

period and within historic times are summarised, and apart from the intrinsic interest of the subject, the address is an admirable illustration of the methods of descriptive geography.

DR. A. LORENZEN contributes two articles to *Die Natur* on the Danish Expedition to East Greenland in 1898-1899. The expedition was successful in closely following the plan of work with which it set out. Its chief results consist of mapping the coast of Greenland from lat. $65^{\circ} \frac{3}{4}'$ N. to $67^{\circ} 22' N.$, and sketching it as far as $68^{\circ} N.$; making botanical, zoological and geological collections; ethnographic observations; observations of the ice north of the Angmagalik district; meteorological and other observations in winter quarters.

OUR German contemporary, *Naturwissenschaftliche Wochenschrift* for August 19 and September 2 contains a full account of the discovery of the remains of *Grypotherium listai* in Ultima Esperanza cavern, Patagonia.

Perhaps the most interesting article in the September number of the *Irish Naturalist* is an account, by Mr. R. Warren, of a visit to Loch Erne in search of the Sandwich tern, which has hitherto been known to breed in Ireland only in a single locality in county Mayo.

THE report of the expeditions organised by the British Astronomical Association to observe the total solar eclipse of May 28, 1900, will be contained in a volume shortly to be issued from the office of *Knowledge*. The work will be edited by Mr. E. Walter Maunder, and will contain many photographs of the various stages of the eclipse.

AMONG the scientific instrument makers who exhibited in the British Section at the Paris Exhibition, the Grand Prix was awarded to four firms, namely:—Class 15 (*Instruments de Précision*), the Cambridge Scientific Instrument Co., Ltd., Cambridge, and Messrs. Ross, Ltd., London. Class 16 (*Médecine et Chirurgie*), Messrs. Down Bros., London. Class 27 (*Applications diverses de l'Électricité*), Mr. James White, Glasgow. Mr. W. Duddell received a gold medal (Class 27) for the oscillograph exhibited by the Cambridge Scientific Instrument Company, and Mr. Wayne, the inventor of both the Wayne and Simplex Steam-engine Indicators, and now engaged at the Cambridge works, received a silver medal. A silver medal was also awarded in Class 16 to the company itself. Two gold and two silver medals were awarded to Mr. J. J. Hicks, and one to Messrs. Crompton and Co., Messrs. Negretti and Zambra, and Messrs. Watson and Sons; and silver medals were also awarded to Mr. A. Higgins, Mr. E. Wellings, Mr. W. Sims and Mr. W. Barton of Mr. Hicks' firm.

THE additions to the Zoological Society's Gardens during the past week include a Lion (*Felis leo*) from Uganda, presented by Captain Delme Radcliff; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Miss K. Bishop; a Ring-tailed Coati (*Nasua rufa*) from South America, presented by Mr. G. Percy Ashmore; two Cunning Bassaris (*Bassaris astuta*) from Mexico, presented by Miss Franklin; two Chilian Sea Eagles (*Geranoaëtus melanoleucus*) from South America, presented by Mr. Tom Simonds; a Puma (*Felis concolor*) from the Argentine Republic, presented by Mr. Maurice F. Dennis; a Nilotic Crocodile (*Crocodilus niloticus*) from Omdurman, presented by Major H. B. Weatherall; two Tenrecs (*Centetes caudatus*) from Madagascar, a Cuning Bassaris (*Bassaris astuta*) from Mexico, three Cardinal Eclectus (*Eclectus cardinalis*) from Moluccas, deposited; two Purple Herons (*Ardea purpurea*), two Common Cormorants (*Phalacrocorax carbo*), three Common Spoonbills (*Platalea leucorodia*), European, purchased.

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OUR ASTRONOMICAL COLUMN

EPHEMERIS FOR OBSERVATIONS OF EROS.—The following is continued from the new data given by E. Millosevich in the *Astronomische Nachrichten* (Band 153, No. 3660):—

Ephemeris for 12h. Berlin Mean Time.

