

general economy of nature; their adaptation to purposes and their possible contribution to the necessities and luxuries of domestic life; their importance to commerce, manufactures, and arts; and the advantage of this species of knowledge in every department of education—these things constitute a branch of natural science that challenges attention, that justifies labor, and compensates for great individual sacrifices and large public expenditures. * * *

DEFECT IN THE METHODS OF SCHOOL AND COLLEGIATE INSTRUCTION.

It is hardly to be denied—and it were scarce an advantage if denial were possible—that a feeling is creeping upon the minds of men and scholars, not merely of indifferent but interested men, that our methods of school and collegiate instruction are not in all respects best calculated to develop the superior qualities of body, mind, or conscience. It is a problem as ancient as civilization, whether acquired or native powers are more valuable, and the policy and theory of education or non-education are sometimes made to depend upon supposititious advantages of one or the other of these powers. A similar diversity of opinion grows out of what is called self-culture, as compared with that conferred by educational institutions; or, in other words, that which comes early in life, with most favored opportunity, or that which comes limping later, with such advantages only as accident vouchsafes. It is error, in my judgment, that identifies education exclusively with acquired information, or contrasts acquired capacity with natural powers, as evincing the utility or non-utility of scholastic institutions. That men may misapprehend its nature and abuse its privileges is apparent. To regard mere acquisition of fact, the treasures of attainment as education; to seek the culture of the mind at the sacrifice of bodily vigor; to estimate memory as the equivalent of the powers of observation, analysis, and the faculty of reason; to consider, because a young man has won collegiate honors, and is therefore qualified for every pursuit of life, useful or ornamental, that he is for that reason disabled for any pursuit, except a few overcrowded professions, is both to misapprehend the nature and abuse the privileges of true education. But these things, so common among us; so correctly demarcating the line between what is called self-education and other education, if such a thing were possible, are no more the result of a true system, than—to borrow a bill of fare from Emerson—"the flesh of dried grass and the broth of old shoes" constitutes high living. The error, rather of practice than of theory, is that we identify education with attainment, and rely almost exclusively for instruction upon the contents of books. It is assumed that students know something because they are taught that other men know something. Men think they see, when in fact they are only looking on. If the acquisition of facts were the exclusive object of education, books would be a safe reliance, provided that the first men were authors. But in our age, the first men make newspapers, steam engines, arguments, street railways; they plant cities, command armies, give new powers to empires, solve problems of life and death, have little time to read, much less to make books. I welcome the creation of the museum because it opens to its students the book of Nature. Reading and writing are important to them because they are enabled thus to ascertain what was known before them, and to record their own discoveries and additions to the stock of human knowledge. Observation and comparison are their reliant powers. When a student contemplates a naked stone placed in his hand until he is able, by study, to discover its laws and analyze its character, new faculties of mind are given him which our theories of education never contemplated.

Mr. Kohl tells us of a picture in one of the Florentine galleries, which represents a monk seated in one of the cells of a monastery, intently gazing upon a black letter volume, his hands resting upon its pages. Not a ray of light makes darkness visible, until, from intensity of study alone, from his finger's end gradually breaks a faint glimmer, which gradually strengthens, until the black letter page returns the reflection, the folds of his garment become translucent, and the cell is filled with the light of his intellect. This is education—the education of the faculties. It proceeds from the student to the work, and does not come from the book to the man. An institution in which this theory of instruction is daily practised, which is frequented by students of the University and teachers of the Public Schools—which cannot fail to become the model of scientific establishments on this continent, and will equal, if it does not surpass, the renowned Museums of Europe—must renovate the customs of other institutions, and contribute to establish the true theory of mental culture. Its pupils—like Humboldt and Agassiz, Fremont, Arago, and Bache—will become a part of the scientific and intellectual development of the age, and each become in his time a type—

"The first fiery soul
That makes a low name honorable,
They who take it by inheritance alone,
Adding no brightness to it,
Are like stars seen in the ocean,
That were never there but for
Their bright originals in heaven."

