

trations of pictures taken by some of the more well-known photographers, and many other subjects too numerous to mention, but which are of practical use to the amateur. Great pains have apparently been taken to ensure the successful reproductions of the pictures included in the 370 pages which compose this volume, and a perusal of even these alone may give hints to many amateurs on the somewhat difficult tasks of lighting, pose, &c.

THE additions to the Zoological Society's Gardens during the past week include a Gazelle (*Gazella dorcas*, ♀) from Egypt, presented by Mr. J. S. N. Allison; a White-cheeked Hill Partridge (*Arboricola atrigularis*) from the Naga Hills, Assam, presented by Mr. K. S. Cassells; a Regent Bird (*Sericulus melinus*, ♂) from Australia, a Weka Rail (*Ocydromus australis*) from New Zealand, a Black-headed Lemur (*Lemur brunneus*), bred in the Gardens, deposited; two Glitons (*Gulo luscus*, ♂ ♀) from Northern Europe, a Common Otter (*Lutra vulgaris*), British; three Australian Rails (*Rallus pectoralis*), two White-cheeked Honey-eaters (*Meliphaga sericea*) from Australia, a Red Ground Dove (*Geotrygon montana*) from South America, purchased.

OUR ASTRONOMICAL COLUMN.

COMET CHASE.—This comet, which is now about as bright as it was at the time of its discovery last year, has the following ephemeris for the current week:—

		Berlin Midnight.		
1899.		R.A. (app.)	Dec. (app.)	
		h. m. s.		
Jan. 21	...	11 9 55	...	+ 32 27.7
23	...	9 55	...	32 50.7
25	...	9 48	...	33 13.4
27	...	9 35	...	33 35.9
29	...	11 9 16	...	+ 33 57.9

VELOCITY IN THE LINE OF SIGHT OF η PEGASI.—In a previous number of the *Astrophysical Journal* (vol. viii. No. 3), Prof. Campbell pointed out that his observations had indicated that the motion in the line of sight of the star η Pegasi (R.A. 22h. 38^m. 2^s. Dec. + 29° 41' 2", mag. 3.1) is variable. Writing in the *Astronomische Nachrichten* (No. 3536), Herr Belopolsky tells us that he is able to corroborate this statement from observations made by him at the Pulkova Observatory. The following are the results of his measures of this star, the number in the last two columns representing the velocities per second in geographical miles, in relation to the earth and sun respectively.

		Motion relative to			
		Earth	Sun.		
1897	Aug. 27	...	-1.70	...	-0.66
	Sept. 8	...	-1.03	...	-0.64
1898	Aug. 25	...	+1.27	...	+2.29
	Sept. 17	...	+3.05	...	+2.26

The mean of Belopolsky's values for the two years thus reduce to -4.8 and +16.9 kilometres per second, while those of Campbell for 1897 July-September and 1898 August-September, are given as -4.3 and +16.2 kilometres per second. These values it will be noticed agree well with one another, and indicate further the accuracy that can now be obtained in such measures.

THE LEONIDS IN 1898.—In the December number of the *Monthly Notices* there are several communications on the meteors seen in November last, to which we have not yet drawn our readers' attention. At the Cape Observatory, Dr. Gill had made special provision for obtaining both eye observations and photographs on the nights of the 13th and 14th.

For the latter work, five cameras were arranged to cover the region round the radiant point, while a Cooke doublet was directed towards the radiant. All the cameras were fixed to equatorials, and the plates changed every hour. No photographic results were obtained, and, indeed, the eye observations indicated that the shower was nothing out of the ordinary. No more fortunate was Dr. Copeland, who, with some assistants,

watched on the nights of the 13th to 15th. At Cambridge, Mr. Hinks, who with several other observers kept their vigil during the same three evenings until dawn, and were perhaps a little more fortunate on the 14th, when from 11h. to 18h. thirty-two Leonids were seen.

The shower seems, however, to have been better seen in America, as will be gathered from the following extracts of a letter from Prof. Barnard to Dr. Johnstone Stoney. Prof. Barnard watched on the nights of the 11th-16th, between the hours 5 p.m.-6 a.m.

He writes:—"The sky cleared shortly after midnight on the 14th. I soon saw there were a few meteors, but not noticeable, which could be traced back to the radiant, though they were mostly low in the north-west, near α Cygni. They became more frequent, and some large ones were seen. From this till daylight several hundreds were seen—many of the first magnitude, and a few brighter. Very few were seen near the radiant, and none at it." As regards the time of greatest frequency of the meteors, Prof. Barnard says:—"It seemed to me the maximum was reached between 3 and 4 a.m., perhaps nearer 4. It was the finest display of meteors I have yet seen."

On the 16th and 17th, not a single Leonid was observed by Prof. Barnard. Five cameras were employed to record the trails, but the development of the least promising of them has given no trails.

NEW INSTRUMENT FOR MEASURING ASTROGRAPHIC PLATES.—Now that photography is so largely used for obtaining charts of the stars, several styles of measuring instruments have been devised to obtain directly the coordinates of the star discs from the negatives. The great difficulty in designing such instruments is that simplicity of construction, accuracy of measurement, and rapidity of working must be well combined. The most recent form is that which we owe to Dr. Gill, and which will be found fully described and illustrated in the *Monthly Notices of the R.A.S.* (vol. lix. No. 2). While taking advantage of the rapidity of Prof. Turner's method, Dr. Gill has retained the accuracy which is attainable with the filar micrometer. The result, as Dr. Gill states, has fully realised his expectations, "thanks to the artistic skill and care of Messrs. Repsold, to whom I entrusted the carrying out of my plans." The whole process of measurement is "so simple that an observer without any previous knowledge or experience in practical work of the kind can, after very short training, easily measure the two coordinates of eighty stars per hour (including diameters); and were it not that the observers are instructed to work very carefully, a larger number could be measured in the same time."

THE SPECTRUM OF THE CORONA.¹

THE announcement by Prof. Nasini of the possible presence of the characteristic green line of the corona in the spectrum of the gases collected at the Solfatara of Pozzuoli (*NATURE*, vol. lviii. p. 269, July 21, 1898) renders it desirable that I should at once publish some of the results of an investigation relating to the spectrum of the corona with which I have lately been occupied.

In the course of my early observations of the spectrum of the chromosphere, I discovered on June 6, 1869, a bright line at 1474 on Kirchhoff's scale, which I stated to be coincident with a line of iron (*Roy. Soc. Proc.*, vol. 18, p. 76).

During the total eclipse of the sun on August 7, 1869, a green line was recognised by Prof. Young as belonging to the spectrum of the corona, and the position of this line was also stated to be 1474K.

Although other determinations of the position of the green line of the corona during eclipses have not all agreed absolutely with Young's observations, the differences have been attributed to errors of observation, so that Young's statement of the coincidence of the coronal and chromospheric lines, and their correspondence with the solar dark line at 1474K has been generally accepted. No special attention appears to have been directed of late years to the measurement of the corona line itself.

This and other coronal radiations were photographed as rings by the use of prismatic cameras in 1893, 1896, and 1898, but a full list of them has only so far been published for the photo-

¹ Paper read before the Royal Society on November 24, by Sir Norman Lockyer, K.C.B., F.R.S.