selected one of an interesting animal which has been a great puzzle to the systematic zoologist (*Fig. 1*).

"The Binturong (*Arctictis binturong*) is a curious little animal of a black colour, with a white border to its ears; it has a large head and a turned-up nose; its tail is immensely long, thick, and tapering, and which is very remarkable, it is prehensile, like that of a new world monkey. It is from twenty-eight to thirty inches in length from the snout to the root of its tail, and the tail itself is nearly the same length. It is quite nocturnal, solitary, and arboreal in its habits. In creeping along the larger branches, it is aided by its prehensile tail. It is omnivorous, eating small animals, birds, insects, and fruits. Its howl is loud. It walks entirely on the soles

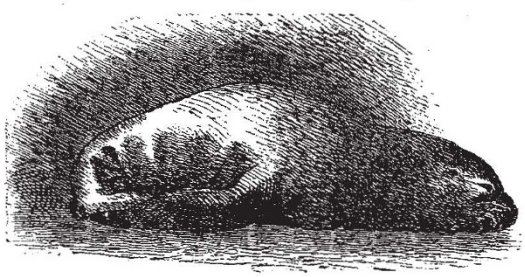

FIG. 2.—The Seal asleep.

of its feet, and its claws are not retractile. While it is wild and retiring in its manner, it is said to be easily tamed. It is placed by Mr. Parker among the group of the civets."

In his description of the fur and hair seals, Dr. Murie, as was to be expected, is quite at home, and we have, among other accounts of these wonderful creatures, a long one of that sea lion which lived so long in the London Gardens. This animal seemed to pass its time between sleeping and eating, and we give two out of a series of illustrations which depict its habits—one of it when fast asleep (Fig. 2), the other when it is in "a watchful attitude," waiting to be fed (Fig. 3); it was well known to all visitors to the gardens. It was in the habit of devouring upwards of twenty-five pounds' weight of fish every day, and not thinking this too much. It was originally captured in

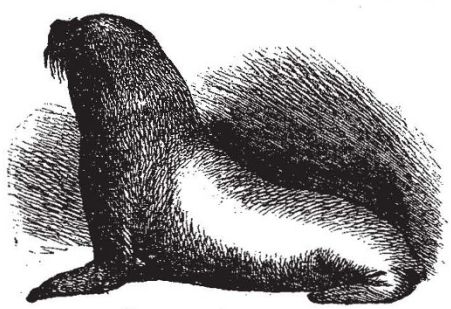

FIG. 3.—Waiting to be fed.

the neighbourhood of Cape Horn; and François Lecomte, the French sailor into whose possession it fell, exhibited the animal for a short time at Buenos Ayres before bringing it to London, where for a short time he earned a living by showing it off. By kindness and dint of training he taught it to become quite a performer in its way. It mounted a ladder with perfect ease, and it could descend either head or tail foremost, so that it seemed a marvel of docility, and its appearance in London seems to have created quite a general interest in the group hitherto so little studied of the eared seals.

The volume concludes with an account of the non-ruminating members of the even-toed sub-order of the Ungulates, embracing the pigs of the Old World, the peccaries of the New World, and the hippopotami. The next volume will contain a description of the Ruminants, a large and very interesting group. E. P. W.

THE KEITH MEDAL OF THE ROYAL SOCIETY OF EDINBURGH.

