

Anchilophus desmaresti. The brain of this mammal, it appears, although essentially primitive, exhibits all the characteristic ungulate features, with a marked approximation towards the modern perissodactyle type.

To the June number of the *Zoologist* Mr. Lydekker contributes a note on the probable use of the bilobed canine tooth of the giraffe and its allies, which forms the outermost of the four pairs of lower front teeth. It has been observed that, when browsing, a giraffe (unlike a deer or an antelope) strips the leaves from the branches without biting off the twigs, and it is inferred that the complex structure of the canine is designed to aid in this "combing" action.

THE June issue of the *Economic Proceedings* of the Royal Dublin Society is devoted to an account, by Mr. G. H. Carpenter, of injurious insects and other animals observed in Ireland during 1902. Special interest attaches to two excellent illustrations, one showing the caterpillar of the ghost swift moth (*Hepialus humuli*) feeding on the roots of wheat, and the other the injury done to young wheat by the maggot of the wheat-bulb fly (*Hylemyia coarctata*). Reference is made to the new fern-weevil (*Syagrius intrudens*) recently described by Mr. Waterhouse on the evidence of imported specimens found in the fern-houses at the Royal Botanic Gardens, Glasnevin.

THE Cairo Survey Department has recently published a preliminary description, by Messrs. Andrews and Beadnell, of the remains of a giant land tortoise (*Testudo ammon*) from the Eocene of the Fayum district. The especial interest of this form is its antiquity, which far exceeds that of all other known members of the group. Dr. Andrews thinks it probable that *T. ammon* is the ancestral form of the giant tortoises met with in several European Tertiary horizons, and that the existing African *T. pardalis* may be a small survivor of the group, to which the Siwalik *T. atlas* and *T. cautleyi*, and the existing *T. sumeirei* (the well-known giant tortoise of Port Louis) may also pertain.

IN the current number of the *Zeitschrift für physikalische Chemie* Prof. F. Kohlrausch gives a summary of the work which he has carried out during the last thirteen years on the electrical conductivity of saturated solutions of slightly soluble salts. In all forty-one such salts have been investigated, and the electrical conductivities determined at different temperatures. The data are to be used for the calculation of the solubilities of the various salts, and the numbers, which must be of considerable value to the analytical chemist, are to appear in a later paper.

THE results of a careful investigation by Dr. Freundlich on the precipitation of colloidal solutions by electrolytes are published in the current number of the *Zeitschrift für physikalische Chemie*. The capacity of different electrolytes for precipitating the colloids is dependent, in a large measure, on the valency of the ions, this capacity increasing with increase of valency. For colloids which show anodic convection under the influence of an electric current, the nature of the anion is without influence, whilst for those which exhibit cathodic convection the precipitation is independent of the nature of the cation.

AN interesting account of the behaviour of chlorine towards benzene under the influence of various catalytic agents is given by Mr. Slator in the *Journal* of the Chemical Society. With iodine chloride as catalytic agent, about 70 per cent. of the reacting chlorine is used up in the production of chlorobenzene, while the remaining 30 per cent. disappears in the formation of the addition compound benzene hexachloride. When tin tetrachloride and ferric

chloride are employed as catalysers, the whole of the chlorine is used up in the substitution reaction. On the other hand, when chlorine interacts with benzene under the influence of light, addition only takes place.

FOR many years past it has been the practice of the Iron and Steel Institute to republish from time to time rare and interesting papers relating to the history and manufacture of iron and steel. With the permission of the council of the British Association, the institute has now added to the series the report presented by Bunsen and Playfair to the British Association at Cambridge in 1845, on "The Gases Evolved from Iron Furnaces, with Reference to the Theory of the Smelting of Iron." This research has long been looked upon as a model of the application of the methods of scientific investigation to the elucidation of industrial problems.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Miss Gayner Rowland; two Bristly Ground Squirrels (*Xerus capensis*) from South Africa, presented by Mr. H. J. Palmer; a Ruddy Ground Squirrel (*Xerus rutilus*) from Burao, East Africa, presented by Mr. Bennett Burleigh; a Brazilian Tapir (*Tapirus americanus*), a Red Brocket (*Cariacus rufus*) from Manóas, Brazil, presented by Mr. Charles Booth; a Grand Galago (*Galago crassicaudata*) from East Africa, presented by Captain C. Mylton Thornycroft; three Fat-tailed Desert Mice (*Pachyuromys dupresi*) from Egypt, presented by Dr. H. P. Keatinge; an Undulated Grass Parrakeet (*Melopsittacus undulatus*) from Australia, a Goldfinch (*Carduelis elegans*), European; a Red-bellied Waxbill (*Estrela rubiventris*) from West Africa, a Yellow-bellied Liothrix (*Liothrix luteus*) from India, presented by Mrs. Halsey Ralph Ricardo; a Punjab Sheep (*Ovis cycloceros*) from North-west India, two White-necked Cranes (*Anthropoides leucachen*) from Japan, four Demoiselle Cranes (*Anthropoides virgo*) from North Africa, purchased; a Burrhel Sheep (*Ovis burrhel*), a Sambur Deer (*Cervus aristotelis*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

