

until we are convinced of that we cannot be roused to the exertions required for its amendment. In censuring the low condition of knowledge in our primary schools, as represented by the results of the Revised Code, I do not aim to restore them to the position which many of them had before it. That code was, in fact, rendered necessary because their aggregate teaching was not sufficiently large and diffused to justify the increasing expenditure. In imitation of our classical schools, verbalism and memory-cramming had grown up as tares and choked the growth of the wheat. Words had taken the place of conceptions. A child could tell you about the geography of the wanderings of the children of Israel, but had no conception whatever of the ordinary phenomena around it. It was hopeless to put to them the commonest scientific questions. Whence comes the water that fills the Thames? What is the origin of hail, snow, rain, or dew? Why does the sun rise in the east, or set in the west? What produces night and day, summer and winter? In history they could rattle out to you the names and dates of kings and queens, perhaps even the names and ages of all Queen Anne's children as they died in childhood; but, as a true historical conception, apart from memory cramming of words and dry facts, to be vomited forth upon the examiner, it required a very good school under the old system to find it. Words, instead of ideas, were worshipped. Inspection, under the old system, did something to correct this tendency to verbalism and cram; under the new system they had no time, and, if they had, would find fewer of the higher subjects taught in any way. The teaching of science, if properly done, is the reverse of all this, and will go far to remedy its defects. Books in this case ought only to be accessories, not principals. The pupil must be brought in face of the facts through experiment and demonstration. He should pull the plant to pieces and see how it is constructed. He must vex the electric cylinder till it yields him its sparks. He must apply with his own hand the magnet to the needle. He must see water broken up into its constituent parts, and witness the violence with which its elements unite. Unless he is brought into actual contact with the facts and taught to observe and bring them into relation with the science evolved from them, it were better that instruction in science should be left alone. For one of the first lessons he must learn from science is not to trust in authority, but to demand proof for each asseveration. All this is true education, for it draws our faculties of observation, connects observed facts with the conceptions deduced from them in the course of ages, gives discipline and courage to thought, and teaches a knowledge of scientific method which will serve a lifetime. Nor can such education be begun too early. The whole yearnings of a child are for the natural phenomena around, until they are smothered by the ignorance of the parent. He is a young Linnaeus roaming over the fields in search of flowers. He is a young conchologist or mineralogist gathering shells or pebbles on the sea shore. He is an ornithologist and goes bird-nesting; an ichthyologist and catches fish. Glorious education in nature, all this, if the teacher knew how to direct and utilise it. But as soon as the child comes into the school-room, all natural God-born instincts are to be crushed out of him; he is to be trained out of all natural sympathies and affections. You prune and trim, cramp and bind the young intellect, as gardeners in olden times did trees and shrubs, till they assumed monstrous and grotesque forms, altogether different from the wide-spreading foliage and clustering buds which God himself gave to them, and which man is idiot enough to think he can improve. Do not suppose that I wish the primary school to be a lecture theatre for all or any of the "ologies." All the science which would be necessary to give a boy a taste of the principles involved in his calling, and an incitement to pursue them in his future life, might be given in illustration of other subjects. Instead of mere descriptive geography drearily taught and drearily learned, you might make it illustrative of history, and illustrated by physical geography, which, in the hands of a real master, might be made to embrace most of what we desire to teach. The properties of air and water, illustrations of natural history, varieties of the human race, the properties of the atmosphere as a whole—its life-giving virtues when pure, and its death dealings when fouled by man's impurities—the natural products of different climes, these and such like teachings are what you could introduce with telling and useful effect. Far better this than overlading geography with dry details of sources and mouths of rivers, of isothermal lines, latitudes and longitudes, tracks of ocean currents, and other tendencies towards the old verbalism and memory-cramming. If I have explained myself with clearness, you will see that while I advocate the introduction of higher subjects into our schools, I wish them to be of immediate interest and applicability to the working classes. The main difficulty in education is getting them to stay long enough at school. Teach them, while you have them, subjects of interest and utility. The short time will thus be made productive, and inducement will be offered for its extension. Six months

