

acquired a useful general training, of which he finds the immediate application in his technical school, if he is in a situation to prolong his education, or in his business, if he passes at once to a skilled handicraft.

As regards the higher results of the two systems, we do not find that the best scholars of France and Germany are inferior to the great men whom our own universities have produced. At the other end of the system we find that the superior education of the artisans, and especially of the foremen and designers, have enabled them to compete with and outsell us in our best staples, notwithstanding the advantage which we had in holding prior possession of the market, and in cheap access to raw material. We have no longer the lead, either as workers in iron, as engineers, or as engineering contractors. It is not many years since that these things were among our chief sources of national pride."

The London *Times* of the 29th ult. contains a letter from Earl Granville, enclosing one addressed to the Right Hon. Lord Taunton, by Dr. Lyon Playfair, on the importance of "Technical Education," and its neglect in England as compared with continental countries. Referring to the opinions elicited by him from the eminent men upon the different juries of Mechanical Departments in the French Exposition, he remarks:

"I am sorry to say that, with very few exceptions, a singular accordance of opinion prevailed that our country had shown little inventiveness and made but little progress in the peaceful arts of industry since 1862. Deficient representation in some of the industries might have accounted for this judgment against us, but when we find that out of 90 classes there are scarcely a dozen in which pre-eminence is unhesitatingly awarded us, this plea must be abandoned. My own opinion is worthy only of the confidence which might be supposed to attach to my knowledge of the chymical arts; but when I found some of our chief engineers lamenting the want of progress in their industries, and pointing to the wonderful advances which other nations are making; when I found our chymical and even textile manufacturers uttering similar complaints, I naturally devoted attention to elicit their views as to the causes. So far as I could gather them by conversation, the one cause upon which there was most unanimity of conviction is that France, Prussia, Austria, Belgium, and Switzerland, possess good systems of industrial education for the masters and managers of factories and workshops, and that England possesses none. A second cause was also generally though not so universally admitted, that we had suffered from the want of cordiality between the employers of labour and the workmen, engendered by the numerous strikes, and more particularly by that rule of many Trades' Unions, that men shall work upon an average ability, without giving free scope to the skill and ability which they may individually possess.

"Dumas, well known as a '*savant*,' and who, from his position as a senator of France and President of the Municipal Council, has many opportunities of forming a correct judgment, assured

me that technical education has given a great impulse to the industry of France. In going through the exhibition, whenever anything excellent in French manufacture strikes his attention, his invariable question is 'Was the manager of this establishment a pupil of the *Ecole Centrale des Arts et Manufactures*?' and in the great majority of cases he received a reply in the affirmative. General Morin, so well known as the Director of the *Conservatoire des Arts et Metiers*, has lately sat on a commission to examine into the state of technical education in other countries, and to extend it to France, and he informed me that their recommendations were likely to be promptly and largely acted upon. I mention for your Lordship's information, that General Morin was of opinion that the best system for the technical education of workmen is to be found in Austria, though the higher instruction of masters and managers is better illustrated in France, Prussia and Switzerland.

"In 1853, I published a little work on '*Industrial Education on the Continent*,' in which I pointed out that as an inevitable result of the attention given to it abroad, and its neglect in England, other nations must advance in industry at a much greater rate than in our own country. I fear that this result is already attained for many of our staple industries. * * * * It would be important that the government, either through your commission, or through the committee of council on education, should hold an official enquiry on this subject, and should tell the people of England authoritatively what are the means by which the great States are attaining an intellectual pre-eminence among the industrial classes, and how they are making this to bear on the rapid progress of their national industries."

If this subject is considered of so much importance to England, so long pre-eminent in the industrial arts, especially in machinery, and iron manufactures, how much more important must it be to us, having so powerful and inventive a nation as the United States as neighbors. If the Dominion of Canada is to attain a higher and more fitting position than the Provinces have hitherto occupied, in the engineering and mechanical departments, greater attention must be given to the more practical studies in our common and grammar schools, and in our colleges and universities. Special importance must be given to algebra, geometry, principles of and practical mechanics, chemistry and experimental philosophy, geology and mineralogy; and to supplement and perfect the work of the schools and colleges in this direction, Mechanics' Institutes should be encouraged in every community, with well organized means and appliances for adult instruction, by evening classes and lectures, and with liberal prizes and scholarships attached.

The education of the operative classes must be continued after the pupils leave the schools, and enter upon the active labours of life; and to induce