arrived at are as follows:—(1) The cooling of bread takes place in three stages: a steam period, a condensation period, and a drying period, the rate of loss of moisture of the first being four times as great as that of the drying period and five times that of the condensation period. (2) No marked loss of moisture from the centre of the loaf occurs until after 100 hours, and within the latter period the zone of drying is a layer only 1 in. thick adjacent to the outer crust. (3) The loss of water from a loaf on keeping is not responsible for staleness. (4) As the loaf becomes stale there is a fall in the amount of soluble extract of the bread-crumb, followed by a rise, the soluble starch falling rapidly between six and twenty-four hours' cooling. This supports Lindet's view that staleness is due to the retrogression of soluble starch. A similar fall and rise of soluble extract has been observed with starch pastes. Capt. Whymper considers that staleness may be attributed to (i) deposition of solid starch in the bread-crumb by change of temperature and accelerated by the pre-existence of solid starch particles; and (ii) partial polymerisation of starch independent of the deposition mentioned, which tends to crumble the gelatinous nature of the bread-crumb. Changes occurring in the proteins of the bread may also be a cause of staleness.

Messrs. Baillière, Tindall, and Cox have in the press for appearance in their Industrial Chemistry Series:—"Explosives," E. de Barry Barnett; "The Industrial Gases," Dr. H. C. Greenwood; "Animal Proteids," H. G. Bennett; and "The Carbohydrates," Dr. S. Rideal. The following volumes are in preparation for the same series:—"Fats, Waxes, and Essential Oils," W. H. Simmons; "Silica and the Silicates," J. A. Audley; "The Rare Earths and Metals," Dr. E. K. Rideal; "The Iron Industry," A. E. Pratt; "The Steel Industry," A. E. Pratt; "Gas-works Products," H. H. Gray; "Organic Medicinal Chemicals," M. Barrowcliff and F. H. Carr; "The Petroleum Industry," D. A. Sutherland; "Wood and Cellulose," R. W. Sindall and W. Bacon; "Rubber, Resins, Paints, and Varnishes," Dr. S. Rideal; and "Economic Fuel Production in Chemical Industry," Dr. H. S. Taylor.

ERRATUM.—On p. 84 of NATURE of September 25, in the Table in column two, 95·4 appeared under S(aturn) in some copies as 5·4, the 9 having been broken off during printing.

OUR ASTRONOMICAL COLUMN.

THE TWENTY-FOUR-HOUR DAY.—The spirit of standardisation and unification is abroad, and one of its latest manifestations is the attempt to reduce the various methods of time-reckoning to a single system. Astronomers have made an important contribution to this end in deciding to commence the astronomical day at midnight instead of noon. This reform will commence in the year 1925, an earlier date being inconvenient for the various nautical almanacs. While astronomers will gain, on the whole, by the change, yet in some respects, notably in the case of sets of observations extending on both sides of midnight, it will cause inconvenience; this gives them a certain claim to ask for some sacrifice on the part of the general public in order to achieve the further unification which is now desired; this is the substitution of 24-hour reckoning for the present system of a.m. and p.m.

Twenty-four-hour time has long been used in Italy; it was introduced into the British Army last year, and a few railway companies already use it in their time-tables, where its convenience is so manifest that it is surprising that its introduction has been so tardy.

The majority of social functions take place in the afternoon or evening, and it undoubtedly is somewhat more troublesome to say seventeen than five, or twenty-one than nine. *Punch* made some amusing play on this subject when the reform was suggested in 1885; possibly this had something to do with the failure to carry it at that date. However, the fact that astronomers could not then agree to alter the astronomical day deprived the scheme of its driving-power. The auspices are now more favourable, and the report of the Committee, consisting of seven members, just appointed by the Home Secretary will be awaited with interest.

COMETS.—Using observations made on August 21, 29, and September 7, Messrs. Braae and Fischer-Petersen have deduced the following elliptical orbit of the comet 1919*b*:—

T = 1919 Oct. 16·861 G.M.T.	log a = 1·23860
ω = 129° 32′ 11″	log e = 9·98767
Ω = 310° 43′ 41″ (1919·0)	log q = 9·68544
i = 19° 11′ 45″	Period 72·095 years

The elements are extremely close (within about 5′ in each case) to Gould's elements for 1847 when corrected for precession. The error of the middle place in longitude (great circle) is −0·50′, in latitude +0·51′. The period adopted is simply the observed interval between the two perihelia, uncorrected for perturbations.

Ephemeris for Greenwich Midnight.

		R.A.	N. Decl.	Log r	Log Δ	Mag.
		h. m. s.	° ′			
Oct. 1	...	11 46 46	25 14	9·7836	9·7184	6·8
5	...	11 45 19	20 52			
9	...	11 46 13	16 46	9·7130	9·8392	7·3
13	...	11 49 41	12 49			
17	...	11 55 30	8 55	9·6856	9·9440	7·9

The comet will be observable as a morning object in Europe until early in December; after that it will pass to the south of the sun, and will be better placed for southern observers. It is very desirable to observe it as long as possible, in order to place the elliptical character of its orbit beyond a doubt.

The physical appearances of the three visible comets are discussed in *L'Astronomie* for September. 1919*a* (Kopff) appeared as a circular nebulosity some 3′ in diameter, gradually increasing in brightness towards the centre, where there was a nucleus of the 12th mag.; no trace of a tail. 1919*b* (Metcalf-Brorsen) was visible to the naked eye on September 5, in spite of strong moonlight. In the telescope it appeared as a large nebulosity, with eccentric condensation, and a short but broad tail pointing S.W. 1919*c* (Metcalf-Borrelly) appeared early in September as a pale nebulosity, 2′ in diameter, with slight central condensation; observation difficult owing to moonlight.

MINOR PLANETS.—A sixth member of the interesting Trojan group of planets (the mean motion of which is the same as that of Jupiter) was found in March last, and provisionally designated 1919 FD. Its mean longitude is 60° greater than that of Jupiter. Prof. Cohn gives the following elements:—

Epoch 1919 March 19·5 G.M.T.
M_0 = 88° 48′ 18·9″
ω = 78° 46′ 7·8″
Ω = 336° 55′ 10·5″ (1919·0)
i = 21° 56′ 49·8″
ϕ = 4° 55′ 43·4″
μ = 303·190″
log a = 0·712194

Four of the Trojans have longitude 60° greater than Jupiter, and two 60° less.