

of Bruges (*c.* 1600), and although they must have been employed by scientific engineers, such as Brunel, the subject of Graphical Statics as known to the mathematician dates only from Maxwell's writings on the subject, and to Culmann's elaborate treatise in German; also to Colonel Sir George Clarke's exhaustive work.

The subject of Statics, which had come to a standstill, was revived by the graphical methods now employed by every engineer and architect.

But as the subject is nothing unless employed practically by the draughtsman on the drawing board, it has not yet conquered the prejudices of the abstract mathematician, although many problems of allied descriptive geometry, required in the construction of inertia ellipses and curves (Part iii.), are well worthy of the attention of the pure geometer.

The present treatise is designed as an elementary textbook for the use of students of engineering; and the illustrations are drawn carefully to scale, representing each some real object.

The method of lettering, attributed to Bow, is now more appropriately assigned to Henrici; the author very rightly insists upon the fundamental importance of this lettering, in emphasising the reciprocity existing in the diagrams.

Incidentally the method of Graphical Statics emphasises the proper treatment of Statical problems, which is always to consider a system of balancing forces; and thus to banish the word Resultant from Statics unless employed to represent the force which if reversed will balance the remaining forces of the system. G.

*A Naturalist on the Prowl.* By Eha. Pp. 257. (London: W. Thacker and Co., 1894.)

*From Spring to Fall.* By "A Son of the Marshes." Edited by J. A. Owen. Pp. 239. (London: William Blackwood and Sons, 1894.)

THE author of "A Naturalist on the Prowl" knows how to write pleasantly on the natural history of the Indian jungle. There is not a dull page in his book. It is only rarely that we meet with a volume so full of interesting observations, and so free from stodginess. In "Eha's" company we travelled from the first to the last page, here admiring the keenness of his perception, there laughing at his humorous comments, and always made happy by his geniality. He does not "prowl" to kill, neither is he imbued with the spirit that induces many people to collect shells and postage-stamps as specimens; for though he recognises that "without a collection, a man's knowledge of natural history becomes nebulous, and his pursuit of it dilettante," he also knows that there is a possibility of a man degenerating into a mere collector, and ceasing to be a naturalist. Mr. R. A. Sterndale enriches the volume with eighty illustrations, mostly sketched from life.

The works of "A Son of the Marshes," on country life and scenery, are renowned for their simple beauty and sympathetic expression. Under the editorship of Mrs. Owen, the volume before us, like other books by the same author, is delightful reading.

*Edible and Poisonous Mushrooms.* By Dr. M. C. Cooke. (London: S.P.C.K., 1894.)

It may be safely asserted that fewer kinds of fungi are used for food in Great Britain than in any other country in Europe. This is the more remarkable when we take into consideration the indebtedness of the present advanced state of Mycology to the researches of our countrymen, amongst whom may be mentioned Bolton, Sowerby, Badham, Berkeley, and Broome. The author of the work under consideration has also contributed very materially to a knowledge of edible kinds of fungi by various publications, and more especially in promoting annual fungus forays in various parts of the country.

Poisonous fungi liable to be confounded with the numerous edible kinds are very few in number, and the majority of casualties, both at home and abroad, are caused by eating *Amanita phalloides*, a fungus very different in appearance from the common mushroom (*Agaricus campestris*), but which, probably from its neat and attractive appearance and size, appears to commend itself to unsuspecting persons, and being usually very abundant and widely distributed, is likely to be a continual source of danger until its characters and general appearance are more generally known.

Dr. Cooke very properly condemns the various rule-of-thumb methods for discriminating between edible and poisonous kinds of fungi, and shows that the essential characters of the various kinds must be thoroughly grasped, as being the only certain means of identification; and this method, with Dr. Cooke's book as a guide, should not prove a difficult task. The written descriptions of the various kinds, without being technical, are very clear and to the point, and the eighteen coloured plates are excellent. Finally, the best methods of cooking are given. The book is well printed, attractive externally, and very cheap.

#### LETTERS TO THE EDITOR.

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#### What are Acquired Characters?

FOR some while past, as we all know, a great contest has been raging as to whether acquired characters of an organism can or cannot be transmitted from one generation to another; and mighty authorities, on the one side, say that they can be; and great authorities, on the other, aver that they cannot be.

As a spectator of this contest, I have tried to understand it; and, in the first place, I have endeavoured to make out what is meant by the phrase "acquired characters"; or, in short, what is meant by the word "acquired," as used, in this connection, by Weismann, his friends, and his antagonists.

It is evident that the word is not used in its primary and natural signification: for, as on the theory of evolution (on which hypothesis the whole discussion proceeds), man has been evolved from an amœba or an ascidian, or some other early form, it follows that every character by which a man differs from this, his first progenitor has been acquired at some time between the two termini of the course of evolution, and, if the word were used in its ordinary sense, it would further follow that none of these characters could be transmitted by man to his offspring. This is manifestly untrue, for the issue of a woman is not simply an amœba. In fact, Weismann himself implies plainly that he does not use the word "acquired" in its ordinary signification, and asserts that its scientific value lies in its restricted use. ("Essays on Heredity," English translation, vol. i., first edition, p. 412.)

It becomes then very important to get at an accurate and workable definition of the word "acquired" for the purpose in hand; and such a definition must, I conceive, satisfy the following conditions:—(1) It must be such as to include all characters that are "acquired" within the restricted meaning of the word, and to exclude all characters that are not within the meaning; (2) it must be stated in physical, and not in metaphysical terms; (3) it must not be stated in terms derived from hereditability or the contrary, or in terms of any hypothesis or theory; (4) in order that it may be of use for scientific purposes, it must be stated in terms that admit of ascertainment and verification.

Of the importance of a clear definition of these words every one must, I think, be conscious; and if authority were required, we have that of Prof. Weismann himself. "I should wish to point out," he says, "that we ought above all to be clear as to what we really mean by the expression 'acquired character.'" ("Essays," vol. i. p. 169.)

Now, I do not profess to have read all that has come from the pen of Prof. Weismann, and still less the whole literature that