

Scientific American.

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The Literature of Science.

It is an extraordinary fact, and yet a common-place one, that true science is scarcely ever disseminated among what are called "the masses," viz., those who make up the bulk of our population. We have colleges, schools, and literature for the education and improvement of the people, but of their general value, or, rather, the width of their scope, we can only say that it is lamentably small. For present consideration we shall only take the literature.

We may conveniently divide scientific literature into two broad divisions: books and newspapers, or periodicals. Of the former there are many treating of every science, and going deeply into the hidden mysteries of nature, but the only reliable ones are those written by men of high repute and good education; these are, unfortunately, the very men who are most liable to fall into the great error of long and hard words—it is not done intentionally, but from the habit which they have acquired of using technical expressions and Latin names for common things. Another drawback to these books is their price, which is always high, from the fact that they are only expected to have a limited circulation. Now we ask our readers what chance has an ordinary man, who really wants information on some subject, of obtaining it from the best and only reliable books? His education is simply reading and writing, and then, perchance, he had to study nature while picking stones off a farm; and obtained his knowledge of chemistry while errand-boy to a druggist. His college has been the workshop; his desk the plow, the anvil, or the loom; his study, the noisy yard full of men enjoying their hours' relaxation from labor. What time, we ask, has he to conquer hard words, and learn a new tongue? None at all; and if the desired information is not to be obtained in his own way, he will have to do without it. Again, it is true that there are innumerable cartloads of books written on "popular science;" but we would as soon recommend a man to drink at a pool of dirty water as to seek information from them. It is true they contain science, but it is very bad; as it is true the pool contains water, but who would drink it if they knew there was a clear, bubbling, running stream within a mile or two? There are, of course, many good ones, and they are noble exceptions to the general rule—for general rule it is, that popular science is too popular to be good.

We must look, then, to the newspapers and periodicals of the day (the current literature of the hour) for all the information that is wanted by the unlearned, but ingenious. Let us for a moment see how the newspapers fulfil this duty. In nearly every State we find at least one periodical devoted to agriculture, and another to education. Nearly every weekly newspaper has a column of selected or original matter, called "art, science and inventions," or "science and mechanic arts." The dailies, in their turn, occasionally give a scientific article, and are always ready to afford any information in their power in the "answers to correspondents"—usually the most interesting column of a newspaper. These are the means at command for spreading science, in all its phases, among the people; add to these, ourselves (of whom we do not say too much when we state that the SCIENTIFIC AMERICAN is the most popular of all teachers throughout the United States and Canada), and a few minor papers devoted to special interests in commerce or arts. Small as this account may seem, to combat with the ignorance still existing, yet it is powerful and intelligent, and will, in time, conquer; so that "knowledge shall cover the earth as the waters cover the sea!"

Confessions and Reforms in Railroad Management.

Hitherto there seems to have been no concert of action among the various railway interests of the country, and, as a natural result, each company has carried on its operations almost entirely on its own hook. For the want of that harmony so essential to success, a spirit of competition sprang up, and has been carried on in a manner disgraceful to the management and ruinous to the interests of shareholders. We are glad to announce a return towards common sense and common honesty, and that in future, on points of policy and expenditure, there is likely to be some unanimity of action.

At a late meeting in Cleveland, O., numerously attended by representatives of the leading roads, it was resolved to discontinue the nuisance of employing runners or agents for the passenger business, or the allowance of compensation, drawback, or commission for procuring passengers. It was also determined to increase on all rates of freight, and that the rates be made uniform between competing points by all lines. The "free ticket" system is to be abolished, except to employes and persons or agents traveling in the regular service of the company, and for strictly charitable purposes. No company is permitted to issue any bill or poster except one stating truly the distances, connections, rates of fare, &c.; and all *injurious references* to competing roads are to be excluded therefrom. Any road used in common by two or more competing routes is to be managed impartially. The rates of passenger fare on competing lines to all common points, are to be uniform, and can be reduced only by consent of all the members of the convention.

