FRIDAY, APRIL 20, 1883.

SCIENCE FOR WORKING-MEN.

A COURSE of four lectures, delivered by members of Johns Hopkins university to the employees of the Baltimore and Ohio railroad, has recently been published for free distribution to the auditors.

As these lectures are simple demonstrations of elementary facts, they have, despite the admirable method that characterizes them, and the excellent illustrations of the text, only an occasional interest to the general public. But they have a very real value in that they mark an effort to accomplish a work of genuine instruction among a class of our people where there is the sorest need of all intellectual help.

These lectures originated, as it were, accidentally, as is the case, indeed, with most good enterprises. This railway company had tried to do something for its people by founding a little library, and starting reading-rooms; with the usual result, — that few of its weary, slow-brained servants could or did make any use of them. Then some one suggested that men too unaccustomed to mental work after daily labor, or too weary for it, might find a lift in lectures such as have long been given in England to workmen of their class: so Professor Martin, with the cordial assistance of Mr. Garratt, the president of the road, devised, with his colleagues, a course of four lectures on subjects which admit of clear demonstration, and which are well within the field of ordinary human experience. How skulls and backbones are made, How we move, On fermentation, Some curious kinds of locomotion, — are all topics which admit of popular treatment, moral-pointing wit, and clever *ad hominem* appeals to awaken the toil-deadened mind. On reading them over, we are not surprised that there were six hundred of the servants of this railway, men and their families, that found pleasure in their hearing.

This good work will, we may hope, give a fresh start to the system of lecturing in this country. We all have seen the rapid decline of the American lyceum lecture, once the most powerful agent of general culture in modern or perhaps all times. Those who have watched the debasements that have attended its decay — the parade of unsavory parsons, vaporing quacks, and offensive rhetoricians — have been driven to wish that this decay might speedily end in death. That part of the American world that profited by the old lyceum system has found its way beyond the stage in its development where such teaching could be of much value. So the platform had to merge itself in the stage, and become a place of exhibition, and not of instruction. Books in the old day were few and dear; libraries did not exist; but now, where any village that of old supported a lyceum has a public library, men and women do better to read a book by a master, rather than hear an hour's talk by any man, however masterful; for the chance is a thousand to one that the essence of any teacher cannot be had in an hour's talk.

But since those primeval days, when a New-England village filled a lecture-room with a keen-witted set of farmers and shopkeepers, the complexion of our American society has changed for the worse. A distinct class of laboring men — men who are ground in the mills and mines until they tend to become mere machines — has grown up in this country, and is increasing at the expense of the farmer and mechanic class. If our system of government has one danger greater than all others, it is to be found in the fact that culture slips by this class. Their habits of life fit them to be the prey of the demagogue; and in such wild outbreaks as the Pittsburg riots we see the natural results of their conditions.

The most important educational problem of our day comes to us from these people; and such essays towards its solution as these Baltimore lectures give us are very welcome, not for what they have really accomplished, but as a possible indication of other and better relations between great corporations and their people.

Gloze it as we may, it is clear that within our modern Commonwealths there has grown

up a set of local governments in the shape of corporations, which hold their employees with a sovereign hand. They are not to blame for the despotism they exercise: that is in the nature of things; nevertheless, this necessary power brings its measure of duties with it. If they will only see, that among those duties which they owe to their subjects is that of giving them help in escaping the evil consequences of their position as far as is consistent with their necessary labor, they will do much to secure their best interests in the future. Considered in a large way, there is no doubt that such efforts as this of President Garratt would prove so immediately profitable, that they could fairly find their way into the balance-sheet of a corporation. The good-will of the dependents of such a principality as a great railway is really a part of its assets; as an insurance against the portentous dangers of grave discontent, it is of inestimable value.

Let us hope that our great corporations will follow this good example, and that in time they will become as powerful agents of intellectual as they have been of economic progress.

THE WATCHMAKING INDUSTRY IN SWITZERLAND.

I have taken advantage of a short stay in this country to learn something of the watchmaking industry. The importance of this branch of manufacture to Switzerland is familiar to all, but not every one has an idea of the national character which it assumes. Locle and Chaux-de-Fonds are two cities an hour's walk apart, containing together between 30,000 and 35,000 inhabitants, with whom watchmaking — or, rather, making the different parts of a watch — is almost the sole business. The business directory is classified into occupations so minute as cutting the figures on watch-faces. The catalogue of individuals or firms who make hands of watches contains, like our own directories, occasional notices of specialties in the manufacture of hands. Special schools of horology are established by the state, in order that nothing may be left undone to save the national supremacy, which has been so endangered by American competition. The result of this competition on the Swiss watch manufacture is a subject worthy of attention from all who are interested in accurate horology.

The general depression produced ten years ago by the competition of the machine-made watches of Waltham and Elgin is well known; but the statements of it were either somewhat exaggerated, or there has been a great recovery. It must be remembered that these Swiss watchmakers were not the unfortunate, half-starved paupers described by some of our American economists, but men, who, by hereditary skill and careful training, had acquired a remarkable proficiency in their art. I have been assured that the best workmen in some of the branches were able to earn as much as a hundred francs a day; and this in a country of most economical habits. Here was a wide margin for retrenchment when the storm came. It was, of course, necessary for the Swiss to cheapen their products; but policy and national pride also urged the better course of improving the quality of their work. Among us, twenty or thirty years ago, Swiss watches were noted for their cheapness rather than their excellence; and, when an American wanted the best kind of a time-keeper, he sent to London or Copenhagen. The Swiss saw that the best way to recover their lost advantage was to apply their skill in doing what machinery could not do, — making a finer finish and more delicate adjustments. In this they claim to have been so successful as to defy competition, having repeatedly won prizes at exhibitions where American watches and their own were placed on trial. How far this claim may be well founded I am unable to say; but the data for judging of the character of the improvement are fortunately at hand, in a state which readily admits of presentation. The observatory of Neuchâtel was established, and an able astronomer (Dr. Hirsch) placed in charge, for the especial benefit of the watchmakers. The best watches and chronometers, to the number of several hundred per year, are here tested, the results published, and prizes awarded to those which fulfil certain conditions. The principal data on which the judgment is based are, —

1. The average difference between the daily rate of the watch on one day and on the day following.

2. The changes of daily rate produced by changes of position. In the severer tests the watch is tried in four positions, — lying flat, suspended in the usual way, handle to the right, handle to the left. The large majority are tested only in the first two positions.

The mean results for some years, in the following table, show how great the improvement which has been made: —