

'*tuto, cito, jucunde*,' in the words of old Comenius, — to the practical mastery of the modern languages. Its peculiarity consists essentially in introducing the foreign tongue as a living tongue, drilling it from the very beginning by ear and speech instead of teaching it by reading and writing, like a deaf-mute language. During the instruction the pupil hears and speaks only the language he is to learn. The effect of this is, first, that he is enabled to follow, without difficulty, even rapid conversation in the foreign tongue; and, second, that he thoroughly acquires the pronunciation as well as the various expressions used in forming an assertion, question, or command. Whether the method can be employed in the instruction of large public-school classes, I am not yet able to state. It appears to me, however, beyond doubt, that the method is specially adapted to advance rapidly adults who desire to study a modern language for practical application. But I am also inclined to believe, that its use, at least supplementary to the ordinary public-school course, is practicable even in large classes, provided the teacher himself can converse in the language to be taught. It would be apt, above all, to re-awaken the pupil's interest, so easily blunted by grammatical exercises and translations. Really the method is only the systematized form of learning a foreign language in a foreign country by its actual use."

LETTERS TO THE EDITOR.

"Take Heed!"

MAY I be allowed to draw attention to an expression that is now creeping into our text-books and journals? Every teacher of chemistry is aware that students, when endeavoring to describe experiments, prefix to almost every sentence the word 'take.' "*Take* a glass cylinder," replies the student, when asked to describe the method by which hydrogen is collected, "fill it with water, and invert it in a vessel filled with water. Then *take* a glass tube and put the end of it under the mouth of the cylinder. Then, when the cylinder is full, *take* a glass plate and put it on the end of the cylinder, and *take* it out of the water," etc.

The careful teacher would interrupt this laborious and involved description at the start by suggesting the more concise statement, "Invert a jar filled with water," etc. Indeed, it is quite remarkable how students, when drilled by good teachers, soon fall into the way of expressing their ideas concisely and accurately; but it is discouraging, in reading articles written by men of high standing, to find directions beginning, "Take a jar," "Take a tube." Time is short, life is short, and our sciences are getting to be endless. Let us therefore discourage all verbosity and inaccuracy, and encourage simplicity and terseness of expression. Let the teacher, when the student begins his ramble by saying, "Well, you take salt, manganese di-oxide, and strong sulphuric acid to which some water has been added," stop him gently but firmly with "I will *not*! I am willing to teach chemistry for a small salary, and to sacrifice myself in the interest of science, but I must draw the line somewhere, and I draw it here. I will *not* take salt, manganese di-oxide, and strong sulphuric acid to which some water has been added."

Let every one be on his guard against the ravages of this word.

PETER T. AUSTEN.

New Brunswick, N.J., Oct. 15.

Ants transplanting the Scale-Bug.

IN bringing in from outside the window the other day some pots of agave infested with scale-bug, I placed one of these near a box of plants. Next day I noticed some red ants engaged at something on the point of one of the leaves. On examining more closely, I found three ants bringing scale-bugs from off a dying leaf of an agave to the leaf of a plant which it barely touched. They incited the slow bugs to move along by touching them with their antennæ, and in the course of half a day they had transplanted several of the half-grown insects. I am pretty sure, from the circumstances, that they were doing this, and I hardly think the scale could have crossed alone, from the position of the leaves. I question if the scale gives up its honey by excitation, like the aphids. I am inclined to believe that they deposit the drops of beautifully clear, viscid honey at night. The ants do associate with the scale for the pur-

pose of gathering this product, and have nests at the base of each plant suffering from scale.

The ants have been in my office for more than four years, and I have come to the conclusion, that, in my fight with the scale, they aid and abet the enemy.

There is one circumstance that reconciles me to the ants: they search out and destroy the larvæ of museum pests. A deer-skin coat infested with moth was thrown on the floor one day, and after a little while I noticed some ants crossing and burrowing in the hair in the most excited manner, and I also noticed some ants carrying away and devouring the plump, white moth-larvæ they had secured. I have seen them carrying the struggling 'millers' also.

WALTER HOUGH.

U. S. National Museum, Oct. 16.

Chest-Development.

I AM glad to say the practical experience of another year has completely confirmed the research I laid before the British Association at Birmingham and Manchester. The best type of chest has been easily obtained in young people; but anthropologists will, no doubt, be surprised to learn that a change in the same direction can with care be made in those of mature age. This I have seen in the diseased chest of a gentleman aged thirty-seven. Between the ages of twenty-five and thirty-three, similar results have been frequently noted. Here are facts that prove the direct power of the surroundings in making the different types of chest we meet with, and consequently we can now avoid those types that are known to be so injurious to the race by substituting for them that which we find at birth. No doubt, the proportion between the height and chest-girth that obtains at birth is a very high one; so much so, in fact, that it has been thought that I was acting unadvisedly in selecting it as the standard we ought to seek to attain. But it exists; and Mr. Brént's maximum chest-girth, obtained from a large number of actual measurements over forty years ago, closely agrees with it.

The method of treatment advocated in the paper on consumption has been successfully applied in six cases. One, whose chest-girth has increased about five inches, and whose vital capacity exceeds Hutchinson's so-called standard of health by seventy cubic inches, has passed medical examination for life-assurance; a second, whose chest-girth has increased nearly three inches, has been examined by a physician, who detected no signs of the previous disease; a third, whose vital capacity was eighty-five cubic inches, and now is two hundred and twenty cubic inches, has borne children, and continues well; and most satisfactory progress has been made in the others. To these we must add Sydenham's cures and the numerous recoveries by nature which were obtained by similar conditions. Hence the practical application of this method has completely confirmed the explanation I gave of the nature of the disease; and I have no doubt whatever that science has gained another victory in the conquest of a great enemy of civilized man.

G. W. HAMBLETON.

Dorchester Place, Blandford Square, London, Oct. 11.

Queries.

37. WHAT NUMBERS DOES IT TAKE TO MAKE A BILLION? — During colonial times, both in England and the Colonies, it took one million of millions to make a billion. During the first half of the present century, I think it may be affirmed that this notation had not been changed, and would have been held binding in law in the United States. It is certainly the most convenient for the astronomer, who has to deal with such enormous distances. The nearest of the twelve or fourteen fixed stars whose distances are approximately known to us require twenty, thirty, or forty English billions of miles to measure the space between the earth and them. The compilers of our modern American arithmetics, without any legislation on the subject, seem to have disregarded the old notation, and to have adopted the French method, of calling in numbers a thousand millions a billion. It is true that the French metric system has been legalized, but it does not make a kilometre an English mile.

E. T. MERRICK.

New Orleans, La., Oct. 13.