

lishments, requiring skilled workers, are now found in all towns of considerable size or importance. Moreover, I think that the business of publishing newspapers, whether dailies or weeklies, in the smaller towns, is getting upon a legitimate business basis, and that proprietorship of such a business, which is both honorable and lucrative is within the reach of any young man of good capacity and saving habits. Such a young man may start in the business of journalism with confidence that if he chooses for his wife a woman of like economical and thrifty habits they may maintain a home and rear a family in the utmost comfort if not in luxury. That it is questionable whether our young man and woman of these essential qualities of economy and self-denial may often be found, is the fault, if fault it is—for in these days of rapidly changing social conditions and ideals we may not freely dogmatize—not of our industrial, but of our ethical condition.

So much has been said, and it seems to me so very stupidly said, of late, about the education which is desirable, or, rather, undesirable, for business men, that a remark on that point seems pertinent here. If a man is abnormally strong in respect to certain qualities, such as the commercial faculty, for example, this is apt to be at the expense of other desirable qualities. There are few examples of trusts or monopolies in the making of men. "For Nature hates monopolies and exceptions. Men seek to be great; they think that to be great is to get only one side of Nature. But pleasure is taken out of pleasant things, profit out of profitable things, power out of strong things, the moment we seek to separate them from the whole." According to this philosopher's principle of compensation, when Mr. Schwab, who is commercially competent to draw the enormous salary of two dollars per minute, essays to appraise education, should we not expect the wisdom of a parrot and the moral insight of a prize-fighter? And Mr. Coler, of New York, must also be very great from some single point of view; for in a long and labored article in the Saturday Evening Post he has demonstrated the vanity of education with such a genius for fallacy, such comprehensive sophistry, such an unfathomable depth of shallowness and such an over-capitalization of misapprehension as I am quite sure had never been crowded into any previous literary endeavor. These unique deliverances of Messrs. Schwab and Coler demonstrate, beyond a peradventure, either that they missed college breeding altogether, or, if it was tried on them, it didn't take. In none of the fulminations against college education for "business men" has it been shown why or wherein the preliminary mental and moral training of a college course, and the general knowledge it imparts can be good for one

class of business men, such as lawyers and physicians, and bad for another class, such as merchants, manufacturers, or trust promoters. If these anti-college crusaders are right it follows that, the many uneducated rich men who persist in endowing these baneful institutions for higher education, are not philanthropists at all, but "enemies of society." No hard and fast rule applies to this question, but discriminating common sense, rather. It may not be advisable or fairly practi-



ALBERT WATKINS.

cable for every young aspirant to journalism to acquire a college education; but it is safe to say that he will be a better and more successful journalist with than without it. The man who in the business of medicine or of merchandising, of the ministry or of manufacturing is able to rise superior to the advantage of a college preparation is the exception which tends to prove the rule in its favor.

Lincoln, Neb., July 10.

FRED L. LUCAS.
Electrical Engineer.

It will always be safe to assume that great possibilities for preferment are open to young men in those branches of learning and industry that serve the growing necessities of the world.

To those then whose hearts, heads and hands are devoted to electrical and mechanical engineering there ought to be no doubt of a highly useful career.

It would seem reasonable, too, to believe that overcrowding was not to be considered in this generation, at least, for the uses of electricity and applied mechanics have multiplied with wonderful and increasing rapidity, especially in the last decade. Great numbers of young men who have no adequate conception of the noble part engineers in these lines are taking in the world's civilization will doubtless continue to en-

cumber the progress of the true engineers as they have in every profession in every age, but this will not seriously affect the demand for good men.

The field has grown so broad, however, that there are many lines that may be followed individually to success.

To the boy who can have the advantage of a college training there remains an unexplored region in electricity, the possibilities of which are simply beyond conception at this day. Possibilities lie in the development of a primary battery, using coal for the active principle; in an efficient insulator for very high voltages, or better utilizing high potentials without the long distance transmission line, so that the water power of the land, now dormant, could be economically distributed and perhaps, at the same time, solve the problem of profitably storing the waste waters of our great water sheds, saving the damages of floods, and conserving a great supply of water for power and irrigation.

Many lesser problems await the work of the untiring enthusiast, especially in telephony and the various applications of the electric motor to power necessities.

In planning the works of large industrial establishments, there is a demand for engineers to provide for their operation on the most economical basis. The electric motor has been the greatest boon in this field and has provided a career for many young men, the benefit of whose labors has been widespread. Special preparation for this work is almost certain to be amply rewarded.

The possibilities of the telephone are vastly greater than the realities, great as these are, and many more such patient workers as Prof. Puppis are needed.

But to him who has not the possibility of a college training there are good openings for a useful occupation, if he will but give it his time and energies. There is a fast increasing need for skilled electricians and machinists. Simple explanations of the underlying principles of electricity and mechanics are now obtainable at low prices, besides the correspondence schools, some of which are efficient educational agencies, and there is no excuse left for the young man who runs strings of wires, mechanically, or the mechanic who does things as his predecessor did without knowing why.

Every electrician should know the whys and wherefores of sizes and kinds of materials. The mechanic should know the actions and qualities of the different metals and materials used in his work under varying conditions, the simple laws of force and in short the scientific data which bear directly on his line of work, which are easily obtained where the will is present.

It is not expected that the artisan will follow into the details of complicated mathematics, but he should be able to use the results arrived at by our best engineers, with intelligence. To such young men there is the broadest possible opening in mechanical and electrical engineering pursuits and on him depends much of the civilization of the future.

Pontiac, Ills., July 30, 1901.