and only the sound, and not the verbal genealogy, calls for representation. The derivation of words belongs to etymology, and not to orthography.

Our defective alphabet, and the consequent irregularity in spelling, form the only obstacle to the international diffusion of English. This obstacle may be removed for international purposes without disturbing our own spelling. I now refer for a moment to the system of letters denominated 'World-English,' in which a distinctive character is furnished for each sound in the language. By this means the orthography of every syllable becomes absolutely regular. A large proportion of the common alphabet is retained unchanged in World-English, but each letter is limited to the expression of one single sound. New letters are, of course, introduced for unrepresented sounds, and these are designed to resemble old letters as much as possible. The effect is, that any reader of ordinary English deciphers World-English without the slightest difficulty. At the same time — the writing being perfectly phonetic — the exact pronunciation of every word is indicated in the spelling.

I need not say any thing more concerning World-English, except in reference to certain prevailing misconceptions as to the scope and object of the system. Some critics have looked on the new orthography as only a fresh attempt at spelling-reform ; and they argue, that, as the new letters are not to be found in every printing-office, the introduction of the system must needs be hopeless. This view is entirely a misconception. World-English does not interfere in any way with ordinary spelling. The object is simply to provide a separate method of learning to read and speak the language, for the benefit chiefly of students in foreign countries, but incidentally also as a help to beginners at home. Books, magazines, and newspapers do not require to use a single one of the new letters.

Other critics have objected to the association of English sounds with the vowel-letters *a, e, i,* as giving a preference, they say, to narrow usage over the wide usage of Continental Europe, which would require these letters to be sounded *ah, ā, ee.* This is another misapprehension of the system. The World-English alphabet is not — like that of Visible Speech — a universal alphabet. Its exclusive object is to teach ONE language, and to do so with as perfect conservation as possible of the phonetics of ordinary letters. To have associated the sounds *ah, ā, ee,* with the letters *a, e, i,* would have defeated the very purpose of the scheme. World-English does not assimilate English to other tongues, but only facilitates the acquisition of the language, exactly as it *is* spoken in England and America.

My allotted space does not permit me to say more. I trust, however, that this brief statement will have sufficiently established the claims of English to universality. I have confined my remarks to this single point. If the language were merely as well adapted as any other for international use, its being the native tongue of the two greatest nations on earth should decide the question of its superiority for social, commercial, and scientific intercourse throughout the world.

Volapük, Lingua, and other schemes proposed for universal language, will, I fear, prove but wasted efforts. The field is occupied. Every zone is being covered with broad growths of world-overspreading English. Let us improve, while we may, what none can supplant, and none need wish supplanted. World-English has performed one not unimportant service, in showing how established spelling may be preserved, while the orthographic obstacles are removed that have hindered both the diffusion of the language, and its *recognition,* as the most fit medium for international communication universally.

HEALTH MATTERS.

The Pollution of Water-Supplies.

DR. CHARLES SMART, surgeon U.S.A., presented a report at the recent meeting of the American Public Health Association on the pollution of water-supplies.

The report gives special emphasis to the conclusion reached at the previous meeting, that, when there is sewage in a water-supply, there is danger of typhoid infection. Some of the evidence is briefly cited ; and the financial interests involved are held responsible for the hesitancy to acknowledge this specific danger, for as soon as a city relieves itself from the oppression of the moneyed interests, and procures a wholesome water for its citizens, it immediately recognizes the connection between sewage and typhoid. Vienna recognized this connection when it found, that, by substituting the water of a mountain-stream for the sewage-water of the Danube, its annual deaths from typhoid fell from three hundred and forty to fifty, and shortly afterwards to eleven, in every hundred thousand of the population ; and an improved sewerage system had nothing to do with this, as the sewerage system was in existence during the period of high typhoid rates.

The efforts made by municipal authorities and water companies are then passed in review. The advantages of sedimentation, which is the method generally adopted in this country, are recognized, and particularly when sedimentation is promoted by the use of precipitants, such as chloride of iron, as recently suggested by L. H. Gardner of New Orleans, La. The changes that take place during storage are held to be purifying in their nature, notwithstanding the vast increase in the number of bacteria developed in the stored waters. The slowness of the sedimenting process, often necessitating a large expenditure for storage-basins, has led to the experimental use of such filtering-beds as are employed so generally for municipal supplies in England ; but the expense attending them is large, and the coldness of our winters begets difficulties which are not encountered in the milder climate of England. Attention is then directed to the patent filters that have of late been manufactured for use on a large scale. Their ability to furnish a clear water is conceded ; but the object of the filtration of a water-supply for domestic or public service is its wholesomeness when used for drinking, and its transparency gives no testimony on this point. Artificial filtration has neither the time nor the surface to effect percolation after nature's methods. In these artificial filters, as much water is transmitted under pressure in half an hour as nature purifies on the same area annually. Bacteria of nitrification, which effect the purification during the passage of a water through the soil, cannot be harnessed to the work of the artificial filter. Artificial filtration consists of the mechanical separation of a water from its suspended impurities, while the essential of natural filtration is the thorough nitrification of the dissolved albuminoids of the water, the removal of the suspended matters being incidental and merely secondary.