COMET 1903 c.—A new ephemeris, calculated from new elements by Herr M. Ebell, is given in Kiel *Circular* No. 62. It extends to a later date than the one previously published by M. Fayet, and also varies slightly from that one. The following data are given for the four last dates included in the new ephemeris:—

Ephemeris 12h. (M. T. Berlin).

1903	a			δ	log Δ	Brightness
	h.	m.	s.			
July 17	18	41	11	+62	2'2	9'4324 ... 14'6
" 19	17	7	44	+67	35'1	9'4553 ... 14'2
" 21	15	22	3	+68	36'0	9'4906 ... 13'1
" 23	13	59	5	+66	17'8	9'5327 ... 11'7

The following observations of this comet are recorded in No. 3882 of the *Astronomische Nachrichten*.

Dr. Meyermann, using the Kreutz micrometer on a 6-inch comet-seeker, and Prof. Ambronn, with the Repsold heliometer, record that on June 23 the comet was 2' in diameter and had a faint tail, whilst for June 24 the latter observer records that in difficult "seeing" a faint tail extending towards the south was seen.

Prof. Hartwig, using the Bamberg heliometer, records that on June 23 the nucleus was between the tenth and eleventh magnitudes, and the tail was of the divided form, having a mean position angle of 250°, whilst the coma was about 10' in diameter.

Prof. Millosevich, observing at Rome with a 39cm. equatorial and a filar micrometer on June 23, recorded a 9.5 magnitude nucleus, and a very short tail, which extended in a S.S.W. direction.

SEARCH-EPHEMERIS FOR COMET 1896 V. (GIACOBINI).—A further instalment of the ephemeris of this comet is published in the *Astronomische Nachrichten*, No. 3881, by Herr M. Ebell.

The following is an extract from the ephemeris, which takes June 22.5.1903 as the time of perihelion passage:—

Ephemeris 12h. (M.T. Berlin.)

1903	a	δ	log r	log Δ	Brightness.
	h. m. s.	°			
July 16	1 59 36	+17 33.9	0.1697	0.1065	2.55
„ 24	2 20 51	+18 16.6	0.1749	0.0970	2.60
Aug. 1	2 40 51	+18 41.6	0.1814	0.0874	2.64
„ 9	2 59 22	+18 49.1	0.1889	0.0776	2.67
„ 17	3 16 7	+18 39.7	0.1975	0.0676	2.69
„ 25	3 30 50	+18 14.0	0.2068	0.0573	2.70
Sept. 2	3 43 15	+17 33.2	0.2168	0.0468	2.70
„ 10	3 53 10	+16 38.3	0.2272	0.0364	2.70

The continuation of this ephemeris indicates that, after the last-mentioned date, the comet will slowly decrease in brightness.

THE LIMITS OF UNAIDED VISION.—Lick Observatory Bulletin No. 38 gives an account of some interesting observations made by Mr. Heber D. Curtis, at Prof. Newcomb's suggestion, on the inferior limit of magnitude obtainable in naked-eye observations.

A preliminary examination of previous naked-eye catalogues showed that the mean magnitude of the faintest stars included in Ptolemy's *Almagest* was 5.38 on the scale of the Harvard Photometric Durchmusterung, whilst Houzeau in his "*Uranométrie Générale*" stated that stars of the sixth magnitude were constantly seen in a clear atmosphere, and those of magnitude 6.7 could be seen at intervals; the latter value corresponds to 6.40 on the Harvard scale. Gould, in the introduction to the "*Uranometria Argentina*," states that 6.5 was the average limit at Cordoba, but on exceptionally clear nights the seventh magnitude was possible. These two values are respectively equivalent to 6.16 and 6.71 on the Harvard scale.

In his own observations Mr. Curtis used two large blackened discs to screen off the diffused sky-light, these two discs being attached to the 12-inch telescope at a distance of 178 inches from each other, and the front one pierced by a circular hole half an inch in diameter, the rear one by a quarter-inch hole. By this arrangement he was able, on a night when a 6.53 magnitude star could be seen without using the discs, to see the following stars in the regions about T Virginis and T Ursæ Majoris respectively:—

Bonn DM. number	Declination	Magnitude		
3219	— 4 40	7.31	HP ¹	Seen quite easily.
3459	— 5 23	8.3	H ²	Seen with considerable difficulty.
3463	— 5 37	8.1	H	Seen without difficulty.
1413	+60 18	8.3	H	Seen with difficulty.
1415	+60 13	8.5	H	Glimpsed at intervals; very doubtful.
1457	+59 30	8.2	H	Seen.

