

for the future of physics is that such a condition should become impossible, that "Ollivier" should become a household word and his treatise (if it is all equally good) be found in the library of every serious physicist.

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Science Primers.

- (1) *First Course in General Science*. By Prof. Frederic Delos Barber and others. Pp. vii+607. (New York: Henry Holt and Co.; London: G. Bell and Sons, Ltd., 1916.) Price 9s. net.
- (2) *The Science of Everyday Life*. By E. F. Van Buskirk and E. L. Smith. Pp. xvi+416. (London: Constable and Co., Ltd., n.d.) 7s.
- (3) *A First Book of General Science: An Introduction to the Scientific Study of Animal and Plant Life*. By A. T. Simmons and A. J. V. Gale. (First Books of Science.) Pp. viii+145. (London: Macmillan and Co., Ltd., 1921.) 2s. 6d.

THESE three books offer a good contrast between British and American tendencies as regards general science in education. In the two countries, the movements in this direction have been going on independently. In both cases, they sprung from efforts made, in the 'nineties, in two or three schools, to take a bird's-eye rather than a toad's-eye view of science—to use the words of the Principal of one of the Illinois schools. In both cases, again, the growth of the movement began to be rapid about ten years ago.

With characteristic thoroughness, the Americans are fast reducing their methods to a system. In this country we are still in the muddle which seems to be our natural habit of growth. Now that examining bodies are issuing schedules of work to be done in this connexion, teachers may be forced to set their houses in order. Then, perhaps, the hardly-won freedom from traditional restraint may again be lost. It is to be hoped that the outcome will be more satisfactory in the way of awakening general interest in things scientific than the work of the last century proved to be.

(1) But to return to the contrast: in America, the teaching of general science is itself being developed into a science; in Britain, it remains an art. If in one case it might be more scientific, in the other it might well be more artistic. The book which Prof. Barber and his collaborators have written is among the best of its kind—and many good ones have been published across the water. It may even be objected that it is *too* complete. In a single column of the index, the following words occur: machines, malaria, maltose, meat, metabolism, monsoons, motors, mucor, mumps. Experience shows that anything like a proper assimila-

tion of such mixed dishes occupies three or four years. Are the pupils to have the same text-book during all that time? Will not they tire of the style, the print, the binding? There is a certain value in change, if only for the incentive to make a new and better start. In such things, perhaps, the art of teaching lies.

(2) "The Science of Everyday Life" depressed us. It seemed such a good book spoiled—spoiled by the very riot of the science of teaching. Here we have done with chapters: the book is divided, instead, into two parts, five units, and eighteen projects. Every one of the latter is subdivided monotonously into introduction, problems, topics, and individual projects. A project, by the way, has been defined as a whole-hearted, purposeful activity proceeding in a social environment. Pupils may be expected to ask questions about their activities; but lest they should omit to do so, the authors give lists of questions which they ought to ask. When they have completed a project, the whole-hearted, purposeful, and active seekers after knowledge must feel that there is nothing more that they ought to know, can know, or want to know about it. Frankly, despite the authors' introduction, we can scarcely think of a surer way of killing initiative. Yet the subject-matter of the book is good, and teachers who are rather short of ideas might do well to study it. We ourselves found the diagram showing the various cuts in a side of beef instructive!

(3) "General Science," by Simmons and Gale, provides a refreshing contrast. Here the authors set out with a single aim: to make their young readers acquainted with the manner in which plants and animals live, and to describe some of the physical and chemical processes which are involved. A small book, the general purpose can be grasped by boys and girls; and they may hope to master the contents within a reasonable time. It is written as a man might write for men—children hate to feel that they are being written down to. The science of teaching does not obtrude itself upon the pages; which is not the same as to say that it is absent. That is where the art of teaching plays its part. The authors have compiled a book which is both sound and eminently readable. It is sure to find a wide acceptance.

C. L. BRYANT.

Atmospheric Electricity.

Électricité atmosphérique. Par B. Chauveau. Premier Fascicule: Introduction historique. Pp. xi+90. (Paris: G. Doin, 1922.) 10 francs.

M. CHAUVEAU has set out to write a work on atmospheric electricity—a very laudable undertaking, for, as he says in his preface, there is no