

walls of class-rooms. They are certainly to be compared with maps for the range and precision and correlation of parts with which they show their contents at a glance.

E. B. TYLOR

OUR BOOK SHELF

Aus der Urzeit. Bilder aus der Schöpfungsgeschichte, von Prof. Dr. Karl A. Zittel, in München. Mit 78 Halzschnitten. (München: Rudolph Oldenbourg, 1871-2.)

THIS is one of a series of popular works on Science entitled "Die Naturkräfte," that are being published at intervals by Herr Oldenbourg, of Munich. Prof. Zittel, in his preface to the present work, speaks of the vast influence which popular scientific literature is calculated to have upon the entire development of a people, and therefore insists on the great importance of diffusing, in an intelligible manner, among the people thoroughly correct notions of every science, instead of mincing down scientific truths until they lose all that is characteristic or informing. It is, perhaps, of far more importance that scientific books meant for the people should be as absolutely correct and as far advanced as it is possible to be, than those intended for scientific men themselves. The latter can discover and reject the false or imperfect; the former in their ignorance accept what is written as the truth, and the injury thus done is often serious in its consequences and may take a generation or longer to remedy. Popular scientific works, like school text-books of science, ought to be written only by those who are thoroughly masters of their subjects. The book before us seems to us to be in this respect satisfactory. In a series of chapters, each corresponding mainly with one of the great geological periods, the author endeavours to present a series of pictures of the gradual development of our earth, mainly with reference to the life which it supports. He seems to know his subject well in all its aspects, and presents in an interesting and intelligible way the latest results of geological research, with the conclusions derived therefrom by the most advanced thinkers. The illustrations are very good, and the work as a whole is a good specimen of a popular scientific treatise.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.]

Remarkable Phenomena

It may be within the memory of some of your readers that between the 15th and 20th August, 1868, a succession of waves reached Sydney, and were recorded by the self-registering tide-gauge. The average interval between the waves was about 25 minutes, and the greatest oscillation 34 inches, measuring from the crest of one wave to the hollow of the next. It was thought at the time that they were earthquake phenomena.

A similar visitation has just reached us, but it was not so marked in its character. The self-registering tide-gauge shows that the disturbance began during the afternoon of the 15th, and attained its maximum between 1 A.M. and 4 A.M. of the 17th, the greatest oscillation, amounting to 5 inches, occurred between 3.15 A.M. and 3.33 A.M. of the 17th, the average interval of the waves at this time was 25 minutes, but the average of 20 between 8 P.M. and 5.30 A.M. was 28 minutes. The waves cannot be traced beyond the 18th.

On the afternoon of the 16th we had a thunderstorm, during which the barometer was very unsteady, and the barograph sheets show some peculiar curves; strange to say, the average

interval of the 5 most conspicuous of the barometer curves or waves between 5.40 P.M. and 7.30 P.M. is 25 minutes; the largest oscillation was 0.045 in. of mercury, equal to about 6 inches of water. Just before daylight on the morning of the 17th several fine meteors were seen to N.E., but the observer who reported them to me did not make notes of particulars. At Newcastle, which is a port 60 miles north of Sydney, I have another self-registering tide-gauge, which recorded a disturbance similar to the Sydney one; it began on the afternoon of the 15th and was greatest between 8 P.M. of 16th and 7 A.M. of 17th; the greatest oscillation, 9 inches, occurred between 12.15 A.M. and 12.30 A.M. of 17th, and the average interval of all the waves from 8 P.M. to 5.3 A.M. of 17th, amongst which are several that only occupied 5 minutes, and look like double oscillations, is 20 minutes.

Struck by the circumstances that both sets of waves, though separated by an interval of 5 years, occurred in August, I determined to examine all the tide-gauge sheets since 1866, when the instrument was set up, and was surprised to find a repetition of it every year, the amounts were too small individually to attract notice, but are nevertheless unmistakable, the periods are as follows:—

- 1866 August 9th to 10th, and again 15th to 21st.
- 1867 " 5th ,, 13th, very marked from 9 A.M. to midnight of 12th.
- 1868 " 15th ,, 20th, remarkable (see beginning of this letter).
- 1869 " 11th ,, 17th.
- 1870 " 12th ,, 22nd, marked from 5 P.M. of 17th to 4 P.M. of 18th.
- 1871 " 9th ,, 10th and 20th to 21st.
- 1872 " 10th ,, 13th.
- 1873 " 15th ,, 18th, as recorded in this letter.

It is not easy to believe that earthquake phenomena will recur with such regularity, and we must seek another cause depending it would seem on the earth's annual motion, and to a certain extent affecting air and ocean alike.

It would be premature to express a decided opinion without further investigation, which I have not had time to make yet, but it seems very probable that the August meteor stream through or near which the earth passes about 10th August may be the cause. It will be observed that even in the few observations given above there are indications of a five-year period; for the double disturbance of 1866 is reproduced in 1871, and the great disturbance of 1868 is followed by a similar one in 1873.

Sydney Observatory, Aug. 23

H. C. RUSSELL

Periodicity of Rainfall

I DO not altogether agree with Governor Rawson when he says, in his interesting letter in NATURE, vol. viii. p. 245, that "the experience of Barbados is opposed to the theory broached by Mr. Meldrum and Mr. J. N. Lockyer." On the contrary, I rather think that Mr. Rawson's figures support the theory. He has taken 1846 and 1871 as middle maxima years (in my first paper I also took 1848), whereas 1849 and 1872 are probably more correct. Making this slight alteration, we get, according to Mr. Rawson's statistics:—

	Years.	Rain. In.	Sums. In.
Min.	{ 1843 45'31 } { 1844 74'45 } { 1845 43'91 }	...	163'67
Max.	{ 1848 63'77 } { 1849 52'77 } { 1850 67'88 }	...	184'42
Min.	{ 1855 77'31 } { 1856 48'49 } { 1857 60'90 }	...	186'70