an elementary atom compared with the atom of hydrogen. The relative weight of this particularly heavy atom was determined so long as forty-three years ago by Prof. Schneider, and the value obtained was identical with that which is now afforded. Eight years after Prof. Schneider's first determination, Dumas published the results of a number of atomic weight determinations, among them being that of bismuth, to which he assigned the value 210. From that time, 1859, until 1883, Dumas' value came to be generally accepted, although no doubt his method was by no means so little open to objection as that employed by Prof. Schneider. However, in 1883 Marignac took up the subject, and as the result of determinations carried out with the thoroughness for which he was remarkable, the number 208·16 was obtained, thus substantiating the work of Prof. Schneider. More recently Classen has obtained a higher result, 208·9, by an electrolytic method, and Prof. Schneider has undertaken a further series of determinations with the view of testing certain suggestions of Prof. Classen regarding possibility of error in his former estimations. The method is based upon a comparison of the equivalent relation of metallic bismuth to bismuth trioxide. The final result obtained, if O = 16, is 208·05, and the greatest divergence from this number among the whole of the individual values is only 0·21. Prof. Schneider's original work, and likewise that of Marignac, is thus confirmed, and bismuth must now be added to the rapidly growing list of elements whose atomic weights are represented by whole numbers.

THE additions to the Zoological Society's Gardens during the past week include a Sykes's Monkey (*Cercopithecus albigularis*, ♂) from West Africa, presented by Mr. J. H. Prestwich; a Mozambique Monkey (*Cercopithecus pygerythrus*, ♂) from East Africa, presented by Mr. C. O. Gridley; a Leopard (*Felis pardus*) from Southern India, presented by Mr. John Christie; two Spotted Eagle Owls (*Bubo maculosa*) from South Africa, presented by Mr. R. A. Langford; an Antipodes Island Parrakeet (*Cyanorhamphus unicolor*) from Antipodes Island, seven South Island Thrushes (*Turnagra crassirostris*) from South Island, New Zealand, presented by Sir Walter L. Buller; two Canary Finches (*Serinus canarius*), four —— Frogs (*Rana*, sp. inc.) from Madeira, four Dwarf Chameleons, (*Chamæleon pumilus*) from South Africa, presented by Mr. H. Bendelack; a Rhomb-marked Snake (*Psammophylax rhombeatus*) from South Africa, presented by Mr. J. E. Matcham; an Arctic Fox (*Canis lagopus*) from the Arctic Regions, deposited; four Nutcrackers (*Nucifraga caryocactes*), European, purchased; sixteen Deadly Snakes (*Trigonocephalus atrox*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

THE NEW COMET.—The comet of which the discovery was announced in the last number of NATURE is likely to prove a very interesting object. A communication from Prof. Krueger informs us that Dr. Berberich, who is probably in possession of ephemerides of the lost comets depending on various dates of perihelion passage, has noticed the coincidence in the position of this comet at the first observation with that which De Vico's comet of 1844 can assume. It will be remembered that it was this same astronomer who conjectured from somewhat similar grounds the identity of Holmes' comet with that of Biela. But the conjecture in this case seems to be better founded, for elements computed by Dr. Leuschner show a decided similarity with those of De Vico, as computed by the late Dr. Brunnow from the 1844 observations. Seeing that the comet has undergone some fifty years' perturbations since that time, and that the present elements are founded on the observations of but three consecutive days, and can only be considered as roughly approximate, we must be prepared for some considerable deviation.

	Leuschner's elements of Swift's comet.	Brunnow's elements of De Vico's comet.
	° ′	° ′
Long. of perihelion ...	291 48 ...	342 30
,, nodes ...	43 4 ...	63 49
Inclination	3 16 ...	2 55
Minimum distance ...	1·4703 ...	1·1864

De Vico's comet has not been seen since 1844, though, with a period of approximately five and a half years, nine returns have occurred, and when the perihelia fall in the autumn, the comet is fairly favourable for observation. There is extant, it is true, an observation of a nebula by Goldschmidt in May 1855, which he thought might have reference to the comet, but Brunnow could not reconcile it with the computed path, and it is usually believed that the comet disappeared after observation in 1844. But Le Verrier and Brunnow both thought that the comet of 1678 was identical with that of 1844, and if this be the case it would seem that the comet might be subject to fluctuations of brilliancy, which would explain the fact of its passage through perihelion without notice.

Further, a similarity between the elements of Finlay (1886 VII.) and De Vico has been noticed, and the agreement between those of the present comet and Finlay's is probably more marked than with De Vico. Tisserand's well-known criterion of identity does not favour the supposition that De Vico and Finlay are one and the same comet, since a very considerable perturbative effect would have to be attributed to the action of Mars. It would seem, therefore, more probable that several comets are moving in approximately the same orbits than that we have to do with the actual return of a comet lost for so long a period as De Vico's. But under any circumstances, seeing that the comet is diminishing in brilliancy, it is of the utmost importance to secure observations as early and as long as possible, since upon the accurate determination of the orbit several important questions may finally rest. The following positions are given in the ephemeris received from Kiel:—

1894.	R.A. h. m. s.	Decl. ° ′
Dec. 6	23 2 52 ...	−7 50·9
,, 7	23 5 40 ...	−7 31·1

THE SPECTRUM OF MARS.—Prof. W. W. Campbell has lately brought together all the observations of the spectrum of Mars, and discussed them in connection with the telluric spectrum and with his own observations made during the past summer. (*Publications of the Astronomical Society of the Pacific*, vol. vi. No. 37.) He concludes as follows:—

(1) The spectra of Mars and the Moon, observed under favourable and identical circumstances, seem to be identical in every respect. The atmospheric and aqueous vapour bands which were observed in both spectra appear to be produced wholly by the elements of the Earth's atmosphere. The observations, therefore, furnish no evidence whatever of a Martian atmosphere containing aqueous vapour.

(2) The observations do not prove that Mars has no atmosphere similar to our own; but they set a superior limit to the extent of such an atmosphere. Sunlight coming to the Earth *via* Mars passes twice either partially or completely through his atmosphere. If an increase of 25 to 50 per cent. in the thickness of our own atmosphere produces an appreciable effect, a possible Martian atmosphere one-fourth as extensive as our own ought to be detected by the method employed.

(3) If Mars has an atmosphere of appreciable extent, its absorptive effect should be noticeable especially at the limb of the planet. Prof. Campbell's observations do not show an increased absorption at the limb. This portion of the investigation greatly strengthens the view that Mars has not an extensive atmosphere.

THE ANNIVERSARY MEETING OF THE ROYAL SOCIETY.

THE anniversary meeting of the Royal Society was held in the apartments of the Society at Burlington House on St. Andrew's Day, November 30. The auditors of the Treasurer's accounts having presented their report, the Secretary read the lists of Fellows elected and deceased since the last anniversary meeting. The qualification of the new Fellows on the home list were given in NATURE of May 17 (vol. l. p. 55). The new Fellows