ticles to determine their bending in a magnetic field. By this means he shows that these swift particles are ordinary α-particles of mass 4, and not doubly charged particles of mass 3, such as are produced by the passage of α-particles through nitrogen and oxygen.

Messrs. Pastorelli and Rapkin, of 46 Hatton Garden, E.C.1, have issued a new list of their glass and metal hydrometers and specific-gravity instruments for use in chemical laboratories and for industrial purposes. The list includes not only all the hydrometers generally used in laboratory and technological determinations, those of Twaddell being particularly well represented, but also an extensive variety of salinometers and saccharometers. It is interesting to see that hydrometers have now a wide application in industry, being no longer confined to brewing and distilling, but required for petrol and other oils; by electricians for accumulators; in the meat-pickling trade; in laundries for testing starch; as "lactometers" for milk; by tanners, who call them "barkometers"; while there is even a special hatter's hydrometer for shellac solutions.

Mr. John Murray is to publish for Lord Haldane a work entitled "The Reign of Relativity," in which the principle of relativity will be dealt with in its philosophical aspect, and not merely as interpreted in mathematical physics. The departments of biology, psychology, the State, and religion will be considered in the investigation, and illustrations of the principle of relativity in this wider application will be drawn from literature, art, religion, and recent physical and natural science. Another book in Mr. Murray's new announcement list is "The Great Malaria Problem and its Solution," by Sir Ronald Ross. The work will be largely an autobiographical record of the inception, progress, and ultimate success of the campaign against malaria.

Mr. R. F. Granger, of Lenton Fields Climatological Station, Nottingham, who made naked-eye observations of the partial eclipse of the sun on April 8, writes to say that he saw Venus clearly, though he could see no stars. He noticed that faint cloud formed at 8.15 and disappeared at 9.0; "it probably lay in the damp layer at the top of the turbulent region, and appeared to be formed by direct cooling." Daisies closed, but chickens took no notice of the darkness.

Erratum.—Nature of April 14, p. 218, 1st col., line 6 from bottom: *For* F. C. Cruikshank *read* F. G. Crookshank.

Our Astronomical Column.

Pons-Winnecke's Comet.—The following provisional elements of Pons-Winnecke's comet have been deduced with the aid of the recent observations.

T 1921 June 13·950 G.M.T., ω 177° 41′ 37″, node 93° 24′ 19″, incl. 19° 11′ 31″, log a 0·51403, e 0·69138, q 1·008.

Ephemeris for Greenwich Midnight.

		R.A. h. m. s.	Decl. °	Log r	Log Δ
April	18	16 12 43	39 36 N.	0·1050	9·6378
	20	16 17 59	40 21	0·0996	9·6213
	22	16 23 32	41 6	0·0942	9·6043
	24	16 29 30	41 53	0·0889	9·5868
	26	16 35 52	42 42	0·0836	9·5696
	28	16 42 38	43 18	0·0783	9·5505
	30	16 50 6	44 0	0·0731	9·5313
May	2	16 58 13	44 39	0·0680	9·5114
	4	17 6 49	45 19	0·0630	9·4911
	6	17 16 26	45 54	0·0580	9·4699
	8	17 26 56	46 28	0·0532	9·4481
	10	17 38 32	46 56	0·0486	9·4253
	12	17 51 25	47 18	0·0440	9·4017

The comet will be nearest the earth (distance 12,500,000 miles) on June 6. The earth passes the node on June 25, about nine days after the comet.

Reid's Comet.—This comet was on the verge of naked-eye visibility more than a week ago. It should be easily so visible when the moon is out of the way. M. Ebell has computed new elements from which the following ephemeris (for Greenwich midnight) is taken. The elements differ only slightly from those given in Nature for March 31. T is May 10·61 and log q 0·00403:

	R.A. h. m. s.	N. Decl. ° ′			R.A. h. m. s.	N. Decl. ° ′
April 22	20 41 54	33 44	May	2	21 16 10	68 24
24	20 45 20	40 16		4	21 38 8	74 53
26	20 49 36	47 11		6	22 24 22	80 37
28	20 55 22	54 20		8	0 31 22	84 49
30	21 3 32	61 29		10	4 27 37	84 50

Values of log r, log Δ: April 22, 0·0223, 9·8292; April 30, 0·0096, 9·8017; May 8, 0·0042, 9·8640. The high north declination will facilitate observation.

Mr. W. F. Denning writes:—"Reid's comet was faintly visible to the naked eye on the morning of April 16 at 3.20 G.M.T. The comet's perihelion will occur on May 10 next, and when the moon leaves the evening sky about April 24–25 the comet should be easily visible. It will then be situated in Cygnus and a few degrees south of α Cygni. Its motion is carrying it rapidly northwards, so that on May 2 the comet will be found 2° or 3° south-west of β Cephei. It should be readily found with a field-glass, and will probably be easily within reach of the unaided eye."

Fixed Calcium Lines in Early Type Stars.—Since the discovery in 1904 of the fact that the H and K lines of calcium in the star δ Orionis did not share in the large displacements common to all the other lines, a similar effect has been observed in many other stars. A considerable amount of literature has thus accumulated on this subject of "fixed" calcium lines, which has now been collected and discussed by Mr. R. K. Young in a very useful summary published in the Journal of the Royal Astronomical Society of Canada (vol. xiv., p. 389). It appears that nearly all the stars having this peculiar characteristic are of early B type, and this forms a strong argument against the theory that the stationary calcium lines have their origin in a cloud of vapour lying between us and the star. It is also difficult to account for their origin by assuming an extended nebulosity enveloping the star and not partaking in its motion, since in a very close pair of stars observed by Plaskett only one showed this effect; and in the Pleiades, which are known to be surrounded by such a nebula, the effect is not seen at all. The author holds the opinion that the calcium vapour giving rise to the fixed lines forms part of the star's own atmosphere, but is much more extended than the proper reversing layer.