

of power as to give us light, and heat, and magnetic and chemical action, in states more exalted than those supplied by any other means. In 1819, Oersted discovered the magnetism of the electric current. At first the results were so feeble as to be scarcely visible; but by the exertion of self-taught men since then they have been exalted so highly as to give us magnets of a force unimaginable in former times. In 1831, the induction of electrical currents one by another, and the evolution of electricity from magnets, were observed,—at first in results so small and feeble that it required one much instructed in the pursuit to perceive and lay hold of them; but they were sufficient for men already partially educated and ever proceeding onwards in their self-education, to help on to further developments, by which sources of electricity independent of the voltaic battery, or the electric machine, have been discovered. And now they can combine the power of both so as to make their working applicable to all the practical electrical purposes of life. Take one application, or rather one part of this application, as an illustration,—the electric telegraph. Of all the scientific marvels wrought in this remarkable century, there is none more astounding than the electric telegraph. This mysterious whispering wire enables us to convey our thoughts with the rapidity of thought. We send them off, with the rapidity of the lightning flash, to distant parts of the country in which we live, or to another separated from us by many miles of ocean. This achievement eclipses all the wonders accomplished by steam. Thus, man has discovered a power by the application of which nations are brought into close—into immediate proximity. And soon, we doubt not, will its transmitting agency girdle the world, bring all nations into a nearness, half a century ago, inconceivable. And how has this transmitting agency been brought to its present state of perfection? Just by education. Minds trained, exercised, set a-going, first by general education, worked on, in the path of science, and by little and little worked out the marvels exhibited and practised by our metallic wires. Numerous and important as the points are, which have been already recognized, others are continually coming into sight as the great development proceeds, and with a rapidity which bespeaks a coming unknown—exceeding by far the hitherto known, and exerting an influence upon the human mind, most favourable to its intellectual and moral development. And surely all this is most encouraging to the true and right-hearted educator, who, in every step of educational advance, whether in the school of theory, or the school of practice, in training the child's mind in its immature and vernal expansions, or that of him who has far outgrown its first educative developments, beholds himself placed, it may be said, in a magnetic condition surrounded by means more ample, and cheered by hopes brighter and more auspicious, and thus urged on to efforts more continuous and energetic, and with aims more noble and views more exalted.

But the triumphs of self-application and self-discipline, persevered in, are not confined to the science of electricity. In what science or art have these not shown their conquering power? See what they have, since the beginning of the present century, done in geological researches. Geology is one of the most recent of the sciences. A century ago, it could hardly be said to exist. Till the time of Werner, it was a branch of study without system, and even without clear and precise terminology. This was its state when he published his system in 1774, and which greatly aided in giving it an impetus. Since then it has been actively and extensively cultivated. Its path is now more scientific. It no longer enquires how "in the beginning God created the heavens and the earth;" but assuming that as a fact beyond all doubt or appeal, confines its investigations to the present structure of the globe, and the traces of the revolutions which it has undergone. It has now ceased to be a romantic theory built up on the fancy of speculators. It has taken its place among the inductive sciences; and among these has gained a position of high distinguishment. Though its study may be begun in books and class-rooms, its field of operation is the wide world. Under ground and above ground, on mountain tops and in lonely valleys, in barren deserts and cultivated fields, in the ocean and on the land, its searchings go on, and its crucible is at work; and to what art or science has it not lent its light? Both the miner and the farmer have largely benefited by its contributions; the mechanic and the chemist are deep in its debt; the mineralogist and the botanist acknowledge its contributions, and the geographer is not a little assisted by its explorations.

But to what are we to attribute the rapid advances which it and other sciences have made within the last few years? Just to education. As education advances, the study of science advances, and thus improvements and discoveries multiply. The two go hand in hand. As education improves and extends, more students and

better qualified enter our higher fields of study and research; and just as they multiply, will civilization advance and society improve, will the cultivation of the human intellect rise in character and efficiency, and the progress of nations accelerate. It must be so. So long as education is encouraged, supported, and pushed on, there must be progress. Education is to the mind what light is to the eye. Every truth embedded in it is to it what light is to the visual organ,—enabling it to see objects in their true form, and judge correctly of their character and dimensions. We know that certain substances from exposure to solar or electric light acquire luminous properties of varying duration. A calcined oyster-shell, white paper, even the human hand, subjected to vivid sun-light, remain for a time visible in the dark. Something like this is the human mind subjected to the rays of truth quickened and invigorated by sound training. Each truth lodged there, gives its impress and adds to its light; and the more precious the truth, the richer and more lucent is the impression.

From the time that a child's mind begins to receive knowledge through a rightly trained intellect, a new era of existence commences with him. The native vigour of his soul begins to come into view, its latent powers begin to spring up, and every truth received and understood becomes to it a verity—a quickening starting point—the element of a working principle, giving it aid and impetus, stirring up and moulding dispositions and urging to effort.

And by and by, he begins to feel that the law of progress has entwined itself with his being, and that from education's career there is no escape; that light, intelligence, advancement enter into its very essence, and that on and up are its breathing pulse.

Here bright hope comes in to cheer on, bringing down fair unfading leaves from that far off domain to which the Bible points, assuring him that every step of advance is a mounting up in a region of higher intelligence, and that each ascending flight is leading to a more commanding platform, thus giving a wider and a wider vision till at last he can gaze around him with the ken of a superior intelligence, and he can descry the far-off mountain tops—*radiant with the suns of eternity.*

And, oh! is not education mental progress—thus viewed—Christianity its purifying life-giving element—a blessed, and blessing doctrine? Yet many rebel against it, and lightly esteem the priceless inheritance—would go backward instead of forward, would blot it out from heart and soul, and, if they could, from the world. But surely none of us number with such. In the cause of intellectual and moral progress, we wish to be *true men*,—true in sympathy,—true in effort,—helping on by word and deed this cause of causes—by which alone the stigma of ignorance can be wiped off from the human mind—man's intellectual stature increased—and his moral greatness brought to a more glorious maturity.

The consecration of our mental faculties and mental wealth to the benefit of the world where we dwell, and the race to which we belong, is an honour which the seraphim moving in power and burning in light,

"May stoop from their thrones to take up."

Parents, what think you of these views of education and the educator? Of that which makes a difference *so vast* between the intelligent well educated man, and him who lives and dies with an undeveloped intellect?—Of the savage who lives contending with the beasts of the forests for his nuts and acorns, and the refined cultivator of the soil, enjoying his thousand comforts?—What think you of that mental training and acquired skill, difficult to calculate, compared with the Amazonian Indian, who lives most of his time in trees, like monkeys, and to save himself from reptiles and forest beasts of prey, entwines branches of trees and plasters them with mud on which to sleep with his naked offspring around him,—and the well educated husbandman in his castle-home which no enemy dare enter with impunity, and in which he and his live in peace, comfort and happiness?—Or to come up higher, and compare the uneducated masses among ourselves, in their modes of living, thinking and acting—their range of intelligence and knowledge, and their little skill and less knowledge in anything which tends to exalt and ennoble the mind,—with the man of letters, whose knowledge of laws and principles, of numbers and measures, enables him to take an intelligent view of the universe around him, stretch his measuring line around the world in which he lives,—can span the heavens,—pass with his compass and his line into infinite space,—among worlds, and systems, to measure their distances, magnitudes and motions, with an accuracy almost, if not altogether equalling that of the farmer in measuring his field or a mechanic in taking the dimensions of a building. Or, come still nearer: compare the *ten thousand* chil-