ossification both in the metatarsals and in the union of the navicular and cuneiform with the cuboid. In many details, however, the feet present marked differences from the older and more recent Tragulines. The oldest of the Tragulines, moreover, is *Leptomeryx*, a contemporary of *Protoceras*, which has an entirely different skull and foot structure.

Taking all these facts together, we are led to support Prof. Marsh's conjecture, based upon the comparatively hornless female skull, that this Artiodactyle represents a new family, the *Protoceratidae*. We know absolutely nothing either of the ancestors or successors of this type; and this is another illustration of the fact which is constantly being impressed upon us, that our fossil-bearing strata still contain a great number of forms which are at present wholly unknown and unsuspected.

HENRY F. OSBORN.

HENRY F. BLANFORD, F.R.S.

MR. H. F. BLANFORD, whose death was noticed in last week's NATURE, was born in Bouverie Street, Whitefriars, in the City of London, in 1834. He was one of the students who entered the Royal School of Mines

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at its commencement in 1851, and after distinguishing himself by taking the first Duke of Cornwall's Scholarship, he studied for a year at Freiberg in Saxony. In 1855 he and his brother, Mr. W. T. Blanford, received appointments on the Geological Survey of India, and they landed in Calcutta at the end of September in that year. Mr. H. F. Blanford remained on the Geological Survey till 1862, when he resigned, his health having suffered from the exposure incidental to geological surveying in India. His most important work whilst engaged on the Survey was the examination of the cretaceous beds of the neighbourhood of Trichinopoly, his classification of which, founded to a considerable extent on palæontological data, has been thoroughly confirmed by Dr. F. Stoliczka's well-known description of the fauna. Mr. Blanford had previously, during his first season's work in India, by separating the Talchir strata, with their remarkable boulder bed, from the true coal-bearing, or Damuda rocks, taken the first step in what for so long was one of the most difficult tasks set before the Indian Geological Survey—the stratigraphical arrangement of the complex of beds subsequently known as the Gondwana system.

On leaving the Geological Survey he was offered a post in the Bengal Educational Department, and from 1862 to 1874 he was one of the professors of the Presidency College, Calcutta. Soon after 1862 he began to take a keen interest in meteorological questions, and after being for some time a member of a meteorological committee nominated by the government, he was, in April 1867, appointed Meteorological Reporter to the Government of Bengal, and placed in charge of an office established with a twofold purpose, to give storm warnings for the protection of shipping and to collect and record systematic meteorological observations throughout the Bengal presidency. Within a short time one most important result was obtained; the meteorological conditions under which cyclones originated in the Bay of Bengal were definitely ascertained, and it became practicable to say when a storm was a probable event, and in what part of the Bay it might be expected, and when a cyclone was impossible, although high winds might prevail. Meantime the various observatories of the country were being brought into order, and the observations rendered systematic.

In 1874 the Government of India became convinced of the necessity for placing all the meteorological observatories in India in communication with a central office, and Mr. Blanford was finally transferred from the educational staff of Bengal and made chief of the new meteorological department, with the official designation of Meteorological Reporter to the Government of India. The new post involved much travelling to visit out-stations, in order to ensure the exact comparison of barometers and other instruments. The organisation of the new department, however, progressed rapidly, and in a few years a series of papers from Mr. Blanford's pen on rainfall, wind directions, and other meteorological phenomena gave evidence to all interested in the science that valuable additions to it were being made by the Indian observations. The peculiar geographical conditions of India render its meteorology unusually simple, and of great scientific and practical importance. An admirable illustration, both of the peculiarity of Indian meteorology and of the practical results yielded by accurate observations, is afforded by the fact that no sooner was the whole system in working order, than it was found practicable some time before the commencement of the monsoon season, and of the rainfall, upon which in many provinces plenty or scarcity of food depends, to prepare a forecast of the approaching season, and to warn the Government of a possible deficiency of rain in particular parts of the country. The forecasts prepared have been found remarkably accurate.

Mr. Blanford retired from the Indian Service in 1888,

and has since resided at Folkestone. Of late his health has gradually given way, and he died on January 23, at the age of fifty-eight. He was elected a Fellow of the Royal Society in 1880, and was an honorary member of several foreign meteorological societies. He was President of the Asiatic Society of Bengal in 1884-85.

That he was a man of considerable intellectual power is shown by the somewhat unusual range of scientific questions on which he has left works and papers. Besides his geological and meteorological reports, he wrote for the Indian Geological Survey descriptions of the *Nautilidae* and *Belemnitidae* of the South Indian cretaceous rocks, and he assisted the late Mr. J. W. Salter in describing the Palæontology of Niti. He was also author of several papers on recent mollusca; and amongst his works are two treatises, one on the "Physical Geography of India," largely used as a text-book in Indian schools, and the other "An Elementary Geography of India, Burma, and Ceylon," published as one of Macmillan's Geographical Series.

