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## Relations between the Universities and the Industrial World

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*Mr. President and Gentlemen,*—Someone once remarked, and I think very wisely, that in war it is no use lying, because you always get found out. Those paper understandings and paper conventions which may hold together in the less strenuous times of peace get found out in war when you are up against the naked facts. And it is for that reason I believe, that although our purpose in war was naturally not the discovery of true principles of future conduct, but simply the defeat of the enemy, that, nevertheless, big principles of action were revealed then more clearly than at any other time. And I believe that of those principles, two stood out. They were first of all the importance of elaborate organization and education for the purpose of war; secondly, the importance of close understanding, which the army called "liaison" between the different allies, between the different armies, and within one and the same army.

I confess it strikes me in retrospect as a curious thing that one who like myself had spent most of his years teaching in a University should have seen during the war, as a machine gunner, that very work of education over there in the corps. And your own corps led the way in the matter of army education. What did a battle mean? You read the results in the accounts of Vimy, Hill 70, and other notable actions, but months before that the plan was drawn up, there were most careful rehearsals in the army training schools, the usages of new weapons were taught, such as machine guns and tanks, in dress rehearsals. So the very battle, the account of which you read in the newspapers, appearing to spring out of nowhere, was, in reality, the last stroke of an enormous process of careful education. More than that, in order that these military efforts should have

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effect it was necessary that all armies on the allied side should strike in conjunction, and deliver a simultaneous blow. And it was necessary that the different parts of the army, gunners, machine gunners, tanks, airmen, should all co-operate. And therefore a definite special service grew up which was given the name of "liaison" work.

Now these two things, education and "liaison" are, I believe, fundamental principles of social action, and I wish to try to show you what may be the scope for their activity in the relations that prevail to-day between our scheme of education, culminating in the University, on the one hand, and our scheme of industry, starting with the raw products of the University and taking them forward into the world of business life.

Now in indicating the relation between the University and the world of business I believe three big problems have to be faced, and the first is this. We have got to avoid the waste of spending a large amount on organization and teaching effort in the training up of people who when trained are wasted and not appreciated. I am sure it is true in my own country that before the war it was somehow felt that trained university men were so full of theory that they were of no use for the world of business. It was only the reality of war that proved that when shells had to be made they had to be made not to sell but to fire, and if you wanted to get the submarines you had to thresh fundamental principles of science. Theorists already had these theories at their fingers' ends; and they were the right solutions because they were scientific. I think the first thing we should have in mind is that we should consider a trained university man as not a man to be given simply a routine job. He has a big investment in him, if he is an able man, and that has to be brought out.

Now how to secure that? I believe that business men should look at the University in this light. You take the individual to a certain stage only. You turn him into elastic raw material. When he leaves you his education is not finished. He enters into what I would like to call the industrial forces training corps. For three years maybe he is engaged in the continuance of that work of education. I believe if that attitude were maintained by business men and teachers together then a great cause of friction will have been eliminated. Business men will cease to expect that we shall specialize on men for the various jobs needed for their business. They will not insist on premature specialization, which may be necessary for

their business but for which the man is not yet ripe. And I think if business men are clear that they ought to take a part in the work of higher education then I believe that we, the teachers, will respond to that spirit and turn them out the stuff that is most fruitful for them to use.

Now the second problem we have to face is this. Are we in danger of creating such a large output of skilled brains that industry cannot absorb them? A man might say, "Well in my business I can see only two jobs, perhaps three, for specially trained university men." I want to put it this way. That is simply a repetition of an old error which, when committed by the trade unionist, is severely reprimanded. It is in common with the idea that there is just a fixed amount of work to go around—"ca' canny, spread out the work!" The result of this attitude, we know, is a shrinkage in the demand. Under more generous treatment the demand is expanded. Available work is not limited. The scope for brain power is also not limited. With one skilled brain, in conjunction with machinery and proper organization as the means of thinking out new machinery, new methods of organization are evolved which in turn call for skilled brains, and so on in increasing ratio. The stage at which business organization has arrived is not the ultimate stage, and the presence of skilled brains, therefore, is the means of lifting it up on a higher plane where the scope for skill will be increased. I believe the bogey which has been put forward in times past by British manufacturers, in maintaining that they cannot use skilled people, is nothing more than a bogey, and not founded on reality.

The third problem I want to put before you is more serious still, and it is a problem with which I sympathize strongly myself. I can conceive of an educationalist listening to me and saying, "Well, I see the advantage of the university handing out good products to the business world but surely education does not exist simply in order to create material for business. Has it not an independent existence? Does it not stand for something bigger than mere business needs? In other words, won't the idea you are putting forward end in turning our universities into correspondence colleges, or technical schools?" Now I wish to suggest to you that that danger is not likely to occur if we really understand what are the needs of the business world as that business world is in the 20th century.

