THE additions to the Zoological Society's Gardens during the past week include an Arabian Baboon (*Cynocephalus hamadryas*) from Egypt, presented by Mrs. Locke King; two Tufted Umbres (*Scopus umbretta*) from Bechuanaland, South Africa, presented by Mr. F. J. Newton, C.M.G.; four Cockateels (*Calopsitta novæ-hollandiæ*), a Many-coloured Parrakeet (*Psephotus multicolor*), a Rose-Hill Parrakeet (*Platycercus eximius*) from Australia, presented by Mr. Thomas J. Manns; two Red and Blue Macaws (*Ara macao*), five Saffron Finches (*Sycalis flaveola*), two Pileated Song Sparrows (*Zonotrichia pileata*), a Guttural Finch (*Spermophila gutturalis*), a Plumbeous Finch (*Spermophila plumbea*), a White-throated Finch (*Spermophila albogularis*), a —— Finch (*Spermophila torqueola*), a Black-throated Siskin (*Chrysomitris magellanica*) from South America, a Brambling (*Fringilla montifringilla*), a Greenfinch (*Ligurinus chloris*), European, presented by Mr. A. J. Chalmers; a Red-vented Bulbul (*Pycnonotus hæmorrhous*) from India, presented by the Hon. Miss E. Dillon; a Chestnut-breasted Finch (*Donacola castanothorax*) from Queensland, presented by Mr. A. Rowney; a Hardwick's Mastigure (*Uromastix hardwicki*) rom India, presented by Mr. W. Allen; a Black Swan (*Cygnus atratus*) from Australia, deposited; two Black-necked Stilt Plovers (*Himantopus nigricollis*) from South America, a Green-headed Tanager (*Calliste tricolor*) from South-east Brazil, purchased.

OUR ASTRONOMICAL COLUMN.

THE NEW COMETS.—Numerous observations of Perrine's Comet and a few of Comet Brooks are reported in *Ast. Nach.*, No. 3320. The former is generally described as bright, the nucleus being about 7th magnitude, while the tail is pretty broad, and variously estimated at from 10′ to 20′ in length. From observations up to November 25, Dr. E. Lamp finds the date of perihelion passage to be 1895, Dec. 18·3509 Berlin mean time, and the following ephemeris is given:—

	R.A. h. m. s.	Decl. ° ′	Bright-ness.
Dec. 11 ...	15 59 40 ...	−24 7·6 ...	28·30
12 ...	16 16 14 ...	26 2·1	
13 ...	34 33 ...	27 50·5	
14 ...	16 54 40 ...	29 25·0	
15 ..	17 16 5 ...	−30 37·4 ...	60·0

The unit of brightness is that on November 18. The comet is brightening with great rapidity, but it is so near the sun that observations can only be made in daylight.

Comet Brooks apparently presents only the appearance of a feeble, diffused nebulosity without condensation. The following ephemeris for Berlin midnight is due to Dr. H. Kreutz:—

	R.A. h. m. s.	Decl. ° ′	Bright-ness.
Dec. 12 ...	7 16 42 ...	+57 23·5 ...	0·8
13 ...	7 0 37 ...	59 45·8	
14 ...	6 43 39 ...	61 48·0 ...	0·6
15 ...	26 4 ...	63 31·2	
16 ...	6 8 2 ...	64 56 7 ...	0·5
17 ...	5 49 52 ...	66 6·2	
18 ...	31 47 ...	67 1·4 ...	0·4
19 ...	5 14 6 ...	67 43·7	
20 ...	4 57 4 ...	+68 15·0 ...	0·3

The brightness on November 24 is taken as unity. According to the elements adopted, perihelion was passed on October 20·887.

It will be seen that the comet is now circumpolar.

