

## SCIENTIFIC EDUCATION AND RELIGION.

The race of Don Quixotes is not yet extinct, and Sancho Panzas are still to be found, to follow the lead of such doughty knights; the modern champion fights, however, with the pen instead of the lance, and aims his blows against the realities of science, instead of against the figments of a distempered imagination. Last year our attention was called to a remarkable instance of such Quixotic undertakings, remarkable, however, only in its utter absurdity. "Creation a Recent Work of God" is utterly beyond the pale of scientific criticism. It is written to give to the world a new scientific (!) version of creation, and is an endeavor to make geological facts accord with a *literal* interpretation of the Mosaic record, in opposition to what has been deliberately affirmed by the highest experts in science, as well as by thoughtful and qualified theologians. The author believes that the entire geological history can be compressed within the limits 6,000 years, and that man lived amongst palæozoic trilobites! And this wonderfully original theory, worthy of the days of Burnet and Whiston, is supported by equally original data and arguments. What will Sterry Hunt say to this passage: "The Psalmist says God founded the earth on its 'bases,' and modern science teaches that the bulk of the materials of the earth consists of three great acid, alkaline, and neutral bases"? Or Agassiz, to this statement: "In his [man's] first embryonic stage, he resembles a fish; in his second, a reptile; in the third, a bird; in the fourth, a mammal, and lastly, he is a man," etc.? The following, we suspect, must have been plagiarized from the showman of the Cardiff giant: "Scientists say that human flesh will not become fossil, but living witnesses say, a dozen bodies have been found in that state in America within the last twenty five years." "In California a pig, toads, and lizards have also been found petrified;" whilst this is far too good to have been plagiarized from anybody: "The richest deposit of mammals has been found in the secondary series of stratified rocks, and the tracks of quadrupeds, birds and men have been discovered in the old red sandstone, which is the beginning of that series"—a most successful sentence, as it could not possibly have been worded to convey more error! As the entire book is written in the same strain, the reader may well ask why we draw attention to such a farrago of nonsense. We do so, because it is written professedly in the interests of religion, by the rector of an Episcopal church in this city, who should, therefore, we presume, be a clergyman of some educational standing; and because it is not a solitary example, though perhaps it is the worst we could quote, of such burlesques of a serious subject.

We have been credibly informed that this book, foolish as it is, has been favorably reviewed by more than one religious paper; and, since our attention was drawn to it, we have seen a brief notice, in the daily papers, of a lecture by another clergyman, which seemed to have been similarly directed against the teachings of geology. From this, we infer that these clerical Quixotes and their lay supporters must be more numerous than we had supposed, and we therefore think it time to say a few words, not against the knights themselves, but in regard to the system of education and moral culture which permits—shall we say, promotes?—the production of such out-of-date champions of mediæval ignorance.

The knight of La Mancha's first bane was his library. Now, a library is not a bad thing in itself; but, by itself, it may be worse than useless as an intellectual possession; and the Don lived in his, and forgot for a time the world outside; he became a believer in written authorities, whose statements he had no means of verifying; he passed his existence amidst a waste of words, and lost the use of his own perceptions; and thus, when he wandered into the realities of life, animated, as he was, by all the follies of the past, and utterly ignoring or misconceiving the facts of the present, he is wisely represented by the satirist as an egregious madman. Had Cervantes been a recent writer, we might have read in his satire a caricature of the victims of our conventional system of education, substituting for the tales, and the phraseology, and principles of knight-errantry, the study of dead languages, the myths and unapplied lessons of history, and the philosophy of the dark ages. A knowledge of languages, ancient and modern, and of history, and of mathematics, are certainly essential elements of a liberal education; but, by themselves, not supplemented by other studies and training, they leave their possessor utterly unqualified to meet the requirements of the age in which he lives, and to discuss intelligently the vital questions, social, political, and religious, that at present agitate society. But such absolute ignorance is necessarily passive, and it is only when a man thus uneducated, relying upon a knowledge of terms not realized and formulas not comprehended, and without any practical experience in scientific methods of experiment, research, and reasoning, ventures into scientific discussion, that we find how far he is behind the age. He then becomes actively ignorant, and will assuredly injure any cause that he endeavors to support; and of such active ignorance, the author we have cited is an unusually forcible illustration. He has evidently never mastered the first elements of the sciences which he so boldly calls to his aid; and he ignores every principle of inductive philosophy.

