

Fayum depression have led to the discovery of several new creatures. "The most important of these," he says,

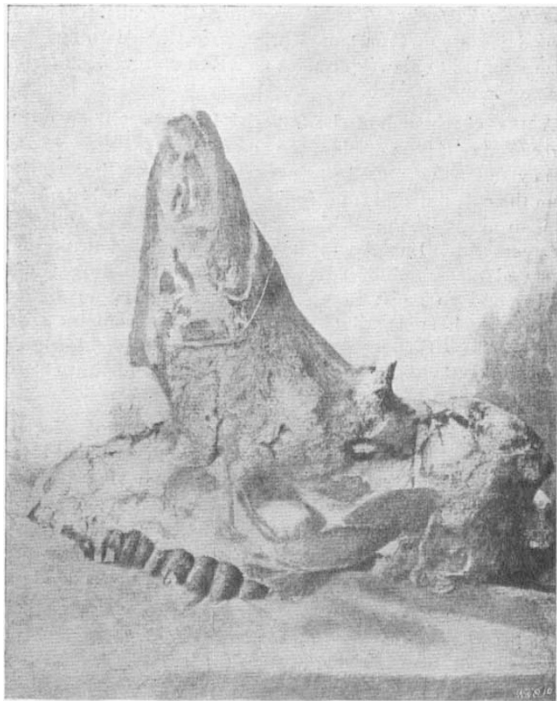


FIG. 1.—*Arsinoitherium Zitteli*, Beadn. Side View.

"is a large, heavily built, ungulate, about the size of a rhinoceros, and for which the writer proposes the generic



FIG. 2.—*Arsinoitherium Zitteli*, Beadn. Back View.

name *Arsinoitherium*, from Queen Arsinoe, after whom the Fayum was called in Ptolemaic times, the species

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being *A. Zitteli*, in honour of the eminent geologist, who may be regarded as the pioneer of geology in Egypt, and whose work when attached to the Rohlfs Expedition of 1873-74 is well known to all geologists." The accompanying illustrations, reproduced from the paper, show a side view (Fig. 1) and a back view (Fig. 2) of the type specimen.

BRYAN DONKIN.

BY the death of Mr. Bryan Donkin at Brussels on March 4 the engineering profession has lost one of its members who devoted himself with more than ordinary assiduity to the scientific side of his calling. The name of Bryan Donkin was eminent in the world of mechanical engineering for the whole of the last century. The late Mr. Donkin succeeded, in due course, to the management of the business which his grandfather, the first Bryan Donkin, had founded in 1803 for the manufacture of paper-making machinery; a new process for producing continuous rolls having been then recently introduced. Bryan Donkin, jun., as the subject of our memoir was known until quite recent times, was born in 1835, and was educated at University College, London, and at the École Centrale des Arts et Métiers in Paris, where he was for two years. After that he was apprenticed to his uncle at the Bermondsey works, his father, John Donkin, having died at a comparatively early age. In 1859 he went to St. Petersburg to superintend the erection of a large paper mill which was being established under the Imperial Russian Government for the manufacture of bank notes and State papers. He returned to this country and in 1868 became a partner in the Bermondsey firm. In 1889 the business was turned into a limited company, of which Mr. Donkin was chairman.

It was not, however, as the head of a manufacturing business that Mr. Bryan Donkin was best known in engineering circles, but as an experimenter and a student in thermodynamics and a reader of papers before technical societies. His first important work was undertaken in conjunction with Mr. Farey, who was also a partner in the Bermondsey firm. The latter had invented a steam-engine, which was known by his name, and it was determined that a complete test should be made to ascertain its efficiency. One of these engines had been erected to drive a paper mill in Devonshire, and the method of testing by measuring the heat discharged with the condensing water was adopted. The principles then followed are now well known, but thirty years ago scientific testing was a very rare thing among engine makers. The temperature of the water was naturally not difficult to ascertain, but to measure the volume with accuracy was a formidable task. How this was done by means of the notched weir and the application of a simple hydraulic law is too familiar to all engineers to need describing afresh.

Mr. Donkin carried on an extensive correspondence with continental engineers; probably he was more closely in touch with foreign scientific experts in the field of steam engineering than any of his compatriots. He devoted a great deal of attention to the use of superheated steam, and in the course of some experiments he devised an instrument he designated the "steam revealer." It consisted essentially of a glass vessel into which steam from the engine cylinder was admitted. By observing whether the steam was transparent or was clouded by the presence of watery vapour, it was possible to estimate if the steam were either superheated or saturated, or whether liquefaction had set in. A paper on this subject was read by its inventor before the Institution of Mechanical Engineers in October, 1900. Of late years Mr. Donkin devoted a good deal of attention to internal combustion motors. A book on "The Gas

Engine," which was from his pen, was published by Messrs. Griffin and Co. He also translated Diesel's work, "The Theory and Construction of the Rational Heat Motor." During the whole of his career he was constantly engaged in experiments of various kinds, one of the principal series being the tests he made, in conjunction with Prof. Kennedy, on the steam boiler. In 1898 a work which he had written on the subject was published by Messrs. Griffin and Co.

Mr. Donkin was a member of the Institution of Civil Engineers, from which society he received the Watt medal and Telford and Manby premiums; a vice-president of the Institution of Mechanical Engineers, and a member of various other scientific and technical societies.

NOTES.

M. YERMOLOFF has been elected a correspondant of the Section of Rural Economy of the Paris Academy of Sciences, in succession to the late Sir J. B. Lawes.

