The Industrial Need of Technically Trained Men—IX

The Possibilities in Iron and Steel Making

By S. T. Wellman

[Mr. S. T. Wellman, the author of the following article, has had a large part in the development of the iron and steel industry from small proportions just after the civil war to the enormous production of to-day. He is the inventor of a tilting open hearth furnace and of the charging machine which made the open hearth furnace practicable. Mr. Wellman has been general superintendent and engineer of the Otis Iron and Steel Company and president of the Wellman Seaver Morgan Company. He is past president of the American Society of Mechanical Engineers and of the Cleveland Engineering Society. He is a member of the American Institute of Mining Engineers, the American Iron and Steel Institute and of the British Iron and Steel Institute.—EDITOR.]

IS the profession of "Iron and Steel Making" a good one to follow? This is a question that is asked many times by young men who are trying to make up their minds as to their life's work.

The answer will depend very largely upon the man. Many would not like the business at all, and some, as I have seen them do, would turn and leave at the first sight of what the work and conditions are, saying: "None of that for me."

One young man that I remember many years ago, at his first sight of a Bessemer converter timing up, sending as it always does a shower of fire across the building, turned and fled headlong and never stepped inside the works again.

To me the iron business is the most fascinating in the world. All of the processes are interesting. New problems, mechanical and metallurgical, are constantly coming up to be solved.

There is plenty of room in the iron business for workers, but none for drones. The young man who adopts it for his life's work must have in the first place a good physique; he must be strong and healthy in mind and body, not afraid of work or dirty hands or rough clothes. He must expect at times to make long hours, when he is learning the business, and at times he will have a great deal of night work.

A college or technical school education is not absolutely necessary, but it is very desirable. The young man who starts in the business without such an education, must make up for the lack of it by a lot of self education at home, if he wishes ever to reach the top of the ladder. That it is possible to do this is shown by the careers of many of the brightest and most successful men in the business. Night and correspondence schools are open to the poor working boy who has the ambition to rise, and who is bound to learn all that is worth learning in his chosen profession. The very fact that he has to work hard in the face of all kinds of difficulties to learn what he is after, is the best kind of a beginning of a training for what is to come.

Many times, when asking professors at technical schools and colleges to send me graduates for different positions, I said to them: "Everything else being equal, I would rather have a poor boy who has worked his way through college than a rich man's son who doesn't know the value of a dollar, and whose chief reason for being at college is to have a good time."

The common opinion is that the poor boy is the one who is handicapped in making the race for real success in life. I am not sure but that this is wrong, and that it is very possible that the rich man's son, surrounded by every luxury, who lives in a beautiful home, with a doting mother watching over him, who never learns or knows the value of money, is the one to be pitied, and is really the boy who is handicapped.

The best assistant that I ever had was a young man who was the son of a barber. He graduated at the high school, after which he went to work in the office of an iron works of his native town. In a year or two he had saved five hundred dollars. With this and the addition of one thousand dollars which his employer loaned him, he went to Germany, where he stayed four years. This amount of money paid all his expenses. Of course, this was possible only by the exercise of the most rigid economy. He entered the University of Berlin, where he graduated, taking the highest honors that any American had taken up to that time. He spent all of his vacations in various iron works as a learner, thus not only getting at the de-

tails of the business practically, but making many acquaintances that were valuable to him in after life. It is needless to say that he succeeded in everything that he took hold of. A man who goes at things in the enthusiastic way of this young man, is always sure to succeed.

A most excellent way for any young man to do who is trying to make up his mind whether he wants to learn and follow the iron business, is to spend one of his vacations, or a portion of it at least, in some steel works or rolling mill.

After this experience, if he makes up his mind that he wants to learn the business and follow it up as a profession, he can go back to school and go to work in earnest to learn any and everything that will help him in his chosen field of work.

I believe it is a most excellent plan for a student to spend at least a month of each year out of his vacation in some works, seeing the thoroughly practical side of the business. Every time after doing this, he will go back to college with fresh courage and a better understanding of what he needs to learn, and he will see how necessary the purely theoretical part of his education is.

Of course, no matter what profession a young man follows, one of the great advantages of a course at college is the associations and the acquaintances he makes there, which will always be pleasant and useful to him in after life.

When he has finished at college and obtained his coveted degree, he must not think that he is fitted to take charge of any works, or even a department of it. If he has sense, he will know that he is only learning the theory of things, but the hard practical part he has yet to learn.

A man who expects to be a leader in any business should know every detail. He should be able to take any workman's place for a short time. I don't mean to say that he should work at every branch of the trade long enough to become a first-class workman, but he should work at it long enough to get a thorough, practical understanding of it. If he does not do this and does come to a position of responsibility, not understanding the details in a practical way, the workmen will very soon find it out and they will be sure to take advantage of his ignorance.

Of course, if a young man goes into the iron business and expects to earn a living with his hands and muscles only, and to be merely a workman, skilled or unskilled, book knowledge will not help him very much. He might as well stop with a common school education. But if he wants to make his brains and not his hands do the work, he must get all the help possible from the best that books can teach. Of course the scientific school is the best place to do this.

Workmen who have a superintendent under whom they have learned their trade are more easily managed than if they had brought their trade with them, and its details are in any part a secret from the management. If they know that the superintendent knows just as much about it as they do themselves, they will know that, having taught them, he can teach others. Strikes are not likely to happen where the management is in such hands.

To my mind, the business of the iron-master is the most interesting of any of the great professions. Every part of the work is full of the most interesting and picturesque detail, from the taking of the crude material from its bed in Mother Earth to the turning out of the finished iron and steel, and nowhere is it carried on in such magnificent scale as in this country in which we live.

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