LETTERS TO THE EDITOR.

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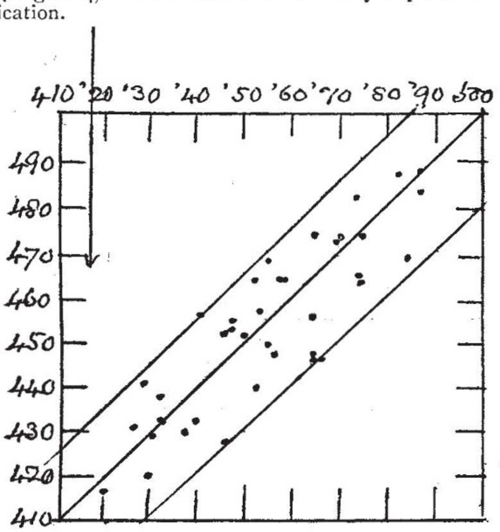
The Summer Season of 1909.

IN endeavouring to estimate the character of a coming season, the following method is, I think, often serviceable. Let us take, as a concrete case, the annual numbers of very hot days at Greenwich (80° or more) from 1841 to 1908. Add these in the thirty years ending 1870, 1871, 1872, &c. Then compare each sum with the next by the dot method; where each dot represents one value by the horizontal scale, and the next by the vertical. A line may be drawn connecting points of intersection of lines (horizontal and vertical) from equal numbers in the two scales, and two others roughly parallel with it (as shown).

Now the last value, previous to this summer—the sum, that is, of the thirty years ending 1908—is 417. Find this in the horizontal scale, and consider where the next dot is likely to go. It would hardly be higher than (say) the level of 433. Now we know the numbers of those days in twenty-nine out of the thirty summers ending 1909; their sum is 416. Deducting 416 from 433 leaves 17; and we infer that this season would probably not have more than seventeen of those hot days (which is only two more than the average). The season has, so far, proved a very cool one (August 4). This method is obviously capable of wide application.



A similar conclusion seems to be arrived at by a comparison of Greenwich and Rothesay weather. It appears (whatever the explanation) that when the year's rainfall at Rothesay has exceeded 55 inches (last year had 56), the following summer at Greenwich has never been very warm. We may tabulate the cases (eleven in number, 1841–1907) as follows:—

		Rothesay Rf. in.	Greenwich days with 80° or more following summer	Relation to av. (15)
(1)	1872	70·2	16	+ 1
(2)	1877	68·6	11	− 4
(3)	1841	65·9	17	+ 2
(4)	1903	61·6	16	+ 1
(5)	1882	59·6	7	− 8
(6)	1862	59·5	13	− 2
(7)	1866	58·7	9	− 6
(8)	1907	58·5	8	− 7
(9)	1868	57·2	14	− 1
(10)	1861	56·3	1	−14
(11)	1906	56·3	2	−13
			Av. 10·4	

That is, eight cool summers, three slightly warm, and the hottest with seventeen of those days. It seemed not unreasonable to apply this "rule-of-thumb" (if it is to be so called) to the present season, following on a Rothesay year, which would fall to be added to the above list.

Once more; the summer season of 1879 is well remembered as a singularly cold one. There were only thirty days with 70° or more, and one with 80° or more (the averages being 77 and 15 respectively); and now, at thirty years' interval, we have another very cold summer.

Suppose we compare each summer with the thirtieth after, in respect of those very hot days (80° or more). We can carry the comparison obviously up to 1878 (that year compared with 1908).

It would appear that, in the case of very cold and very warm summers, there is some tendency for the thirtieth after to be of like sign in relation to the average.

Thus the six coldest, in ascending order (0 to 6 hot days), are 1860, 1862, 1841, 1853, 1855, 1845; in each case but one the thirtieth season after was cold, and that one was average.

The six hottest, in descending order (40 to 27 hot days), are 1868, 1857, 1859, 1846, 1876, 1870; in each case but one (again average) the thirtieth season after was hot. The season of 1909 seems likely to conform to this.

ALEX. B. MACDOWALL.

P.S. (September 13).—There have been, so far, nine of those very hot days (three in May, six in August), which is probably the year's total, or near it.

A New Mineral from a Gold-washing Locality in the Ural Mountains.

SOME time ago I acquired through a friend two small glass tubes, together containing about 5 grams of a bright greyish-yellow crystalline powder.

The manager of the gold workings in question noticed several years ago in his troughs minute quantities of the dust referred to, and commenced to collect it, but in spite of the greatest care he was not able to find more than about 10 grams during the subsequent years.

The separation of the dust has been made easier through the specific gravity of the microscopic crystals being =9. Various analyses made proved the dust to consist of about 98·5 per cent. tantalum and about 1·5 per cent. niobium, with 0·001 per cent. manganese. We have therefore a new mineral, namely, native tantalum.

During the last six months no more traces of the mineral have been found, notwithstanding the greatest possible care taken to find more. It seems to have been here an instance of an isolated formation, but it is not impossible that the same mineral may be found elsewhere, associated with gold and platinum, but is overlooked owing to the small quantity and the fact that it has a lower specific gravity than gold or platinum.

Perhaps this information may be of interest to those associated with gold or platinum workings, and may induce them to look out for this new mineral, when it is not improbable there may be found other native metals as well.

Newcastle-upon-Tyne. P. WALTHER.

The Benham Top.

IN confirmation of Mr. F. Peake Sexton's contention in NATURE of September 2 (p. 275), that irradiation plays no appreciable part in the necessity for thin lines on the Benham top, I may add that the colours are equally well seen when the top is viewed (1) through a narrow diaphragm held close to the eye; (2) through a magnifying lens; (3) in the monochromatic light of the sodium flame.

My only objection to Mr. Sexton's theory was at first the brilliancy of the colours in the light of the sodium flame, but this difficulty at once disappeared when Mr. Sexton pointed out that though blue objects cannot be seen as such in that light (because there are no blue rays present for them to reflect), it by no means follows that the nerve centre for blue cannot be stimulated by the light of a sodium flame. It will be seen, on reflection, that quite different phenomena are involved in the two cases, and, this understood, there seems to be no difficulty in accepting Mr. Peake Sexton's theory, which is substantially similar to that of Prof. Liveing, made at the time the top first appeared, though Prof. Liveing did not seem to realise that the case of the sodium flame presented no real difficulty, and he suggested that the colours seen in that light were due to the fact that it is not absolutely monochromatic—a quite unnecessary contention.

Colchester, September 8. CHARLES E. BENHAM.