Mr. Curtis found that the screening off of the diffused light was even of more importance than knowing exactly where to look for the object.

AN ETHNOGRAPHICAL EXPEDITION TO BRITISH NEW GUINEA.

THERE are few areas of equal extent that present so many interesting sociological and cultural problems as British New Guinea. It is necessary these should be studied on the spot, and that, too, with as little delay as possible, for, even there, the remorseless activity of the white man is rapidly making itself felt.

We know there are various cultural provinces in British New Guinea which, in certain respects, are markedly distinct from each other; for example, we recognise districts that may, for the present, be conveniently distinguished by the geographical terms of Western, Fly River, Papuan Gulf, Central, South-Eastern, and North Coast, and some of these districts are capable of further subdivision. In most cases it is possible to tell within comparatively narrow limits the provenance of a decorated object by its

¹ HP = Harvard Photometric Durchmusterung.
² H = Hagen's "Atlas Stellarum Variabilium."

form, technique, and the motive of its ornamentation. Although these general facts are well known to ethnological experts, there is still lacking an immense amount of detailed information of even these relatively superficial data that can be acquired only in the field. It is one thing to know what an object is and where it comes from, but it is much more important to understand the meaning of its form and decoration, and arm-chair musings, or even comparative study in museums, will be of little avail in this inquiry; on the contrary, they are liable to lead one astray.

It is becoming more and more recognised that the religion of primitive peoples is manifested in their arts and crafts, and that it is itself a reflex of their social condition. A student begins by being interested in patterns, is led into a study of comparative religion, and ends in sociology. In British New Guinea these several subjects have a peculiar interest. The decorative art is rich, varied, and distinctive. Concerning the religion very little is known; we are aware that true totemism occurs in the west, and it is probable that all stages, from animal reverence, through a hero-cult to an actual hierarchy of gods can be traced from the Netherlands boundary to the bight of the Papuan Gulf. The recognition of personal powers superior to man seems to be lacking in the Central District, and in the South-east District totemism again appears, and there is, or has been, a regard for the frigate bird, which in any case is probably not now totemic, but of the significance of this probable cult of the frigate bird we have at present not a particle of evidence. As to sociology, we have indications that British New Guinea possesses many varied and interesting aspects, and there is every reason to suspect that a gradation in social structure will eventually be revealed that will illustrate some important phases of social evolution.

These are but one or two of the many promising fields of inquiry that British New Guinea affords to the ethnologist. At present we have but enough knowledge to appreciate the fact that there are these unsolved problems—the information being merely sufficient to emphasise our ignorance. It was his appreciation of this fact that led Major W. Cooke Daniels to organise an expedition to British New Guinea which will leave this country in August.

Major W. Cooke Daniels served in the United States Army during the Cuban campaign as Adjutant-General of Division. He has travelled extensively in British Guiana and elsewhere, and has consequently had much experience of travel and of organisation. He proposes to make observations in experimental psychology, and will undertake ethnological investigations. Dr. C. G. Seligmann, of St. Thomas's Hospital, was a member of the recent Cambridge Anthropological Expedition to New Guinea and Sarawak, and consequently has had considerable experience in anthropological field work. As the representative of the Cancer Commission on the expedition, he will investigate the question of the prevalence and incidence of tumours, especially those of a malignant type. He has care of the health of the expedition, and will help in the ethnological inquiries.

Dr. W. Mersh Strong, of Trinity College, Cambridge, will be responsible for the geographical and geological observations, and will undertake pathological and medical research as opportunity offers.

Preparations have been made for the taking of a very large number of photographs, including kinematograph records; this department is in charge of Mr. A. H. Dunning.

Major Daniels is sending to Australia for the expedition's use a schooner yacht fitted with auxiliary power; a sea-going launch is being taken out for river work. The expedition is fitted with a large amount of scientific equipment, so that all departments of anthropological research can be prosecuted. The majority of the surveying instruments have been lent by the council of the Royal Geographical Society. The Government Grant Committee has shown its appreciation of the expedition by giving a small grant, and the Royal Society has furthered its objects in various ways. The expedition is also recognised by the Cancer Commission.

It will be seen that the Daniels Ethnographical Expedition to New Guinea is thoroughly equipped, and we wish it the success it deserves.