From such a system of education, pervading families as well as colleges and schools, we may hope to attain the highest advantages of popular intelligence—accustomed to contemplate the subtleties of nature, which, as Lord Bacon says, "so far exceed the subtleties of sense and intellect;" our scholars will avoid the errors of the scholastic age, and our people escape the quicksands of prejudice and error that have swallowed so many of our predecessors. Our reliance is in the virtue and intelligence of the people, and not in constitutions nor in schools, nor in great men, alone.

Rome had her orators and her statesmen. Greece had her academies of learning and her schools of philosophy. Erudition poured forth her treasures to the multitudes in the groves and public walks. Philosophy unburdened her mind of its richest stores, in the streets and in the forum. The great of the age, Homer, Demosthenes, Cicero, Cæsar, answered in person the many-voiced call, and spoke face to face with the giant multitude. They had their constitutions and their laws, whose theoretic simplicity won the emulation of ages. The sister arts, poetry, and painting, music and sculpture, hand in hand with the lore of the schools and the progress of the sciences passed from perfection to perfection, approaching the standard of ideal excellence and transcending the fame of after ages. Yet Greece and Rome, as free governments, lasted but for a day. The fair form of a fictitious Republic arrayed in the panoply of freedom—adorned by the elegancies of the arts and protected by the supernatural powers of their philosophy—could not long withstand decay. The frail but beauteous vesture could not hide her mortality. The edifice had no sufficient foundation. The vesture of the people—the soul—was wanting. Who does not pray that America may escape a like desolating end? Who does not welcome an institution, in the benefits of which so many participate, that opens new avenues and new methods for the discovery of the truth? * * *

As President of the Board of Trustees, by virtue of the office I hold, one of the most satisfactory acts of my administration, in the name of the trustees representing the Commonwealth, the University, and the donors; in the presence of this assembly, I dedicate the Museum to its uses and the cause of Natural Science! May it enlist the continued support of the wise and the affluent! May it promote learning, and strengthen the Christian faith! May it honour the cause of Science, the Commonwealth of Massachusetts, the Institutions and People of America!

III. BOTANICAL SOCIETY OF CANADA.

EXTRACTS FROM THE ADDRESS OF THE REV. DR. LEITCH, PRINCIPAL OF QUEEN'S COLLEGE UNIVERSITY, KINGSTON.

At a meeting held in Kingston on the 7th of December to organize a Botanical Society of Canada, an address was delivered by Rev. Dr. Leitch, (the newly appointed Principal of Queen's College) from which we make the following extract:—"Universities (he said) do not discharge all their functions by merely teaching the acknowledged truths of literature and science; it is a part of their duty to organize and instigate original inquiry in the different departments of knowledge. Systematic research must not only be directed, but, to a large extent, carried out by the personal labour of those who are connected with Universities. This is especially the case in a comparatively new country, where amateur labourers are few, and scientific appliances not generally available. In a new country the prosecution of scientific research is needful, for various reasons; we have here commenced at the right point. Industrial production and commerce are all-important to a new country; and botany, as now pursued, yields to no other science in its bearings on field industry and other useful arts of life. The country, too, is comparatively unexplored. * * * In old countries a botanist may long pursue his studies, not indeed without great benefit to sciences, but without having his labours rewarded by meeting with anything new, with plants that had not been collected and described by his predecessors in the science. But here there is room for new discovery; the student may go forth to the woods, and hope, sooner or later, to set eyes upon a plant which no human eye has seen before. His name, it may be, will become associated with it, and thus a permanent record of his discovery will be inscribed in the book of science. All sciences have not such advantages; some have not the same direct appeal to commerce: some may be as well pursued in other countries as in Canada, and thus do not present the same attraction to the Canadian resident, who desires to extend the sphere of knowledge. An Astronomical Society, for example, would not have the peculiar advantage of a Botanical Society in a country like this. Referring to the interest manifested in the object of the meeting, Dr. Leitch alluded to the early history of the scientific societies in other countries. The Royal Society of London and other leading scientific institutions in Europe began at an early period, under humble auspices, and with unambitious objects. They gradually increased as science progressed, and a taste for it diffused;