

index, giving prices of forty-five commodities since 1800, together with the records of the prices of French wheat since 1250, and constructs some interesting curves. He is thus led to predict that all fuel will be too high in price for the profitable working of vessels for at least thirty years to come. The motor clipper appears to be the type of the immediate future, in which the auxiliary propulsion machinery would be used in calms only. The following figures are for the year 1913-14, and give the percentage earnings on investments with freight at 20s.:—Motor-ship, two-cycle, 26.0; motor-ship, four-cycle, 36.2; steamship, superheat, 38.5; and motor clipper, auxiliary sailing vessel, 70.2. Comparative figures for the year 1920 with freight at 55s. are as follows:—Motor-ship, four-cycle, 28.5; steamship, superheat, 25.5; motor clipper, 7150 tons, 56.0; and motor clipper, 11,600 tons, 63.0.

AMONG the forthcoming books announced by the Cambridge University Press we notice "Scientific Papers of Henry Cavendish," in 2 vols. Vol. i. (The

Electrical Researches) is a reprint of the volume edited by Clerk Maxwell (1874-79), with additional notes by Sir Joseph Larmor. Some changes have been made in the arrangement of headlines, etc., and it is hoped that the revised volume will bring out more clearly both the extraordinary range and value of Cavendish's work and the magnitude and importance of the task which Clerk Maxwell accomplished in the last five years of his life. The volume also includes a reprint of the biographical sketch of Cavendish which Dr. T. Young contributed to the "Encyclopædia Britannica." Vol. ii. (Chemical and Dynamical), edited by Sir Edward Thorpe, includes the papers published in the Philosophical Transactions and much unpublished material from the papers in the possession of the Duke of Devonshire. It also contains an account of the researches in dynamics, astronomy, geology, and magnetism, in arranging which the editor has been assisted by Sir Joseph Larmor, Sir Archibald Geikie, Sir Frank Dyson, and Dr. C. Chree.

Our Astronomical Column.

PONS-WINNECKE'S COMET.—The failure to find this comet up to the present suggests that the date of perihelion may be later than those assumed. Ephemerides for April have therefore been prepared with the addition of a third assumed date, June 29.5. They are for Greenwich midnight:

<i>T assumed June 13.5.</i>					
Date	R.A. h. m. s.	N. Decl. ° ' "	Log r	Log Δ	
March 31	15 30 23	34 51	0.1519	9.7731	
April 8	15 46 15	38 13	0.1306	9.7181	
	16 4 49	41 27	0.1091	9.6600	
	24 16 26 52	44 39	0.0879	9.5971	
May 2	16 54 36	47 40	0.0670	9.5270	
<i>T assumed June 21.5.</i>					
March 31	14 32 23	39 26	0.1729	9.8064	
April 8	14 35 18	42 57	0.1519	9.7602	
	16 14 36 45	46 20	0.1306	9.7135	
	24 14 37 40	49 21	0.1091	9.6641	
May 2	14 37 12	52 3	0.0879	9.6100	
<i>T assumed June 29.5.</i>					
March 31	13 39 1	42 1	0.1932	9.8483	
April 8	13 33 41	45 1	0.1729	9.8130	
	16 13 24 58	47 28	0.1519	9.7789	
	24 13 14 44	49 15	0.1306	9.7452	
May 2	13 4 28	50 11	0.1091	9.7092	

These three ephemerides define curves near which the comet should be found. Owing to its high north declination it is observable throughout the night.

COMET REID 1921a.—A third observation of this comet was obtained at Algiers on March 25. The following is the orbit deduced from this, combined with those of March 14 and 18:

$$\begin{aligned}
 T &= 1921 \text{ May } 10^{\text{h}} 29^{\text{m}} 27^{\text{s}} \text{ G.M.T.} \\
 \omega &= 64^{\circ} 25' 24'' \\
 \Omega &= 268^{\circ} 28' 53'' \\
 i &= 131^{\circ} 36' 42'' \\
 \log q &= 0.00582 \\
 \text{NO. 2683, VOL. 107]}
 \end{aligned}$$

Ephemeris of Greenwich Midnight.

		R.A. h. m. s.	Decl.	Log r	Log Δ
March 31		20 24 4	7 1 S.	0.0843	0.0928
April 8		20 28 51	2 23 N.	0.0596	0.0012
		16 20 34 40	17 2	0.0379	9.9007
		24 20 44 29	39 37	0.0206	9.8190
May 2		21 12 30	67 28 N.	0.0095	9.8127

The comet was observed on March 25 in bright moonlight. There is reason to expect that it will attain at least faint naked-eye visibility. The elements do not closely resemble those of any known comet.

LARGE DETONATING FIREBALL.—Mr. Denning writes:—"On March 16, 8h. 33m. G.M.T., a magnificent meteor was observed from Scotland and the north of England. It occasioned a brilliant illumination of sky and landscape, and was followed several minutes afterwards by loud detonations, which some of the observers likened to the bursting of high explosive shells. At Edinburgh the sound came in about 2 minutes after the meteor had passed, at Duns the interval was 2½ minutes, at Kelso 80 seconds, while at Berwick-on-Tweed the fireball's flash and sound of disruptive explosions were almost simultaneous. There seems to have been little doubt that the meteor may have fallen in or near the latter town, or in that part of the North Sea contiguous to it.

"A large number of observations were made of the object, but they are mostly of the popular type. It appears highly probable, however, that the meteor moved in a direction from south-west by west to north-east by east, and that its flight was from over Moffat to Berwick-on-Tweed. Its height was about 71 miles at the outset of its luminous career, and after traversing about 75 miles of its path it seems to have been about 24 miles high between Kelso and Coldstream, while at Berwick the meteor gave evidence of very near approach to the earth's surface. The fireball was a late Taurid from a radiant at 80°+22°, but it is rather difficult to fix with accuracy and certainty the point of radiation. The duration of the meteor's flight was about 6 seconds, and this would give a velocity of about 14 miles per second. Up to the time of writing no fragments of the meteor have been found, but they might easily have fallen into the sea unperceived."