

I think that the authors have expanded their idea in one direction only, and I have not seen any reviews of their books applying this idea in the other direction. If, however, this application has been made, I shall be glad to be referred to the passages containing it.

W. A. T. HALLOWES

New University Club, St. James's Street, S.W. January 4

Atmospheric Electricity

THE traces afforded by the self-registering electrometer at this observatory show that the conditions of the atmospheric electricity at Kew were very similar during the recent frosts to those observed at Montsouris by M. Descroix. We have, however, in the automatic instrument the great advantage of continuous registration, and therefore our information is not limited to the results afforded by seven observations daily.

The whole period of the frost was characterised by extremely high tension which with us averaged and frequently exceeded the amount which sufficed to derange the French instrument.

The absolute maximum tension recorded equalled 600 volts, and occurred about 4 P.M. on December 16.

The most noticeable feature in the curves of electrical disturbance during the period is that of the daily range of the instrument having attained a maximum usually between 8 to 10 P.M., the tension reaching over 400 volts at the time on the 17th, 18th, and 21st, and over 500 on the 22nd ult.

The fall in tension on the 25th was irregular and the value became almost zero at 6 A.M. on the 26th, for the whole of which day it continued low. Negative electricity was recorded for the first time from 1 to 3 A.M. on the 29th.

Undoubtedly the value of the tension of the atmospheric electricity, as measured by the Thomson electrometer is, as M. Descroix states, only a relative one. We have determined experimentally that with the same instrument the indicated tension is largely influenced by the distance of the nozzle of the water-dropping collector from the wall of the building in which the instrument is placed, and in accordance with a suggestion of Sir W. Thomson, we replace during the passage of thunderstorms our ordinary discharge-tube by a very short one, so as to get the scale of tensions within the range of the electrometer.

Kew Observatory, January 6

G. M. WHIPPLE

Electrical Phenomenon

I HAVE just read in NATURE (vol. xix. p. 182) an account of a strange electrical phenomenon observed at Teignmouth. In connection with it the following incident may be of some interest:—When in Switzerland, not long since, I made with some friends the ascent of Monte Rosa. The weather was unsettled, and on gaining the summit we saw a thunderstorm advancing in our direction from the Italian valleys, and not wishing to turn ourselves into lightning-conductors we deemed it wise to retire from the summit. We had retreated a very short distance along the *arête* when the storm-clouds swept up upon us; the fine snow fell so thick that we could hardly see one another, and we were all suddenly attracted by a peculiar ticking or fizzing from our hair; when I held up my axe the ticking was most distinctly heard from the top of it. The thunder ceased, and we felt that we were acting as points, through which the ground electricity was flowing off into the cloud; if it had been dark, the bluish light observed at Teignmouth might have been visible.

As at Teignmouth, so on Monte Rosa; it was freezing hard when the phenomenon was observed.

W. S. GREEN

Alta Terrace, Monkstown, Cork

Time and Longitude

As the questions I propounded under this head in NATURE, vol. xviii. p. 40, have been again alluded to by Mr. E. L. Layard, I may remark that they receive a complete answer in the "Geographical Reader," by C. B. Clarke, M.A. (Macmillan and Co., 1876). At p. 19 he says: "At the town of Sitka, in Alaska, half the population are Russians who have arrived from Russia across Asia; half the population are Americans who have arrived *via* the United States. Hence, when it is Sunday with the Russians it is Saturday with the Americans; the Russians are busy on Monday while the Americans are in church on Sunday to the great interruption of business."

It is evident, then, that our new year first commenced in

Alaska at 9 A.M. Greenwich time on December 31. Each of our days commences at the same hour and lasts forty-eight hours; the year exists for 366 days.

LATIMER CLARK

January 4

Magnetic Storm of May 14, 15

THE magnetic storm of May 14, 15, which was observed simultaneously in England, China, and Australia, and which made itself felt in the telegraph wires of Persia and India, was also perfectly observed in America. Mr. G. F. Kingston, director of the government observatory at Toronto, Canada, has kindly forwarded to me a tracing of his magnetograms, and I find that all the principal inflexions of the declination, as well as of the components of the intensity, bear a striking resemblance to those recorded at the Stonyhurst observatory. The correspondence between the two vertical force curves on May 14 is very remarkable for such distant stations. Comparing the times of the principal minimas in the V.F. trace, and of the chief maximum of the declination, we have the following results in Toronto mean time:—

	Principal V.F. min.		Secondary V.F. min.		Decl. Max.
Toronto Observatory	6 17	...	4 0	...	6 39
Stonyhurst Observatory	6 42	...	4 20	...	6 54
	0 25	...	0 20	...	0 15

The disturbing force would thus appear to have been felt somewhat earlier in Canada than in Europe.

The extent of the extreme oscillation of the V.F. magnets cannot be compared, as that at Stonyhurst was too sensitive, and was consequently thrown off its balance; but the rapid movement of the declination needle immediately preceding the maximum was almost identical in England and in Canada, the Stonyhurst curves showing a rise of 28' 39" in less than twenty minutes, and that of Toronto an increase of 26' 53" in the same time.

It is important to note that I have used the terms maximum and minimum in reference to increase and decrease of ordinate, but it so happens that an increase of ordinate signifies a decrease of H.F. and V.F., and also of W. declination in the Toronto curves, whilst it shows an increase of all these elements in the magnetograms of Stonyhurst.

S. J. PERRY

Stonyhurst Observatory, December 28, 1878

Blowpipe Experiment

I BEG to inform you of the following curious results which may be considered of sufficient interest to lead to further investigation of the subject.

Having received a quantity of blowpipe charcoal from Freiberg, about two months ago, I placed two sticks in a "stoneware" jar full of pure water in order to saturate them therewith, so that small squares cut with a saw and placed on aluminium plate as a support, might stand the blowpipe heat longer. I also found that thus treated there is little or no black sawdust, which dirties the hands, &c., more than anything else in blowpipe operations.

Having also placed in the same jar of water two "aluminium spoons" (thick rods about five inches long), I was surprised to find that after the charcoal had sunk to the bottom on saturation, the aluminium rods were covered with semi-opaque roundish crystals (part being perfectly transparent) near the surface of the water, and also at the very bottom where the spoons rested on the jar.

Thinking the crystals might be due (although I could not tell how with such a deliquescent substance) to some phosphoric acid I had previously fused upon the aluminium spoons, I cleaned them thoroughly and placed them in fresh pure water with the charcoal about a fortnight ago, and they are again covered with the same kind of crystals. I now carefully scraped the crystals off the aluminium rods with a penknife and placed them on an agate slab, where, when dry, they had a perfectly white, sugary appearance, with some minute transparent fragments. Taking up some of these opaque white fragments upon a hot bead of boric acid, I submitted them to the action of the blowpipe, and found—

(a) That they at first emitted a slight yellow pyrochroine, so that they could not be due to *potash*.