classical "Lectures," yet it is so concise, that there is room in it to describe as many or more experiments than in the latter book; and it contains a great amount of recent work, which is naturally not to be found in the older text-book. The conciseness has, of course, its disadvantages, for in consequence of it the book is not so readable, nor is there space for the same philosophical treatment of the subject which is characteristic of the work of Sachs. Much, however, is done to lessen these necessary drawbacks by the clearness of the arrangement and the descriptions, and references to the original papers are in most cases given, so that the reader is presented with much of the literature on each subject. From these references the names of English authors are almost completely absent; this is in part due to the fact that, unfortunately, so few of our countrymen occupy themselves with plant physiology, and in part to the fact that, even when such work is to hand, the author often fails to allude to it.

Finally, the usefulness of the book is increased by a very complete index; and we are glad to learn that an English edition is in preparation. H. H. D.

OUR BOOK SHELF.

Science and Art Drawing: Complete Geometrical Course. By J. Humphrey Spanton, Instructor in Drawing, H.M.S. *Britannia*. Pp. 582, and 689 figures. (London: Macmillan and Co., 1895.)

THIS is a somewhat bulky but handsome well-printed volume, the title of which is a little unfortunate; it should, however, prove useful to students preparing for such examinations as those of the Science and Art Department, for the Army, or for Cooper's Hill. The author takes as a basis the South Kensington syllabus, and, by sundry additions, covers nearly the whole ground necessary for other examinations. The book is a trifle paradoxical, for while in the solid geometry information abounds, in the plane geometry the opposite is the case, and generally anything approaching to an explanation of the principles underlying the constructions has apparently been eliminated. This, we think, is a matter for regret, as a much larger sphere of usefulness would be obtained by a few judicious explanations, or by an occasional reference to Euclid; indeed, a step further might well be taken, and the equations of curves be given. The student would thus be familiarised with mathematical formulas, and by a little instruction would be enabled to follow the *rationale* of the construction instead of simply learning it by heart; for instance, the equation, $r = a + b \operatorname{cosec} \theta$, of the conchoid of Nicomedes (p. 183), shows at once the reason for the given construction being adopted. Such additions need not necessarily make the book more bulky, as the drawings on pp. 31–34, 60, 61, 78–80, and 164 might well be omitted.

The figures, which must of necessity form a distinctive feature in a work of this nature, are good throughout; those for the plane geometry, however, suffer by comparison with those of the remainder of the book, as the lettering of the former is not by any means neat; also, some of the diagrams illustrating horizontal projection are too small. For exhibiting the conic sections to junior students, the author hits on the happy method of cutting off, from the light of a candle, a cone of rays by means of a circular hole cut in a sheet of cardboard, and then by inclining another piece of cardboard across the cone the various conics are produced in shadow; later on, the conics are again discussed in an instructive manner as the sections of a cone. The author is not always fortunate in his definitions, and ambiguities occasionally occur; for instance, the spheroid (p. 13) is defined as "resembling the sphere in shape, but all its sections are not circles." Again with the conchoid (p. 183), we are told that "it has the *peculiar* property of always approaching nearer a straight line as it is produced, but would never meet it." From this it would almost appear that an asymptote occurred with the conchoid only, as it is never mentioned elsewhere, not even in connection with the hyperbola.

In the solid geometry the interest of the student is first excited with the plan and elevation of the simple solids; then a good chapter on spheres and spherical triangles is incongruously wedged in between this and the following chapters on points, traces of lines and planes, intersection of solids, &c.; the author faithfully following the South Kensington syllabus (omitting, however, any reference to perspective), and finally closes with elementary graphic statics, in which, by the way, a slight error has occurred in Fig. 331, the component (q) being shown in the wrong direction. The pages are remarkably free from error, and the book will no doubt fulfil a want felt by many for a practically complete course.

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 intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

The Discovery of the Anti-Toxin of Snake-Poison.

I DESIRE, without offering any comments on the facts, to bring under the notice of your readers the following simple statement.

In the *Annales de l'Institut Pasteur*, May 1894, Dr. Calmette described in full detail his researches on snake-poison, and demonstrated that not only can animals be rendered resistent to cobra (and other snake) poison by the injection into them of graduated doses of the poison (so that rabbits were rendered tolerant of sixty times the lethal dose), but that the serum of such immunised rabbits is found to contain a powerful anti-toxin which can be used successfully as an antidote to snake-poison. In April 1895, in the same *Annales*, Dr. Calmette described the results of a year's further work on this subject, giving the most important facts as to the antidotal action of snake anti-toxin in regard to poisons allied to snake-poison, and of other anti-toxins in regard to snake-poison.

On both occasions Dr. Calmette formulated his discoveries in such a way as to render them applicable to the treatment of snake-bite in man.

On June 3, 1895, Prof. Thomas R. Fraser, of the University of Edinburgh, read to the Royal Society of Edinburgh a paper (subsequently printed in the *Proceedings* of that Society) "on the rendering of animals immune against the venom of the cobra and other serpents; and on the antidotal properties of the blood-serum of the immunised animals."

In this paper, read more than a year after Calmette's first paper above cited was published, Prof. Fraser has refrained from any textual reference to Calmette's published work. His only mention of Calmette is as follows: "Within the last few months, Phisalix and Bertrand have obtained experimental indications of the antidotal power of the blood-serum of animals immunised, but only to a low degree, against the venom of vipers; whilst Calmette, working in the Pasteur Institute of Paris, after several unsuccessful endeavours had led him to express the opinion that immunity against snake-venom could not be produced, afterwards succeeded in obtaining evidence of its production, and of the power of the blood-serum to counteract the effects of venom."

The medical journals of Great Britain have represented Prof. Fraser as the discoverer of the anti-toxin of snake-poison. Two distinguished Edinburgh biologists—Prof. Geddes and Dr. Arthur Thomson—writing on Pasteur in the *Contemporary Review*, have put forward Prof. Fraser as one who has made an important life-saving discovery which is the latest fruit of Pasteur's fertile conceptions.