

THE Russian Geographical Society has addressed to other scientific societies of Russia a proposal to collaborate in the publication of a general description of Siberia. The Geographical Society undertakes for its part the publication of a geographical description and of a general bibliographical index of all works and papers on Siberia.

THE Belgian expedition for the investigation of the Upper Congo has left Antwerp on board the steamer *Harkaway*. The party consists of Dr. van der Heuvel, Herr Schaumann, an Austrian officer, and several mechanics. The expedition takes out large stores of goods, including samples of the seeds of all nutritious vegetables grown in Belgium. They are to proceed as quickly as possible to the furthest of Stanley's stations, and then penetrate further if possible.

THE additions to the Zoological Society's Gardens during the past week include a Chacma Baboon (*Cynocephalus porcarius* ♀) from South Africa, presented by Mr. J. W. Browne; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Lady Sibyl Tollemache; a Smooth-headed Capuchin (*Cebus monachus*) from South-East Brazil, presented by Mr. A. J. McEwen; a Squirrel Monkey (*Chrysotrrix sciurea* ♂) from Guiana, presented by Mr. M. Escaré; a Rhesus Monkey (*Macacus erythraeus* ♂) from India, presented by Mr. G. V. Sawyer; two Leadbeater's Cockatoos (*Cacatua leadbeateri*) from Australia, presented by Mr. C. J. Harvey; a Common Barn Owl (*Strix flammea*), British, presented by the Rev. A. Reece; a Ring-hals Snake (*Sepeodon hamachetes*), a Rhomb-marked Snake (*Psammodromus rhomeatus*) from South Africa, presented by Mr. H. Pillans; a Lesser White-nosed Monkey (*Cercopithecus pelaurista* ♂) from West Africa, deposited; a Long-eared Owl (*Asio otus*), British, a Marbled Cat (*Felis marmorata*) from Assam, purchased; a Red Kangaroo (*Macropus rufus* ♂) born in the Gardens.

OUR ASTRONOMICAL COLUMN

MEASURES OF DOUBLE STARS.—We receive at about the same time several important series of measures of double stars.

(1) "Results of double star measures made at the Sydney Observatory, N.S.W., 1871 to 1881," under the direction of Mr. H. C. Russell, Government Astronomer for New South Wales. From 1871 to 1874 the instrument employed was a very fine 7½-inch refractor by Merz; after 1874 the 11½-inch refractor by Schröder was substituted, the same method of observation being followed with both instruments. For the more difficult objects, a power of 330 was applied on the Merz telescope, and one of 800 on the larger refractor. The objects measured include about 746 of Herschel's stars, and it is unnecessary to say more than this, to show the importance and value attaching to the catalogue, no measures of a large number of the stars having been put upon record since the publication of Sir John Herschel's Cape Volume. In addition to these objects, however, Mr. Russell's catalogue includes measures of 350 new double stars detected at Sydney, and he remarks that it would have been easy to double the number if he had adopted the same limit of distance as Sir John Herschel, and without making any very strict examination of the southern heavens, which will be a hint to future workers in this branch of astronomy in the other hemisphere. Some of Herschel's stars, Mr. Russell says, present considerable difficulty, but are probably in motion; thus γ Lupi, an easy double star in 1836, is now single under the highest power on his large equatorial; π Lupi, which Herschel found "excessively difficult," is now quite an easy object with the Sydney refractor; h 4854 is another star of the same character; in June, 1872, it was easily divided with power 230; in June, 1874, it could not be divided with any power; and in July, 1880, it presented only a round disc with all powers on the large telescope.

Mr. Russell has made an innovation in the manner of expressing the dates of the separate sets of measures, which appears an unfortunate one: instead of giving them according to the usual method, as fractions of the different years, he has three columns with "Day of the month," "Month of the year," and "Year in the 19th century," and this inconvenient expres-

sion of dates is not remedied without some trouble, by means of the table at p. 68, showing day and fraction of year. The computer of double-star orbits in taking means of sets of measures for an epoch to work upon, will hardly appreciate this innovation.

