An inspection of the diagram will leave very little doubt in the mind that the march of horizontal magnetic force is in latitude 45° on the Earth directly correlated to the variations of the perturbations of the rotating Sun by the surrounding planets, including the Earth. It is easily seen that in spite of the slowly varying angular velocities of the planets in their orbits, the perturbations of the Sun due to Jupiter in 1914 and Mercury in 1919 were opposed in phase on the 30th June, and were also opposed for Jupiter, 1919, and Mercury, 1914, on the 30th June; not only so, but their phases were positively and negatively directed by very nearly the same angle on the 30th June to the line of action of Venus. We may say that very approximately the mutual perturbation of the four bodies Venus, Jupiter, Sun, and Mercury with regard to angular motions were inverse in 1914 and 1919 for a long time. This, however, did not apply to the Earth's action, which on the 30th June was 90° ahead of Venus in 1914 and only 45° ahead in 1919.

Although Leyst asserted that each of the planets had its own influence on terrestrial magnetism, Schuster found later that the evidence was insufficient. We have here, therefore, now, at least, the strongest evidence that mutual perturbations of the Sun and the planets contain of necessity the prime cause of H. change in latitude 45° on the Earth, and almost a certainty that it is the perturbation of the revolving Sun alone which is immediately responsible. Such perturbations are called tidal, and it is probable that since the Sun perturbs the motion of the Moon there may be a very small monthly variation in the Earth's effect on the Sun. This, of course, could only arise from the fact that tide-generating power depends upon the inverse cube of the distance, while mass-attraction depends upon the inverse square of the distance. It is not easy to say precisely whether this is so, but, if so, it might conceivably alter the ratio of the amplitudes of the lunar-diurnal inequality in terrestrial magnetism at perigee and at apogee, though the effect would cut out in 8·8 years. No doubt astronomers have inquired into the question of the effect of the, to us, invisible solar tidal excrescences upon the motions of Mercury; his motions in relation to Jupiter, Venus, and the Sun do at any rate have a great interest to terrestrial magnetism.

EARTHQUAKE REPORTS.

Symbols, Notation, etc.

1. Character of the earthquake:—
   - *d* Local shock perceptible at station, its intensity being expressed on the Rossi-Forel scale, thus: RF 1, &c.
   - *v* Near shock (origin less than 9°, or 1,000 kilometres, distant).
   - *r* Distant shock (origin from 9° to 45°, or 1,000 to 5,000 kilometres, distant).
   - *u* Very distant shock or teleseism (origin more than 45°, or 5,000 kilometres, distant).
2. Phases of the seismogram [each of the following symbols may denote—(*a*) the phase itself; or (*b*) the time of arrival of the first waves of that phase at the station; or (*c*) the time of transit of those waves from the origin in seconds. There will be no ambiguity.]

P	Longitudinal waves, direct (first phase or first preliminary tremors).
PR (or PR_1), PR_2 .... PR_n	Longitudinal waves, reflected once, twice, *n* times at the earth's surface.
S	Transverse waves, direct (second phase or second preliminary tremors).
SR (or SR_1), SR_2 .... SR_n	Transverse waves, reflected once, twice *n* times at the earth's surface.
S—P	Interval (in seconds) between the arrival of the P waves and the S waves.
PS	Waves changed from longitudinal to transverse oscillation, or *vice versa*, through reflection at the earth's surface.
L	Long waves (chief phase or principal part; regular waves).
L_1, L_2 .... L_n	Successive series of L waves.
L_j	Long waves passing along the major arc of the great circle through the epicentrum and the observatory.

(Repeats of L or L_j after a circuit or circuits of the earth are noted in the "Remarks.")

M	Greatest motion in the chief phase.
M_j	Maximum of the L_j waves.
C	Tail or end portion.
F	End of discernible movement.

3. Nature of the motion:—

i sudden *or* *e* gradual	Beginning of the motion, used either alone or with one of the symbols in 2 denoting phase.
T (period)	Time of one complete oscillation (to and fro).
A	Amplitude of the motion, measured from the median line, in millimetres (mm., as shown on the seismogram), or in mikrons (μ, actual movement of the ground): (μ = 1/1000 mm.).
A_e	E–W component of A.
A_n	N–S component of A.
A_v	Vertical component of A.

4. General:—

Time	G.C.M.T., Greenwich civil mean time, 0h. or 24h. = midnight.
E (epicentrum)	Position of epicentre.
O (origin)	Time of shock at origin.
ϕ	Latitude.
λ	Longitude from Greenwich.
Δ	Distance from epicentre in degrees (°) or in kilometres (kms.).

5. The Observatory:—

(*a.*) Its position (latitude and longitude): S. 43° 31′ 48″. E. 172° 37′ 13″.
Its height (in metres and in feet) above mean sea-level: 8 m. (25 ft.).

(*b.*) The kind of seismograph: Milne No. 16.
How installed (E–W, N–S, or vertical): Boom N.–S.
Natural period (in seconds): 16.
Magnification: 6.
Damping: Nil.
Notation: See "Symbols, Notation, &c.," above.