THE GREAT COMET OF 1843.—In the *Astronomische Nachrichten*, No. 3320, Dr. Kreutz gives another chapter in the history of the three interesting comets of 1843 I., 1880 I., and 1882 II., all belonging to one cometary system, distinguished by great brilliancy and small perihelion distance. In 1889, Dr. Kreutz published an exhaustive monograph on the motion of the 1882 comet, that one of the system which, it will be remembered, was first seen in this country by Dr. Common, in bright daylight, and which at the Cape was followed till it seemed to touch the sun's limb. The present inquiry has reference to the 1843 comet, also seen and observed in full daylight, and the motion of which had been made the subject of a classical discussion by Dr. Hubbard (*Astronomical Journal*, vols. i. and ii.). The improved normal places which Dr. Kreutz has formed are not, however, very well represented by Hubbard's orbit, and new elements have been derived, which, of course, do not differ materially from the earlier results. The period, deduced as the most probable, is 512 years, or twenty years less than Hubbard's period; but the interesting point in the present discussion is the determination of several orbits with various values for the semi-axis major, assigned on the hypothesis that this comet of 1843 is identical with some other the appearance of which has been recorded. The periods assigned are thirty-six years, suggested by a possible identity between the 1843 and 1880 comets; 175 years, which would make the 1843 comet a reappearance of that in 1668; 800 years, a period approximately equal to that found for 1882 II., and finally a parabolic orbit. The result is to settle very decisively that there is no identity between the 1843 and 1880 comets, and almost as certainly that the comet is not a return of that of 1668. On the other hand, it is by no means certain that equal periods would not satisfy the observations in both 1843 and 1882, but true parabolic motion cannot be accepted. From the position of the line of intersection of the orbital planes of the two comets 1843 and 1882, Dr. Kreutz infers that they originally formed one comet, and that the separation into two distinct bodies was effected near the time of perihelion passage. Seeing that the 1843 comet would approach within 100,000 miles of the sun's surface, it is easy to suggest a cause for the subdivision.

NEBULOSITIES AROUND THE PLEIADES.—The nebulous relationships of the Pleiades, brought so forcibly into view by the beautiful photographs of Dr. Isaac Roberts, are carried a stage further by a photograph which we owe to Prof. Barnard. This was taken with the 6-inch portrait lens with a total exposure of 10h. 15m. on December 6 and 8, 1893, and an enlargement and description of the plate are given in the current number of *Knowledge*. In this photograph the nebulæ photographed by Dr. Roberts are submerged in the "burnt out" images of the brighter stars; outside the group various nebulous masses and streams are seen extending in all directions, but apparently connected with the nebulosities of the cluster itself. The most prominent of the new nebulosities are two irregular streams flowing from the north and south sides of the cluster, and running three or four degrees easterly; the northern stream is double for a part of its length, but the upper part is very feeble. The nebulosities have also been photographed by Dr. Wilson, of the Goodsell Observatory, with an exposure of 11 hours; they are best seen by increasing the contrast in a positive copy of the plate.

THE FIRST STEPS IN SERUM-THERAPY.

IN scientific discovery, as in many other walks of life, it frequently happens that the magnitude of the result achieved casts into obscurity the labours which led up to that discovery, just as the parent is often forgotten in the fame which may subsequently surround the work of his offspring. It is rarely, however, that so young an infant as we must perforce recognise antitoxic serum to be, succeeds in baffling the pedigree-hunter; barely recognised three or fours years back, its parentage has, however, already become the subject of much discussion.

Dr. Welch, of Baltimore, in an exhaustive paper[1] on the treatment of diphtheria by anti-toxin, commences with an historical survey of the subject, and states that Babès and Lepp in 1889 were the first to publish results of experiments to solve the question whether the fluids and cells of animals which have been rendered immune by vaccination, have not become vaccines and capable of protecting also other organisms. On turning, however, to the volume of the *Annales de l'Institut Pasteur*, in which the memoir by Babès and Lepp[2] on this subject is published, we find that they do not claim to have originated these investigations, for they expressly state: "We have seen, in the course of our investigations, that this problem has been studied experimentally in various diseases, and this fact encouraged us to pursue this idea."

[1] "The Treatment of Diphtheria by Antitoxin," *Trans.* Association of American Physicians, vol. x., 1895.

[2] "Recherches sur la vaccination antirabique," *Annales de l'Institut Pasteur*, vol. iii., 1889.