

star of 1604, where none has been since observed. It was of course desirable to clear up this difficulty, and Mr. Herbert Sadler appears to have done so effectually. He has remarked that in the part of the Chart No. 52, where the place of Kepler's star falls, the positions of a number of the brighter stars are incorrectly laid down for the professed epoch of the Chart, 1855 January 1, their right ascensions being uniformly in defect of the true ones; and he notes that, when the assigned place of Chacornac's star is corrected in right ascension to about the amount that several known stars in the vicinity require, it falls into the place of No. 16872 of Oeltzen's Argelander, so that, in Mr. Sadler's view, the stars are identical, and there can be no reasonable doubt that he is correct. It is very satisfactory to have eliminated the difficulty with regard to Chacornac's star, particularly as the place of Kepler's star can hardly be said to be comparable in accuracy with that of Tycho's star of 1572.

The following are places of three of Argelander's stars for 1855'0, on comparing which with the positions assigned on Chacornac's Chart No. 52, its distortion will be evident:—

	h.	m.	s.	N.P.D.	112	49	47
Oeltzen 16848 ... R.A.	17	21	19'6	...	110	50	13
„ 16816 ... „	17	19	37'4	...	111	16	54
„ 16782 ... „	17	18	3'3	...			

THE YALE COLLEGE OBSERVATORY, U.S.—The fine heliometer of this Observatory is now in active charge of Dr. W. L. Elkin, who had given special study to the theory of this instrument at Strasburg, and subsequently had two years' valuable experience in the use of it, in conjunction with Dr. Gill, H.M. Astronomer at the Cape of Good Hope. From the Report to the Board of Managers in June last, it appears that the expenses attending the use of the heliometer have been guaranteed for a period of three years by ten subscribers; and Dr. Elkin, who took charge of it on January 15, is already able to report upon work accomplished, though time is necessarily occupied in the general investigations of the instrument, as scale determinations, &c. A triangulation of the Pleiades has been commenced, with the view to comparison with Bessel's measures of this group, made with the Königsberg heliometer nearly half a century ago, as well as with the later observations of M. Wolf at the Observatory of Paris; about one-third of the proposed measures had been completed before the stars were lost in the sun's rays in the spring, and it is hoped to complete the work during the last four months of the present year. A considerable amount of time has been devoted to determination of places of the moon relative to stars within measuring-distance of the heliometer, with the view to determining the parallactic inequality in the moon's motion, the deduction of which from meridian and other observations is, as Dr. Elkin remarks, attended with some difficulty. Measures of the diameter of Venus near her inferior conjunction have also been secured. There cannot be a doubt that, in Dr. Elkin's hands, most valuable results will accrue from the regular employment of the powerful measuring-instrument of Yale College Observatory. On the Board of Managers of the Institution we remark the well-known names of Profs. Elias Loomis and H. A. Newton.

SOCIETIES AND ACADEMIES

PARIS

Academy of Sciences, August 18.—M. Rolland, President, in the chair.—Obituary discourses pronounced at the obsequies of M. Paul Thenard, by MM. Bouley and Fremy.—Observations of the small planets made with the great meridian instrument of the Paris Observatory during the second quarter of the present year, by M. Mouchez.—Essays in stellar photography, with a view to the construction of maps of the heavenly bodies, by MM. Paul and Prosper Henry, by M. Mouchez. The results so far obtained have been secured by means of an objective with a diameter of 0'16 m. and 2'10 m. focal distance. They represent on a surface of rather less than a square decimetre a section of the Milky Way of 3' of right ascension, and 2' declination, showing 1500 stars from the sixth to the twelfth magnitude. The images of these stars have a diameter nearly proportioned to their brilliancy, except the yellow stars, which appear somewhat fainter. These encouraging results have induced MM. Henry, who are skillful opticians as well as experienced observers, to undertake the construction of a much larger objective with a diameter of 0'34 m., specially adapted for photographing the celestial orbs.—Note on a new method of representing graphi-

cally the speed of railway trains, by M. Léon Lalanne.—Report on various communications relating to the cholera, by the Commissioners, MM. Vulpian, Marey, Richet, Bert, Pasteur, Bouley, and Gosselin. Thirty fresh communications received by the Academy during the month of August have been examined with practically no results. Even Dr. Peyrussou's views regarding the efficacy of borax and boric acid are purely theoretic, unsupported by any practical tests.—Account of a new balloon capable of being guided in any direction and kept under control, by MM. Ch. Renard and A. Krebs. The authors claim to have solved the problem of aerial navigation by means of a new balloon of elongated form, and provided with a screw and helm, which was successfully tried at Chalais on August 9. After a trip of nearly five miles, it returned to the starting point, obeying the helm, and executing a series of manœuvres with a precision comparable to that of a screw steamship in the water. Chief dimensions: length 50'42 m., diameter 8'40 m., volume 1864 m., total weight 2000 kilos.—Observations of the Barnard comet made at the Observatory of Nice, by M. Perrotin.—Observations on the solar spots and volcanic eruptions during the year 1883, by M. P. Tacchini.—Note on a fixed astronomical telescope, by M. G. Hermite.—Note on the freezing-point of saline solutions, by M. F. M. Raoult.—On the combinations of telluric acid with the salts of the bioxide of tellurium, by M. D. Klein.—Researches on the modifications produced in the nutrition of the nervous system by mania, lypemania, and epilepsy, by M. A. Mairat.—Researches on the microbe of typhoid fever in man; its cultivation, and inoculation of the virus in rabbits, guinea-pigs, poultry, pigeons, pigs, and other animals, by M. Tayon.—Note on the slow period of latent excitation in the muscles of invertebrate animals, by M. H. de Varigny.—Account of a new variety of Rhizopod found on the Arcachon coast, south of Bordeaux, by M. J. Künstler.—Note on a relation between the temperatures of fusion of simple bodies and their atomic weights, by M. Chapel. The same author presented a paper on the coincidence of seismic and meteorological phenomena with the return of the August meteoric showers.

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