THE RELATIONS BETWEEN ENGINEERS AND CONTRACTORS*

By John F. O'Rourke
President, O'Rourke Engineering and Construction Co., New York

THE growth of things, the necessity for having better engineers, for having larger contractors, for having a different sort of construction, for having a building lot that comprised something beyond the building that was 25 ft. front and 100 ft .deep and five stories high (which everybody who knows anything about New York building laws knows was the building law of New York up until about 1892 or 1893), all this great concentration in cities, this great growth of wealth, this great independence of depending upon somebody abroad to furnish you wth plans, evolved the modern engineer and the modern contractor.

The Modern Contractor

The modern contractor is the man who, even in front of the modern engineer, would be entitled to membership in the American Society of Civil Engineers, because that says in order to be an associate of the American Society you must be able to make plans and build work and that you have had at least one year's experience in independent charge of work; to be a full member, which at the present time is restricted to people over 30 years of age, you must have had at least five years' experience in independent charge of work. Now where is there a contractor who belongs to what we call the educated class who can't fill that bill? So when I talk about the relations between engineers and contractors, I don't want it to be understood that the engineer I mean is the man that makes the plans, and the contractor I mean is the man the engineer tells how to carry out the work, because that is what they did in the very beginning when it was easy. I am going to talk about the engineer and the contractor in the sense of the two parties to the contract.

There is first the owner and his representative, the engineer; and the engineer is to tell the contractor everything that the specifications say and everything that the plans mean, and if there is anything missing he can tell him a great deal more than anybody else can tell him that they mean. That is where we get down to what I am talking about now as the relation between the engineer and the contractor. The thing that appeals to many engineers that started a good many years ago, was the fact that in making their plans they had a great deal more trouble in having them carried out than if they did the work themselves.

The Contractor's Engineer

There were others who were not engineers, but were fine men—men with a large business who were put up against the higher development of construction that they had never any experience of, because there was no experience in it. They associated engineers with themselves to enable them to carry out their work. Those engineers I am going to call the contractor's engineers. That is, the engineer whom the contractor employs and without whom he could not do his work, ordinarily, is the contractor's engineer. The engineer who became a contractor, I am going to call a contracting engineer. The owner's engineer is the one who makes the original plans.

What is the situation to-day in the relations of those people? In a certain society any man who is not working for some city or corporation, or who does not act as the engineer of the party of the first part, has no more voice in one of those national societies than if he were very obscure in the profession.

There are other branches of engineers who have gotten to the point that they have an office. They have hired an office and call themselves consulting engineers, and many of them, of course, are among the most eminent men in the world. But take them as a body. In their body, if one of them resigns his job as a consulting engineer, and looking for a consulting fee here and there, has a chance to do something real big and takes a part in the execution of a contract, his first duty to that organization is to resign—no longer is he eligible.

In all these cases there has grown up a feeling that if a man is an engineer and is not making the original plans (however shadowy they may be as to the final execution of them), unless he belongs to that party of the first part, he is not, strictly speaking, an engineer.

Engineers,—and Other Engineers

Now, as to the part of the first part—engineers, and the party of the second part— engineers. It is safe also to say that in one case they are so underpaid that I don't know any class of professional men who are so much the victims of the employers as the straight engineers in America. The other one is the fellow who comes in where there are four dimensions. A lot of people are greatly troubled to know where the fourth dimension is. Unless they are very poor indeed, they've got it in their pocket.

Take length, breadth and thickess—from that you get quantity. Multiply that by this thing that you may have in your pocket as the fourth dimension, then you get cost. You get everything that applies really to the practical side of anything because you can't talk about building billion dollar railroads or ten billion dollar courthouses or anything that way. You've got to get down to something that is practical; you've got to get down to something within the bounds of reason, compared by the standards of the fourth dimension. Also you've got to get that fourth dimension in before you get any dimension at all on a contract as a contractor. You don't count if it is too large, and that's what I'm after.

Products of a Theoretical Service?

The thing that I've got in my mind outside of the organization of this body, the making of an association in which all the contractors of the United States will get their rights made known and their power felt and their possibilities of doing good—get that all in national dimensions both for buildings and builders of any other kind of a structure—I am getting after the engineers where they will get something and where among other things they will get out of their shell and come out and shake hands with the fellow that is showing them how the work is being done because most of them know nothing about it.

They are simply the products of the civil service which takes into view the capability of answering a lot of theoretical questions, most of which don't apply to engineering at all and which is one of the curses to-day of doing work for any body that is covered by civil service.

We haye got to broaden ourselves; we have got to have contracts in which there will be something more than the statement that the engineer is the sole judge without providing any standard by which he can be judged as to his judging. We've got to make the contractors free in the sense that when they undertake to do anything and feel honestly that they are going to do it and that they are going to do it in the best and most efficient way, that they will be able to do that without having somebody that does not know anything at all about the work starting in to tell them how they shall do it wrong.

Says Contractors Need Association

The only way this can be done is to make ourselves felt as a body of contractors, a body of contractors who (as my first definition states) are really a body of engineers. They are called contractors because they draw the thing together, not because they draw them. Note the difference. And we've got to have it so that whether a man is on one side or the other, it has got to be fully understood that there is a particular side that he is on and that they are all on, and that is the efficient, economical, rapid performance of the work. This is more to the owner than it is to the engineers of either side and it is more to the people in general than it is to the owner.

*From an address delivered before the Associated General Contractors of America.