

There are also others so small, that for lectures and demonstra-

What may be done in teaching natural history by means of models and coloured casts is admirably shown in Mr. Frank Buckland's museum in this building, where may be seen accurate representation of many of the species of Cetacea and larger fish of our seas, giving a more complete idea of their size, form, and colour, than has ever been produced by any other method.

With reference to such models, the importance of accuracy of execution cannot be too strongly insisted upon. With a cast of course there is not much chance of error, but for the accuracy of a model, especially when on a different scale from the original, we are entirely dependent upon the artist's skill and care.

Although I have only been able in the time allotted to glance briefly at the various branches of the subject which I have been requested to expound, I trust that some suggestions have been given in this lecture which will be found of use to those who have the care of collections, and that I have succeeded in showing that the art of preparing, preserving, and displaying specimens in museums is one which deserves to be more fully cultivated than it has hitherto, as a most important adjunct to the diffusion of biological knowledge.

OUR ASTRONOMICAL COLUMN

THE NEW STAR IN CYGNUS.—Prof. Schmidt has published details of his observations of this star from November 24, the date of discovery, to December 15, and has also put upon record the dates, between November 1 and 20, when he had examined the constellation Cygnus, with the view to show that a star as bright as the fifth magnitude could not have escaped his notice, and therefore that the rise of the new one to the third magnitude must have been very rapid, as also appears to have been the case with T Coronæ in 1866.

Table with 3 columns: Date, Magnitude (m.), and Visibility notes. Includes entries for Nov. 24 to Dec. 1 and Dec. 1 to Dec. 5.

On the evening of December 31 the new star was about 7m. and very decidedly orange. It has but slowly diminished during the last three weeks.

NEW VARIABLE STAR IN CETUS.—Mr. J. E. Gore, writing from Umballa, Punjab, on November 28, draws attention to a

star entered on Harding's atlas as a sixth magnitude, about 14° distant from 59 v Ceti, and 13' s.p. Lalande 3590. On November 18, this star was only 8m., considerably fainter than a 7m. star shown by Harding, closely preceding v.

This star is not in any of the catalogues, nor in Schjellerup's list in No. viii. of the publications of the Astronomische Gesellschaft. Reading off from Harding and reducing to 1877° its position is in R.A. 1h. 50m. 13s., N.P.D. 110° 59'.

DE VICO'S COMET OF SHORT PERIOD.—It was remarked in this column last week, that unless the orbit of De Vico's comet of 1844 has undergone some violent perturbation, a perihelion passage may be expected to occur during the year just commenced. It appears, however, that the chances of detecting the comet, should it arrive at its least distance from the sun during the first three months of the year are very small indeed, and hence, unfortunately if the comet is not found between July and December, it cannot be inferred with any degree of certainty that it has not passed its perihelion within the twelvemonth.

Table with 3 columns: Time from Perihelion (30 days before, at, 30 days after) and 6 columns for January 1870 (R.A., Dec., Δ) and February 1870 (R.A., Decl., Δ).

Table with 3 columns: Time from Perihelion (30 days before, at, 30 days after) and 6 columns for March 1870 (R.A., Decl., Δ) and April 1870 (R.A., Decl., Δ).

THE TOTAL SOLAR ECLIPSE OF STIKLASTAD, 1030, AUGUST 31.—The circumstances under which this eclipse occurred are given by Prof. Hansteen, of Christiania, in Ergänzungsheft zu den Astronomische Nachrichten, p. 42, with elements computed from the tables of Burckhardt and Carlini. Sir George Airy has also published elements of the eclipse, resulting from Hansen's calculations from his Solar and Lunar Tables, as an addendum to the paper on the eclipses of Agathocles, &c., in vol. 26 of the Royal Astronomical Society's Memoirs, having previously drawn attention to the circumstance that the eclipse of Stiklastad, from the narrowness of the belt of totality and its having been total at a well-defined point, might, in combination with the eclipse at Larissa, B.C. 557, May 19, be of much value in throwing light upon corrections possibly required for the lunar tables.

The following elements of this eclipse are founded upon the same system of calculation for the moon's places, to which we lately referred as having been applied to the Nineveh eclipse of B.C. 763, with the sun's place from Sir George Airy's paper:—

Table with 2 columns: Description of lunar and solar motion parameters and their values in R.A., Decl., and other coordinates.

Points on the central line would fall in long.  $10^{\circ} 22' E.$ , lat.  $64^{\circ} 0' N.$ , and in long.  $14^{\circ} 31' E.$ , lat.  $61^{\circ} 41' N.$  Hansteen gives for the position of Stiklastad  $11^{\circ} 35' E.$ , and  $63^{\circ} 48' N.$ , which by the above elements would be only  $10'$  outside the northern limit of totality. On making a direct calculation for the longitude of Stiklastad, we find that the duration of totality could not have exceeded twenty seconds on the central line.

METEORS OF DECEMBER 11.—MM. Perrotin and Jean, at the Observatory of Toulouse, observed a considerable number of meteors on the night of December 11; between 11h. and 13h. 106 were counted, the majority of which, according to M. Perrotin, radiated from a point in about R.A.  $115^{\circ}$ , N.P.D.  $57^{\circ}$ , near Castor and Pollux, though closer to the former star than to the latter. The trajectories were very short, so that it was difficult to refer them to a chart. The sky was overcast on the following night.