Unfortunately, if we take the trouble to test the majority of our so-called well educated men, we shall find in them, unless their education has been leavened by some sound scientific instruction, more or less of these same deficiencies; the same in kind, but, thanks to common sense, less in degree, decreased, probably, by the lessons of practical life. However few the number of such men who feel called upon to display their ignorance in print or in the lecture, it is the

want of higher knowledge in the mass that encourages these exhibitions, which, without impeding the advance of the science they attack, bring ridicule upon the religious doctrines they are supposed to be defending. It seems to us imperative upon those who are interested in religious progress, to have scientific instruction of a broad and liberal character introduced into all school and college education. Its omission from a general education is worse than a blunder. Science is merely the interpreter of the works and the will of the Creator, as recorded by Himself, and no religious mind need fear evil from its progress, nor from the dissemination of the truths it teaches. On the contrary, a fear of possible results of scientific inquiry and, worse still, misstatements, or wilful ignorance and unsound arguments based upon it, are derogatory to the wisdom of the Creator, and are, if used by its advocates, the surest means of injuring the cause of religion. We trust, however, that such travesties of scientific subjects as those here alluded to will yet serve a good purpose; we believe that they will bring such ignorance of science and of truth as they display into discredit, and thus indirectly promote the development of a system of sound and enlightened education.

## CAISSON FOR THE NEW YORK END OF THE EAST RIVER BRIDGE.

It is thought that this structure, which is now rapidly approaching completion, will be ready to launch about the middle of May. At a recent visit, however, we found that there were yet many courses of timber to lay, and we hardly think the launch will take place quite as early as anticipated, though there will probably not be much delay.

It is thought that, although this caisson will be sunk much deeper than the first one—that is, to eighty feet below high-water mark, to the bed-rock—it will take no longer to sink it, on account of the greater ease of excavation in the sandy soil on the New York side. The structure is, however, altered somewhat from the one on the Brooklyn side, to fit it for the greater depth to which it will be sunk, and also in the adoption of improvements suggested by experience gained in the sinking of the Brooklyn caisson. The construction is proceeding at the yard of W. H. Webb, at the foot of Sixth street, on the East river; the contractors for the timber work being the same who built the Brooklyn caisson, Messrs. Webb & Bell. The iron work is supplied by Messrs. Roach & Son, of the Morgan iron works.

The dimensions of the caisson are 102 by 172 feet at the base, the interior chamber being nine feet in height. The side walls of this chamber are inclined at a sharp angle toward the center, and the interior is entirely lined with boiler iron. This will obviate the danger of obstruction of the work by fire, which occurred in putting down the first caisson. When completed, the top will be about fifteen feet in thickness of solid timber, and nearly 400,000 cubic feet will be used in the entire structure. The timber is Georgia pine, bolted together by almost numberless drift-bolts and screw-bolts of iron, and the structure already presents a most massive and imposing appearance.

The interior chamber is subdivided into six chambers, the walls of which are to be four feet thick when completed. The chambers communicate with each other by suitable doors.

The air locks are constructed to give greater convenience in ascending and descending than those on the Brooklyn caisson. There are, to each of them, two separate entrances from the principal tube into the caisson, either or both of which may be used, as occasion requires. No important change will be made in the arrangements of water shafts and pipes for the sand pumps.

The lining of boiler iron subserves two important ends, namely: the prevention of fire, which, under the great pressure to which the air in the caisson must be subjected, would otherwise be difficult, and the obviation of the necessity for thoroughly caulking every part of the timber work, to prevent leakage.

This is probably the largest caisson ever constructed, and the event of its launching and towing down to its future position will be anticipated with much interest.

## THE MORAL LUBRICATOR.

The great moral lubricator which makes everything in human life run without friction, is good temper. As soon as this is exhausted, the journals of the human machine begin to heat, and wear, and screech, and the entire mechanism becomes noisy and ruinously wasteful of power.

"The horse that frets, is the horse that sweats," is an old saying of horsemen, and it is just as true of men as of horses. The man that allows himself to get irritated at every little thing that goes amiss in his business, or in the ordinary affairs of life, is a man that, as a rule, will accomplish little, and wear out early. He is a man for whom bile and dyspepsia have a particular fondness, and for whom children have a particular aversion. He is a man with a perpetual thorn, in his flesh, which pricks and wounds at the slightest movement; a man for whom life has little pleasure, and the future small hope.

To "keep jolly" under all provocations is perhaps a task which only Dickens' Mark Tapley could perform. We never have met Mark Tapley in our experience of human nature, but we have seen him closely approximated; and it would be well if people in general could approach more nearly that inimitable character.

In all the phases, emergencies, and occupations of human life, good temper is a commodity for which there is great demand; but in those which bring an individual into daily contact with many others, it is perhaps in greatest demand and most limited supply.

