

tention of the public as a learned man doing things. Let a man be a member of one of the other professions and as soon as he begins to accomplish things he will be heard of. Let a geologist make a speech on his chosen subject and the newspapers of the land will blaze forth with startling headlines that Professor Geologus has unlocked the great secrets which Mother Earth has hidden in her bosom for millions of years. Professor Haultain accounts for this by the fact that the geologist takes time to tell the people what he is doing and what he thinks he has discovered. Let the lawyer defend some celebrity, whether famous or notorious, and before many hours the whole world will know it and will be gazing upon indifferent pictures of that lawyer. It is, probably, safe to say that the engineer may devote his life to the service of the world and die doing his duty, and yet never be heard of during his career, unless he unfortunately make an error in judgment or a slip of some kind. I venture to suggest that Quebec Bridge was more widely known by its failure than it or any other bridge will be in its success. I do not know that the engineer cares particularly about publicity, for he is too busy doing things. I am referring now only to the recognition or non-recognition of his professional existence by the great public. Anyway, he is too busy doing things to stop for the sake of publicity. One of the powers that the engineer under-rates is the power of the press. Summing up, it would appear that the public has, at the best, a very hazy idea of what engineering is. Every engine runner of the country is an engineer, no matter whether he operates a locomotive or a threshing engine. Even the plumbers try to play on the title and have in our own country succeeded in getting an association incorporated under the name of the Canadian Society of Sanitary Engineers. All respect to the man who can wipe joints and collect his bills of world-famous magnitude, but it looks very much like trespassing on the dignity of the name of the great recognized engineering body of Canada, the Canadian Society of Civil Engineers. It is, indeed, a most fortunate thing that the motorman does not term himself a street car engineer, that the chauffeur does not call himself an automobile engineer, and that the aviator does not wish to be known as a monoplane or biplane engineer. I was just wondering, if the analogy were carried on, what the man would call himself who runs a wheelbarrow.

Engineering Societies and Engineering Defined.—

There are in every country recognized engineering societies having for their object the betterment of the profession and the uplifting of its members, all of whom are required to have certain pre-requisites of training and experience. In Canada there is the Canadian Society of Civil Engineers, in Great Britain the Institution of Civil Engineers. In the United States the American Society of Civil Engineers takes a corresponding place with, however, the addition of very strong societies known as the American Society of Mechanical Engineers, the American Institute of Electrical Engineers and the American Institute of Mining Engineers. We have in Canada also the Mining Institute of Canada. In the constitution of the Canadian Society of Civil Engineers and of the Institution of Civil Engineers the art of engineering is defined, but, so far as I know, no definition is given by the other bodies I have named. The definition used by the Institution is that devised by Tredgold, well nigh a century ago. He calls engineering "the art of directing the great sources of power in nature for the use and convenience of man." The Canadian Society of Civil Engineers has

based its definition on the same formulæ in the words "the profession whereby the great sources of power in nature are converted, adapted and applied for the use and convenience of man." With definitions such as these given us by two of the leading English-speaking engineering organizations, it is not surprising that the public has some difficulty in comprehending what an engineer really is; that is, assuming that these definitions ever reached the public. I think it may fairly be said that you could not be considered much of an engineer when you first learned to overcome the law of gravity and stood on end to direct that great source of power in nature to your use and convenience. It has truly been said that the greatest source of power in nature is the tongue of a woman, nevertheless, to your engineering ability could not be applied any other definition than that of "contriving" when you succeeded in getting your mother to persuade your father to buy your first rubber boots. We are told that this definition of Tredgold was primarily intended to distinguish the military engineer from the civil engineer. I think there might be some difficulty in endeavoring to apply Tredgold's definition of a civil engineer to the military engineer, because that military engineer would not find it easy to convince his enemy that the cannon balls were for the use and convenience of said enemy, even if there were any enemy left to argue with. Maybe my lack of soldier enthusiasm prompts the remark. The conflicts for the necessities of life are surely serious enough without adding other struggles blazing with uniforms, glittering with cold steel and reeking with blood. But we must not forget that in the olden days much of what is now known as "public work" was done under the direction of the military authorities who possessed the only complete organization of the time.

Professor Swain has perhaps unconsciously given a definition which, it seems to me, excels all others, where he calls engineering "the application of the laws of nature, the principles of mechanics and materials of construction to the business of the world." It seems to me that we have in these words a definition of engineering in its broadest sense.

Engineering Training.—This definition brings me right up to the present moment speaking to you as a body of young men who have entered one of the great engineering schools to learn something of how to apply "the laws of nature, the principles of mechanics, and the materials of construction to the business of the world." You have come to a great institution. Its graduates are to be found everywhere making good. Go from Tyrrell on the north to Laschinger on the south, start with Lash in Java and encircle the world, and you will find the alumni of Toronto. I myself am proud to be on the same list as Duggan, Stern, Thomson, Wright, Ross, Deacon, Mitchell, Fairbairn, Speller, Angus, Chalmers—I should not have started to name them personally, because they should be named by the hundreds—an honor list of which everyone should be proud. It has been said of Sir Christopher Wren in St. Paul's, "If you would see his monument look around you." I say to you, if you would see the monument of John Galbraith just look around the world at the engineering alumni of Toronto.

The definition necessarily implies broad-mindedness. You cannot be a good engineer and be narrow-minded. So, do not forget that this broad Dominion has other universities, older ones in the Old East and newer ones in the New West. Queen's and McGill are great universities. There are many great universities in the