Two distinct specimens with which we worked gave respectively—

(1). 6·3004
(2). 6·2941

The specific gravity of the fused iodide was found by the method before described to be

5·2865.

Thus the specific gravities corresponding to the five marked conditions shown in the curve table are as follows:—

Specific gravity at	0° C.	.....	= 6·297
,, ,,	126° C.	(octohedral condition)	= 6·276
,, ,,	,,	(prismatic condition)	= 6·225
,, ,,	200° C.	solid	= 6·179
,, ,,	,,	liquid	= 5·286

II. "A Comparison of the Variations of the Diurnal Range of Magnetic Declination as recorded at the Observatories of Kew and Trevandrum." By Balfour Stewart, F.R.S., Professor of Natural Philosophy in Owens College, Manchester, and Morisabro Hiraoka. Received January 10, 1879.

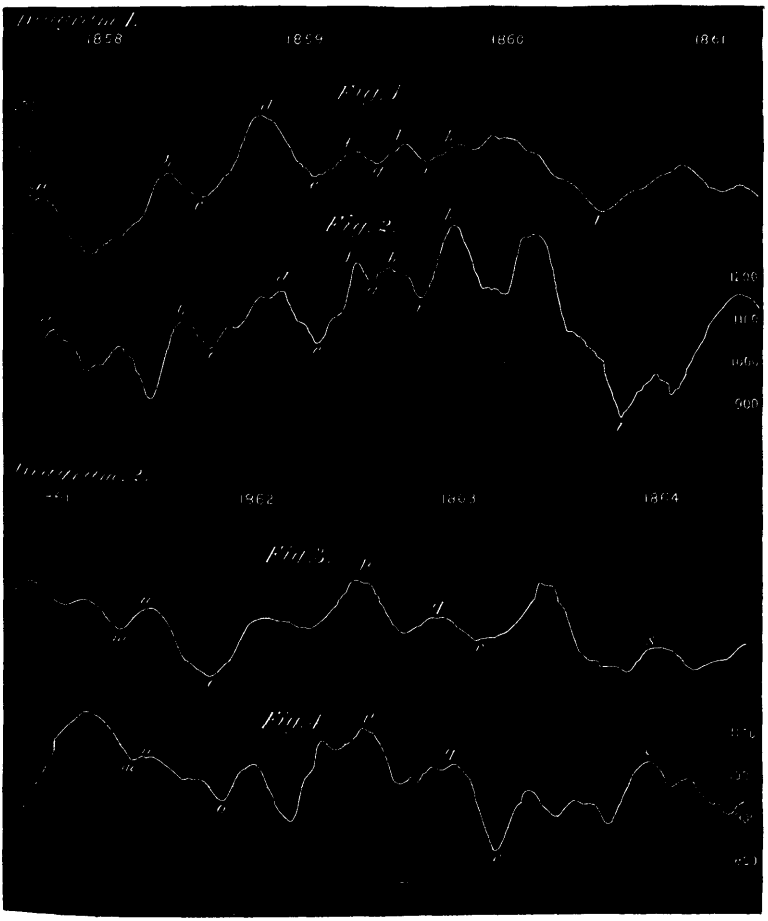
In a previous paper by one of the authors ("Proc. Roy. Soc.," vol. xxvi, p. 102) a table is given (Table II) exhibiting monthly means of the Kew diurnal declination-range, corresponding to forty-eight points in each year, or four for each month, that is to say, approximately one every week; and, in another paper ("Proc. Roy. Soc.," vol. xxvii, p. 81), another similar table exhibits monthly means of the Trevandrum diurnal declination-range for weekly points. In the present paper these two tables are compared together.

It became obvious to the writers, when engaged in making this comparison, that the turning points in the curve, which represented the variations of the Kew declination-range, were on the whole in point of time before the corresponding points in the Trevandrum curve.

While this result might have been rendered evident by making the numbers of the tables above-mentioned at once into curves, yet it was found to become more apparent to the eye and freer from inequalities by adopting a certain amount of equalization.

Accordingly, the Kew and Trevandrum tables were transformed into others, with the same time-interval between their numbers as in

the originals; but each number in the transformed table being the mean of nine consecutive numbers in the original table. Curves were then plotted from these transformed tables. In the diagrams attached to this paper, these equalized curves are compared together for the two observatories, figs. 1 and 3 giving the Kew curves, and figs. 2 and 4 those for Trevandrum. Points in the two curves, which are supposed to correspond, are represented by similar letters of the alphabet.



A comparison of these curves appears to lead to the following conclusions:—

(1.) Generally speaking, maximum points or risings in the one curve must be associated with maximum points or risings in the

other, rather than with minimum points or depressions. Indeed, the researches of Broun and others, from a different point of view, strengthen this conclusion, which is, however, abundantly supported by a glance at the curves themselves;

(2.) The oscillations of the Trevandrum curve are greater than those of the Kew curve;

(3.) In many cases where there is a want of striking likeness between the oscillations of the two curves, there are yet noticeable traces in the one curve corresponding to the oscillations of the other. There are, however, a few cases where there is a want of apparent likeness.

(4.) In general, though not invariably, the oscillations of the Trevandrum curve follow rather than precede the corresponding oscillations of the Kew curve. This will be perceived from the following numerical estimate:—

TABLE I.—Exhibiting the lagging behind of the Trevandrum Curve in Point of Time.

	Oscillations.	Trevandrum minus Kew in days.
1858	*a*	+15
	b	+30
1859	*c*	+11
	d	+32
	e	+ 8
	f	+11
	g	−13
	h	−30
1860	*i*	−11
	k	− 8
	l	+40
1861	*m*	+19
	n	0
1862	*o*	+25
1863	*p*	+11
	q	+21
	r	+25
1864	*s*	−11
	Mean	+ 9·7 days.

We venture to present the evidence in its present form, but forbear, in the meantime, to discuss the subject at greater length.