cuttings, experiments are to be carried out at the most suitable of the experimental stations about to be established throughout the colony, with a view to the propagation of the finest varieties of the respective fruits. With the same object in view application has been made to Mr. T. Hardy, of South Australia, for a number of cuttings of various vines he has cultivated, and to Sir Samuel Davenport, of Beaumont, South Australia, for cuttings of the olive and fig trees grown by him. The whole of these cuttings will go to form the standard collections of all the different kinds of fruit which it is intended to establish at each of the experimental stations.

IN the *Revue Agricole*, published in Mauritius, M. A. Daruty de Grandpré gives an account of his attempts to raise sugar-cane from seeds. The seeds were sent from Barbados by the Governor in March 1890. M. de Grandpré planted them with the greatest care, and after five days was fortunate enough to obtain five minute seedlings out of the hundred seeds used. The young plants he raised did not all prove equally vigorous, and he was able to save only one, which, at the time when his report was written, had formed a fine clump of twenty shoots with long ribbon leaves. "I believe," he says, "that we may with reason cherish the most sanguine hopes from the propagation of sugar-cane from seeds—more especially if we try an intelligent system of cross-fertilization of the varieties we possess—rather than by planting cuttings, which maintain without appreciable alteration the respective characteristics of the parent plants. Thus we shall be able to supplement the weak points in our best varieties of sugar-cane by crossing them with others which are remarkable for the qualities it is intended to infuse into them, and we shall moreover obtain, by a process of selection, a cane rich in saccharine matter, which will enable us to compete successfully against the highly improved sugar-beet."

MR. A. W. MORRIS contributes to the current number of the Journal of the Bombay Natural History Society an interesting paper on abnormal horns of the Indian antelope. We have as yet little definite information as to the cause or causes of such abnormalities. Mr. Morris suggests that severe injuries to the skull, inflicted either during battle or through some accident, are the main causes that produce abnormalities, the horn on the injured side being thrown out of its natural course by the concussion or damage sustained.

THE Academy of Natural Sciences of Philadelphia prints in its Proceedings a list of the Echinoderms obtained by Mr. Frederick Stearns, of Detroit, in the Bahama Islands in the years 1887 and 1888. The list has been drawn up by Mr. J. E. Ives. It includes a description of a new species of Amphiura.

A VALUABLE revised list of British Echinoidea, by Mr. William E. Hoyle, has been printed in the Proceedings of the Royal Physical Society, Edinburgh, and is now issued separately. The author gives a brief diagnosis of each species, such as will enable the collector to identify it on the spot.

MESSRS. J. AND A. CHURCHILL have published a second edition of the English translation of Dr. A. Chauveau's "Comparative Anatomy of the Domesticated Animals." Dr. George Fleming is the translator and editor. In preparing the new edition, Dr. Fleming has kept in view the necessities of advancing veterinary education in the English-speaking schools. He has introduced, therefore, a considerable number of "amendments, alterations, and additions."

MESSRS. HENRY SOTHERAN AND CO. propose to issue a work entitled "Game Birds and Shooting Sketches," by J. G. Millais, F.Z.S. The work will illustrate the habits, modes of capture, and stages of plumage of game birds, and the hybrids and varieties which occur among them.

THE University College of North Wales has issued its Calendar for the year 1891–92.

LECTURES on the following subjects will be given at the Royal Victoria Hall on Tuesday evenings during the month of November:—November 3, Mr. F. W. Rudler, "Some Very Ancient Britons"; November 10, Dr. Rideal, "London Fogs"; November 17, Dr. W. D. Halliburton, "Skin and Bones" (second lecture); November 24, Rev. C. E. Brooke, "A Holiday in the Far West."

THE additions to the Zoological Society's Gardens during the past week include a White-fronted Lemur (*Lemur albifrons* ♂) from Madagascar, presented by Mr. J. M. Nicholl; a Ring-tailed Coati (*Nasua rufa*) from South America, presented by Mr. A. D. Watson; a Buffon's Skua (*Stercorarius parasitica*), North European, presented by Mr. Edward Hart, F.Z.S.; two Common Cuckoos (*Cuculus canorus*), British, presented respectively by Mr. H. Lindsay and Miss Ord; a Burbot (*Lota vulgaris*) from the Trent, presented by Mr. F. T. Burrows; a Macaque Monkey (*Macacus cynomolgus* ♀) from India, a Lion Marmoset (*Midas rosalia*) from South-East Brazil, an Australian Cassowary (*Casuarius australis*) from Australia, deposited.

OUR ASTRONOMICAL COLUMN.

THE ZODIACAL LIGHT AND AURORÆ.—On the supposition that the zodiacal light is an extension of the solar corona, and that the latter mainly consists of light reflected from meteoritic particles circling round the sun over the spot zones and parallel to the plane of the equator, Mr. M. A. Veeder explains (Rochester Academy of Sciences, January 26, 1891) why in middle latitudes the phenomenon is brightest in March and October, in the former case after sunset, and in the latter before sunrise, and also the fact that at these times one margin of the band is better defined than the other, and more exactly included within the plane of the ecliptic, whilst at other seasons there is decreasing brightness, and both edges become ill-defined.

An investigation of observations of auroræ and magnetic perturbations shows that they may be arranged in periods having the same length as that of a synodic rotation of the sun. And it appears that the areas most frequented by sun-spots are most actively concerned in the production of auroræ. Extending the research, Mr. Veeder believes that the belt-like distribution of atmospheric pressure about the magnetic poles as a centre is very largely dependent upon magnetic induction of solar volcanic origin, conveyed from the sun to the earth through the medium of the coronal extensions referred to above.

COMET *e* 1891.—The following orbit has been computed by Prof. Campbell for the comet discovered by Prof. Barnard on October 2:—

$$T = 1891 \text{ November } 8{\cdot}75 \text{ G.M.T.}$$

$$\left.\begin{aligned} \pi &= 117^\circ\ 44' \\ \Omega &= 215\ 38 \\ i &= 75\ 50 \end{aligned}\right\} \text{Mean Eq. 1891.}$$

$$q = 1{\cdot}0166.$$

On October 30 the comet is in the position R.A. 10h. 53m. 7s., Decl. − 54° 43′. It is therefore not visible in our latitudes.

TWO NEW ASTEROIDS.—A new minor planet, (319), of the thirteenth magnitude was discovered by M. Charlois on October 8, and another, (320), by Dr. Palisa on October 11.

The latter observer has given the name of Thora to (299), Olga to (304), and Fraternitas to (309).

DOUBLE STARS.—Mr. S. W. Burnham announces that he is preparing a general catalogue of all the double stars discovered by him, and would be glad to receive any unpublished measures of them, Nos. 1 to 1224.

JUPITER'S FIRST SATELLITE.—Some recent observations made at Lick Observatory show that the first satellite of Jupiter is ellipsoidal, and that one of its longer axes is directed to the planet's centre.