

been needed for some time has been completed and is now in use, but the work in the physics building is still congested.

AN opportunity has been afforded us to examine and test the Hatchett planimeter and the pantograph designed and manufactured by W. H. Harling, 117 Moorgate, E.C. 2. The planimeter is very simple and compact in form: after a little practice it can be made to give results of considerable accuracy. The writer has tested it on variously shaped areas of different sizes, with good results. The pantograph is a more complicated instrument, designed on the principle of simple parallelograms, and can be set to sixteen different ratios. Geometrically, the instrument seems to be quite satisfactory. In use, however, one or two faults can be detected. First, there is not enough pressure on the pencil point to produce a useful drawing. Second, the pencil is not steady, there being insufficient constraint for keeping it perpendicular to the plane of the instrument. If these

faults are remedied, the pantograph should prove very useful. Both instruments are offered at moderate prices.

THE Milroy Lectures on "Canned Foods in relation to Health," which were delivered a short time ago by Dr. W. G. Savage, are to be published in the autumn, in the Cambridge Public Health Series, by the Cambridge University Press.

MESSRS. J. AND A. CHURCHILL are about to publish "Clouds and Smokes: the properties of disperse systems in Gases," by Dr. W. E. Gibbs, in which will be described the various ways in which disperse systems in gases can be formed; their mechanical, thermal, optical, and electrical properties, and the conditions which determine their stability are discussed. This information is then applied to the practical problems of meteorology, fume condensation, gas filtration, the manufacture of substances in a finely powdered condition, and the use of smoke in warfare.

Our Astronomical Column.

THE GREAT PERSEID METEOR SHOWER.—Mr. W. F. Denning writes: "The maximum of the Perseids occurred in 1921 on the morning of August 12, and the earth may be expected to be in the same position of its orbit in the early afternoon of August 12 next. There may therefore be no very rich shower, though one may possibly recur in Japan and in the East.

Our acquaintance with the distribution of the Perseids is, however, by no means perfect, and it is fairly certain that a fairly good display will be observed in England this year if the weather allows suitable observations to be made. The moon being new at the time of the maximum will be a favouring feature.

Observations should be made on the early morning of August 12 and during the night following that date. The hourly number of meteors should be counted, and the apparent paths among the stars of the larger ones should be accurately recorded so that their real paths may be computed.

It will be interesting to note if there are any strong displays of the minor radiants of this period, such as the Cepheids, Cygnids, Lyrids, or Arietids."

OBSERVATIONS OF JUPITER.—*L'Astronomie* for July contains three drawings of Jupiter on April 24 and May 1 by M. Pierre Feurtey, using an equatorial of 0.19 metre aperture screened down to 0.14 metre. The Red Spot, the tint of which is described as *saumon gris*, seems to have revived since last year, as it is shown quite strongly marked in the drawing of May 1, with two lighter patches in its interior, and the surrounding bays, both north and south, very dark. A row of six round white markings follows the spot, slightly to the north of it.

Several narrow dark bands cross the light equatorial zone obliquely.

PARALLAXES OF FIFTY-SEVEN STARS.—The Memoirs of the National Academy of Sciences (Washington), vol. xix., contains the results of the determination of the parallaxes of fifty-seven stars made by Mildred Booth and Frank Schlesinger. In twenty-two of these no previous determinations of parallax have been made. The authors point out that, without the co-operation of several institutions, a long interval would have elapsed before these results could have been made available. Thus the photographic plates were secured with the Thaw photo-

graphic refractor of the Allegheny Observatory: the measures and reductions were completed at the Yale Observatory under a grant from the National Research Council (Division of Physical Sciences) to the committee on Stellar Parallaxes of the American Astronomical Society. The measuring machine was purchased several years ago with a grant from the Draper Fund of the National Academy of Sciences. The measurements and computations were carried out by Miss Booth, the methods employed having been previously published. The average number of comparison stars used was 3.8, and the average number of plates for each region was 15. It is interesting to note that a great many of the stars in the list are double; thus nearly every object is one of more than average difficulty, the stars having in fact been selected on that account from a long list awaiting attention at Allegheny. A summary of the parallaxes is given in a table showing the visual magnitude and spectrum type, total proper motion, relative parallax and probable error, and finally, the probable error for one good plate.

SPECTROSCOPIC BINARIES.—The Dominion Astrophysical Observatory, Victoria, is determining orbits for a number of these binaries. The chief interest in this research is the material for determining the average mass of stars of each spectral type. The masses of individual stars are indeterminable owing to the uncertainty of the inclination, but in studying a large number of binaries we may assume that the inclinations follow the law of random distribution. The elements of the following three stars have lately been determined:

	Spectral Type.	Period.	Mass in terms of sun's mass.
BD 44° 3639	Oe 5	48.608 days	0.374
Boss 4870	B 2	1.0309 "	0.00019
φ Aquilae	A 2	3.3204 "	0.0192

The first is of special importance, since few masses of this type are known. One spectrum only is visible in each of these cases, so the companion is likely to have smaller mass. In the Oe 5 spectrum, the sharp H and K lines do not share in the oscillations and give a velocity of -11.3 km./sec., as compared with -5.8 km./sec. for the centre of gravity of the system.