

Paris Exhibition was with one exception so poor, and consisted in many instances of foreign work, that I should prefer the title of "Anglo-American watchmaker," kindly bestowed on me by a gentleman in this room some years ago, when the merits of the American system were treated as a good joke, and our facts as travelers' stories. But, with our own trade stagnant, the question arises, should not English watchmaking be protected from its friends? And why cannot that which flourishes so well at Besancon, in France, under the shadow of Bunker's Hill, and in the mountains of Switzerland, be allowed to expand in its most favoured home—Clerkenwell—with the fostering care of a Horological Institute? Horological schools may be viewed more as a product of horological success than a cause of it, though doubtless tending to maintain success. By success I mean commercial success, as the most successful schools are maintained where the manufacture flourishes most vigorously, and there the schools are best attended. Geneva, which once boasted the best Horological schools, has been surpassed by Locle, which, once despised, now remains the most active centre of horological productions in Switzerland. The most interesting and novel feature connected with my labors, as reporter for the Society of Arts at the Paris Exhibition, was the examination of the work exhibited by the various horological schools of the Swiss, and more particularly the French school of Besancon, which, being only a few years in existence, had made a special effort to give a good account of itself at the Paris Exhibition. Schools of greater age, and perhaps equal merit, belonging to the Swiss, were there; and, if we are to judge by the work shown, surpassing, in the ability of its pupils, anything Besancon could show, as much of the very best work in the Swiss department was the product of the horological schools, and comprised every class of work, from movements to *fac-simile* English chronometers; and it was difficult to believe one was not looking at work produced in Clerkenwell. At previous exhibitions of continental work I had witnessed, the usual characteristics of foreign work had always been apparent; but in much that I saw it was evident that Swiss workmen had traveled and worked abroad with advantage to their native land; and I saw what appeared to be imitations or reproductions of English and American chronometers and watches,

that not only possessed all the merits of the originals, but, in many instances, surpassed them. It was not claimed for the Swiss schools that the exhibited work was produced by youths who had been entirely trained by the schools, it being in most cases the work of mature hands, who, in the various schools, received the highest practical and theoretical training in addition to what they had acquired as ordinary apprentices or workmen elsewhere.

France, too, has shown great activity in promoting the art of horology in technical schools. That at Besancon is a municipal institution, maintained by the tax-payers. It employs one director, three teachers of the theory of the art, two professors of drawing, and six practical teachers, and contained, in 1880, eighty pupils. The watch manufacture in France has made wonderful strides during the past twenty years, and, like that of America, may be said to have risen from nothing to an important manufacture within the last few years, despite the fact that watchmakers paid, in 1876, nearly a million of francs in taxes to the Government, for stamping the gold and silver cases, of which none are allowed to be made without the stamp or hall-mark. But the manufacturer is protected on his goods by the requirement excluding all foreign cases that have not been hall-marked in France, and, in addition, five francs duty is required on all foreign movements. In the town of Besancon, 16,000 operatives live by the art of watch making and, in the department, over, 40,000 people work at watch and clock making. Formerly, Switzerland sent watches to the value of over 4,000,000 francs a year to France; of late years this trade is changed, and France now exports large numbers of watches to Switzerland. The annual value of horological productions in Besancon and the surrounding districts, is estimated at 25,000,000 francs. The value of the entire clock and watch trades of France was estimated at 57,000,000 francs for the year 1880.

The work done in the French school is the property of the pupil or of his parents, and sells, for its market value, paying more than the cost of the education, if the pupil is clever. The fees are only five francs per month for natives, and twenty francs for foreigners. The work of six pupils between the ages of sixteen and eighteen was exhibited. They had been at the institution from two and a half to three years, and had taken prizes

and medals given to encourage pupils during their terms.

In addition to drawings and models, about fifty watch movements, in various stages of completion, and the majority of them nearly finished, all of their work amply prove these pupils' industry and ability.

Few adult workmen would turn out as much work in the same time, all by their own hands; and I doubt very much if the English trade contains any workman, taught in England, who would undertake to produce such a variety of work of equal excellence. A maker of repeating movements has not yet been known in England for the last fifty years, at about the beginning of which time that branch of industry died out here. The practice now is to import that class of work from abroad, and to finish it by addition of the ordinary going train of our own style of work. The best piece of work of one pupil about seventeen years of age is a fusee keyless pocket chronometer, finished and full jeweled, and ready for the hair-spring. A still more complicated piece of most beautiful work is his keyless repeater lever, finished and full jeweled; and a keyless lever, with Breguet spring, showed that springing is by no means neglected, though in the springing no special excellence was instanced, or could, indeed, be looked for from one so young; the wonder was how so much skill could have been acquired in so short a time as about thirty-four months. As many years might have been deemed a reasonable time to learn so much. This seems to indicate some special system of correcting the work of pupils, or possibly they may copy good models without thoroughly understanding them. Long apprenticeships are served in England, and then only a limited part of the branch of the work, such, for instance, as escapement making, is understood and effectually mastered by the workman.

Although the practical skill is there, in these pupils and in their work, theoretical comprehension of it can only come through such study and practice. Correct testing or sizing of parts is beyond the power of any tools known outside the watch factories of America and Switzerland.

The Besancon manufactories and schools place all their reliance on skilled hand-work, and have given no attention to watchmaking by machinery, though the subject is beginning to force itself on their notice, as, in face of the keen com-