

the molecule, whilst a consideration of the chemical properties leads to the conclusion that the two atoms of hydrogen are functionally different, and that in reality water has a disymmetric formula.

A VERY interesting paper by M. T. Godlewski on certain radio-active properties of uranium is contained in No. 5 of the *Bulletin International* of the Cracow Academy of Sciences. A re-investigation has been made of the anomalous phenomena encountered by Meyer and Schweidler in studying the activity of uranium X. These authors had concluded that the decay curve of uranium X is not complementary to the recovery curve of uranium, but M. Godlewski considers that this only holds when the uranium nitrate containing the UrX is separated from its solution by crystallisation; when it is separated by evaporation to dryness at a temperature sufficiently high to remove the water of crystallisation, an abnormally high rate of decay is not observed. In fractionally crystallising uranium nitrate, uranium X, which is easily soluble in water, accumulates in the mother liquors; several crystallisations will completely deprive uranium nitrate of UrX. The author explains the increase of activity observed in the crystallisation of uranium nitrate as being due to an accumulation of UrX in the upper surfaces of the crystals; this appears to be confirmed by the observation that the activity of a crystal when turned over was found to be only one-third of the activity measured from the upper side. Experiments are brought forward to show that the first rapid decay of activity after crystallisation, which causes an uneven distribution of UrX throughout the plate, is due to the diffusion of UrX from the upper layers of the crystal, where it is more concentrated, to the lower, where the concentration is smaller. The view is held that the uranium X is dissolved in the crystals and the total mass of uranium in the form of a solid solution.

A SECOND and revised edition of the section of the report issued by the Engineering Standards Committee dealing with standard locomotives for Indian Railways has been published by Messrs. Crosby Lockwood and Son at 10s. 6d. net.

WE have received from Messrs. John J. Griffin and Sons, Ltd., a copy of their "H" list dealing with apparatus for use in the teaching of hydrostatics and pneumatics. The excellence of the illustrations and the lucidity of the brief descriptions make the catalogue a very serviceable one.

A CIRCULAR from the bio-chemical department of the University of Liverpool announces that the first number of a new periodical—the *Bio-Chemical Journal*—will be issued in January. Contributions are invited, dealing with all portions of the subject of bio-chemistry in its widest sense. The journal will be issued monthly, in so far as material is available.

THE University of Chicago Press has published a second edition of Dr. C. J. Chamberlain's "Methods in Plant Histology." The first edition of the book was reviewed in our issue for November 28, 1901 (vol. lxxv. p. 75). The new issue contains both alterations and additions; and some of the improvements suggested in the review referred to have been made.

IN noticing the illustrated catalogues of makers of scientific apparatus in this country from time to time, we have directed attention to the excellence of the illustrations accompanying the descriptions of the different instruments. A revised price-list of microscopes and accessories which

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has been received from the Bausch and Lomb Optical Co., Rochester, N.Y., is another instance of a carefully arranged and admirably illustrated catalogue. The catalogue provides information concerning microscopes made by this firm suitable for general laboratory work, advanced work, bacteriology, photomicrography, and a physician's needs. The necessary accessories are detailed fully, and clear descriptions make their special characteristics easily understood. The sole representatives of the company in this country and the colonies are Messrs. A. E. Staley and Co., 19 Thavies Inn, Holborn Circus, E.C.

#### OUR ASTRONOMICAL COLUMN.

ANOTHER NEW COMET, 1905c.—A telegram from the Kiel Centralstelle announces the discovery of a new comet, by Prof. Giacobini, of the Nice Observatory, on December 6-080.

At 16h. 53.7m. (Nice M.T.) the comet's position was

R.A.=14h. 21m. 39.4s., dec.=+20° 59' 29",

and subsequent observations showed that its daily movement in R.A. amounted to +1° 08' (=+4m. 32s.) and in dec. to -0° 26'.

From the above it is seen that, when discovered, the comet was about 10m. east and 1° 15' north of Arcturus, and that it is apparently travelling slowly towards the constellation Serpens.

A second telegram from Kiel announces that the comet was observed at the Lick Observatory on December 8. The position at 17h. 16.5m. (Lick M.T.) was determined as R.A.=14h. 32m. 58s., dec.=+19° 55' 36".

Circular No. 82 from Kiel states that the following elements and ephemeris have been computed by Mr. Morgan (Glasgow, Mo.) from observations made on December 6, 7, and 8, and communicated to the Centralstelle by Prof. E. C. Pickering:—

#### Elements.

T = 1906 January 16.20 (G.M.T.).

$$\left. \begin{aligned} \infty &= 213.56' \\ \Omega &= 93.21 \\ i &= 44.23 \\ q &= 0.0928 \end{aligned} \right\} 1905.0$$

#### Ephemeris 12h. G.M.T.

1905		$\alpha$	$\delta$	Bright- ness
		h. m. s.		
Dec. 14	...	15 1 28	... +17 1	
18	...	15 24 56	... +14 22	
22	...	15 50 48	... +11 13	... 4.22

The computed brightness for December 10 was 1.66, the brightness at time of discovery being taken as 1.0.

COMET 1905b.—A number of observations of comet 1905b (Schaefer's) are recorded in No. 4057 of the *Astronomische Nachrichten*.

Using the Bruce telescope, and exposing for fifty-five minutes, Prof. Wolf photographed the comet on November 21, and obtained an image which showed the object to be unsymmetrical. A fine, faint tail was seen to issue from the coma in a position angle of 92°, reckoning from the direction of the comet's path. This tail was curved, with the concave side preceding, and at a distance of 22' from the nucleus it was broken, the second part having a slightly different direction to the first.

On November 20 Prof. Wolf was able to see the comet with the naked eye, and estimated its magnitude to be about 5.5. On November 21 he found it to be about 6.3m., and on November 24 observed that it had decreased to 7.0.

The ephemeris calculated by Herr M. Ebell gives the position of this comet on December 15 as

$\alpha=23h. 32m. 16s., \delta=-10^{\circ} 30'.5,$

and its brightness as about 0.04 of that at the time of discovery.