But although sedimentation and filtration give a more or less clear water, and one in which the organic matters that are prone to decompose are destroyed and rendered harmless by bacterial agencies, if an infected sewage has entered the water, the living germs of typhoid-fever are not removed or deprived of their virulence by any of these modes of purification. The infected water which prostrated twelve hundred of the eight thousand inhabitants of Plymouth, Penn., and killed a hundred and thirty of those whom it prostrated, passed through three storage-reservoirs on its way to accomplish its deadly mission ; and the springs of Lauzun, in Switzerland, contained the germs and propagated the disease, although their waters had undergone a thorough filtration. From the particulars of the latter epidemic, it is held, that, while sewage irrigation may give effluents that will preserve our streams from becoming open sewers, it will never furnish a water which can be afterwards used as a drinking-supply.

The conclusion reached is an emphasized reiteration of that of every committee which has investigated this subject, — that a water to which sewage has had access should, from that fact alone, be excluded from all further consideration as a possible water-supply for domestic purposes. Money is held to be all that is wanting to solve the question of pure water-supplies. Engineering difficulties fall into insignificance when surveyed from a satisfactory financial standpoint. It is often said to be beyond the power of money to purchase health, but the sanitary student can readily demonstrate that in many cases this is not so. Money expended in the distribution of a wholesome water-supply will purchase health for the thousands who otherwise fall victims to the fever which is endemic in our cities and towns. Typhoid-fever is a disease to which every one is exposed. The susceptibility to it is inherent in our consti-

tution, and, so far as we know, immunity can be purchased only by submitting to attack. We are surrounded by its infection, and cannot escape. Ordinarily the human constitution succumbs to its influence before maturity is reached; but if, up to that period, we fortunately escape, we have no assurance of future immunity. Uncertainty overhangs us like a cloud. Danger is as present with us in the daily routine of our peaceful lives as on the battle-field, only that the embodiment of evil is an invisible and intangible germ instead of a fast-flying bullet. Danger flows beside us in our streams, in our mains, from the taps in our houses. The germ of disease may not be in this pitcherful or in that, in this tumblerful or in that, but it will find us some day if we continue to use the water which contains it. In a town of fifty thousand inhabitants, one victim is taken daily; and, as the average duration of this fever is about a month, there are always in that city thirty persons whose lives are unnecessarily trembling in the balance. What is the local suffering from yellow-fever in Jacksonville, Pensacola, or New Orleans, once in so many years, compared with the totality of the devastation caused by the steady progress of this general and ever-present scourge? Thirty thousand people die of typhoid-fever annually in the United States of America; and Vienna lowered her losses by this fever from three hundred and forty to eleven annually in every hundred thousand of her population by introducing a spring-water supply instead of the sewage-tainted waters of the Danube. Calculate the loss by sickness associated with these thirty thousand deaths, — the loss of work, the unprofitable work of nursing, and the actual outlay necessitated by each visitation of the disease, — and you will find that saving money by drinking sewage in the water-supply is a penny-wise policy, that, in the long-run, will fail to pay even for the funerals and mourning goods.

The importance of acting promptly is insisted upon, as, the longer a community procrastinates, the greater is the difficulty experienced in procuring a desirable supply of water, owing to the increasing density of the population of the surrounding country. Having obtained a pure supply, every square foot of the drainage area should be familiar to the sanitary inspector, that the life and health of the citizen may not be endangered by that which was intended as a benefit. Every case of typhoid-fever occurring on such an area should be specially watched, and the infection of the dejecta destroyed. But as the efforts of local authorities, such as water companies and boards, citizens' committees, health boards and commissioners, would often be powerless without the intervention of the authorities of the State, a livelier interest in this important matter is urged on the part of the State boards of health, — an interest which is not satisfied with discussing and subscribing to views of the subject, but which will leave nothing undone that will tend to invest them with power to act for the preservation of the public health. With all our boards operating, each within its domain, there would be no need of committees to investigate the subject of water-pollution.

