

more orderly arrangement, and one more convenient for reference, is also the one that best enables the student to study the subject in the way advocated by my reviewer; and in order to impress upon the student that the study of descriptive facts should accompany the study of the reasoning on these facts, he is directed to "slowly and carefully" read part i. *while he is studying the descriptive chapters.* I venture to think also, that this method tends far less to "perpetuate the vicious and unreal distinction between chemistry and chemical philosophy" than that of obliging the student to gain his information of facts from one book, and his knowledge of theory from another.

Commenting upon the fact that part ii. is devoted to the study of four typical elements, Mr. Muir says:

"But hydrogen, oxygen, nitrogen, and carbon are not treated as typical elements; they are not compared and contrasted with other elements."

This criticism is not true. Chapter ii. of part iii. is prefaced with a short general account of the elements oxygen, sulphur, selenium, tellurium, in which the typical element oxygen is compared and contrasted with its *confrères*. Chapter iii. is prefaced with a similar brief sketch of the elements nitrogen, phosphorus, arsenic, antimony, bismuth, wherein the typical element nitrogen is compared and contrasted with the others of the group; and similarly at the beginning of chapter ix. the typical element carbon is compared and contrasted with silicon, germanium, tin and lead.

My reviewer is good enough to say: "The descriptions in this book of the members of each group of elements seem to me to be exceedingly well done; many portions of the chapters treating of principles and theories . . . are admirable." And again, a few lines further on: "The purely descriptive portions of the work are often extremely good, as far as they go. The facts, or rather half-facts, are stated in a clear and orderly way."

I am a little curious to know what *half-facts* are; and whether if such things can be, it would be possible to state them "in a clear and orderly way." If my reviewer merely means that there are so many more facts known than I have stated, that roughly speaking it may be said that I have only described one half of the known facts, I can only reply that I have endeavoured to select "from the overwhelming burden of so-called facts" such as seemed to me to be most important for the student, and which could be conveniently included within the limits of a small text-book.

Mr. Muir finds fault with my book because he does not discover in it "some fair and fitly fashioned building," which he says "ought to rise on this broad superstructure." I regret that this objection has not been stated in rather more explicit terms; I have tried to understand it, but cannot—perhaps it is poetical. In ordinary language one does not speak of a building as rising upon a superstructure. In no text-book of chemistry with which I am acquainted, is any trace of such a phantom edifice to be found, and it is sincerely to be hoped, that when the Joshua appears, who by raising such a "fitly fashioned building" shall "rescue chemistry from the overwhelming burden of so-called facts beneath which the science is in danger of being buried," he will choose some more suitable vehicle for making his views known to the scientific world than that of an elementary text-book on inorganic chemistry.

G. S. NEWTH.

I STILL hold that Mr. Newth's method is radically wrong. I admit it is not easy to make the descriptive statements of chemical facts accompany the reasoning on these facts; but although not easy it can be done.

As regards Mr. Newth's treatment of the four typical elements, hydrogen, oxygen, nitrogen, and carbon, I can only repeat that the comparisons and contrasts made between these elements and those of which they are representative are, in my opinion, worth very little.

I cannot enter into a discussion of the meaning of the term "half-fact"; but I can assure Mr. Newth that in saying he had stated "half-facts in a clear and orderly way," I did not mean to say he had stated about half of the known facts and omitted the rest. It is characteristic of half-facts that they are very amenable to clear and orderly arrangement.

When I spoke of "some fair and fitly fashioned building" rising "on this broad superstructure," of course I should have written "broad substructure." I am much obliged to Mr. Newth for pointing out this stupid slip.

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I thought Joshua was more concerned with demolishing towns than with raising buildings; but my Hebrew history is a little rusty.

M. M. PATTISON MUIR.

Cambridge, Nov. 21.

Singing Water-Pipes.

AT Oxford, Prof. Osborne Reynolds showed an interesting case of sound in water. There is another familiar effect, of which he has probably given the reason, but it does not seem to be commonly known.

A little while back there was a clear steady note carried through my house by the water-pipes, a note of the middle octave of the quality of an organ diapason pipe. When the source was found, it was easy to change the note through the octave. The music arose as often as the scullery tap was turned on, and lasted so long as the water was running. The tap was worn, and the flow of water kept up a rapid tapping of the loose part, just as in Trevelyan's Rocker.

The singing is sometimes heard after a tap is turned off. This happens because the ball-tap of a cistern has thus been left running.

W. B. CROFT.

Winchester College, November 26.

An Aurora on November 23.

STEPPING out of doors to-night, November 23, at 7.30, I was surprised to see the whole northern sky filled with luminous mist, so clear that our shadows were dimly observed on the shining surface of the wet highway. There were few tremulous motions, but the light clouds advanced southwards in great patches. For a while the planet Jupiter shone to the east of the luminous haze. Then the mist passed over Jupiter, who shone, however, with nearly its wonted splendour until a great detached belt hung between Jupiter and Pleiades, over to the south-west horizon.

The Milky Way became obscured as the haze passed right over our heads. By eight o'clock the detached luminous belt, which was not uniform, but in patches, had reached the planet Mars. Neither was the light in the north uniform, but here and there were clear spaces. By 8.10 the aurora was much dimmer. By 8.30 there was no luminosity except in the north, between the Great Bear and the horizon.

J. SHAW.

Tynron, Dumfriesshire.

A Snake "Playing" Possum."

A PUFFING adder, *Heterodon platyrhinus*, caught by the writer in May 1894, exhibited a most curious instance of feigned death which may be worthy of record.

The snake when discovered at first tried to escape, but on being captured it turned on itself with mouth wide open, head thrown back sharply, and tongue limp and protruding. The mouth remained open thus to its fullest extent, while the head and upper part of the body threshed violently from side to side for a few times, and then his snakeship rolled over on his back, and after a few convulsive movements became apparently lifeless. The body was then quite limp, and remained in whatever position it was placed, providing the snake was on his back, but when turned over in the proper position, he immediately rolled back by an almost imperceptible muscular contraction. When struck lightly, pinched or held up by the tail, there was very slight resistance. He continued in this state for about half an hour, when no attention having been paid to him, he resumed his normal position. A little teasing caused a repetition of this performance a number of times afterwards, and it did not vary in any essential particular. It would be interesting to know whether this is a ruse common to individuals of this species, and if so whether it is confined to them alone.

L. C. JONES.

The Soaking of Seeds.

IN reply to Mr. Alfred W. Bennett's inquiry as to the soaking of seeds in milk before sowing, it may interest him to learn that in book iii. section v. of his "Deipnosophists," Theophrastus is quoted by Athenæus as saying that "cucumbers contain a more agreeable and wholesome juice if the seed be steeped in milk or mead before it is sown," and that "plants come up quicker if they are steeped in water or milk before they are put in the ground."

P. C. GLUBB.

Pendean, Liskeard, November 13.