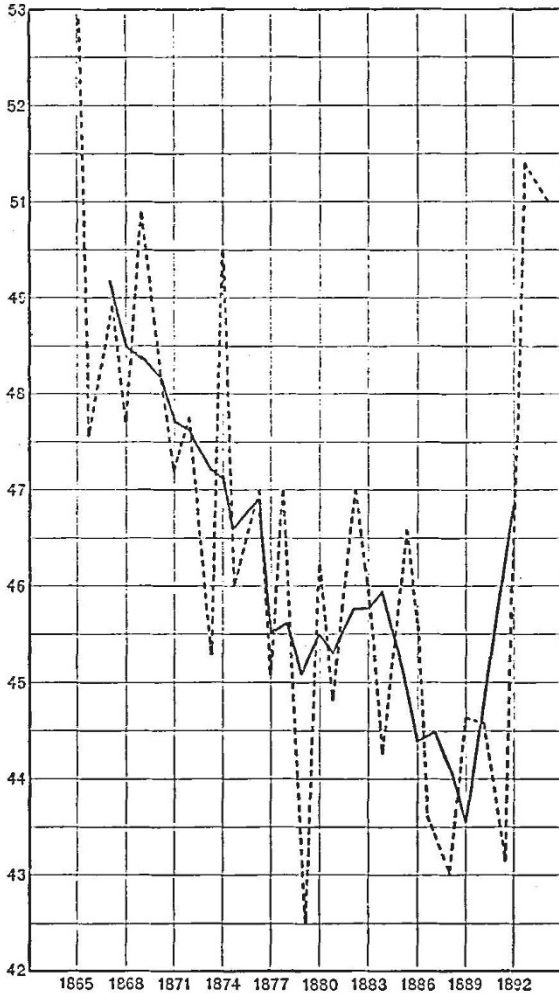


I am thankful to have had my attention called to the subject by Mr. Reade just upon the eve of departure for a few weeks among the glaciers of Umenak Bay, in Greenland. I will give special attention to the subject, and report upon my return in the autumn. G. FREDERICK WRIGHT.

Oberlin, Ohio, June 23.

On a Recent Change in the Character of April.

THE months are all, of course, continually changing in temperature, rainfall, &c. And, as a rule, those changes are not long in one direction; the curve of variation has many zig-zags. Yet, by methods of averaging, one may sometimes detect a gradual process of change extending through a good many



years; we might compare it to the slope of an ocean-swell underlying the surface-ripples. The mean temperature of April at Greenwich is a noteworthy example of this.

Here are the values since 1865, and averaged in fives in a second column:—

M.T. April.	Av.	M.T. April.	Av.	M.T. April.	Av.
1865 ...	52°9 ...	—	1875 ...	47°0 ...	47°6
66 ...	48°6 ...	—	76 ...	48°0 ...	47°9
67 ...	49°9 ...	50°2	77 ...	46°1 ...	46°5
68 ...	48°7 ...	49°5	78 ...	48°0 ...	46°6
69 ...	50°9 ...	49°4	79 ...	43°5 ...	46°1
70 ...	49°2 ...	49°2	80 ...	47°2 ...	46°5
71 ...	48°2 ...	48°7	81 ...	45°8 ...	46°3
72 ...	48°8 ...	48°6	82 ...	48°0 ...	46°7
73 ...	46°3 ...	48°2	83 ...	47°0 ...	46°7
74 ...	50°5 ...	48°1	84 ...	45°3 ...	46°9
			1885 ...	47°6 ...	46°1
			86 ...	46°6 ...	45°4
			87 ...	44°2 ...	45°5
			88 ...	43°5 ...	45°1
			89 ...	45°7 ...	44°6
			90 ...	45°6 ...	45°2
			91 ...	44°2 ...	46°8
			92 ...	46°9 ...	47°8
			93 ...	51°4 ...	—
			94 ...	51°0 ...	—

NO. 1289, VOL. 50]

Thus from a maximum of 50°·2 in 1867, the average went down, with some slight interruption at one point, to 44°·6 in 1889 (*i.e.* 5·6 degrees), the extreme actual values being 52°·9 in 1865 and 43°·5 in 1888 (difference 9·4 degrees). Last year and the present yield values in marked contrast to those just before, and a pronounced rise appears in the average curve.

The data for Paris and Geneva give results very similar, so that the process is not merely local. Thus the smoothed values for Geneva descend from 10°·6 C. in 1864 to 7°·9 in 1889.

A general, though less continuous, decline in the mean temperature of the entire spring (March to May), at Greenwich, may also be noticed.

I do not know whether any cause can be assigned for prolonged changes like these in April: some of your readers may be able to throw light on the matter.

The accompanying diagram illustrates the change referred to. A. B. M.

The Deposition of Ova by "Asterina Gibbosa."

I RECENTLY brought back from Jersey three specimens of *Asterina gibbosa*, all of which deposited ova in the small aquaria in which they were kept. As it appeared evident that the ova exuded from the oral surface, two specimens were selected for experiment.

The first was placed with the oral surface uppermost in a small glass well, with just sufficient water to cover it. When examined about half an hour later, ova had exuded from a genital pore on the oral surface, and had floated up to the top. Had the opening been on the aboral surface, they would have been retained beneath the starfish.

The second specimen was then placed in a glass dish with the aboral surface uppermost. Sufficient water was added to allow the animal to be moved easily with a pair of forceps, but not enough to enable the tube-feet to act. Consequently ova, if deposited, could not float away. In this position it was left for about an hour. When turned, so as to bring the oral surface uppermost, it was seen that ova had exuded. The starfish was killed with the eggs still adhering.

The sexes of starfish are generally said to be separate. But in this case only three specimens were brought: all deposited ova, and in one small aquarium there are now young *Asterinas*. HENRY SCHERREN.

BIFILAR PENDULUM FOR MEASURING EARTH-TILTS.

INSTRUMENTS designed for measuring movements of the earth's crust belong to two classes. The first consists of seismographs which register the amplitude and period of the rapid vibrations of earthquake-shocks, and by their records enable the velocity and acceleration of an earth-particle at any instant to be determined. The second class includes nadiranes and various forms of pendulums (such as the bifilar pendulum here described) which are, or should be, unaffected by vibrations of short period, and which indicate only slow tilts or bendings of the ground, showing the change of inclination at any spot, the rate at which it is taking place, and, if periodic, the length of its period. No part of the earth, so far as we know, is free from such movements. Every day, and every year, the surface of the ground at any spot tilts forward and backward through a small angle, perhaps not exceeding a small fraction of a second. Sometimes regular pulsations are observed, each a very few seconds or minutes in duration, and lasting, it may be, for hours; at other times the tilting is irregular and occasionally abrupt; but invariably it is so slight, and takes place so slowly, that without the aid of refined instruments it could never be perceived.

The report of the Earth Tremor Committee (British Assoc. Report, 1893, pp. 291-303), presented at the last meeting of the British Association, contains an account of a new bifilar pendulum designed by Mr. Horace Darwin, and of some of the first experiments made with it at Birmingham. This preliminary trial brought to light one or two slight defects which Mr. Darwin has