### NOTES

WITH reference to the closing of the Loan Collection, a circular has been issued by the Lords of the Committee of Council on Education, stating that, although in consequence of the funds at their disposal for the Collection being exhausted, they have found it necessary to close the Exhibition, arrangements are being made for the safe custody of all objects which may be left on loan to the Museum, pending the decision by her Majesty's Government on the offer made by the Royal Commissioners for the Exhibition of 1851, of a building for the establishment of a permanent Science Museum. The Lords of the Committee of Council on Education also inquire whether exhibitors are willing to leave the objects contributed till this question be settled. The closing of the Exhibition will not interfere with the delivery of the Free Saturday Evening Lectures.

ACCORDING to the will of Dr. C. A. Bressa, dated September 4, 1845, the testator left all his property to the Royal Academy of Sciences of Turin, the net interest to be given every two years as a prize for the most important discovery made or work published during the previous four years on natural and experimental philosophy, natural history, mathematics, chemistry, physiology, and pathology, as well as geology, history, geography, and statistics. This is to be given alternately to a person of any nation and to an Italian. Signora C. A. Dupêché had a life interest in the property, and it was not until July last that the legacy became free from all claims, and the first prize will be given in 1879, open to all, and of the value of 480*l.* In accordance with the spirit of Dr. Bressa's will, the Academy will choose the best work or discovery, whether or not it be presented by the author.

WE are informed that the valuable collection of fossils from the Red Crag made by the Rev. H. Cahnam, of Waldringfield, including, among the most important, the remains of *Halitherium* described by Prof. W. H. Flower, teeth of *Mastodon*, &c., has been purchased by Sir Richard Wallace, and most liberally presented by him to the Ipswich Museum.

THE Dutch Society of Sciences at Harlem has offered a gold medal for the best answer to the following question:—What are the meteorological and magnetical periodic changes which may be considered to be in a well-established relation with the period of the solar spots? The answers must have a motto and be accompanied with a sealed letter containing the name of the author. They should be sent before January 1, 1878, to the Secretary, Prof. von Baumhauer, Haarlem.

RUSSIAN newspapers announce that the Helsingfors professor, Dr. Ahlquist, a well-known explorer among the tribes of North-western Siberia, will start, next spring, for further ethnological explorations among the Voguls and Ostyacks of the Obi and

Irtysk. He will be accompanied by two assistants, the Senate of Finland having allowed a sum for the travelling expenses of the explorers.

AT a recent meeting of the Manchester Literary and Philosophical Society a letter was read from Mr. Joseph Sidebotham in which he calls attention to the fact of the growing use of the aniline colours for tinting photographs. He finds they are being extensively used in paintings and water-colour drawings, and the colours regularly sold for that purpose. Anyone who knows the speedy alteration by light of nearly all of these colours will protest against their use, and a statement of this with the authority of some of our chemists would probably have the effect of causing them to be discontinued by all artists who care to think that their works should last more than a single year.

ON the night of the Arlesey railway accident there were six Indian elephants on their way by train from Huddersfield to London. Two were large and the others quite young. The tarpaulin over the trucks in which they travelled was blown away in the gale, and the animals were thus exposed to the snow and sleet and cold wind of that night. They were also delayed long on the road in consequence of the accident. One of our contributors who saw them "unloaded" at King's Cross, and noticed that they walked very stiffly at first, has inquired of Mr. Harrington, their keeper, whether the cold journey has affected them. He has written in reply that they seem perfectly well, and he cannot see that the unusual exposure has had any effect on them. None of the animals have been more than a few years in England. As Mr. Harrington's letter is written nine days after the journey, no effects of chill are likely now to show themselves. The Indian (and perhaps the African) elephant may be better able to withstand sudden climatical changes than is generally supposed.

OUR Samoan Correspondent, the Rev. S. J. Whitmee, announces the publication of a new Dictionary of the Samoan language by himself and the Rev. G. Pratt. Mr. Whitmee is on his way to England, where he will probably arrive in spring. Intending subscribers—and we hope there will be a considerable number in this country—should address Mr. Whitmee at the Mission House, Blomfield Street, Finsbury, E.C. The price, it is hoped, will not exceed 10*s.*

WE have received reprints of the letters which M. Poliakov has written during his recent journey for the zoological exploration of the Obi and Irtysk. They contain many valuable observations on the physical characters of the country visited, on its fauna, on the migrations of fishes up and down the Obi, and on the fisheries, on the migrations of birds, together with a variety of interesting occasional observations. We may hope therefore that the report on this journey will be a valuable addition to the zoo-geography of Western Siberia.

M. POLIAKOFF gives the following particulars confirming the law of Baer as to the deviation to the right of rivers running north and south. The bed of the Irtysk being cut in loose deposits, these deposits are constantly undermined by water on the right bank. Each spring a strip of the bank from 30 to 50 feet broad is destroyed by the waters. Sometimes it happens that a strip from 70 to 140 feet broad and about 150 yards long falls suddenly into the river. The course is then barred for a short time, and a great wave propagated up and down the stream, destroys the fishing-boats which happen to be at work within a distance of about ten miles from the spot. Large quantities of fishes are also found, after such a catastrophe, on the shores, suffocated in the muddy waters. The destruction of the right bank going on constantly, year after year, the villages are also constantly advancing to the east; one of them, Demiansk, has thus travelled about a mile in the course of 240 years. The left shore shows, therefore, a low tract