It appears from the above points, condensed from the resolutions passed by the convention, that the various competing companies will hereafter publish no more lies in regard to distances run by other roads, and will discontinue the practice of trying to ruin each other by injurious references. In other words, the "Peter Funk" system, hitherto confessedly a part of the policy of some of our railroad companies, will be discontinued on and after this date. This certainly points to a glorious future; and if these regulations are adhered to, they will, no doubt, have a beneficial effect on the finances of all the main lines of railroad.

Death of Crawford the Sculptor.

Thomas Crawford, the American sculptor, a native of this city, died in London on the 10th ult., aged 44 years. A gap has been left in the artistic society of Rome in which he moved that will not easily be filled. He was a rare artist, but though the hand is cold in death, the marble it cut is still among us, and his works will live to keep his memory green.

His ideal busts, of which "Sappho" and "Vesta" are good examples, are models of purity and grace. Some of his other more celebrated works are the "Genius of Mirth," "Adam and Eve," "David, as the Conqueror of Goliath," "David before Saul" (a bas relief), "The Shepherds and Wise Men presenting their offerings to the Saviour" (a bas relief containing twenty-four figures), "Christ Disputing with the Doctors" (a bas relief containing twelve figures), Christ and the Woman of Samaria" (a bas relief), "Christ blessing Little Children," "Christ ascending from the Tomb," "Christ raising Jairus's Daughter" (all bas reliefs), "Prayer," &c. The execution of his bas reliefs is delicate and spirited, and the religious subjects, especially those in which the person of the Saviour is introduced, are marked by singular propriety and dignity of treatment.

His genius, however, was eminently progressive, and his crowning works were destined to come last. In 1855 his noble statue in bronze of Beethoven, confessedly the only one yet designed which is worthy of the subject, or which gives an adequate idea of the original, was received in Boston, and deposited in the Music Hall of that city with appropriate solemnities. With his last great work,

the Washington monument, ordered by the State of Virginia, comprising a bronze equestrian statue of Washington on a lofty pedestal, with statues of Henry, Jefferson, and other illustrious Virginians surrounding its base, the public have long been familiar from numerous published descriptions.

The statue of Washington, now on its way to this country, has elicited flattering encomiums from all who have seen it, including some of the most distinguished art-critics of Europe, and is doubtless one of the most successful works of its kind of modern times. It is of colossal size, and was cast in the celebrated foundry in Munich, under the personal superintendence of the artist. The accompanying statues have been designed, but not all executed.

Crawford was a noble representative of American genius in the art-world of Rome; and we fear it will be long before we find another who can so ably represent us in that city of the beautiful, the gorgeous, the grand!

The Indian Mutiny.

All the world is looking with interest and anxiety to the battle-field of India, and every one is speculating on the probable results of the rebellion. Questions are daily asked, "What was the origin of the mutiny?" "Is it a fight of caste or religion?" We will attempt to answer the inquiry by giving a short account of the commencement of the insurrection.

There are many castes in India, who, like the Jews, will not eat pork, and any one doing so at once loses caste, that is, his friends will not eat with him or speak to him, and he is regarded as an abandoned character and an outcast. Thus with the Hindoo to lose caste is a serious misfortune, and which every one of them carefully avoids. Now for the mutiny. On the 22d of July last, Lieut. Wright, at Dum Dum, informed his commanding officer that a report had spread among the troops to the effect that the paper of the cartridges of the Enfield rifles were greased with pork fat, and therefore to bite them was to lose caste. We quote an anecdote from his letter:

"The belief in this report has been strengthened by the behavior of a classic attached to the magazine, who asked a sepoy of the 2d Grenadiers to supply him with water from his lota. The sepoy refused, observing he was not aware of what caste the man was; the classic immediately rejoined, 'You will soon lose your caste, as ere long you will have to bite cartridges covered with the fat of pigs and cows,' or words to that effect. Major Bontein then called the attention of the Commander-in-chief to it by a temperate and sensible letter, requesting him to allow the men to buy the grease themselves and grease their own cartridges, so that they might know there was no fat used which their religious prejudice prevented them from tasting."

