OUR BOOK SHELF.

Die Lehre von der Elektrizität und deren Praktische Verwendung. By Th. Schwartze. (Leipzig: J. J. Weber, 1895.)

THE author in his preface says that his intention in writing this book was to give the bearing of the latest scientific results in electricity on electro-technology. He goes on to say that the contents will probably appear peculiar. The first of the above statements, taken in conjunction with the title of the book, will probably give as erroneous an idea of the contents as it is possible to obtain. For if there is one thing the author does not do, it is to give the bearing of the few modern discoveries, or lines of thought, which he mentions on the practical applications of electricity.

For all intents and purposes the book may be divided into two parts. The first of these deals with the question of the fundamental principles of general physics and with some mechanical problems, such as moment of inertia, oscillations of a pendulum, wave-motion, &c. The second part deals more particularly with electric and magnetic phenomena.

Throughout the greater part of the book, but particularly in the first part, the reader will probably heartily endorse the author's view, that the contents of the book are peculiar; for the subject of dimensions is treated at great length, so that, for at any rate the first three hundred pages, there is hardly a page without at least one dimensional equation. The appearance of some of these dimensional equations, however, are certainly peculiar, for the author attempts to introduce a set of dimensions in terms of what he calls "Linearkraft," "Flächenkraft," and "Volumenkraft." These quantities he indicates by the symbols L, L^2 and L^3, regardless of the fact that in those dimensional formulæ, in which length, mass, and time are taken as the fundamental units, the symbol L is used for a length. Even the author himself seems to have got muddled when such equations as $[M^2L^2]=[ML^2]$ are allowed to appear, and the state of mind of the student, whose command of dimensions is limited, after reading the book, is lamentable to think of. In the chapter dealing with the dimensions of the electrical and magnetic units, no mention is made of the effect of the properties of the medium, and although Rücker's name is mentioned in the preface in connection with the subject of dimensions, no mention is made of his proposal to consider the specific inductive capacity and the permeability of the medium as subsidiary fundamental units, and to indicate their presence in the dimensional formulæ. The more purely electrical portion of the book calls for little remark, and contains a somewhat elementary treatment of the subject of electrostatics, such as the calculation of the capacity of some simple forms of condensers, &c. There are also chapters dealing with uni-directed currents, thermo-electricity, electrolysis, electro-magnetic induction, and the dynamo. Finally, about seventy pages are devoted to what is called "electro-tectiniches," in which the commoner forms of electrical measuring instruments are shortly described.

While only a very short account is given of Hertz's work, contrary to what one would expect in a German work, considerable space is devoted to a description of Elihu Thomson's more showy experiments with rapidly alternating currents.

LETTERS TO THE EDITOR.

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Rain in August.

AUGUST being a harvest month, and the holiday month *par excellence* in this country, its weather is a matter of concern to multitudes. I propose to show how the rainfall of August at Greenwich has varied in the last half-century (1841–95).

This variation appears to me rather to suggest sun-spot influence; but whatever may be thought about this, it may be interesting to observe how far the kind of correspondence here pointed out is maintained in the future.

In the accompanying diagram we have (*a*) a dotted curve showing the variation of August rainfall, and the values have
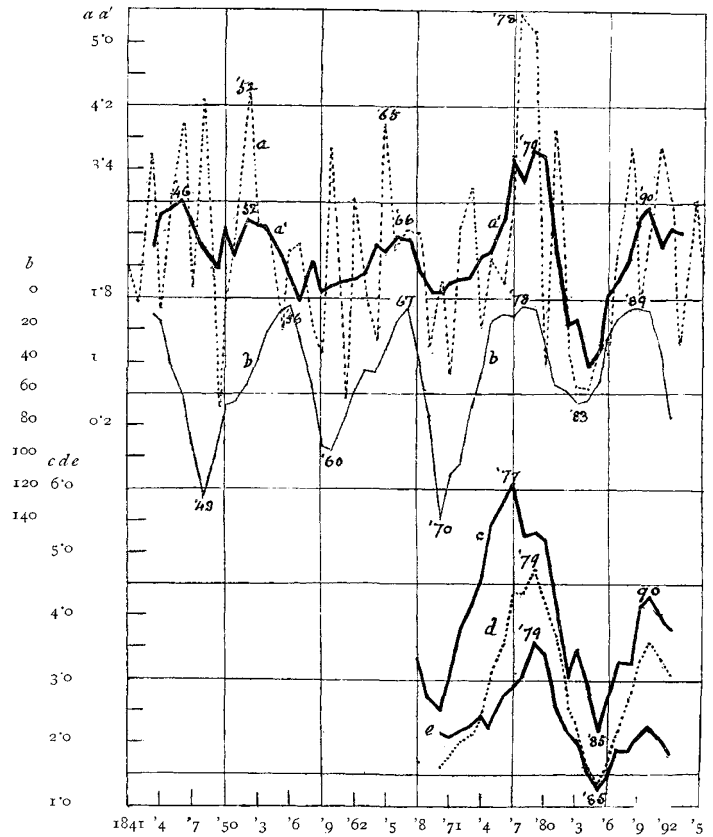
a. Rainfall in August, Greenwich. *a'.* The same, smoothed (5-av.). *b.* Inverted sun-spot curve. *c, d, e.* Rainfall in August at Haverfordwest, Llandudno, and Boston (smoothed).

been smoothed with averages of 5, yielding the continuous curve *a'*. Underneath (*b*) is an inverted sun-spot curve.

A considerable correspondence may here be traced, especially in the last three waves; the crests or maxima of the smoothed rainfall curve coming near the sun-spot minima, and the hollows or minima of the former near the sun-spot maxima.

It seems specially noteworthy that in each year following a sun-spot maximum year we have had a very dry August. Thus (the August average being 2·38) we have :

Sun-spot max 1848 ... Rainfall of August 1849, 0·45 in.
,,   1860 ...   ,,   ,,   1861, 0·57 ,,
,,   1870 ...   ,,   ,,   1871, 0·86 ,,
,,   1883 ...   ,,   ,,   1884, 0·67 ,,