

school time-table. But there is no doubt that school manual training would prepare the scholars in an admirable manner for those industries to which they are to give their lives. It would also render possible such a correlation of theory and practice as is greatly needed in our industrial economy, where specialization is the rule, so that when a boy goes to work he is frequently set to the performances of some small, repeated, mechanical task which is apt to make of him a mere machine, and to curtail his opportunities of getting anything like a general mastery of his trade.

I think also that some effective manual training might be given in our schools during the midsummer holidays. In some instances desks might be replaced by work-benches and duly qualified craftsmen appointed as teachers. It would be found that there would be no lack of voluntary and delighted pupils. During the three continuous hours of the morning a boy would be able, under these circumstances, to get some proper training of hand or eye. A girl might get some useful tuition in needlework and other household matters. This plan has been adopted in several of the schools in Paris with great success, and there appears to be no reason why it should not be successful here. If it were not convenient to use the school-rooms, it would be quite worth while to secure other accommodation. But I have no doubt that in a few years a properly appointed workshop will be an adjunct of most public schools. By taking a different lot of scholars on each of the five mornings of the week usually devoted to school work, a considerable number might thus come under the influence of teaching which would certainly be useful to them, and which would not militate against the pleasure or healthfulness of the children's holidays.

It is plain however that the manual training that could be satisfactorily given in connection with the ordinary studies, must be supplemented by technological schools in which further

and fuller instruction may be given. The manual training in the public schools will be rudimentary and introductory. In the technological school proper the scholar will pass to a higher grade of teaching. The teaching of theory will still form part of the work, but more time will be devoted to craftsmanship. I am disposed to think that the old idea of apprenticeship to a trade at the age of fourteen had much sense in it. At that time childhood is passing into adolescence. There is a vivication of the bodily powers and of the nervous system; a ripening of capacity that it is important to take advantage of. If such schools were instituted they would, to some extent, take the place of high schools, and they would be attended by those who meant to take good places in the operative world. Such schools might continue during, perhaps, a third of the school hours, the teaching of theory begun in the public schools. During this third, certain branches of mathematics, chemistry, physics and mechanics would be taught. These four branches of knowledge underlie all industrial art. Mathematics, the science of measurable quantity; chemistry, the science of matter; physics, the science of force, dealing with dynamics, light, heat, sound, electricity, and magnetism; and mechanics, the science of applying the laws of force to practical purposes. These definitions are not exact, but they may serve the present purpose which is to find out if possible what we want to teach operatives, and why. I refer now to the teaching of operatives who are concerned with the industrial arts that are practised in cities. Further on I shall have something to say on the sort of technical education that is required by miners and agriculturists.

The teaching of operatives. It is necessary to bear that in mind. It is of no use for fledgling lawyers, doctors and parsons to take up technical education unless indeed they take it up as a recreation or a broadener of information. What we want to make in this country is a better class of operatives,