We have often suffered in our personal feelings, from the incivility of telegraph operators, railroad conductors, ticket agents, etc. No doubt these officials have much to try their patience, and are called upon to answer many foolish questions. We are certain, however, that we never asked one of them a foolish question, and we are just as certain that it is very rare to get a reply from such people, that is not in word, or in manner, uncivil. Perhaps it is not meant to be uncivil, but it is given in an impatient petulant way, very grating to the sensibilities of refined people.

Were these men good-natured, they could not help being civil. Civility is as natural to a good-natured man as breathing. Even if rude and unpolished in manner, inborn goodness of heart makes itself pleasantly felt in all the relations of life; while the most polished manners and refined language may cut deep, and leave lasting wounds.

To foremen in shops, and superintendents of large manufacturing establishments, good temper is a most valuable qualification. Indeed, this article was suggested by a notable want of good temper, in the treatment of subordinates, by a foreman in an establishment recently visited by us. It was evident that this establishment was pervaded by a spirit of revolt, begotten by the brow-beating insolent language and manner of the foreman. The men were sulky and obstinate, being undoubtedly rendered unmanageable and restless by the total disregard of amenity in the man placed over them. Surely, thought we, whatever skill in his profession this man might possess, it was dearly purchased at the expense of willing service on the part of the workmen.

When, from any cause, a man is forced to add, to his physical toil, the burden of a discontented mind, he will neither do as much nor as good work as when his heart is light, and his mind easy.

It requires more than technical knowledge and skill to make a good foreman. The power to manage and control men is an essential, which can never be found apart from good nature. Of course we do not mean that sort of "good nature" which results from want of firmness, but that broad, wholesome, breezy heartiness that feels good itself, and loves to have others feel good, and which shows itself as much in rebuke, as in praise.

## WHISKEY, NEW AND OLD.

A correspondent asks: "Why is old whiskey more pleasant to drink than new—proof being the same? What chemical change takes place by age? and is it more injurious to drink new (same proof) than old?" We do not advise any body to drink whiskey, but we counsel those who have already acquired the bad habit, to confine their attentions to the old rather than to the new. There is always more or less glutinous or nitrogenous matter in liquors derived from starch, even after they have been subjected to distillation; and this undergoes slow oxidation in the course of time, and settles in the bottom of the cask. There is also frequently more or less fusel oil, which is also oxidised and rendered less poisonous in process of time. Hence old whiskey has a less disagreeable taste, and will not kill off quite so rapidly as the new article, which is freshly primed with the elements of destruction. When physicians prescribe whiskey as a medicine, they direct the patient to use the old article, as experience has proved its greater efficacy. It is only as a medicine, and in small quantities, that a liquor of this strength ought to be employed.

It contains so much alcohol that it abstracts water from the tissues, converting them into a species of parchment; and while it stimulates for a short time, the reaction leaves the system weaker and more exhausted than before.

## DANGEROUS DENTISTRY.

An article with the above caption has been sent to us for criticism. It is well known that the best substance with which to give the peculiar flesh tint to india-rubber is vermilion; and as a considerable quantity of this compound must be used, it is natural for persons, who make the study of mercurial poisons a specialty, to raise the inquiry how far hard rubber in dental plates may be the source of disease. A question of this kind can only be determined by a careful record of cases, made by dispassionate physicians. We are not in a condition to decide it, but we would suggest the possibility of the opposition to hard rubber plates having its origin in the desire of interested parties to make a larger margin of profit from gold plates. Hard rubber plates are cheap, and it is for this reason that many poor persons can have a full set of false teeth, when, if the old price for gold plates were maintained, they would be compelled to do without these ornamental and useful appendages.

Vermilion is sometimes prepared by dissolving sulphur in caustic potash, and shaking the liquid well with metallic mercury—the red powder settling in the bottom. The sulphur is not considered dangerous, and it is very uncertain whether the mercury becomes separated from the sulphur in a way to produce injurious effects. The testimony of physicians would be valuable on this point, but sensational articles by interested persons, ought to have little weight.

NITRO GLYCERIN AGAIN.—On Sunday morning, March 12th, seven hundred pounds of nitro-glycerin exploded, in a small wooden building on the west side of the Hoosac tunnel. The building was of course blown to splinters. The cans, in which the glycerin was kept, were spread out in ragged shapes. A young growth of birch and maple was cut through for a distance of twenty rods, the path being six rods wide. The trees, three inches in diameter, were torn and twisted into withes. The village of North Adams, two and a half miles distant, was shaken as if by an earthquake. No lives were lost, but the explosion was terrific.