

by the *Daily Mirror* for use between London and Paris. A demonstration of the methods and results obtained by this process was given at the offices of that journal on Thursday last, November 7.

A SECOND edition, revised and enlarged, of Prof. Prafulla Chandra Rây's "History of Hindu Chemistry, from the Earliest Times to the Middle of the Sixteenth Century A.D., with Sanskrit Texts, Variants, Translation and Illustrations," has been published by Messrs. Williams and Norgate. The book appeared first in 1902, and was reviewed in the issue of *NATURE* for May 21, 1903 (vol. lxxviii., p. 51). Some material additions have been made to the historical portion of the introduction, throwing further light on the independent origin of the Hindu system of medicine and its priority to that of the Greeks.

THE second volume of the French translation of the third English edition of Mr. W. W. Rouse Ball's "History of Mathematics" has been published by M. A. Hermann, of Paris. The price is 8 francs. The translation is the work of M. L. Freund. The volume has been edited with additions by Dr. R. de Montessus, while M. G. Darboux's paper entitled "Etude sur le Développement des Méthodes géométriques," read at the St. Louis Congress in 1904, is appended. From the same publishers we have received a copy of the second French edition—the work of Mr. J. FitzPatrick—of part iii. of Mr. Rouse Ball's "Mathematical Recreations and Essays"; the translation follows the fourth English edition, and has been enlarged by the inclusion of numerous additions.

MESSRS. GEORGE BELL AND SONS have published a third edition of "A Laboratory Outline of General Chemistry," by Prof. Alexander Smith, professor of chemistry in the University of Chicago, which has been revised in collaboration with Mr. William J. Hale. The first edition of the book was reviewed in our issue for November 9, 1899 (vol. lxi., p. 27). In the preface to the present edition, the authors remark:—"In the effort to make misapprehensions and mistakes as nearly impossible as may be, the directions have been entirely re-written, and in many cases have been amplified, and a number of the experiments have been modified. An entirely new set of figures has also been drawn. To render the exercises more instructive, and still further to discourage mechanical work, a larger number of questions has been inserted."

### OUR ASTRONOMICAL COLUMN.

OCCULTATION OF NEPTUNE BY THE MOON.—Dr. Downing directs our attention to an accidental omission from the Nautical Almanac for 1907, of which he publishes particulars in No. 389 (p. 412, November) of the *Observatory*.

The data omitted were the particulars of two occultations of Neptune by the moon, due to take place on November 23 and December 20 respectively, and visible at Greenwich; they are as follow:—

Date 1907	Disappearance				Reappearance			
	Time		Angle from		Time		Angle from	
	Sidereal	Mean	N. point	Vertex	Sidereal	Mean	N. point	Vertex
Nov. 23	h. m. 1 4	h. m. 8 57	° 131	° 171	h. m. 1 47	h. m. 9 40	° 218	° 260
Dec. 20	11 14	17 20	180	138	11 23	17 29	195	153

THE IMPROVEMENT OF CELESTIAL PHOTOGRAPHIC IMAGES.—In No. 31 (September 10) of the Lowell Observatory Bulletins, Prof. Lowell describes a method of combining the use of colour screens and isochromatic plates in the photography of Mars, whereby he has succeeded in obtaining much sharper images of the planet's details. In the first instance, it was seen that the colour curve for the 24-inch object-glass was much flatter in the yellow region, about  $\lambda$  5600, than elsewhere, and further that the inclination of the curve was much greater on the blue than on the red side of the yellow region. To obtain maximum efficiency, then, it seemed necessary to exclude those rays more refrangible than  $\lambda$  5000, and to bathe the plates so that the orange and red radiations should become more effective. Accordingly, Mr. Wallace was asked to construct screens which would absorb the rays of lower wavelength than  $\lambda$  5000, and a Seed "23" plate, bathed with pinachrome and pinacyanol, was exposed in conjunction with the screen. This, however, was unsuccessful, and Prof. Lowell then tried Cramer instantaneous isochromatic plates having sharp maxima at  $\lambda$  4600 and  $\lambda$  5650. Using the orange screen, which cut out the  $\lambda$  4600 maximum, very successful photographs were obtained, and Prof. Lowell hopes that during the opposition of Mars in 1909 this method will produce much better photographs than those already obtained. He places on record that one of his plates taken at the recent opposition showed a canal which had hitherto escaped detection, but was seen for the first time on examining the planet next night.

THE GREAT RED SPOT ON JUPITER.—The acceleration of the Great Red Spot on Jupiter is discussed by Mr. Denning in the *Observatory* for November (p. 411, No. 389), who points out that while the acceleration could be accounted for by the passage of the great S. temperate spot when this occurred, as in 1906, some other explanation must be sought for the acceleration during the past summer, when the S. temperate spot was on the opposite side of the disc to the red spot. Mr. Denning hints at the possibility of there being a minor acceleration when the two objects are in opposition, and indicates the necessity for further careful observations. The S. temperate spot has been visible since 1901, and seems likely to continue so for many years; it was in conjunction with the red spot in May, 1906, and will be so again in April-May, 1908.

RED STARS NEAR NOVA VELORUM.—On examining a plate taken with the 24-inch Bruce telescope on June 6, Mrs. Fleming found the spectrum of a new gaseous nebula, which on further examination proved to be the spectrum of Nova Velorum. This plate includes the region

R.A. 10h. 36m. to 11h. 23m., dec.  $-51^{\circ}$  to  $-57^{\circ}$  (1875),

and shows so many interesting spectra characteristic of red stars that Prof. Pickering publishes a list, in Circular No. 131, giving the C.P.D. designation, the position, the magnitude, and the spectral type of some thirty-four of the included objects. The spectrum of Nova Velorum includes seven bright lines at  $\lambda$  5013, 4926, 4862, 4643, 4611, 4340, and 4101 respectively, six of which appear to coincide with bright lines in the later spectrum of Nova Persei. The strong helium line at  $\lambda$  4472, which was bright in Nova Persei (No. 2), is, however, absent from Nova Velorum.

THE SYSTEMATIC ERROR OF LATITUDE OBSERVED WITH A ZENITH TELESCOPE.—From his observations of latitude at Berlin, Herr Battermann found a systematic difference between the latitudes observed by the east-to-west and the west-to-east positions of the zenith telescope. In No. 4207 of the *Astronomische Nachrichten* (p. 97, October 17) Mr. K. Hirayama, of the Tokyo Observatory, discusses this error, basing his conclusions on the results obtained at various stations, and finds that the difference appears to vary with the zenith-distance. As to how the declination of the observed star can affect the reading of the micrometer requires further investigation, but Mr. Hirayama suggests that it may be a physiological effect produced by the varying speed of the star in the field.