

it rarely (if ever) occurs except in the special case of oxidation. These facts are of considerable importance, as they throw doubt on the assumption, which is almost universally made, that a substituent group normally enters the same position as the atom or linkage which it displaces.

THE seventy-eighth annual report of the Natural History, Literary, and Polytechnic Society of Bootham School, York, for 1912, is noteworthy as providing evidence of the enthusiasm for scientific work which can be developed among schoolboys when qualified masters of a boarding-school are willing to devote part of their leisure hours to what is nearly always entirely a labour of love. The Natural History Society has some eleven sections, each devoted to a separate science, and excellent practical work was done in them all during the year under review.

A CONVENIENT card for hanging in offices, entitled "Standard Metric Equivalent Tables, comprising Weights, Measures, and Prices in Francs and Marks," has been published by the Central Translations Institute, Eastcheap, London. The equivalent prices in francs and marks per foot, yard, square yard, cubic foot, gallon, and similar British units will be very handy for merchants. The price of the card is 1s. 2d. post free.

A NEW and cheaper edition of "The Grouse in Health and in Disease" is in the press, and will be published in July next by Messrs. Smith, Elder and Co. In the absence of Dr. E. A. Wilson in the Antarctic, the book has been edited by Mr. A. S. Leslie and Dr. E. A. Shipley, and Lord Lovat has contributed an introduction.

OUR ASTRONOMICAL COLUMN.

REPORTED DISCOVERY OF A NEW COMET.—We learn, from *The Daily Mail* of May 14, that the following telegram has been received at the Greenwich Observatory:—"A comet-like object with a tail has been observed by Mr. Hansen at Praestoe, Denmark. It is of intense magnitude, and its position, given on May 10 at two o'clock, was R.A. 20h. 53m. 20s.; decl. $31^{\circ} 24' N.$ "

Probably the first statement of the second sentence should read, "It is of *the tenth* magnitude," for we are told that it is not visible to the naked eye. The position given lies about half-way between ζ and ϵ Cygni, and is on the meridian at about 5 a.m.; that is to say, it is above our horizon during all the hours of darkness.

The origin of the above telegram is not stated, and, so far, we have received no intimation of the discovery from the Kiel Centralstelle.

THE ROTATION OF URANUS.—When the axis about which a planet revolves makes a considerable angle with the observer's line of sight, the rotational motion can be detected, or even measured, spectroscopically, because as the planet rotates some regions of its limb must be travelling towards the observer, while others are travelling away from him. At the present epoch the orientation of Uranus is favourable to such an investigation, and spectrograms giving a measure of the planet's rotational velocity, secured at the Lowell Observatory, were exhibited and explained by Prof.

Lowell at the recent meeting of the Royal Astronomical Society. On these spectrograms the lines are inclined because the slit was so placed that at the top was the approaching limb, while at the bottom was the receding limb. Thus, in accordance with Doppler's principle, the extremities of the lines were displaced towards the violet and the red respectively, that is to say, they are inclined to the normal lines of the comparison spectrum photographed on the same plate. Measures of the inclination of a number of these lines, on different photographs, indicate that the planet makes one complete rotation in about 10h. 45m.

THE RECENT SOLAR ECLIPSE.—A large number of communications describing the observations made during the solar eclipse of April 17 are published in No. 4571 of the *Astronomische Nachrichten*.

Observations of the bright-line spectrum were made by Drs. Eberhard and Ludendorff at Berlin, and, like Prof. Fowler at South Kensington, and Prof. Ifiguez. Prof. Eberhard found that he was able to study the bright lines for quite half an hour. Dr. Kempf found that the first and last contacts took place 0.4m. earlier than predicted by the *Berliner Jahrbuch*, while at Lemberg, Dr. Grabowski found they were, respectively, 0.3m. and 0.6m. earlier. Quite a number of observers remark on the unexpected darkness of the eclipse and its observed effect on various flowers (especially tulips), beasts, and birds.

M. Felix de Roy gives a very interesting account of the observations made by the mission organised by the Antwerp Astronomical Society, and located at Silenriex (Hainaut, Belgium), where a true annular eclipse was seen. The inner corona was seen by one observer only, and the chromosphere and prominences were looked for in vain. Among the observers of contacts at the Kiel Observatory was Prince Henry of Prussia.

THE ORIGINS OF THE BRIGHT LINES IN NOVAE SPECTRA.—At the meeting of the Royal Astronomical Society, reported in the current number of *The Observatory* (No. 448), a number of spectra of Nova Geminorum were exhibited on the screen and afterwards discussed. Prof. Fowler, after remarking on the unfavourable weather experienced at South Kensington, exhibited two small-dispersion spectra obtained on March 15 and 29 respectively, and stated that as regards the origins of the lines, those assigned by Sir Norman Lockyer to the lines observed in the spectrum of Nova Persei (1901) would probably serve. The bright lines appearing in novae also appear in the chromosphere and solar prominences, and are mainly those of the enhanced iron spectrum. Prof. Newall also agreed that many of the bright lines may be identified as enhanced lines of iron.

Dr. R. H. Curtiss describes the early spectra secured at the Ann Arbor (Mich.) Observatory, in No. 3, vol. xxxv., of *The Astrophysical Journal*. Five photographs taken on March 13 show a continuous spectrum similar in general appearance to that of Altair, but differing in the positions of the lines. Few narrow dark lines were seen, and all the prominent lines of the F ζ type, e.g. $\lambda 4481$ and $\lambda 4549$, appear to be absent. H δ , H γ , and H β are all strong lines and very complex, both absorption and emission being represented; lines at $\lambda 5016$, $\lambda 4922$, and $\lambda 4472$, and the H and K lines of calcium have similar characteristics, the sharp reversals in the latter indicating a velocity of +5 km. \pm 3 km. On a photograph taken on March 22 many of the maxima of emission on March 13 were maxima of absorption, and *vice versa*, and no certain trace of the nebula lines was to be seen.