Dr. Billings very sensibly suggests that all medical men who approve of the objects of this Index, will put their approval into practical shape by subscribing promptly for the Index and taking care that a copy of every book, pamphlet, &c., of which they are the authors, is forwarded to the editors. This recommendation we heartily endorse, and trust that so useful a publication may receive the support it deserves.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

The Tides at Chepstow and Fundy

IN NATURE, vol. xix. p. 363, Mr. Moseley, of Exeter College, Oxford, quotes a passage from Lyell's Principles, to the effect that the tides at Chepstow have a range of 72 feet.

This statement is continued in the last edition (1875), in Chap. XX., on Tides and Currents, p. 492; and the tidal range in the Bay of Fundy is set down at 70 feet (p. 564). I do not believe either of the statements.

The Admiralty Tide Tables give the following:—

	Spring Range.	Neap Range.
	Feet.	Feet.
1. Chepstow	38	28'5
2. Bay of Fundy (Noel Bay) ...	50'5	43'5

I may add that Lyell's whole treatment of the subject of the tides is loose and inaccurate. Thus, for example, he says (p. 491): "In any given line of coast the tides are greatest in narrow channels, bays, and estuaries, and least in the intervening tracts where the land is prominent."

He then proceeds to illustrate this proposition by giving the ranges of tide from the mouth of the Thames to Flamborough Head (including, of course, the well-known tidal node of minimum range off Yarmouth); but he is utterly unconscious that these ranges depend altogether on the tidal motion of the water, and have no relation whatever to the form of the coast.

Trinity College, Dublin, March 3 SAM'L. HAUGHTON

Magnetic Storms

It is surprising that an accomplished telegraphist like Mr. Mance (NATURE, vol. xix. p. 409) should not see the necessity and advantage of expressing earth-currents in webers. It is precisely because every one can, if he likes, appreciate the magnitude of an earth-current so expressed, and no one but himself can do so if Mr. Mance's plan were adopted, that I advocate the weber, or rather, its more convenient sub-multiple, the milliwbeber. A milliwbeber is the current produced by one Daniell's cell (strictly one volt), through 1,000 ohms. Currents can be reduced to this unit from any galvanometer. The tangent galvanometer is, perhaps, the simplest to use—it is that which we employ in England. Supposing for simplicity that your constant, viz., one Daniell cell through 1,000 ohms (including cell and galvanometer) gives 45°, then the tangent of any other reading will give you the current in milliwbebers. Then, knowing the resistance of your circuit and its geographical position, you have all the data necessary to determine the elements of earth-currents.

I will act on Mr. Mance's suggestion, and bring the matter before the Society of Telegraph Engineers with a view of organising a systematic mode of observation in different parts of the world.

W. H. PREECE

Wimbledon, March 8

Atmospheric Pressure and Solar Heat

MAY I be permitted to supplement the table given by Mr. Allan Broun in NATURE, vol. xix. p. 7, by the following figures for Calcutta. The pressure anomaly at Bombay for each year, as given by Mr. Broun, is here compared with Calcutta, and the table is extended down to 1877:—

Table Showing Difference of Mean Pressures at Calcutta as Compared with Bombay for the whole Year and the Summer Months, the Sign + Indicating an Excess at Calcutta, and - a Defect; and Character of the Rainfall in the North-West Provinces and Behar.

Year.	Year.	Summer.	—
1847	-37	+5	Excessive.
1848	+7	-13	Defective.
1849	+14	+5	Excessive.
1850	+21	+5	Average.
1851	+8	+11	Excessive.
1852	+16	+18	"
1853	-19	-31	Defective.
1854	+1	-2	Excessive.
1855	-10	-30	Defective.
1856	-2	-1	Average.
1857	-9	-10	Defective.
1858	-3	-9	"
1859	+8	+26	Excessive.
1860	-15	-13	Defective.
1861	-12	-3	Average.
1862	+12	+15	Excessive.
1863	-7	-16	Defective.
1864	-14	-27	"
1865	+15	+13	Excessive.
1866	-10	-20	Defective.
1867	+5	+4	Average.
1868	-6	-13	Defective.
1869	+1	+5	Excessive.
1870	+3	+4	"
1871	-37	-3	"
1872	+13	+18	"
1873	+3?	-11	Defective.
1874	+5?	+24	Excessive.
1875	-15	-2	Average.
1876	-24	-5	Defective.
1877	+14?	+3	"

Since from 1847 to 1852 there are frequent blanks in the registers, sometimes exceeding ten days in length, the figures are of somewhat doubtful value.

It will be seen on examination that the decennial period is nearly as distinctly marked at Calcutta as at Bombay, though the minor fluctuations are more frequent, and that, as Mr. Chambers supposed, the amplitude of the anomaly, like that of the diurnal and annual variation, is greater at Calcutta than at Bombay.

Mr. Broun considers the discovery of the decennial period of barometric pressure to be one of great importance, as forming a link in the chain of evidence which connects the variations of rainfall with those of the sun's heat. As an illustration of the way in which the variations of pressure influence the distribution of rainfall, I have entered a word descriptive of the character of the rainfall of each year in the North-West Provinces and Behar. In the great majority of cases a relatively low pressure at Calcutta, especially during the summer months, April to September, means defective rainfall over the valley of the Ganges, which is watered by easterly winds from the Bay of Bengal, and a relatively high pressure at Calcutta means excessive rainfall. Had the station with which Calcutta is compared been situated seven or eight degrees to the north of Bombay, the rule would probably have been without exception. The influence of what he calls the "relative barometric anomalies" upon the distribution of rainfall in India has been pointed out by Mr. Blanford on more than one occasion since 1868, and the examples here given will illustrate and enforce this point.

Mr. Broun's remarks regarding the relations between the range of the monthly means of barometric pressure and that of the monthly mean temperature, are interesting as confirming the views put forward by General Strachey, as long ago as 1850, in an unpublished work on the physical geography of the Himalaya and the neighbouring countries. The range of the monthly mean pressure at Calcutta is 0.488 inch, and that of the monthly mean temperature 18°6 F. The range for one degree is therefore .026 inch, a figure which differs little from those for Madras, Bombay, and Trevandrum.

S. A. HILL

Allahabad, December 7, 1878

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