IN the Journal of the Royal Microscopical Society for December, 1906, Dr. Alfred C. Stokes contributes a note on a certain form of butterfly scale the structure of which well illustrates certain points in connection with the much-studied "Podura" scale. He says:—"These special wing-scales are formed of three distinct membranes, of which the upper and the lower bear longitudinal ribs, between which both membranes are distinctly, even conspicuously perforated by minute apertures arranged in rows more or less horizontal." It appears not to be generally known that the "clouded yellow" (*Colias edusa*) possesses pear-shaped wing-scales mixed with the ordinary scales, corresponding more or less closely to Dr. Stokes's description. These special scales seem to take the place of the "plumules" of many Pieridæ and Satyridæ, and of the "battledore" scales of Lycænidæ.

THE growth of the sudd on the Upper Nile, and the blocking of American rivers with plants of the water-fern, Azolla, are well-known examples of the danger arising out of the undue development of certain water weeds. The most recent instance is recorded from Australia, where the water hyacinth, *Pontederia* (*Eichhornia*) *crassipes*, characterised by its bladder-like swollen petioles and attractive blue flowers, has, owing to its rapid propagation by means of offsets, become a nuisance in the northern rivers of New South Wales and in Queensland. A report prepared by the order of the Minister for Public Works in New South Wales discusses the origin of the plant, the methods and cost of eradication, and proposes that a Noxious Weeds Bill should be introduced into Parliament.

THE report of the International Committee on Atomic Weights for 1907 is published in the current number (No. 319) of the Proceedings of the Chemical Society. New values are suggested, on the basis of determinations made during the past year, for bismuth, nitrogen, tantalum, and terbium, and the opinion is expressed that alterations are needed in the atomic weights of silver and chlorine. Before, however, recommending any change as regards these elements, the committee deems it advisable to wait for fuller information of the results of determinations known to be in progress, as the new values for silver and chlorine will have an influence on a large number of atomic weights.

IN a paper on the relation of chemical activity to electrolytic conductivity, by Mr. John L. Sammis, published in the *Journal of Physical Chemistry* (vol. x., No. 8), a large number of experimental observations are cited as disproving the views of Arrhenius and Ostwald that chemical activity in solution is proportional to the electrolytic conduction. The activity of acids in inverting sugar, catalysing esters, and dissolving magnesium is changed by the addition of benzene to the aqueous solution employed at a rate disproportionate to the conductivity. The replacement of one metal by another is said to take place in molten salts or solutions which are the best of insulators as well as in liquids which are good electrolytes. It was found that in sixty-nine non-conducting solutions of copper oleate prepared with different solvents, copper was easily precipitated by lead, whilst in fourteen other non-conducting solutions lead did not replace copper. The general purpose of the paper is to emphasise the view that the solvent is not indifferent to the solute. It is contended that the facts brought forward are explainable only on the hypothesis that "chemical" union occurs between the solvent and the dissolved substance.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN FEBRUARY:—

Feb. 8. 16h. Venus at greatest elongation, 46° 53′ W.
,, 19h. Venus in conjunction with the Moon. Venus 0° 51′ N.
9. 10h. Minimum of Algol (β Persei).
12. 6h. 49m. Minimum of Algol (β Persei).
15. 20h. Vesta in conjunction with the Moon. Vesta 0° 42′ S.
19. 6h. 31m. to 9h. 33m. Transit of Jupiter's Sat. III. (Ganymede).
20. 23h. Conjunction of Mercury and Saturn. Mercury 1° 40′ N.
22. 6h. Conjunction of Jupiter with the Moon. Jupiter 2° 45′ N.
,, 16h. 8m. to 16h. 58m. Moon occults ν Geminorum (mag. 4·1).
23. 7h. 11m. to 8h. 29m. Moon occults ζ Geminorum (variable).
25. 5h. 30m. to 6h. 31m. Moon occults δ Cancri (mag. 4·2).
26. 10h. 12m. to 13h. 14m. Transit of Jupiter's Sat. III. (Ganymede).

MICROMETER MEASURES DURING THE SOLAR ECLIPSE OF AUGUST, 1905.—At the meeting of the Paris Academy of Sciences held on January 7, M. J. Merlin submitted a paper discussing the micrometer measures made at Roquetas (Spain) by MM. André and Guillaume during the total solar eclipse of August, 1905. From this discussion he arrives at the conclusion that the lunar-parallax constant determined by Prof. Newcomb is not affected by any error sufficiently large to be detected by the measurements carried out. There is, however, room to correct the relative positions of the sun and moon as given in the *Connaissance des Temps*, although the correction does not modify the apparent trajectory of the moon in regard to the sun; it serves only to advance the position of the former in that trajectory by an amount corresponding to an advance of 11·1 seconds in the calculated times of the contacts (*Comptes rendus*, January 7).

HEIGHTS OF METEORS OBSERVED IN 1906.—In No. 4152 of the *Astronomische Nachrichten* Mr. Denning gives the heights, lengths of paths, and velocities of ten large meteors observed in England during 1906. The heights at the commencement of visibility varied from fifty-nine to eighty-nine miles, whilst those at disappearance varied from twenty-two to fifty-six miles. Seventy-two miles was the length of the longest path recorded, and twenty-four miles that of the shortest. The velocities determined lie between fifteen and thirty miles per second, the latter value having been determined for a Perseid observed on August 5, 1906.

A QUICKLY CHANGING VARIABLE STAR.—In Bulletin No. 9 of the Laws Observatory, University of Missouri, Mr. F. H. Seares discusses the observations of the quickly changing variable star R.R. Draconis (188.1904) which were made at that observatory during 1905–6. The variable is of the Algol type, with a period of about 2·8 days, and its light-curve is peculiar in being extraordinarily steep about the time of minimum. The latter could not be determined exactly, because the star becomes invisible for about two hours in the 7½-inch refractor employed, but the observations plainly showed that the range is greater than three magnitudes, and that the rate of change at the time of disappearance is one magnitude in half an hour. The normal magnitude of this object is 9·98, and the elements of its period, as determined from these observations, are:—

$$\text{Min.} = \text{J.D. } 2417026{\cdot}682 + 2{\cdot}831079d. \text{ E. G.M.T.}$$

Some of the residuals suggest the possibility of a variation in the period, but for the present this possibility remains very uncertain.

METCALF'S COMET 1906*h*.—Another set of elliptic elements for comet 1906*h* has been calculated by Mr. Crawford from observations made at the Lick Observatory. This gives October 5·66, 1906, as the time of perihelion passage, and 8·23752 years as the period of the comet (Lick Observatory Bulletin, No. 108).