The following order was then issued from Calcutta to the army: "In order to remove the objection the sepoys may raise to the grease used for the cartridges of the rifle muskets, all cartridges are to be issued free from grease, and the sepoys are to be allowed to apply, with their own hands, whatever mixture suited for the purpose they may prefer."

The day after the date of this, and we may fairly suppose before it had become generally known, a sergeant's bungalow (or house) was set on fire at Runegunge by one of the same 2d Grenadiers, other incendiary fires followed, and it is the embers from the ruins of this house, helped by pig's fat and Hindoo prejudice, which have set India blazing with such fearful strength that it will take Great Britain some years to thoroughly overcome the power of the flames.

The Children's Aid Society of New York offers to act as the agent of charitable people who will pay for the transportation of the thousands of unemployed girls in the city to the West, where their services are needed, and where living wages are offered to them. This is the most effective and substantial charity.

Results of Calculation.

There are many persons who cannot, or will not, appreciate the harmony and beauty of natural laws, the reason being, we suppose, that they are incapable of following the calculations necessary for their elucidation, and thus, by avoiding all the trouble, the result brings no pleasure to them. Where can anything more beautiful be found, and in what fact can you find a greater demonstration of the harmony of the universe, than that the same law which governs the motion of the planets, also controls a falling stone? The same force which binds the rocks together also keeps in contact the particles of skin on our hands. The universe and all things in it obey a system or code of laws which cannot be broken. It may appear extraordinary when we state that there is nothing violent or irregular in nature! The upheaved rocks of former ages have all been upheaved gradually, and in obedience to a controlling power; even apparently capricious earthquakes always move and ever will progress in a definite and given path around the globe; and the eruption of a volcano can be calculated to a nicety. Storms can be prognosticated, hurricanes predicted, and a comet's appearance prophesied; all these wonders are the result of hard and dry figures, the consequence of great calculation. Who, in future, will not have a great respect for arithmetic?

Steam Power versus Wind.

Under favorable circumstances the wind is sometimes a better locomotor than steam. A late passage of the ship *Lord Raglan*, from England to India, with troops, is a good illustration. This vessel, propelled only by canvas, made the passage to Bombay in twelve days less time than the royal mail steamer. The season was the most favorable for prosperous breezes. In the fall of the year it is said that the winds are contrary, and that the steamers can go in half the time occupied by the fleetest sailing vessels.

Perhaps the fastest sailing ever obtained is upon the ice. The construction of ice-boats—a couple of planks, skates, a sail and rudder—is familiar to all. These frail contrivances are sometimes driven by the wind at a speed of thirty miles an hour. We heard of a trial of speed between one of these ice-boats, on the Hudson river, and a train of cars running on the adjoining track. In a race of twelve miles the cars, with all steam on, succeeded in getting ahead only twice their length.

Those who are unaccustomed to the management of iceboats sometimes receive practical lessons while learning. When under quick speed, the slightest wrong guidance of the rudder diverts the boat with tremendous violence, and hurls out the occupants like a ball from a cannon.

Go Ye and Do Likewise!

A friend in the interior of Pennsylvania, after becoming a subscriber, was so well pleased with the SCIENTIFIC AMERICAN, that he went at once and induced a neighbor to take it also. We rely upon just such friends as these to aid us in keeping up its circulation; and we now earnestly call upon them to use *extra* exertion to send in new subscribers. We hope our friends will not forget their favorite paper, even in these pinching times. We believe no better investment can be made with the same amount of money. The SCIENTIFIC AMERICAN is a great economiser in the workshop and family, and should be carefully read during hard times. Cheer up, friends, and send in your lists of subscribers. If you can't send ten names, send one. If you do not feel able to pay for a year in advance, send fifty cents for three months, or one dollar for six months. In such times as these we do not wish to be too particular; and if we cannot get a whole loaf, we will take a half of one. We appreciate every effort made to extend our circulation. Remember the prizes—\$1,500!

By mixing with the world we often imperceptibly lose our prejudices while engaged in analyzing them.