ON the 3rd inst., at a meeting of the Royal Society of Edinburgh, the President, Professor Kelland, in presenting the Keith Medal which had been awarded by the Council to Professor Heddle, of St. Andrews, delivered the following address:—"Professor Heddle—I am here to-night to exemplify a remark which is often made, that to insure success in an address, such as I am about to deliver, the best way is to commit the charge of it to one absolutely ignorant of the subject. No false pride will then stand in the way of the best sources of information, nor will any undue admixture of half knowledge clog and darken the truth. For every particular contained in these remarks, then, I at once unhesitatingly acknowledge myself indebted to Professor Geikie. When I first became acquainted with this Society, forty years ago, there used to frequent our meetings men who had the reputation of being mineralogists rather than geologists—Lord Greenock, Allan, and perhaps Jameson himself. That race has now died out, and with them mineralogy, as a distinct science, has all but lain dormant amongst us. During the preceding quarter of a century that science had flourished nowhere more vigorously than in Edinburgh. Professor Jameson introduced the definiteness of system of the Freyberg School, and infused into his pupils such a love of minerals that numerous private cabinets were formed; while under his fostering care the University Museum grew into a large and admirable series. One of my first acts as Professor in the University was to vote out of the Reid Fund, which had just come into our hands, a large sum (some thousands) to pay back moneys expended on minerals throughout a series of years preceding. During these years, Geology, as the science is now understood, hardly existed. For, as the nature and importance of the organic remains embedded in rocks became recognised, their enormous value in the elucidation of geological problems gradually drew observers away from the study of minerals. Consequently, as Palæontology increased, Mineralogy waned among us. To such an extent was the study of minerals neglected, that geologists, even of high reputation, could not distinguish many ordinary varieties. But, as a knowledge of rocks presupposes an acquaintance more or less extensive with minerals, the neglect of mineralogy reacted most disadvantageously on that domain of geology which deals with the composition and structure of rocks. The nomenclature of the rocks of Britain sank into a state of confusion, from which it is now only beginning to recover. To you, Professor Heddle, belongs the merit of having almost alone upheld the mineralogical reputation of your native country during these long years of depression. You have devoted your life to the study, and have made more analyses of minerals than any other observer in Britain. You have not contented yourself with determining their composition and their names; you have gone into almost every parish in the more mountainous regions, have searched them out in their native localities, and, by this means, have studied their geological relations, treasuring up evidences from which to reason regarding their origin and history. After thirty years of continuous work, you have communicated the results of your labours to this Society. For the first two of these papers on the Rhombohedral Carbonates and on the Feldspars, in which you have greatly extended our knowledge of pseudomorphic change among minerals, enunciating a law of the shrinkage so frequently resulting therefrom, the Society proposes now to express its gratitude to you. The value of your papers is undoubted.

Through the kindness of Mr. Milne Home, I have been favoured with the sight of letters addressed to you by four eminent mineralogists, Dana of America, Rammelsberg of Berlin, Szabo of Buda-Pesth, and King of Queen's College, Galway. Szabo states that the notice of your paper on the Feldspars, which appeared in Groth's *Zeitschrift für Mineralogie*, greatly interests him, and makes him desirous of placing himself in direct communication with the author. Dana says, 'I have read your paper on the Feldspars, in the Transactions of the Royal Society of Edinburgh, with great satisfaction. Your thorough method of work leads towards important results of great geological, as well as mineralogical value.'

"I have the satisfaction, in the name of the Council of this Society, of presenting you with the Keith Medal. It is hoped that this recognition of your labours will not be without encouragement to you in the arduous researches in which you are engaged."

OUR ASTRONOMICAL COLUMN

TEMPEL'S COMET, 1867 II.—Now that Brorsen's comet of short period is again under observation, the next comet of the same class to be sought for, is that discovered by Dr. Tempel at Marseilles, on April 3, 1867, which was also observed at its next appearance in 1873; it is probable there may be greater difficulty in recovering this object, than appears to have been the case with Brorsen's comet, the reason for which may be made clearer if we briefly detail its history since the year 1867. Less than a month after it was discovered in that year the deviation of the orbit from a parabola became evident, and several of the German astronomers, Prof. Bruhns, now Director of the Observatory of Leipsic, in the first instance, deduced elliptical orbits, with periods of between five and six years. The most complete investigations on the motion of the comet in this year were due to Dr. Sandberg and Mr. Searle. The comet was observed by Dr. Julius Schmidt at Athens till August 21, and the perihelion passage having taken place on May 23, a considerable arc of the orbit was included within the limits of visibility. Dr. Sandberg, after taking into account the effect of planetary perturbations during the comet's appearance, found the period of revolution 2,080 days. On examining the track of this body with reference to the orbits of the planets, it was seen that near the aphelion it must approach very near to the orbit of Jupiter, the least distance being within 0·37 of the mean distance of the earth from the sun, and from the position of this great planet near the time of aphelion passage of the comet early in 1870, it was obvious that great perturbations in the elements of the latter must ensue, and without at least an approximate knowledge of their amount, there might be difficulty in recovering the comet at its next return to perihelion. The first publication of results in this direction was by Mr. W. E. Plummer, from Mr. Bishop's observatory, Twickenham, in February, 1873, followed shortly afterwards by particulars of similar independent investigations undertaken by Dr. Seeliger, of Leipsic, and the late Dr. von Asten, of Pulkowa. It was found that the effect of the attraction of Jupiter, which planet was only 0·32 distant from the comet on January 20, 1870, caused a retrograde change in the longitude of the node to the amount of $22\frac{1}{2}°$, and increased the inclination of the orbital plane to the ecliptic nearly 3°; the period of revolution was lengthened by more than three months, and the point of nearest approach to the sun was removed further from him by upwards of 0·2 of the earth's mean distance. Changes in the elements to this amount would of course entirely alter the track of the comet in 1873, but they had been so closely determined, that immediately after receiving an ephemeris in which their effect was included, M. Stephan re-detected the comet at Marseilles, and as early as April 3, or five weeks before the perihelion passage, and it was observed until the last week in June. We subjoin Dr. Sandberg's elements for the two appearances:—

