to-day. Mr. Atkinson looked forward to further progress in the gas turbine, and hinted that some process of current production avoiding the limits imposed by the second law of thermodynamics might be found, and that perhaps an electrical method of unlocking the stores of energy in the atom might ultimately be discovered. After a few words on the history of electric supply, transmission of power, and cable manufacture, Mr. Atkinson passed on to a review of telegraph and telephone progress. Both submarine and land line telegraphy had reached a high degree of advancement when the institution was founded, but the telephone did not exist, and such ideas as there were on the possibility of communication without wires were in the direction of earth conduction. Recent developments included applications of the wonderful thermionic amplifier to cable telegraphy as well as to line telegraphy and wireless. Among matters requiring further research were the development of more exact methods of estimating the quality of transmitted speech and multiplex and superposed telephony.

MESSRS. W. HEFFER AND SONS, LTD., Cambridge, have just issued a catalogue (No. 194) of publishers' remainders which should be seen by those on the look-out for standard books in a new condition as Christmas or New Year presents. Many of the volumes offered for sale deal with scientific subjects, but most are of general interest. All are listed at prices far below those at which they were published. The catalogue is obtainable upon application.

Our Astronomical Column.

THE DECEMBER METEORS.—These meteors are due to reappear on the nights of December 10–13, and with suitable weather ought to be well observed this year, as there will be no interference from moonlight. The maximum will probably occur on December 12, when the radiant will be at 112°+33° near α Geminorum. The point of radiation apparently moves eastward at the rate of 1° daily. The meteors are moderately swift, sometimes slow, but their individual aspects depend in a measure upon their relative positions with respect to the observer and the radiant. In the early hours of the evening the flights are longer than in the later part of the night, the radiant being higher in the sky in the small hours of the morning.

MINOR PLANETS.—Ceres will be in opposition on Christmas Day in high north declination, its magnitude being 7·2. The following approximate ephemeris for Greenwich midnight is from Marseilles Circular No. 412:

		R.A. h. m. s.	N. Decl. ° ′			R.A. h. m. s.	N. Decl. ° ′
Dec.	3	6 37 48	25 27	Dec.	18	6 24 30	26 41
	8	6 33 54	25 52		23	6 19 24	27 5
	13	6 29 24	26 17		28	6 14 6	27 27

Log r, log Δ December 3, 0·424, 0·240; December 23, 0·421, 0·219.

The planet is close to ε Geminorum at the beginning of December.

Astr. Nach. Circular No. 46 reports the discovery of a very interesting planet which has been provisionally named HZ. It was found photographically by Dr. W. Baade at Bergedorf on October 31, and observed again on November 2 and 12, its magnitude being about 13. Dr. G. Stracke has computed the following elements:

Epoch 1920 *October* 31·5 *G.M.T.*

M = 348° 33′ 35·4″	μ = 320·085″
ω = 57 38 40·2	log a = 0·696494
Ω = 21 22 26·8	log q = 0·2887
i = 41 28 58·6	T = 1921 March 9·2
φ = 37 31 0·8	Equinox 1920·0

It will be observed that the value of the mean motion would make it a member of the Trojan group, but the very large inclination and eccentricity (which are cometary rather than planetary) would prevent any close adherence to the equilateral configuration with the sun and Jupiter, which is the characteristic of that group.

Ephemeris for Greenwich Midnight.

		R.A. h. m. s.	N. Decl. ° ′
December	6 ...	0 8 16	18 27
	10 ...	0 7 24	19 18

The perihelion and aphelion distances are 1·944 and 7·998 respectively.

PHOTOGRAPHIC PARALLAX DETERMINATIONS AT ALLEGHENY.—Vols. iv. and v. of the Publications of this observatory, of which Prof. F. Schlesinger is director, contain parallaxes of nearly three hundred stars, the average probable error being given as 0·008″. A few of the larger parallaxes are recorded below, with notes on previous determinations. An asterisk denotes a spectroscopic parallax:

Star	Parallax ″	Some previous determinations in ″
τ Cygni ...	0·058	0·125, 0·029, 0·006, 0·023
ι Pegasi ...	0·067	0·063, 0·120
μ ,, ...	0·043	
β Virginis ...	0·096	0·110, 0·100*, 0·096
42 Coronæ ...	0·064	0·119, 0·058
ζ Herculis ...	0·114	0·172, 0·101, 0·146, 0·086, 0·066*
μ ,, ...	0·104	0·122, 0·126, 0·093, 0·051, 0·096*
85 Pegasi ...	0·084	0·054, 0·096, 0·084, 0·101, 0·096*
∫ 0Σ 547 (mean)	0·103	0·134, 0·095, 0·120*
⌊ Furuhjelm star[1]	0·099	0·112
χ Orionis ...	0·096	
8 Canum Ven.	0·109	0·089, 0·084, 0·105*
ξ Boötis ...	0·147	0·225, 0·151*
η Cassiopeiæ...	0·173	0·188, 0·182, 0·178*, 0·180
61 Cygni (mean)	0·285	0·270, 0·272, 0·322, 0·301
Castor (mean)	0·070	0·053

[1] This star has the same P.M. as 0Σ 547, being 5½′ distant.

The great advance in the accuracy of photographic parallaxes in recent years is very satisfactory. It may be ascribed to the many additional precautions now taken, notably the equalisation of magnitudes by rotating sector or otherwise, and confining the photographs to the neighbourhood of the meridian to minimise the effect of atmospheric dispersion.

Vol. vi., No. 2, of the Allegheny Publications contains a paper by Mr. C. J. Hudson on the amount of error arising from this dispersion. The effect on pairs of plates taken at considerable hour-angles east and west is 0·021″. It should be quite negligible on the parallax plates.