

have excelled in the production of superior cattle, grains, seeds, roots, and agricultural implements; and that by furnishing schools for the technical education of engineers and mechanics, and prizes and rewards to successful students in competitive examinations, success in this department will be equally certain.

We fully agree with S. R. on the effects of the working of Trades Unions, upon the mechanical and other industrial interests of Great Britain; but, nevertheless, are convinced that to the technical education of the continental artizans, and especially of managers and foremen, must be attributed the marked progress made of late years in many of their mechanical departments of industry.

We think our correspondent wrong as to the effects of the establishment of schools of design in Britain. In 1851, the London International Exhibition demonstrated the fact that the art manufacturers and designers of Great Britain held but a very inferior position, as compared with France and some other continental countries. The statesmen of Britain at once made inquiry into the matter, and shortly after established a *Science and Arts* department, with affiliated schools of design in all the great manufacturing centres, and what was the result? Why, the French commissioners to the London Exhibition of 1862, reported to their Emperor, that "the art manufacturers of England were not only equal, but in many respects superior, to the French workmen," so great had been the progress made during the eleven intervening years. We might multiply testimony of a similar nature, as to the effect of these schools in Britain.

With all respect for our correspondent's opinion in other matters, we cannot but deem the *London Mechanics' Magazine*, and also the *London Engineer, Engineering*, and journals of a similar character, not only good, but the best of authorities as to the necessity, or utility, of technical schools to a manufacturing country.

Hear what the *London Engineer* says, in answer to a letter on this subject in the *London Times* :—

"The present moment, too, is no ordinary one. That which a few better instructed and further seeing men have been urging in these pages and elsewhere—as well as by speech, from time to time, for years past—the urgent necessity for a broad-based, thorough, and efficient nationalized system of technological education in Great Britain and Ireland, has at last, and suddenly seized with the full force and pressing reality, upon the conviction of many men of the most diverse avocations, the most different knowledges and specialities—the most opposite notions as to creeds and questions of rudimentary and general education. The Paris Exhibition alone has not done this; it has only been the fire that has lighted up that

which has been smouldering in many minds, and with slowly growing heat and conviction for long past time. Are all these men—hundreds in number—many with as much scientific ability and practical knowledge as any in England, * * * Are they all wrong?—

"The urgency for a *system of technical education* in England. The want of this is felt and admitted by thousands who have never expressed their views in print—many who could not do so, but are not the less competent judges. We could name scores, taken from every branch of manufacture and industry, who entertain, and have long, more or less, clearly done so—views analogous to those fearlessly expressed by the President of the Institution of Civil Engineers—by many able men (English jurors) at Paris, and by Dr. Lyon Playfair in his temperate, and, upon the whole, correct and able letter, addressed to Lord Taunton."

The *Engineer* speaks of a hundred special industries, "all craving for more light, better knowledge," and refers to some continental institutions, such as a special college for *Weavers* in Belgium, where all the intricacies of textile fabrics and machinery, and the principles upon which the strength, the pattern, beauty of colors, of texture, of harmony, &c., are taught by efficient professors—themselves taught in science and *reared to the art* to which they apply it. At Mulhausen, in Alsace, of colleges for training financial managers of large and small manufacturing establishments, and others specially organised for training foremen and managers in the principles and method of order and discipline of bodies of working men; and of the magnificent establishments for teaching the more direct technical knowledge employed in the district whence the foreign printed muslins and fine calicoes and so forth, come, which are so much admired; and of which not a calico printer in Britain can approach in beauty, or supplant in the markets of the world.

The *Engineer* also draws attention to the want of expert chemists in the iron works, and in the manufacturing towns; and to the large number of those employed who are either German or French taught students; and the loss that Britain is sustaining in her metallurgical operations, through the want of skill in her metal assayers and workers; and after referring to the vastness of the subject, and its extensive ramifications, expresses a hope that "some of our leaders of scientific and industrial thought and energy, and who agree with us that effective organised technical education is a real and an instant pressing want for England, would meet and give collective expression to their views on the subject."

What says *Zerah Colburn*, in *Engineering*, at the conclusion of an article on *English Engineering*, in the present number?