1900.	R.A.			Decl.
	h.	m.	s.	
Sept. 13	...	2 34	19'43	... + 38° 7' 24" 2
14	...	35	11'87	... 38 30 7'3
15	...	36	2'36	... 38 52 5'9
16	...	36	50'83	... 39 15 40'7
17	...	37	37'20	... 39 38 30'3
18	...	38	21'38	... 40 1 21'4
19	...	39	3'30	... 40 24 13'9
20	...	2 39	42'89	... + 40 47 7'2

The following elements for two epochs some two years apart are also given in the same periodical:—

I. Epoch 1898 August 2'5 Berlin.		II. Epoch 1900 October 31'5 Berlin.	
M = 205	21 41'83	M = 304	24 40'34
π = 121	10 51'40	π = 121	9 47'82
Ω = 303	31 56'17	Ω = 303	30 50'02
i = 10	49 35'35	i = 10	49 38'97
ϕ = 12	52 14'44	ϕ = 12	52 40'61
μ = 2015"	26908	μ = 2015"	23324
log a = 0'1637824		log a = 0'1637875	

THE DAYLIGHT METEOR OF SUNDAY, SEPTEMBER 2.

JUST before sunset on September 2 a magnificent meteor was observed in the north of England and Scotland. A large number of descriptions of the object have appeared in the newspapers, and it appears that notwithstanding broad daylight the spectacle was a very brilliant one.

At St. Anne's, Lancashire, the meteor fell in a northerly direction, and left a column of white smoke, which remained visible ten minutes. At Hunt's Cross the time was noted as 6h. 52m., and the object is said to have fallen near Halewood, leaving a long trail of white dust for several minutes. As seen from Birkenhead the meteor appeared at 6h. 54m. in the N.E., and looked like a descending rocket. Its path was nearly vertical, and it left a "dust trail" for nearly six minutes. At Wetherby, Yorks, the smoke-like cloud left by the nucleus remained visible until 7h. 30m. At Overton, Ellesmere, the object is said to have apparently fallen on a field on the left bank of the Dee, about a mile from Bangor Iscoed. At Ulverstone it passed over Morecambe Bay, in a southerly direction towards Blackpool. At Penton, Cumberland, the time was noted as 6h. 54m., and the direction was due south. It remained visible two seconds, and was falling towards the earth.

At Keswick, Mr. Lawson Dykes saw the fireball at 6h. 55m., and says it fell through an arc of about ten degrees, the altitude of appearance being 35° and disappearance 25° . It was pear-shaped and of immense size, with a distinct tail. The line of flight was almost due N. to S. At Warkton, Northamptonshire, Dr. Herbert Spencer noted the time as 6h. 55m., and says the track of the meteorite was afterwards marked by a narrow white streak, which persisted for more than five minutes.

At and near Edinburgh the fireball was witnessed by many persons. One observer says that at 6h. 55m. there was a sudden flash, and what appeared to be a streak of molten silver followed by a train of sparks whizzed past, apparently falling into a large field of turnips on his right hand. Its direction was due S.E. At Inveresk the meteor appeared to be in the direction of Dalkeith. It resembled a large ball of fire with a tail, and seemed to fall to the earth. At Earlswood, nine miles S.S.E. of Birmingham, the time was noted as 6h. 55m., and the end point of the flight occurred in altitude $20^{\circ} N.$ and was directed from N.N.E. At Blackwall, Alfreton, an observer noted the time as 6h. 53m., and says the meteor left a trace in the sky of a sinuous form and in colour a silver-gray. The trace remained distinctly visible in the sky for thirty minutes. Its direction was N.W. At West Kirby, Birkenhead, the meteor was seen to fall into a wood on the east side of the hill there, and apparently so close that the observer thought it would possibly set fire to the trees.

In Wiltshire a party of Bathonians saw it while driving, and describe it as a ball of fire with a comet-like tail falling direct from heaven to earth and alighting apparently in a field about a mile distant.

A number of other accounts have come to hand, but for the most part they do not supply any details which would be useful for computing the real path of the fireball. It probably disappeared over Lancashire at a height of twenty-five miles, and was directed from a radiant point high in the northern sky. The long-enduring streak or cosmic cloud was no doubt illuminated by the sun's rays. It is not likely that the exact heights of appearance and disappearance of the meteor can be ascertained, though there are plenty of descriptions. The object having appeared in daylight, there were no stars or other celestial objects visible by which its path could be determined. The observers content themselves with giving rough estimations as to the general direction, but these are of little use in any endeavour to compute the real path of the object. It is hoped, however, that some further observations of a more satisfactory character will come to hand and enable a fairly trustworthy result to be obtained. The fireball was a very exceptional one to have created so brilliant an effect just before sunset.

It will be remembered that a large fireball was seen on January 9 at 2h. 55m. in the afternoon, and that on July 17 last another of these striking objects appeared soon after sunset and was observed by many persons in Scotland and the north of England. The present year is likely to be a notable one as regards the number and brilliancy of the fireballs which have appeared.

