OUR ASTRONOMICAL COLUMN.

COMET 1910*a*.—A number of observations, with drawings and photographs, of comet 1910*a* are published in the March number of the *Bulletin de la Société astronomique de France*. Among others, M. Quénisset describes the observations made at the Juvisy Observatory, where photographs of the comet and its spectrum were taken, and drawings made, between January 21 and February 12.

A photograph taken on January 29 shows the secondary tail extending to some distance from the nucleus on the south side of the main tail, with which it formed an angle of about 25°; on this date the main tail was estimated to be longer than 62 million miles. The fan-shaped extension towards the sun is also shown, and extended to some 8′ from the nucleus, its northern edge showing the concave form discussed by M. Sola.

Comte de la Baume Pluvinel reports that the spectrograms show the nucleus sharply defined in the two principal radiations of the cyanogen band at λ 388, and an intense image of the comet was produced in the hydrocarbon band near λ 472. Between these, the nucleus and tail give a continuous spectrum which presents several condensations, the interpretation of which is still under investigation.

The observations made at the Lick Observatory are recorded in Bulletin No. 174, and show that considerable changes took place in the spectrum between January 19 and 31. The comet was first seen on January 19 as a fan-shaped cloud several times as bright as Venus at its maximum brilliancy, and spectroscopic observations showed the D lines bright, against a background of sky spectrum; D_2 was seen to be much stronger, and to extend further than D_1. The comet, having considerably decreased in brightness, could not be seen the next day, and a great storm prevented further observations until January 26. It was then seen that, in addition to the D lines, the regular cometary bands were present. On January 27 the same features were recorded, and an additional brightening was seen just to the right of D. A photograph of the spectrum showed a great similarity to the spectrum of comet 1907*d*, as photographed by Dr. Campbell, the continuous spectrum being relatively weak as compared with the bands. Observations made on January 31 showed that the D lines and the red condensation had disappeared, and that the spectrum of the tail was continuous, extending to a distance of 1° from the head.

On February 1 and 2 spectra were photographed with a prismatic camera, and show that the light of the tail is practically all within the visual region, extending towards the violet but a short distance beyond λ 467. Dr. Wright suggests that it may be due to sodium vapour rendered fluorescent by the intense sunlight; this assumption might also account for the faint band seen on the red side of the D lines.

Dr. Albrecht also made spectroscopic observations with a newly designed grating spectrograph of high dispersion attached to the 36-inch refractor. The resulting photographs, on January 27, show the D lines, D_1 being not more than one-third the intensity of D_2. The light from a sodium flame was employed as a comparison spectrum, and measures made of the radial velocity of the comet, which was found to be +66·1 km., and is believed to be trustworthy within 2 or 3 km. Dr. Albrecht suggests that such observations might be useful in determining the orbit of a comet in rare cases, such as the present, when it is difficult to determine accurate positions. Subsequent observations showed that between January 27 and 30 the intensity of the D lines must have decreased ten-fold.

Photographs taken by Messrs. Merrill and Oliver cover the period January 26 to February 1, and show the general changes and details well, but no sharp narrow streamers and bright knots or condensations are anywhere indicated.

In No. 610 of the *Astronomical Journal* Prof. Barnard reports that cloudy weather prevented photographs being taken at the Yerkes Observatory during the period of the comet's greatest brilliancy, except on January 21 and 24, when fair negatives were obtained. A photograph taken on February 3 shows the extension beyond the head, towards the sun, to be 12′ long. This extension is a prolongation of the southern edge of the main tail, and is shown on all three photographs taken on that date.

A further continuation of Dr. Kobold's ephemeris is given in No. 4393 of the *Astronomische Nachrichten*, and shows that the comet is still moving very slowly northwards through Pegasus, the position for March 17 being 22h. 27·6m., +16° 32′. An observation made by Herr Pechüle on March 6 gave corrections of os., +0·5′, and showed the magnitude to be about 9·5.

HALLEY'S COMET.—Numerous photographs of Halley's comet have been secured, at the Lick Observatory, with the Crossley reflector and other instruments. The negatives taken on December 11, 12, and 13, 1909, show the coma and faint traces of a cone-shaped tail; as the angle made by lines from the comet to the earth and sun, respectively, was, on that date, less than 2°, this indicates a fairly well-developed tail. A photograph secured by Mr. Olivier with the Crocker telescope on January 28 shows a tail nearly 1° long. On a negative taken with the Crossley reflector on February 4 a very fine, sharp, stellar nucleus, less than 5″ in diameter, is seen, and the tail appears as a narrow, sharply defined cone; but similar photographs secured on February 10 and 11 show an entirely different form of tail, the narrow quiescent cone having given way to a tail having several fine streamers radiating from the head; the two longest streamers are straight, and can be traced to a distance of 20′ from the head, while the most southerly one is curved. These changes are also shown on the photographs taken with other instruments, where the tail can be traced to a distance of 40′, and doubtless indicate a sudden burst of activity during the first week in February (Lick Observatory Bulletin, No. 174, p. 183).

PIDOUX'S COMET.—It now appears probable that the report of the discovery of a new comet at Geneva was a mistake. A plate exposed through clouds on February 20 showed a **V**-shaped nebulous form near Halley's comet, and before the identification of this object could be completed, the news arrived that a new comet, in the same position, had been discovered at Cardiff. A plate exposed on February 14, on the same region, showed no trace of the object, but a similar form was seen on the edge of a plate taken on February 16; but on a photograph taken at Heidelberg on February 10, which covers the region where, according to calculation, the alleged comet should then have appeared, there is no trace of any such object. As no control plate is available, the existence of the reported comet cannot be confirmed (*Astronomische Nachrichten*, No. 4392).

THE INTERNATIONAL AËRO AND MOTOR BOAT EXHIBITION.

THIS exhibition opened at Olympia on March 11, and will continue until March 19. The Society of Motor Manufacturers and Traders, Ltd., supported by the Aëro Club of the United Kingdom, are responsible for the organisation, and deserve commendation for the fine collection of machines on show. It will be remembered that the first exhibition of this kind, organised by the same society, was held last March. Great advances have been made in flying machines during the interval, and the fact that British makers do not intend to be left behind will be evident to anyone who visits Olympia this week. A pleasing feature of the present exhibition is the almost entire absence of "crank" ideas, especially in the full-size machines shown. Such are almost inevitable in any collection of models, but even the model section contains many fine examples of thoughtful design and skilful workmanship.

Monoplanes comprise by far the larger number of machines in the exhibition. Apart from any inherent advantages of this design, such as space occupied, convenience in dismounting and packing for transit, and lightness, there is no doubt that its popularity, both with makers and buyers, is owing to Blériot's flight across the Channel last summer. There are twenty monoplanes, nine biplanes, and one triplane, all of these being full-size machines. In addition, there are two balloons, a dirigible, and a large number of engines and accessories shown separately, as well as motor-boats and launches. In practically every case it is evident that the brains of a skilled engineer have been brought to bear on the design and construction.