	1867.	1873.
Perihelion passage	May 23·9204 G.M.T.	May 9·0134 G.M.T.
Long. of perihelion ...	236 9 24	237 38 42
,, ascending node	101 10 10	78 44 39
Inclination to ecliptic ...	6 24 36	9 44 13
Angle of excentricity ...	30 38 39	27 30 58
Log. semi-axis major ...	0·503658	0·517057
Revolution	2080·1 days.	2178·6 days.

The longitudes are reckoned from the mean equinox of the commencement of the respective years. The period of revolution applies to the ellipse which the comet was describing at perihelion passage.

With regard to the length of the actual revolution, it is certain that no very material perturbation can result from known causes: Jupiter, the great disturber of the cometary motions, was at almost his greatest possible distance from the comet when the latter passed nearest to his path about May, 1876. A recent investigation by M. Raoul Gautier, of which, however, no details are yet published, assigns a longer period of revolution corresponding to the perihelion passage in 1873 than was given by Dr. Sandberg, the difference being about $10\frac{1}{2}$ days, so that if the mean motion at the last appearance does not, as M. Gautier implies, admit of exact determination, there will be an uncertainty in the date of the approaching perihelion passage, which will necessitate a pretty extended and careful search in order to detect the comet. It belongs to the fainter class, and although in 1867 and 1873 it appeared under rather favourable circumstances for observation, and is likely to do so to a certain extent this year, it has never been a good telescopic object. When at its greatest intensity of light early in May, 1867, its nucleus, which was stellar, had not the brightness of a star of the ninth magnitude. At the last observation at Athens, in that year the theoretical intensity of light was 0·21, and the comet would have the same degree of brightness about March 27 next, whether we assume the time of perihelion passage (perturbation neglected) from the orbit of Dr. Sandberg or M. Gautier, but the uncertainty of position may probably delay its rediscovery till some time later. We may hope that the publication of the further results of M. Gautier, who mentions being engaged on the calculation of perturbations during the present revolution, will not be long deferred. It is desirable the comet should be under observation as long as practicable at this return, since the period being now nearly equal to half that of Jupiter, the two bodies will come into proximity again towards the month of November, 1881, though their mutual distance may not be less than 0·55. This will involve a new, strict investigation similar to those undertaken in 1873, to enable the epoch of ensuing perihelion passage to be ascertained.

Using Dr. Sandberg's orbit of 1873, the comet's place at Greenwich midnight, on March 27, would be in R.A. 253°·9, N.P.D. 103°·7, or, if the perihelion passage be assumed ten days later, which would more nearly accord with M. Gautier's calculation in R.A. 247°·0, N.P.D. 101°·0.

THE INTRA-MERCURIAL PLANET QUESTION.—It appears that this subject has lately engaged the attention of that excellent practical astronomer Dr. Oppölzer, of Vienna, who has communicated to the *Astronomische Nachrichten* some curious results of his examination of the records of rapidly-moving dark spots upon the sun's disk. His inquiry resolves itself simply into the conclusion, that even introducing rather more extended data than were used by Leverrier, who, it will be remembered, found several possible periods of revolution for the hypothetical planet, they may all be represented so far as regards the necessity of a transit across the sun's disk on