(2) "Micrometric measurements of double-stars" in vol. xiii. part 1, of "Annals of the Astronomical Observatory of Harvard College." This is a valuable catalogue of measures of about 350 stars in upwards of one thousand sets, made with the 15-inch refractor at Harvard College, chiefly in the years 1866-1872, under the direction of Prof. Winlock, but including a few obtained by the Bonds, and by Mr. Waldo, which have previously appeared in the *Proceedings of the American Academy of Arts and Sciences*, and in the *Astronomische Nachrichten*. The catalogue includes nearly all the more interesting binaries and many difficult objects. In addition, Prof. Pickering publishes a list of 179 double stars discovered at Harvard College Observatory, some of which have been independently detected by Mr. S. W. Burnham; these were found to a considerable extent during an exploration of the southern heavens, occasionally instituted in the intervals of other observations. In the cases of some of the principal revolving doubles as γ Virginis, 70 Ophiuchi, &c., the measures extend to the year 1876.

(3) "Measures of the principal double stars in rapid orbital motion," made in the years 1875-1882, with the Merz refractor of the Observatory of Brera, Milan by Prof. Schiaparelli; an important series of results which will be most welcome to those who are engaged in the investigation of double star orbits, since in most cases, there are measures later than any others available at the present moment. We extract a few of the more recent mean results:—

			Position	Distance
ζ Cancri (A : B) ...	1882'247 ...	75'07 ...	0"980	
ω Leonis ...	1882'363 ...	89'99 ...	0'55	
ξ Ursæ Majoris ...	1882'386 ...	261'06 ...	1'928	
η Coronæ Borealis ...	1882'503 ...	135'37 ...	0.594	
μ^2 Bootis ...	1882'521 ...	120'40 ...	0'795	
ζ Herculis ...	1882'602 ...	101'55 ...	1'473	
τ Ophiuchi ...	1882'600 ...	252'13 ...	1'860	
70 Ophiuchi ...	1882'609 ...	51'83 ...	2'336	

No trace of the companion of γ Coronæ Borealis was visible in the years 1875-1881. In 1882 a prominence was once suspected at 120°, but at other times the star was single. In 1875-1879, however, this star was single in the Washington 26-inch refractor.

PHYSICAL NOTES

PROF. W. KOHLRAUSCH gives the following as the results of recent experiments on the electric conductivity of the haloid salts of silver. Chloride, bromide, and iodide of silver at temperatures above their melting-points conduct far better than the best conducting liquids (sulphuric acid, &c.) at ordinary temperatures do. Chloride of silver conducts best, iodide worst of the three. The chloride and the iodide of silver change their resistance very greatly and suddenly on solidifying, the resistance increasing more than a million-fold by cooling through 20°. More remarkable still, iodide of silver undergoes absolutely no change of conductivity at its melting-point (540°), but shows a rapid decrease at the temperature (145°) at which it passes from the amorphous to the crystalline state.

New combinations to serve for direct-vision prisms have been suggested recently by several persons. Mr. C. D. Ahrens uses a bisulphide prism cemented between two flint glass prisms, giving a wide dispersion with little loss of light. Herr Fuchs employs a single isosceles glass prism in the position of minimum deviation, a silver-faced mirror being attached to the basal face of the prism to rectify the ray after emergence. Signor A. Ricco has described a similar combination, a total-reflexion prism being substituted for the mirror. He has also constructed the second prism of the combination of a four-sided form, so that it not only rectifies the ray which has been deflected by the first prism, but also augments the dispersion of the first prism by a nearly equal amount.

THE electric resistance of mercury is, according to R. Lenz, affected by pressure. Between the limits of 2 and 60 atmospheres' pressure, the resistance of a quicksilver column 1·2 metres long, inclosed in thermometer tubing, diminished '02 per cent. for each additional atmosphere.