

has been denied us by those who have not had sufficient information on which to ground their judgment. In the fine arts and in manufactures where the fine arts are most directly applied I am rather diffident in expressing an opinion, but I have seen specimens of engraved glass designed by Englishmen and executed by English workmen which are unequalled by any country exhibiting. On this point it is interesting, indeed, almost amusing, to read an extract from the *Journal des Débats*, which, as you know, is one of the leading papers of France, in which the writer takes almost the same view of his own country that Dr. Lyon Playfair does of England, and endeavours to read to his country the same warning lesson that we have had from Dr. Playfair. "A manufactory at Vienna sends some table services that are strikingly elegant in form, and though of crystal they are almost as light as Venetian glass. They are also comparatively cheap, which is an advantage that deserves to be noted. Cheapness is the principal merit of the crystal objects from Belgium that we have examined; but it is not so of those that come from England. The latter are perhaps less pure and less graceful in form than ours, but in the engraving they are admirable. Englishmen are rich and can afford to pay for fine things. They take away our most skilful workmen, and, in addition, are willing to make any sacrifice in order to extend instruction and education, and to improve the taste of their own operatives. During the last twelve years they have made enormous progress in every branch of industry to which art belongs. We Frenchmen must take care that one of these days we do not lose that artistic superiority in which our artisans have taken a lawful pride. Let us multiply our schools for adults; let us employ every effort to enable our workmen to have easy access to those admirable works in which engraving has produced the masterpieces of art in every epoch; if possible, let us open for them collections of objects of art, in every style, in the localities where they live. Let us be upon our guard. Our rivals have arrived very nearly equal to us, and we must take care not to have to say one day that they have surpassed us." Having said thus much in defence of my country, I am free to admit that continental nations have made giant strides in industry, and have relatively made greater progress in manufactures than we have. They had scarcely started a few years ago, while we had advanced to a very high position, and now they have attained to considerable excellence while we have contented ourselves in increasing the quantity of our manufactures, and in the profits of trade unparalleled in extent, and enlarging constantly in an increasing ratio. If continental nations have made these great advances which we admit in the space of a very few years, it is important for us to examine the causes which have favoured it, and to endeavour, if possible, to gather and use the experience of our neighbours. The nations which have made the most marked advances are France, Prussia, and Belgium, and as the same causes have been at work in all these countries, for the sake of brevity I will at the present time confine my remarks to the case of France. Seeing that the natural advantages of France as an iron producing country are inferior to ours, that it is deficient in min-

eral, which is consequently a drawback to all its manufactures, we can but come to the conclusion that the intelligence which has created and fostered the manufactures, which have produced the magnificent displays set forth in the Exhibition, must be of a very high order. It has been my fortune during the past week to meet with several of the first engineers of France, and from them I learn the remarkable fact, that almost without exception, the chief engineers of the railways, of the Government department of the *Ponts et Chaussées*, and the heads of many of the large manufactories had been pupils of the Central School of Arts and Manufactures, while most of the managers and foremen of works, engineering establishments and factories have been pupils of the *Ecole des Arts et Metiers*. There are few expectations to these; the rough and ready self-educated men rarely rise above those who have been educated at these schools because they start the race of life under too serious a disadvantage. I cannot learn that their artisan population are better educated than ours; they are brought up under much the same condition as ours, and after attending their communal schools are sent to work at an early age. In support of this view of the similarity of education of the two countries, I may mention that it was found that an average of 300 conscripts in 1,000 of the year 1866 were unable to read; and in 1864 only 239 in 1,000 recruits in England were unable to read; the advantage is therefore on the side of England, more particularly when you bear in mind the class from which our recruits are taken, and that in France the conscripts are taken by lot from the whole population. If we find these pupils of particular schools monopolising the direction of the whole of the manufacturing industries of France, we cannot but acknowledge the merit the schools must possess; and also we could not bring forward a better example of the immense value of education, and can form from this fact some idea of what results we might be able to obtain if the moral and intellectual education of our whole people were as well cared for as the scientific education of a small portion of the French nation appears to be. The Central School of Arts and Manufactures is specially designed to form engineers for all branches of industry, and for public works. Diplomas of Engineer of Arts and Manufactures are given by the Minister of State to those who pass in the first class, and certificates of capacity to those who pass in the second class. Foreigners are admitted as well as natives, and the course is for a period of three years, commencing at seventeen years. The course costs £32 per year, but in certain cases the State will grant a subvention to needy scholars. The *Ecole Centrale* trains principally engineers who enter the higher grades of the profession, to which their diploma gives them an acknowledged certificate of competency. The *Ecole des Arts et Metiers* has three schools established at Aix, Angers, and Chalons-sur-Marne, which are designed to form chiefs of workshops and workmen instructed for industries where iron and wood are worked. Every pupil must pass an examination, and must be from fourteen to sixteen years old. Only resident scholars are received, who pay £20 a year. The course is for three years, and the instruction