NOTES.

WE learn from Sydney that steady progress is being made with the Macleay Memorial Volume, and that it will probably be ready for issue about the end of March.

AN announcement comes from Chicago that Mr. Eadweard Muybridge, who, it will be remembered, visited this country some time since on behalf of the University of Pennsylvania, will give at intervals, from May to October, in the "Zoopraxographical Hall of the Exposition," a series of lectures on the science of animal locomotion, especially in its relation to design in art.

ON Thursday next, February 9, Prof. Patrick Geddes will begin, at the Royal Institution, a course of four lectures on the factors of organic evolution; and on Saturday week, February 18, Lord Rayleigh will begin a course of six lectures on sound and vibration.

A TRANSLATION of Prof. Weismann's new work on "The Germ-plasm," recently noticed in NATURE, will appear in the "Contemporary Science Series" in the course of a few weeks.

LAST week a deputation, representing the New Decimal Association, the Chambers of Commerce and Trades Unions, as well as various scientific institutions, waited upon Sir William Harcourt, Chancellor of the Exchequer, to urge the Government to adopt the decimal and metrical system of weights, measures, and coinage, or to appoint a committee of inquiry into the subject. Mr. S. Montagu, M.P., as president of the New Decimal Association, having introduced the deputation, said that forty years ago there was great apathy upon the subject, but since then there had been inquiries by Select Committees and Royal Commissions into the question of the decimal currency, and though the reports of those bodies were satisfactory, no action had followed. The system had been adopted in Germany, Austria-Hungary, and Scandinavia; and in England there was now a good popular demand, such as Mr. Goschen said six years ago he was waiting for. Men of science like Lord Kelvin, Sir Henry Roscoe, and Sir John Lubbock, and educationists like Sir Philip Magnus and Dr. Gladstone desired the reform in order to economise brain-power; representatives of commerce desired it to assist them in their competition with rival nations; and the working classes were awake to the fact that years of labour were wasted by their children being compelled to learn that which could be rendered unnecessary. Several members of the deputation, including Sir Philip Magnus,

having spoken, Sir William Harcourt replied. He said that every one who reflected on the question must see the great advantages which attach to the decimal system. But the practical difficulties in the way of the proposed change seemed to him for the present to be insurmountable. A decimal system was introduced into Europe by the French Revolution. That was a time when the whole of society was cast into the melting pot, and they changed, not only their notation, not only their metrical system, but the names of the months and the days of the week. The change in Germany took place, not in quiet times, but as a result of the unification of Germany. He believed that even in the United States of America the change was made consequent upon the establishment of the Federal system. He did not think that the habits of the people could be altered in quiet times. This applied very much to the measures as well as to the coinage. Sir William was ready as an individual to play his part in forwarding the progress of the decimal system and the metrical system; but the Government could do nothing in the matter. The people would have to be prepared for so great a change.

IT is worth noting that instruction in the principles of the decimal and metric systems is daily given in public elementary schools, and that this labour—as Mr. J. H. Yoxall, secretary of the National Union of Teachers, has pointed out in a letter to the *Times*—is imposed upon the children without hope of practical good to the community. Mr. Yoxall contends that if an Act of Parliament were to fix a date of five or ten years hence at which the decimal system should come into legal operation, the work of the schools and the precaution of the mercantile classes would by that time sufficiently prepare the way.

A DESTRUCTIVE earthquake occurred on Tuesday morning at the town of Zante. Several houses were totally destroyed, many more were partially wrecked, and there is hardly a building in the town which has not sustained damage in one form or another. The roof of the prison collapsed during the earthquake, and the guards had to be doubled to prevent the escape of the prisoners. The hospital was also so seriously damaged that it was deemed expedient to remove the patients. The shocks, which were general, were renewed again and again, and the whole population was thrown into a state of panic.

DURING the past week the temperature over these islands has been fairly high, the daily maxima often exceeding 50°, notwithstanding a temporary fall, amounting from 12° to 14° in Scotland and the midland counties of England, on Friday, accompanied by much fog in the south and east of England, while the air has been decidedly humid, the readings of the dry and wet bulb thermometers frequently showing little or no difference. These conditions have been due to deep depressions arriving from the Atlantic and passing in close proximity to our western and northern coasts. In those parts gales have been of almost daily occurrence, and on Sunday they extended as far as the English Channel. Rain has been frequent, but generally the fall has not been heavy, and the sky has generally been overcast and dull, although on Saturday the weather over the south of England was unusually bright and fine. The *Weekly Weather Report* of January 28 shows that the temperature exceeded the mean in all districts, the greatest excess being 4° in Scotland. Bright sunshine also exceeded the mean in some parts of Scotland and in the eastern portion of England, but in other parts of these islands there was a deficiency.

A MAP showing lines of equal magnetic declination for January 1, 1893, in England and Wales, has been very carefully prepared by Mr. W. Ellis, and published as a supplement to