attempt it by private study is to work at a great disadvantage. The engineer is the man to whom, more than any other, we owe the conquests that have been made within this century over material obstacles, the substitution of computation for guess-work, of definite knowledge and the clear purpose for confusion and blind groping. He has done much, and much remains to do; and he will do that best who brings to the work the formulated experience of his predecessors, and a firm grasp on the principles that underly all practice."

Not only are the statements of the writer in the Gazette about fifty years behind the times, but they are grossly incorrect. To say that "there is not a branch of civil or mechanical engineering now practised in this country in which the men who have achieved the greatest distinction have had a liberal education, either classical or technical," is to show that the "practical man" never heard of Joseph G. Swift, William Gibbs McNeil, John Childs, George Whistler, David Douglass, Benjamin H. Latrobe, Charles Ellet, John A. Roebling, Generals Barnard, Totten, Alexander, Gillmore, and a host of others, who have been the pride and the ornaments of the profession in America; and if we look at the lives of Andrew Ellicott, James Geddes, Benjamin Wright, Canvass White, Gridley Bryant, and the other fathers of the profession in this country, we shall find them engaged in one long struggle, from youth to age, endeavoring to overcome that lack of knowledge of the theoretical part of engineering which it is the very work of the technical schools to furnish.

Our "practical man" remarks that "so far as the achievement of success, i.e., the making of money by honorable means, is concerned, the higher technical education is of little or no help." It certainly is of no help to those who do not have it; but we have yet to see the man possessing a good technical education who would be willing to part with it. To see whether a good technical education has a "bread-and-butter" value or not, we have only to note how many of the best engineers in this country are filled by graduates of foreign technical schools. It is only a short time since an engineer of long practice and of fair ability, but of very limited education, expressed to the writer his very decided objection to the numerous graduates of engineering schools, who were, according to his statement, "stepping in ahead of older men, and taking all the best places."

Suppose we apply the advice of the Gazette to a young man wishing to become a physician. We should say to him, "Don't bother your head about anatomy; but if you want to be a surgeon, go to work with a man who is cutting off legs. Don't waste any time on materia medica; but if you want to practise physic, go to work with a man who is making drugs and mixing pills. Don't throw away years in studying physiology; but 'plunge into practice.' Don't avail yourself of the advice and counsel of the fathers of the medical profession; the accumulated experience of years is of no use to you: you are to deal with effects, not causes; you don't want principles; practice is what you need."

How would this sound?

The advice of the Gazette is calculated to make good artisans, but not engineers; to make good subordinates, but not masters. The technical school is a product of the times. It arose to meet a pressing demand, and is every year making itself felt more and more. The courses of instruction have had their faults,—it would be very strange if they were not so; but these faults are rapidly being discovered and removed. The schools have, without the slightest question, been conducted in a manner too exclusively theoretical; but they are finding this out. They are coming to recognize the fact that the school has not only to lay a firm foundation in the general principles of engineering, but also to show the applications of those principles; to make the connection plain between theory and practice. If we consider the comparatively few years during which our technical schools have been in operation, we should rather be surprised at what they have accomplished than at what they have failed to do. They have now passed pretty well through the experimental stage, and are rapidly being brought to a well-developed system which shall fully realize the intentions and the hopes of their founders.

At the last annual convention of the Master Mechanics' Association, a report on the subject of a standard wire gauge was read. There are three systems of measurement in use, and the confusion caused thereby is increased by the inaccuracy of the ordinary wire gauge. The committee recommended the micrometer gauges made by Brown & Sharpe, which are simple and durable, and measure accurately thousandths of an inch. The report was adopted, and members of the Association will hereafter specify the thickness of plate in fractions of an inch.

Lacrosse is deservedly becoming popular in many colleges. The recent tournament in New York was won by Harvard. Hare and hound runs are also becoming common, and at Harvard have been made on the bicycle.

An exchange says it is not the frost that makes the smacking noise at the front gate these nights. No, it is the sudden thawing.