

from the Chief Superintendent in regard to any special case of necessity which may have arisen. We can thus bear testimony to the anxiety of the Inspectors generally to avoid any arbitrary exercise of power, and their desire to take into account the special circumstance of each case as it arose. We think, however, that a good deal of the difficulty and misapprehension in the matter has arisen from undue agitation on the subject, and from a feeling that the law itself was unnecessary. Experience has shown, however, that it was a wise and judicious enactment; but that, in its administration, it required great kindness, patience and judicious treatment of individual cases.

In regard to the programme of studies, no new subject was introduced into the programme except those authorized and required by the School Law. Even those were so arranged in that programme that they could not interfere, for the first three years at least, with the essential subjects of reading, writing, arithmetic and grammar.

Inspectors have often explained to the Department the great difficulty they have experienced in introducing any thing like classification in the Schools or a sufficient attention to elementary studies. This was owing chiefly to the desire, on the part of a few parents, to have their children advanced faster than their acquirements or previous studies rendered in any way desirable or at all beneficial to the children. But, even in these cases the necessary changes were not made until the second or third visit of the Inspector when the further knowledge and experience of both teacher and inspector rendered classification a necessity in the interests of the Schools.

The discussion in the House will do good for there should be no desire on the part of any one concerned to administer any portion of the law and regulations except "in harmony with the well understood wishes of the people," as interpreted by the Legislature.

II. The Question of Public Education.

1. HOW EDUCATION CAN ELEVATE THE CHARACTER OF A NATION.

The Hon. Mr. Eaton, U. S. Commissioner, in his last report thus reports a conversation with the late Professor Louis Agassiz, who expressed opinions in the course of a conversation in his office, which he had his permission to publish:—

The question is how to manage education so as to elevate the character of the nation.

There are three elements in which you are equally interested. One is to bring out this class of States, where there is a practically ignorant population; though I am not as much interested in that class of efforts, I see that no effort in the higher walks of knowledge can be really sustained unless we can remove entirely this dead load by dragging the low stratum to a higher level. We must not allow such a distinction to become permanent, of States where schools are nothing, and those where they are well provided for.

Another element is to take care of the public schools. I am telling my friends in Massachusetts a very bitter thing, and I have become bolder and bolder in saying that I am under the impression that the whole system of popular education is superannuated; that what is taught is no longer the food which the rising generation really wants most; and that the very knowledge that is taught is not the best. So that I would change both the substance and the methods of our popular schools.

And then, thirdly, our higher institutions of learning are utterly inadequate to give our young men that kind of instruction which will place them on the highest level of culture, and enable those that have not the means to go abroad to get an equally good education at home. We should never be satisfied until our institutions have attained such a superiority that European students shall find it necessary to come here.

Again, among teachers there are two classes of men, those who know what they are teaching just as well as anybody else, but who have not the natural disposition or qualification to increase the knowledge of mankind, and those who devote their lives to the production of new knowledge, and who are at the same time able to teach.

But many of the most productive thinkers are not teachers at all; they are a class of men whom the country does not recognize; they are men of original research who are not born teachers, but find they must assume the duties of instruction in order to obtain recognition. We should learn the conditions of success; and a condition of success in this matter is not to put a man with power to do that which requires another power.

Professor Henry says the resources of the Smithsonian Institu-

tion are too small for the work to be done. Some gentlemen think the income of the Institution ample. I thoroughly agree with Professor Henry, that its resources are entirely inadequate. For one solitary department at our museum of zoology we spend annually more than the sum total of the income of the Smithsonian Institution, which is to cover publications, the scientific, archæological, and zoological departments, and which is to provide for the museum, the preservation of the collection, and the printing of the investigations as submitted.

We deal with one solitary subject, zoology, and for that department, for the last five years, we have spent annually sixty-five thousand dollars.

And the sum total of the income of the Smithsonian Institution, is forty-five thousand dollars.

We have only \$10,500 annually derived from the income, the rest is the result of my begging from private individuals, and the legislature, and all around. * * * * *

Improve the characters of the teachers, and let the teachers have a little more to do with teaching than simply hearing recitations, so that the teacher shall be a teacher, and not a mere machine to hear recitations.

The following opinions of Professor John Tyndall, furnished by himself at my request, are quite harmonious with those expressed by Professor Agassiz:—

This is the core of the whole matter, as regards science. It must be cultivated for its own sake, for the pure love of truth, rather than for the applause or profit that it brings. And now, though my occupation is gone, still I will bespeak your tolerance for a few concluding remarks in reference to the men who have bequeathed to us the vast knowledge of which I have sought to give you some faint idea in these lectures. What was the motive that spurred them on? What the prize of their high calling for which they struggled so assiduously? What urged them to those battles and those victories over reticent nature, which have become the heritage of the human race? It is never to be forgotten that not one of those great investigators, from Aristotle down to Stokes and Kirchhoff, had any practical end in view, according to the ordinary definition of the word "practical." They did not propose to themselves money as the end, and knowledge as a means of obtaining it. For the most part they nobly reversed this process—made knowledge their end, and such money as they possessed the means of obtaining it. * * *

To many of their contemporaries it would have appeared simply ridiculous to see men, whose names are now stars in the firmament of science, straining their attention to observe an effect of an experiment almost too minute for detection.

That scientific discovery may put not only dollars into pockets of individuals, but millions into the exchequers of nations, the history of science amply proves, but the hope of its doing so is not the motive-power of the investigator. It never can be his motive-power. I know that I run some risk in speaking thus before practical men. I know what De Tocqueville says of you. "The man of the north," he says, "has not only experience but knowledge. He, however, does not care for science as a pleasure, and only embraces it with avidity when it leads to useful applications." * * *

Surely no two terms were ever so much distorted and misapplied with reference to man in his higher relations than these terms useful and practical. * * *

People sometimes speak as if steam had not been studied before James Watt, or electricity before Wheatstone and Morse; whereas, in point of fact, Watt, Wheatstone and Morse, with all their practicality, were the mere outcomes of antecedent forces, which acted without reference to practical ends. * * *

Strip a strong arm and regard the knotted muscles when the hand is clenched and the arm bent. Is this exhibition of energy the work of the muscles alone? By no means, the muscle is the channel of an influence without which it would be as powerless as a lump of plastic dough. At the present time there is a cry in England for technical education, and it is the expression of a true national want, but there is no outcry for original investigation, still, without this, as surely as the stream dwindles when the spring dries, so surely will their technical education lose all force of growth, all power of reproduction.

To keep society as regards science in healthy play, three classes of workers are necessary: First—the investigators of natural truth, whose vocation is to pursue that truth, and extend the field of discovery for the truth's own sake, and without any reference to practical ends; secondly—the teacher of natural truth, whose vocation is to give public diffusion to the knowledge already won by the discoverer; thirdly—the applier of natural truth, whose vocation is to make scientific knowledge available for the needs, comforts, and luxuries of life. These three classes ought to co-exist and interact. Now the popular notion of science, both in this country and in England, often relates, not to science strictly so called, but to the ap-