Will you allow me to read one short extract from a friend of mine who is in charge of the personnel of a large British concern, the Metropolitan Vickers, lately called the British Westinghouse. He and I have co-operated in this, and I got

him to write me a letter. I shall read just one paragraph:—  
 “The higher education we look for from a University is not a preliminary training in business or industrial technique. We expect you as a University to lay the broad and sound foundation, to provide good raw material out of which finished stuff may be shaped by us, to develop logical thinking, and the ability to grasp facts and face new situations. Such men will have high saturization value.”

Now that practical concern has its colleges of apprentices. I am delighted to say that many of our pupils have gone into business to that firm. One of the most brilliant pupils I have had, who had a special aptitude for Greek, is with that concern and has shown his high saturization value. I believe the tendency in higher education is to avoid premature specialization. That is just the kind of thing in which it will pay you as business men to get men from us. We could start our men specializing in commerce, like bookkeeping at seventeen, but it would not pay you, let alone us. We are better employed in laying the broad and sure foundation than in trying to specialize prematurely and turn out something which, although it has an immediate earning power, has no possibilities of future development.

These being the problems and the sort of things we are trying to answer, how shall we set about it? I believe the business men have a greater part to play in a sense in the scheme of higher education than the university. Look at me as an economist! How can I possibly teach people the broad principles of business organization if I have to evolve it out of my inner consciousness, or if I have to read text-books written by people in another age? It cannot be done. Just as in the army technical teachings were based on the recent lessons of the front so the part of economists is dependent on you helping us. You take what modern business is now. It is a most complicated structure of organization and management, departments of research, accounting, sales, and of the marketing side, and alongside those perhaps that of a lawyer or a high financier. And so it is a complicated structure. Now if at every attempt to get information from you we are met by the request, “Get on with your own business; teach the general principles; leave our affairs to us,” then there will be cleavage between us, and you will find we are teaching what was practised in the days of our grandfathers. Then you will rightly say, “Business education, or preliminary training, is useless.” Our army tacticians would have been just as useless if what we taught was what had been done in the South African war.

I do say that business men can in many ways, without interfering with the independence of the teacher, give an insight into business management, take an interest in seeing that the teachers get an intelligent understanding of business administration. You don't want to pry into trade secrets. But there should be this contact because we are both engaged in looking from different angles at one problem.

I would like to close with one further thing. It has sometimes seemed to me that the business man has regarded the economist, the University man, as a man who at a moment's notice is capable of issuing what I might call dope to workmen to prevent class discontent. Now, believe me, economics and economic history are just as likely to act as a high explosive rather than as a dope, if your educated workingman finds business management and business practice in glaring contrast with that which is taught in the text books. I would like to put it this way. Once again here is a scope for better understanding between the difficulties of the teacher and the wants of the business world. I have been asked, “What about strikes? Why cannot you keep the workmen quiet?” Well, for the simple reason that strikes are the product of an enormous amount of complicated forces. If the teacher cannot reason with the men absolutely fearlessly and openly, instantly his teaching will lose sincerity. Keeping up shams in business is of no use. In industrial struggles shams in the long run get found out just as in war.

It is with these ideals, steering towards these goals, that we have tried to do what we can in our university. We have been singularly successful in getting support from our biggest business men. We have an Employments Board. Business men write to this board, and they can get a proper and accurate testimonial of the abilities of the individual to whom they are considering giving employment. The fact that they can get this accurate information about a prospective employee is of enormous advantage to the employers. We have been able by using this board as a central channel, to get our men in good businesses. We have not foisted duds on the business community, which would have instantly spoiled all our efforts. Our men are keenly sought after in the different organizations. They are employed not only on the technical side as economists and physicists but also on the side of general administration. The idea that there is no scope for men with general training is, I think, getting more and more exploded every day. There is scope for the scientist and there is scope also for the man with general training if only you can build up intimate

contact between those who are the product altogether of the universities and those who are the product of the general business world.

I believe it is a most fundamental thing, the attitude which the business world takes towards the university. This is the idea, we produce the elastic raw material, carry him a certain way: you take on the product and you are teachers for a time as well as ourselves. Then we shall both, so to speak, be allies in education and certain of the crude objections which have been made will disappear, once you have put yourself too into the educational spirit. And, in the same way, our staff of teachers will be entirely at your service for co-operation. We shall no longer be ploughing our lonely furrows shut out from the fund of experience, shut out from the business laboratories, and actual practice of the business world. We shall be allowed to obtain and we shall respect the insight you give us into them. We have no motives whatever of making profits. If we give out trade secrets we are deserving of being kept out. I would suggest therefore, that both the business world and the University would be benefited by more intimate contact between the two, by both sides understanding the difficulties of the other, and the other's point of view. In this world sentiment is not enough. It is a big thing, but it has to be backed by the understanding of the other fellow's difficulties. Very humbly, as a teacher, I put this before you, and thank you for listening to me.