W. F. DENNING.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE new Technical School at Bootle will be opened by the Earl of Derby on Thursday, September 27.

AFTER a discussion upon technical and commercial education at the recent Congress of British Chambers of Commerce, in Paris, the meeting endorsed the following resolution, which was adopted at the Congress of Chambers of Commerce of the Empire in June 1900:—"That it is most desirable to take steps to urge the extension of technical and commercial education throughout the Empire, and that wherever possible this education should be placed under efficient public control; and that this congress is of opinion that the utmost effort should be made throughout the Empire to encourage and furnish facilities for commercial education as a branch of technical and scientific study, and that the Home and Colonial Governments be moved to give aid thereto and ample powers of contribution out of local resources; and, further, it is very desirable that Chambers of Commerce should be represented on Boards of Education in order to advance the interests of commercial education."

THE following is a list of candidates successful in the recent competition for the Whitworth Scholarships and Exhibitions. Scholarships of 125*l.* a year each (tenable for three years): George W. O. Howe, Harold B. Philpot, Harry Noble, William M. Wallace. Exhibitions of 50*l.* (tenable for one year): Alfred W. Steed, Charles E. Stanier, Benjamin Moss, Isaac V. Robinson, Herbert G. Tisdall, Leonard Southern, Charles A. King, John McCulloch, William P. Chandler, Charles W. Price, Harry B. Matthews, Leonard G. Crawford, James Wilson, George Stow, Joseph H. Dobson, Alec P. Simpson, Fredk. G. Rappoport, Arthur J. Butler, Alfred L. Oke, James M. Macintosh, William H. Cumner, Thomas A. Goskar, Leopold D. Coueslant, John C. Gardner, James C. Metcalfe, Harold Shatwell, Walter A. Turnbull, John E. Grant, Albert S. Raworth, Henry H. Thorne.

THE following Royal Exhibitions, National Scholarships and Free Studentships in Science have been awarded by the Board of Education, South Kensington. Royal Exhibitions: James C. Macfarlane, William T. S. Butlin, Louis D. Stansfeld, Leonard A. V. Webb, Isaac V. Robinson, Arthur Baker, Benjamin Moss. National Scholarships for Mechanics: Albert E. Dodridge, Albert Wilson, Charles E. Stanier, Frederick Bowen, Robert R. Cormack. Free Studentships for Mechanics: Fred. G. Rappoport, Harry B. Matthews, John Alexander. National Scholarships for Physics: Ernest Nightingale, Royden C. Wale, Frederick P. Rolfe, William Tannock, Frank E. Glover. Free Studentship for Physics: Leonard R. Broome.

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National Scholarships for Chemistry: George H. Green, Philip S. Pomeroy, William H. Stephens, Harold Leadbetter, Frederick P. Leach. Free Studentship for Chemistry: Hamilton McCombie. National Scholarships for Biology: Charles Martin, Archibald D. Hogg, Cosby T. Nesbitt, Hamilton E. Quick, Horace A. Wager. National Scholarships for Geology: Hubert C. Jones, William Rawson. Free Studentship for Geology: Stanley R. Jones.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, September 3.—M. Maurice Lévy in the chair.—Physiological action and therapeutical applications of compressed oxygen, by M. A. Mosso. The author has verified and extended the observations of Haldane upon the simultaneous action of compressed oxygen and carbonic oxide upon various animals. Where at the ordinary pressure of the atmosphere 0.5 per cent. or less of the carbonic oxide is fatal, animals are not poisoned in an atmosphere of oxygen at two atmospheres containing 6 per cent. of the gas. This result is of interest from the physiological point of view as showing that animals may live, without red corpuscles, on the oxygen dissolved in the blood plasma, provided that the amount in solution is sufficiently increased by pressure.—The last sign of life, by M. Augustus D. Waller. Living matter responds to an electrical stimulus by a current in the same direction. The same substance, killed by heat, either gives no response or gives a polarisation current in the opposite sense. This method is applied to determine the last sign of life.—On the Laplace equations with quadratic solutions, by M. Tzitzeica.—On singularities of analytical functions, and in particular of functions defined by differential equations, by M. Paul Painlevé.—The effects of work of certain muscular groups on other groups doing no work, by MM. Kronecker and Cutter. The muscles of the lower limbs exercised in climbing were found to exert an influence upon the biceps of the arm. A moderate amount of work done by one group of muscles appears to have a strengthening effect upon another group not taking part in the action, the effect being probably due to an increase in the circulation of the blood and lymph.—On a perpetual calendar, by M. l'abbé Salvatore Franco.

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