

paring the reactions obtained with the specimen, the name is ascertained without difficulty. An example will suffice to show this:—"The mineral has a metallic lustre. Its degree of fusibility is 2, and a portion of it is readily volatile, evolving the garlic-like smell peculiar to arsenical minerals. On looking at the tables it is found to belong to Division I. Fused with carbonate of sodium on charcoal in the reducing flame, no metallic globule is obtained, but the reaction for sulphur is seen on moistening the fused mass and placing it upon a piece of silver. Does not give the reactions for copper or cobalt. In the closed tube gives metallic arsenic, and after long heating becomes magnetic. It is found that it can only be one of two minerals, viz., Arsenopyrite (mispickel) or Lölingite. The streaks, colour, and hardness are the same; but two reactions observed before prove it to be arsenopyrite, for it fuses at 2, and gives a strong sulphur reaction." As we have pointed out, it might have been expected that so distinguished a mineralogist as Prof. Brush would have given us all the more modern methods, but, nevertheless, his book is certainly a very useful one, and may be recommended to the student.

CHARLES A. BURGHARDT

OUR BOOK SHELF

Elementary Chemistry. By F. S. Barff, M.A. (London: Edward Stanford, 1875.)

THE question which naturally occurs to one on opening this book is, Why was it written? Of late we have had so many books professing to teach elementary chemistry, and some of these really fulfilling their profession, that it is hard to understand why another should be added to the list. In his preface the author says: "This book, as far as it goes, professes to enable the attentive student to acquire a sound knowledge of the very elementary facts concerning the most important of the 'non-metallic elements,' as they are called." Again, he expresses the belief that by the system he has adopted, "boys will have their reasoning faculties strengthened and their powers of observation rendered accurate and acute."

So far as mere facts are concerned, this book appears to be very trustworthy; the author is evidently well acquainted with his subject; but there is a want of principles to guide the student. If chemistry is to be taught thoroughly, even in its elements, the method of teaching adopted must from the very beginning be a scientific method; it must seek not only to inculcate accuracy of knowledge in detail, but also to point out the generalised expressions which bind together the facts into a connected system. By studying the book before us a boy may certainly gain a considerable amount of good and useful knowledge, but we are afraid that his ideas of what chemical science is will be at best but vague. The author does not appear to have clearly set before himself the end which he desired to secure by writing a book on elementary chemistry. If that end was merely to supply a collection of useful facts about various chemical substances and processes, he has succeeded; but books already existed which supplied this want. If he wished to supply sound chemical knowledge, *so far as the book goes*, he must be said also to have succeeded, but unfortunately he has stopped too soon; the fault is that it does not go quite far enough: a little more carefulness in planning the book, and the introduction of at least a few generalisations to explain the facts, would have added vastly to the value of the book as an elementary educational work. If we compare this little book with others which might be named which cover much the same ground, the want of general ideas to guide the student becomes very apparent.

Another question which occurs in connection with a book on chemistry specially intended for the use of boys at school is, Are schoolboys as a rule really interested in this science? Is it found generally advisable to devote any large portion of a schoolboy's time to the study of chemistry; or is it better, when natural science is introduced into a school curriculum, to choose physics as the principal subject-matter for study?

M. M. P. M.

Travels in Portugal. By John Latouche. With Illustrations by the Right Hon. T. Sotherton-Estcourt. (London: Ward, Lock, and Tyler.)

MR. LATOUCHE'S narrative is full of interest and instruction; but why has he not indicated the year or years during which he travelled in Portugal? There is even no date on the title-page. We hope Mr. Latouche will supply the necessary dates in a second edition. The author refers with justice to the general ignorance of Portugal and of its people; many, no doubt, suppose they are a sort of degraded Spaniards, whereas we think it is pretty clear, from the information contained in the work before us, that the Portuguese are in many respects superior to their neighbours. Mr. Latouche evidently knows Portugal well, and has carefully observed the characteristics of its people. In his narrative he wisely gives very few details about the beaten tracks, but describes principally what he saw in districts which are never visited by the ordinary traveller. His work contains much information concerning the people, their ethnology, language, manners, customs, superstitions, and history; about the country itself, its physical features, its natural history, the state of agriculture, and other points of interest. As to the ethnology of Portugal, Mr. Latouche seems to believe that the people are an agglomeration of a greater variety of elements than that of any other country in Europe, and that these elements still remain to a large extent heterogeneous, different elements preponderating in different districts—Celts, Iberians, Phœnicians, Romans, Visigoths, Saracens, Greeks, French, and Jews all contributing their quota. As an illustration of the extensive infusion of Jewish blood throughout all ranks of the people, Mr. Latouche tells the following anecdote:—"When that foolish bigot, King Joseph, proposed to his minister Pombal that all Jews in his kingdom should be compelled to wear white hats as a distinctive badge, that sagacious minister made no objection, but when next he appeared in Council it was with two white hats—'one for his Majesty and one for himself,' explained Pombal, and the King said no more about his proposal." With regard to the natural history of Portugal, Mr. Latouche thinks there is much still to be learned; that, in fact, it has been less studied than that of any other country in Europe. There is no doubt much truth in this, but we hope it will not be necessary for any foreign "patient naturalist" to learn the language, as Mr. Latouche suggests, in order to investigate the natural history of Portugal. Surely there is a sufficient number of competent men in the country itself to undertake the task, if their attention were directed to the importance of having it accomplished. Indeed, we believe there have not been wanting signs recently of an awakening of intellectual life in Portugal, and we hope that one of its results will be a thorough investigation of the natural history of the country, as well as a vast improvement in the wretched system of education which prevails. The Portuguese, as our readers know, were at one time one of the most enterprising people in Europe, and under proper guidance might still occupy an honourable position among the nations.

To those who wish to obtain some trustworthy information concerning the present condition of Portugal, we commend Mr. Latouche's work, which, we may state, is enlarged from a series of articles which were published in the *New Quarterly Magazine*.