

German students, and its introduction is to be regretted, as it is likely to deter scientific students from taking up crystallography.

In the special part devoted to the several systems, Dr. Liebisch proceeds from the principle of symmetry, in which, however, he defines his systems by means of axes and a centre of symmetry, instead of by planes of symmetry. This is done with a view to include the hemihedral forms in the same definition as the holohedral ones, and to obviate the difficulty arising from the hemihedral forms being excluded when the system is defined by means of planes of symmetry. One doubts, however, whether the advantage gained is sufficient to compensate for the loss of simplicity. Dr. Liebisch has made a curious slip in his definition of symmetry, being apparently carried away by his love of generalisation. He shows that the internal and external bisectors of an angle divide symmetrically the spaces portioned out by this angle, and that the four lines form a *harmonic pencil*. He then generalises this relation, and leads one to suppose that symmetry always exists when a pencil is harmonic. The fallacy of this is clear when one considers that the planes 100, 101, 001, and 101 in the oblique system would thus show symmetry, since they are harmonic conjugates. Dr. Liebisch points out that the indices of the planes in a form can be deduced from those of one of the planes when the symmetry is given. The deduction though simple is sufficiently difficult, and it would have been better to have given it fully. Another omission is found in the problem of isogonal zones, *i.e.* the determination of the possible angles between planes of symmetry. The solution is carried out so far as to show that the angles must have the squares of the cosines rational, and then the special values are given. No attempt is made to show that these are all the possible cases. It is not difficult to find all the submultiples of 180° which satisfy the condition, and the complete solution has long since been worked out by Axel Gadolin and Prof. Maskelyne.

The author is remarkably well read in the literature of crystallography, and has done much to compress the valuable portion of this literature into the space of a comparatively small volume. The book is certainly not suited as a text-book for students who are beginning crystallography; and its methods of solution of crystals are not the simplest in practical work. For advanced students, who wish to regard their subject from different points of view, it will be a suggestive book; and, notwithstanding its omissions, will very greatly assist them, both by its own statements and solutions of the problems of crystallography, but also by its careful references to the literature of the subject. It is well printed, and has a large number of excellent woodcuts.

OUR BOOK SHELF

A Dictionary of Popular Names of the Plants which furnish the Natural and Acquired Wants of Man, in all Matters of Domestic and General Economy; their History, Products, and Uses. By John Smith, A.L.S. (London: Macmillan and Co., 1882.)

THE lengthy and somewhat incoherent title cited above is less expressive of the aim of this volume than the abbreviated form which appears upon its cover—*viz.* "Dictionary of Economic Plants." Mr. Smith, the

vaner ex-curator of Kew Gardens, has brought together a great deal of information with regard to economic plants; and his facts, although sometimes open to criticism if examined in detail, are in the main trustworthy. It is not always easy, however, to reconcile the contents of the volume with its title; interesting as are such plants as the "side-saddle flower" (*Sarracenia*), "telegraph plant" (*Desmodium gyrans*), broom rape, wallflower, Virginian creeper, mignonette, and the like, they can hardly be regarded as supplying either the "natural" or the "acquired wants of man." We have tested the work somewhat carefully, and have in almost every instance found the name we were seeking; and we can therefore say that this Dictionary, although not perhaps particularly needed, may be usefully referred to by those interested in economic botany.

Induction. By Willoughby Smith. 17 pp. (London: Hayman Brothers and Lilly, 1882.)

In this work Mr. Willoughby Smith gives an account of some curious and interesting experiments on magneto-electric induction as revealed by the Bell telephone. In one of these experiments an intermittent current was sent through a flat spiral coil of wire 36 inches in diameter containing 1220 yards of wire in 800 turns. When an ordinary Bell telephone, unconnected with the circuit, is held within a few feet of this, spiral sounds are heard in it, even if the coil of the telephone be removed, leaving only the iron tympanum and the magnet. Mr. Smith however appears to regard this effect as something not explainable on the ordinary laws of electrical action, and he applies a new term, "specific inductive resistance," to the power of a medium to stop such inductive action. He thus introduces a confusion between two conditions in the case. That such induction should be propagated depends upon the coefficient of magnetic induction, and also depends upon the damping of induction by the setting up of currents in an interposed sheet of metal. Both these causes are perfectly well known. It is a pity that an able experimenter commits himself to crude ideas of this kind. There are several good plates of figures added.

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 Mount Pisgah (U.S.) Stone Carvings

PERMIT me to make the following remarks on Dr. Rau's letter in NATURE, vol. xxvi. p. 243. I hope shortly to lay before your readers a statement of the facts relative to the objects under discussion.

At Prof. Baird's request I met him and Dr. Rau at Washington with the carvings and photographs I now have in Europe. These were looked at by Dr. Rau, and he now states as the result that he is "enabled to express an opinion concerning them," and that "they neither show the characteristics of the stone sculptures discovered in the mounds, nor do they resemble the well-known specimens of modern Indian art."

Now if Dr. Rau had compared certain of these objects with some of those found by Squier and Davis in the Scioto mounds, he might probably have "discovered," as I did some time ago, and others have observed since, some resemblance in them. Moreover, there are objects in the collection which may have been, and no doubt were, made by Indians. A striking illustration appears in a very rudely incised stone—photographs of which Dr. Rau saw; an Indian is represented with feathers in his head and a flint-lock gun in his hand. But, notwithstanding the occurrence of this and a few other similarly treated objects, the majority of these carvings do not "resemble the well-known specimens of modern Indian art." In the representations of the