spent in teaching future laborers the geography of the wanderings of the children of Israel, is sheer waste of time, either for their eternal or temporal interests. Think of the few precious hours as the training for a whole lifetime, and let us use them by giving living and intelligent learning, not obsolete and parrot instruction. Those who are believers in the teaching of the great secondary schools of this country will deem my aspirations for the improvement of primary education, low and utilitarian. Frankly I admit the latter. Such a style of education will never realise Lord Brougham's hope that the time may come when every working man in England will read Bacon; but it might contribute to the fulfilment of Cobbett's desire, that the time might come when every man in England could eat bacon. I deny, however, that the utilitarian view of primary education is ignoble. The present system is truly ignoble, for it sends the working man into the world in gross ignorance of everything that he is to do in it. The utilitarian system is noble, in so far as it treats him as an intelligent being, who ought to understand the nature of his occupation, and the principles involved in it. The great advantage of directing education towards the pursuits and occupations of the people, instead of wasting it on dismal verbalism, is that, while it elevates the individual, it at the same time gives security for the future prosperity of the nation. In the industrial battles of peoples, we are content to leave our working classes armed with the old Brown Bess of warfare, while men of other countries are arming themselves with modern weapons of precision. In the competition of nations, the two factors of industry—raw material and intellect, applied to its conversion into utilities—are altering their values. The first is rapidly decreasing, the second quickly augmenting in value. We anchor our hopes on the sand, which the advancing tide of knowledge is washing away, while other nations throw out their anchors on firm ground accumulating around, and enabling their vessels to ride in safety. There are instances of nations, rich in the natural resources of industry, yet poor from want of knowledge how to apply them; and there are opposite examples of nations utterly devoid of industrial advantages, but constituted of an educated people who use their science as a compensation for their lack of raw material. Spain is an example of the first class, and Holland of the second. Having pointed out at some length the contrast between these two countries, in consequence of the difference of their culture, Dr. Playfair proceeded to show the necessity of good physical training, to argue in favor of a compulsory educational system, and of graded education, and to define the true position and qualifications of teachers in primary schools.

2. SECTION F.—ECONOMIC SCIENCE AND STATISTICS.

On the Aptitude of North American Indians for Agriculture.—James Heywood, M.A., F.R.S. Indian Reservations in Canada are under the control of the Secretary of State at Ottawa. Mr. W. Spragge, Deputy-Superintendent of Indian Affairs, presents annually to the Secretary of State a report of the Canadian settlements of Indians. The Six Nations Indians in the Tuscarora reserve, near Brantford, on Grand River, in the Province of Ontario, form the most important settlement of aborigines in Canada. Their reservation comprises 55,000 acres, surrounded on all sides by thriving communities of white settlers. The Indian population of this reserve amounts to about 3,000 persons, including 2,800 of the Six Nations, and about 200 of the Mississaguas, or Ojibbeways, located near the river New Credit, at the southern extremity of the Tuscarora reserve. According to a report of Commissioners, appointed by Sir Edmund Head, Governor-General of Canada, in 1856, the Six Nations Indians were settled in the Tuscarora reserve, by Mr. Thorburn, the Commissioner, in "farm lots, averaging 100 acres each by actual survey." The total clearing of the Tuscarora reserve "amounted in 1856, to 7,348 acres, more than half of which had been done by the Indians themselves, the remainder having been chopped by squatters, who had been removed from the land." "Most of these squatters were compensated for their improvements to the amount of more than £8,000, paid from the funds of the Six Nations Indians." The Commissioners of 1856 report that the Six Nations Indians cultivate on their reserve "separate farms, and each is secure in his possession from the other Indians on the lot he occupies. His heirs inherit his improvements, but the soil belongs to the Six Nations in common. The Indian has no right of transferring his portion of land to another. The revenue of the Six Nations Indians amounts to \$39,489 annually." Besides the two Schools in the New Credit district, maintained by the Indian bands of that locality, there are in the portion of the Tuscarora reserve inhabited by the Six Nations, eight Schools, principally supported by the New England Company, a London corporation, formed under the Commonwealth, whose funds are devoted to the extension of civilisation and Christianity among the aborigines in British Colonies,