

apply to all educational phases the principles which he had time to apply fully only to early training; that the work, as far as he has applied it to practice in his directions to mothers and kindergarteners, cannot be measured by the standard of the school, which stands on a narrower foundation and has narrower aims, but only by the child's life, and the child's whole life; and that in due time, there must come a progress beyond him.

### "TECHNICAL EDUCATION."

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Let us begin by asking a question, which has been asked a hundred times already, What is Technical Education? We must first settle the method in which the meaning is to be determined. Dr. Syntax would probably remind us of the origin of the word "technical," and conclude that it applies only to terms that belong exclusively to the arts and manufactures, and that if it means more it is a pity. But words in present use refuse to obey Dr Syntax, and have but little respect for him; they are constantly altering the range of their application as new ideas and new things are found, and have to be provided for; and if we are to understand what is meant by this phrase, "Technical Education," which is used by different bodies of educated men, we must not be hampered by the remembrance of its origin, but must give it such an extended meaning as will make it include all that it is intended to mean by the different sections of men who use it. It will require a little attention to arrive at the meaning in this way.

In 1869 there was a meeting at the Mansion House on the subject. The Lord Mayor was in the chair. Many speeches were made, and at the end of each, the Lord Mayor asked,—"Is that Technical Education? Is that what you mean by Technical Education?" And at the conclusion the Worshipful contribution to the discussion of the day was a remark of a dozen words having quite as much vigour, and not more daintiness or accuracy of expression, than is often characteristic of the utterances of the Chief Magistrate of the city. As he rose to vacate the chair, he said,—"Gentlemen, Technical Education must be the devil's own word, for none of you know what it means."

If we examine, first, the arguments in favor of it which are adduced by its advocates; and secondly, what it is supposed to do, and what not to do; we shall find that there are many and various views that may be taken of it; but these, with all their variety, when closely examined, exhibit no inconsistency.

In the first place, I remark, if the word "technical" simply meant what it does in the phrases "technical terms," "technical objection," "technical language," etc., there could be no such thing as "Technical Education." "Technical Instruction" there might be, but no "Technical Education." Let us next examine a few phrases and maxims in which it has been used.

A critic, commenting on the work of the Science Classes connected with South Kensington, says:—"The teaching has been too technical, in the sense of addressing technical phraseology to unaccustomed ears, and not sufficiently technical in the sense of supplying the necessary link between theoretical knowledge and its practical application."

Mr. Scott Russell's definition is as follows:—"Technical Education is that special training which renders the talents of the educated man directly useful to that society in which he is destined to pass his life." And in the dedication of his work, he asks "that the dexterous, energetic, willing, working people of England may receive a practical education for useful life, as thorough and systematic as the best educated nation in Europe." He goes on to describe the agitation with regard to this subject as "a crusade against the ignorance, disorganisation and neglect, which distress our manufacturers and commerce, and hinder our progress and well-being."

Professor Huxley says:—"Technical Education means that sort of education which is specially adapted to the needs of a man whose business in life it is to pursue some kind of handicraft; it is, in fact, a fine Greco-Latin equivalent for what in good vernacular English would be called 'the teaching of handicrafts.'" At first sight this definition seems more cramped than the previous one, but Professor Huxley proceeds to illustrate his meaning more

fully, and shows we are quite in accord, for he calls himself a handicraftsman and a teacher of a handicraft. "The fact is, I am, and have been any time these thirty years, a man who works with his hands—a handicraftsman. I do not say this in the broadly metaphorical sense in which fine gentlemen, with all the delicacy of Agag about them, trip to the hustings about election time, and protest that they too are working-men. I really mean my words to be taken in their direct, literal, and straightforward sense." And then, after sketching the course of exercise, both bodily and mental, which he would recommend as preparatory to the actual adoption of the manual employment, he says:—"Well, but you will say, this is 'Hamlet' with the Prince of Denmark left out; your 'Technical Education' is simply a good education, with more attention to physical science, to drawing, and to modern languages, than is common, and there is nothing specially technical about it." Exactly so; that remark takes us straight to the heart of what I have to say, which is that, in my judgment, the preparatory education of the handicraftsman ought to have nothing of what is ordinarily understood by technical about it.

I shall suggest to you, as a suitable definition for the present time, that *Technical Education is the development of the qualities of head and hand which are required for the successful pursuance of trade, and the progressive extension of our arts and manufactures.*

This definition recognizes the direct connection of Technical Education with trade, commerce, manufacture, public works, agriculture, navigation, architecture, etc., and is consistent with the view, that one of its principal aims is to lead each individual to know more thoroughly the fundamental principles of his own calling. It enables us at once to trace the connection between Technical Education and the teaching of Physical Science. We often find the statement of its need, coupled with the complaint that workmen, in all trades and all professions, are too much inclined to "work by rule of thumb," and are not fully conscious that Science is now the so-called foundation of skill. The knowledge required in our skilled trades and professions was formerly based on tradition. The three mysterious powers of heat, light, and electricity were regarded, until very recently, almost as supernatural agencies; and yet much of the work of the skilled men of our times consists in the liberating and controlling of heat, in the manipulation of the sun's rays, in the initiating and directing electrical currents. Traditional knowledge is now of little use; hence the need of Technical Education. But do we simply mean by it, the teaching of Science? We mean more. It involves the teaching of Science in a particular way. It is intended to promote the application of the discoveries of abstract science to the speediest, wisest, and most economical solutions of the practical problems of daily life and business.

There is a kind of science knowledge that is almost synonymous with practical wisdom; and there is a form of science which is fastidious and assumes airs, and despises practical usefulness, its proper offspring. Science knowledge, when judiciously selected and appropriately taught, adds very materially to the chances of industrial success, and Technical Education involves the teaching of science with this view. It is not a knowledge merely of natural laws that makes a people prosperous, it is the power of applying them to the every-day purposes of life. It is this application of science that is involved in Technical Education.

Scientific instruction becomes Technical Education, when, without ceasing to be thoroughly genuine and substantial, it adapts itself to the more or less divergent requirements of men of different trades and businesses.

Next let us ask to what sections of the community this education is to be given?

Although probably it is more important to the sections who are nearest to and most nearly connected with trade than to others, yet it concerns the nation as a whole, and in some form or other connects itself with education in all grades and for all ages. Technical Education is everywhere something to be added to existing general education.

I was much interested in the reports of the festivities on the 4th of June, at Eton, which appeared in a daily paper of the 5th. "A special feature of this anniversary of Eton's gala day, was the visit to the Museum of Natural History and School of Practical Mechanics, which have both been opened since the last fourth of June. There is throughout the Museum a manifest intention to subordinate mere 'curiosities' to useful series of specimens. Mangy monkeys and Fiji war-clubs have no habitation on the neat, workmanlike Eton shelves, for everything there is for use and not for