

Nor is this brave correspondent without a theory to explain this deplorable lowness of aim in the Schools of the Great Republic. It is the immediate consequence of the fact that the masses control their own education—*i.e.*, the blind lead the blind.

Were we controversially disposed we might feel tempted to say a good many things by way of rejoinder to these and other remarkable assertions of the *Times* correspondent. We might refer to Canon Farrar's address at the opening of the Johns Hopkins' University, a sentence or two of which we quoted last week, to show the blessings resulting a few years ago to the youth of England, under a school system in which we may fairly infer the blind were not led by the blind, but by the men of vision. We might ask whether it may not be as high an end, viewed from the standpoint of a sound morality, to teach the children of the masses to become wide-awake, independent citizens, as to use the public means to impress upon them the duty of being content with the state in which they were born, aiming at nothing better than toilsome, if not grovelling poverty, and yielding due reverence to their betters? Or we might boldly challenge both the *Guardian* and *Times*' writers to the proof, meeting their sweeping assertions by counter-assertions to the effect that for all the higher purposes of school education the American Public Schools are at least equal in efficiency to those of England. But both these writers are so evidently blinded themselves, either by ignorance of the real character and work of the American Public School, or by prejudice, that comment seems useless. In the United States there are to be found, no doubt, many varieties of schools, and wonderful degrees of badness as well as of excellence. This is inevitable under the free, flexible system which prevails. But that the country is blessed with a goodly proportion of teachers of the young who realize fully the great responsibilities and possibilities of their noble calling, and are daily doing their high duties as in the Master's eye, is beyond question. The insinuation conveyed by the *Times*' writer in the clause, "when there is any higher education," is on a par with the other contents of his article. We doubt if there is any country in the world, Germany perhaps excepted, where a larger percentage of the Public School pupils proceed to higher Schools and Colleges, than in the States, and we feel quite sure there is none where higher ideals are set before those pursuing Collegiate courses, than in a great many of both the State supported and the voluntary Colleges which abound all over the Union.

But what is the true end of Public School instruction? This large and ever-recurring question is directly raised by the tenor of the *Guardian* and *Times*' articles. It would be well if every teacher in Canada should put the question to himself and keep pressing it until he found a clear and satisfactory answer. No doubt there is too much truth underlying the gross exaggerations of the *Times*' correspondent. But what should the farm boy be taught if not to write, cipher and spell correctly? These are bread-and-butter subjects of course—but, with reading, they constitute the condition and instrument of all culture of whatever kind. Consequently the fact that the pupil's time during

the first few years of his school life is mainly occupied with these is no evidence either that he is, or is not, being trained in all the "elements that produce greatness of minds, high sense of duty, and continuous progress in culture and religion."

Those are certainly the all-important results to be wrought out. But success in attaining them depends, we fancy, far more upon the *how* than the *what* of the teaching. A teacher who has moral power and spiritual insight, will unconsciously infuse these subtle influences into every lesson. A virtue will perpetually go out of him. At every point of contact with the child's nature his own high aims and motives will permeate all the daily routine. Whether the average British teacher has more of this moral magnetism than the average American may well be doubted. But, and this is the point we wish to make, and to leave with every reader, it is a thing which can be cultivated, by cultivating the high aims and aspirations from which it springs. It would be well if every Canadian teacher could be brought to put to himself daily the question, What is the great end I should keep constantly before me in my school work?

Special.

ELEMENTARY CHEMISTRY.

CHAPTER IV.

SECTION II.

CARBON.

Symbol C. Atomic Weight, 12 (11.97), Molecular Unknown.

94. Carbon exists in three allotropic states:—1. Charcoal, of which there are several varieties; 2. Graphite; 3. The Diamond.

Def.—When an elementary body is capable of making its appearance in the form of two or more bodies having different properties, these are said to be *allotropic* modifications of the element.

I. CHARCOAL PREPARATION.

95. From Wood.

Exp. 1.—Light a thin splint of wood and plunge it into a test-tube, held with its mouth downwards. The tube prevents the air from getting freely to the wood, so causing a smothered burning and thus a slender piece of charcoal is produced.

Wood consists substantially of carbon, hydrogen and oxygen. The heat drives the hydrogen and oxygen off in the form of water, leaving the carbon behind.

96. Preparation on the large scale.—Charcoal is prepared by covering a pile of wood with earth or sods, in which openings are made at the top and bottom to admit a small amount of air. The wood is then set on fire, and some of it slowly burns. The heat from the burning wood is used to drive off the hydrogen and oxygen from the rest of the logs, care being taken that sufficient heat is not produced to cause the whole mass of wood to burn. Since carbon is, under all circumstances, infusible and non-volatile, the charcoal retains the