The report concludes with a resolution that will tend to strengthen the hands of the State boards, — that it is the well-considered belief of the American Public Health Association that great good would accrue to the public health, particularly in the denser settlements, if State legislatures would give their boards of health that financial support which would enable them to act intelligently on all questions pertaining to the public water-supplies, investing them with the supervision of the said supplies, and with power to preserve them from contamination by sewage or other injurious matters.

BOOK-REVIEWS.

The Young Idea; or, Common-School Culture. By CAROLINE B. LEROW. New York, Cassell.

THE lady who has with much labor compiled this little book has done a genuine service to the cause of educational reform: for she has pierced the shams of the present curriculum with the shafts of ridicule, and so reached many readers who would have paid no attention to a more formal argument. In 'English as She is taught,' the same writer attacked one branch of instruction: in the present book she attacks the vicious principle that runs through the teaching of all the branches. That she has worked to some purpose is testified by the sneers of *Education*, an ardent defender of every thing that is worn out; for, argument in reply failing, some harsh expletives and ill-timed jibes were resorted to by that antiquated periodical in order to break the force of Mrs. LeRow's indictment.

It would be a serious mistake to suppose that Mrs. LeRow's object is to amuse, though her book contains many amusing things. "Repugnant, one who repugs," is the natural answer of a boy who has been taught what the schoolmasters are pleased to call etymology, by the mechanical method. As the author suggests, the child who defined arithmetic as the "sins of numbers" had an almost supernatural insight into the difference between the way in which he was being taught and the way in which he should be taught. And the following is too good to pass unnoticed (we will all agree with Mrs. LeRow that it would have rejoiced Lord Byron's heart): "A critic is something to put your feet on to." The self-evidence of this will also be appreciated by all but the book-writers and book-publishers: "Grammar is something to talk good, and is devided into digrams on the blagboard. I cant never learn to do grammar." "The Saxon Cronical was the seven deadly sins," is a sufficiently startling statement to indicate that bad teaching is not confined to the lower grades: it seems to reach at least to the history classes.

These quotations might be multiplied at great length, but to cite too many of them would perhaps emphasize too much the merely illustrative side of Mrs. LeRow's work. She is not jesting: she is in sober earnest. She knows of what she writes. She has been in the schools, and seen and heard what she speaks of. She has a gospel to preach. It is a protest against educational indifference, a call to the study and criticism of educational methods. To remedy these defects and bring about the necessary reforms, many things are necessary. Politicians and time-servers must be ejected from the school-boards; inefficient and mechanical superintendents and principals must be retired; and raw, untrained, and immature girls, yet in their teens, must no longer be given an opportunity to dull and stupefy thousands of child-minds under the protection and in the service of the State. Until public opinion is aroused, no one of these steps can be taken, and Mrs. LeRow should be loyally aided and encouraged in her self-imposed task of arousing public opinion.

Hand-Book of Historical and Geographical Phthisiology, with Special Reference to the Distribution of Consumption in the United States. By GEORGE A. EVANS, M.D. New York, Appleton. 12°. $2.

IN this volume Dr. Evans has given us a sketch of the development of our knowledge of pulmonary consumption from the time of Hippocrates to the present day, together with the ascertained facts regarding the geographical distribution of that affection. In addition to this, he has arranged the statistics in regard to this distribution in the United States so as to make them available for convenient reference in selecting localities of resort or residence for invalids, and also for those who are in health. He coincides with Hirsch in designating consumption as a ubiquitous disease, extending over every part of the habitable globe. Taking the mean death-rate of the whole of a population to be twenty-two per thousand, the average of deaths from phthisis would be nearly one-seventh of the whole mortality, or three per thousand, of the population. Estimating the total yearly mortality of the world to be thirty-five million, five million of these deaths are attributable to consumption, — the greatest number caused by any single disease.

The consideration of the geographical distribution of consumption in the United States is based on the 'United States Census of 1880,' and Rand & McNally's 'Atlas of 1887.' The same is true of those portions of the book which treat of the topography and climate of States, and of the number of deaths from consumption in the different States and cities. The etiology of the disease is discussed at length, and the views of Hirsch, Hunter, Lindsay, Bowditch, Elliott, Hermann, Müller, Koch, and others, are referred to.

Concerning the conclusions which may be deduced from the evidence submitted in regard to the geographical distribution of phthisis, Dr. Evans says that he can do no better than to quote the