In a paper read before the last meeting of the French Academy of Medicine M. Lagneau described his researches into the anæsthetics employed in Europe by physicians in the Middle Ages. That such were known is beyond any doubt. Abelard, speaking of the creation of Eve from a rib of Adam, speaks of the deep sleep which fell upon the latter as similar to that which physicians produce in patients upon whom they wish to operate. Pliny speaks of a stone of Memphis which, when crushed and treated with vinegar, renders any part to which it is applied insensible to pain; and many old authors speak of surgeons producing sleep in their patients before an operation by mixing with their food a decoction of the leaves or root of the mandragora, or some grains of the plant called "morion." Preparations of these two plants, as well as of other narcotics, were employed by surgeons down to the thirteenth and fourteenth centuries, but much less in subsequent times. Opium was also used for a similar purpose, while in the East the anæsthetic properties of hemp have been known from the earliest times. These were all taken into the stomach; but anæsthesia by inhalation was also known. Two different preparations were discovered in the thirteenth century: one by a Dominican of Rome, the other by a surgeon named Theodoric, who was also a preaching friar, and subsequently a bishop. Both of these were prepared from opium, henbane, mandragora, hemlock, and many other plants, and were inhaled from a sponge. It is, however, difficult to believe that preparations so little volatile could produce anæsthesia by simple inhalation. M. Perrin, who has studied ancient anæsthetics, has given the composition of a liquid which contains all the ingredients required for chloroform, and it is said that this was applied to witnesses or prisoners who were about to be tortured in the judicial tribunals of the Middle Ages. After inhaling it the unfortunate subject was plunged into a semi-comatose state, which diminished in a certain degree the pain of the torture. This liquid was always kept in a place adjoining the torture-chamber.

The additions to the Zoological Society's Gardens during the past week include a Leadbeater's Cockatoo (*Cacatua leadbeateri*) from Australia, presented by Mr. H. Grant; two Great Eagle Owls (*Bubo maximus*), European, presented by Mr. E. G. Carpenter; a Common Peafowl (*Pavo cristatus*) from India, presented by Miss Rowland; an Indian Shama (*Copsychus macrurus*) from India, deposited; an Axis Deer (*Cervus axis*), two Squirrel-like Phalangers (*Belideus sciureus*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN

Tuttle's Comet.—In No. 2674 of the *Astronomische Nachrichten*, published during the last week, are elements and an ephemeris of this comet, by Herr Johannes Rahts of Königsberg. The orbit has been deduced from the observations of 1858 and 1871–2, with perturbations by Mercury, Venus, the Earth, Mars, Jupiter, Saturn, and Uranus to July 11, 1885. Under such conditions it may be anticipated that Herr Rahts' ephemeris will closely represent the track of the comet. His elements are as follows:—

Perihelion passage, 1885, September 11·14265 G.M.T.

Longitude of perihelion	116° 28′ 58″·8	M. Eq. 1890·0
,, ascending node	269 42 1·5	
Inclination	54 19 45·5	
Angle of eccentricity	55 14 22·6	
Mean daily motion	257″·8648	
Log. semi-axis major	0·7590765	

Motion—direct.

Hence we have—

Eccentricity	0·8215436	Semi-axis major	5·7422
Perihelion distance	1·02475	,, minor	3·2739
Aphelion distance	10·4596	Semi-parameter	1·8666

Period of revolution, 13·76 years.

Tuttle's comet was first seen by Méchain at Paris on January 9, 1790, and was observed there till February 1. Parabolic elements calculated by Méchain did not lead to any suspicion of ellipticity of orbit. On January 4, 1858, Mr. Tuttle, of Cambridge, U.S., discovered a comet, which was independently detected by the late Prof. Bruhns a week afterwards, and its orbit was found to present so close a resemblance to that of the second comet of 1790 as to immediately lead to the comets being considered identical, the identity being established by Bruhns, who found that five revolutions had been completed between 1790 and 1858. The dates of perihelion passage in this interval were thus determined by Clausen after taking into account the perturbations produced by the planet Jupiter—

	G.M.T.		G.M.T.
1790, January	30·87	1830, December	6·64
1803, November	7·27	1844, June	28·96
1817, May	18·76	1858, February	23·52

The comet was not recognised at any one of the four intermediate returns.

From Herr Rahts's ephemeris we have the following positions during the absence of moonlight in August:—

At Greenwich Midnight

1885	R.A. h. m. s.	Decl. ° ′	Log. Dist. from earth	Intensity of light
August 6	7 13 27	+29 48·1	0·2853	0·39
7	7 16 51	29 12·7		
8	7 20 14	28 36·6	0·2816	
9	7 23 36	27 59·9		
10	7 26 56	27 22·7	0·2780	0·42
11	7 30 16	26 44·7		
12	7 33 35	26 6·3	0·2744	
13	7 36 54	25 27·3		
14	7 40 12	24 47·7	0·2708	0·46
15	7 43 28	24 7·4		
16	7 46 43	23 26·6	0·2674	
17	7 49 59	22 45·3		
18	7 53 13	22 3·5	0·2640	0·49
19	7 56 27	21 21·1		
20	7 59 40	20 38·0	0·2607	
21	8 2 53	19 54·5		
22	8 6 5	19 10·5	0·2575	0·52
23	8 9 16	18 25·9		
24	8 12 27	+17 40·8	0·2544	

The intensity of light when the comet was first observed at Marseilles at its last appearance, October 12, 1871, is taken as unity. On September 10 it will be 0·55, the comet rising two hours before the sum. It must always be faint at its present return, so much so probably as to render observation difficult.

The New Comet (Barnard, July 7).—From observations on July 9, 12, and 15 the following elements result:—

Perihelion passage, 1885, September, 20·6740 G.M.T.

Longitude of perihelion	290° 10·5
,, ascending node	93 27·1
Inclination	76 6·1
Log. perihelion distance	0·36549

Motion—direct

An orbit calculated by Dr. Holetschek, of Vienna, much resembles the above.

It would appear that the perihelion distance of this comet may prove to be greater than in the case of any other comet hitherto computed, excepting the extraordinary one of 1729, which did not approach the sun within four times the earth's mean distance.

ASTRONOMICAL PHENOMENA FOR THE WEEK, 1885, AUGUST 2–8

(For the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on August 2

Sun rises, 4h. 27m.; souths, 12h. 5m. 58·2s.; sets, 19h. 45m.; decl. on meridian, 17° 40′ N.: Sidereal Time at Sunset, 16h. 31m.

Moon (at Last Quarter on August 3) rises, 21h. 56m.*; souths, 4h. 29m.; sets, 11h. 13m.; decl. on meridian, 5° 34′ N.