IN connection with the survey of British lakes provided for by the Pullar Trust, Sir John Murray has rented Rannoch Lodge, standing at the west end of Loch Rannoch, from now until the commencement of the shooting season. In the first week of April the following gentlemen will join him and will be associated with him in the work, viz., Mr. R. M. Clark, Aberdeen, Mr. T. N. Johnston, Edinburgh, Mr. James Parsons, London, and Mr. James Chumley, Edinburgh. Other appointments will be made later in the season. Sir Robert Menzies, who has taken a great interest in these investigations, and has placed boats, &c., at Sir John Murray's disposal for carrying on the work, has said that all Highland proprietors should render any assistance in their power to the survey by offering the use of boats. It is intended to include within the scope of the survey, in addition to the systematic physical and biological investigations, observations regarding the oscillations in the level of the water (phenomena called "seiches" by Prof. Forel) by means of self-registering "limnographs," which will be set up on the shores of the larger lakes. The first limnograph is now in process of construction in Geneva under the personal supervision of Prof. Ed. Sarasin, of Geneva. It will be remembered that Mr. Laurence Pullar, of Bridge of Allan, has set aside funds to aid in carrying out this survey, as a memorial to his son, the late Mr. Fred. P. Pullar, who was engaged (in collaboration with Sir John Murray) in a systematic survey of the Scottish lakes at the time of his accidental death in February of last year.

MR. J. HUTCHINSON, F.R.S., went to South Africa recently to study the local diffusion of leprosy there. The *Times* announces that he has now returned; and the conclusion to which he has arrived is that the primary cause of the disease is the use as food of badly-cured salt-fish. Whilst believing that this has been by far the chief agent in its diffusion, Mr. Hutchinson thinks he has obtained conclusive evidence that the malady may, in very exceptional circumstances, be communicated from person to person. He does not believe that it is either infectious or contagious in the proper sense of these words, but that it may be communicated by eating food contaminated by a leper's hands. The measures suggested for the prevention of the disease are, first (and by far the most important), the legislative control of the fish-curing establishments; secondly, the diffusion of information as to danger of communication; and thirdly, the establishment of small isolation homes into which lepers should be induced to go during the stage involving risk.

It is stated that Prof. E. von Behring intends to give the amount of the Nobel prize recently awarded him (8400*l.*) to the Prussian State for the permanent endowment of the Institute of

Experimental Therapeutics founded by him in the University of Marburg. The gift is to be devoted to the prosecution on a large scale of the researches on serum initiated by Prof. Behring. The *British Medical Journal* appropriately recalls the fact that several years ago Prof. von Behring gave the half of a French prize awarded to him, equivalent to a sum of 1000*l.*, in furtherance of serum research.

A NEW city branch of the Imperial Institute will be opened early in May for the display, to merchants, manufacturers, &c., of raw and manufactured products received, from time to time, from the colonies and from India, and for which it is desired to find openings in the British markets. Curators and other members of the Imperial Institute staff will attend at the office at stated times and by special appointment, to deal with inquiries and to assist in establishing or facilitating business relations with mercantile houses, &c., in the colonies and in India. The city branch will be in constant communication, by telephone and messengers, with the Imperial Institute, South Kensington.

EARLY in April, students of the Institution of Electrical Engineers will visit the Newcastle-on-Tyne district and inspect several works there. Among the places to be visited are the works and substations of the Newcastle Electric Supply Co. and of the Sunbeam Electric Lamp Co., the Elswick Works of Sir W. G. Armstrong, Whitworth and Co., the three-phase tramway system at Stockton-on-Tees, and the works of Messrs. Palmer's Shipbuilding and Iron Co.

WE are informed that at the meeting of the Connecticut Academy of Sciences on February 12, Prof. A. E. Verrill exhibited several remarkable photographs in natural colours taken direct from nature by a new process, just invented by Mr. A. Hyatt Verrill, of New Haven. One of these was a Bermuda landscape, in which the beautiful blue and green tints of the water, as well as the soft, creamy colour of the old stone Walsingham residence and the natural grey of the rocks, were well brought out. Three other plates were copies of water-colour drawings of groups of bright-coloured Bermuda fishes, taken from life by Mr. Verrill. The photographs were on paper, and were said to have been obtained by a purely photochemical process.

THE report of the council of the Scottish Meteorological Society, read at the general meeting of the Society on March 20, announces that the second volume of the Ben Nevis observations is approaching completion. This is the first of the three volumes, for the printing of which the Royal Societies of London and Edinburgh have each voted 500*l.* It contains the observations made at the Ben Nevis and Fort William Observatories from January 1888 to December 1892, and discussions connected with them. One of these discussions is by Mr. J. Aitken, F.R.S., on the dust of the atmosphere as observed on Ben Nevis and at various places in Scotland. For several years experiments with kites for meteorological purposes have been carried on near Edinburgh by Mr. John Anderson. He has now obtained a complete outfit, including an oil-engine of two and a quarter (2 $\frac{1}{4}$) horse-power. It is proposed to test this kite, which in some respects has new features to recommend it, very thoroughly in the early summer. The outfit will be handed over to the ship of the Scottish Antarctic Expedition for use in the South Polar regions.

WE have received a reprint of a letter from Prof. A. Agassiz to Prof. E. S. Dana, dated Colombo, January 29, in which Prof. Agassiz announces the return of his expedition from an exploration of the Maldives, extending over several weeks. The general form of the plateau on which the atolls are situated has been determined and the channels between the lagoons carefully studied. The principal atolls in the middle of the group