



Speech to the Engineering Societies of Western Pennsylvania
February 1941

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Summary

Page addresses the Engineering Societies of Western Pennsylvania on the incentives of freedom and how it increases opportunity and stimulates progress.

Page provides a historical perspective on American industry and the need for greater ingenuity and a development of the sciences. The engineers are encouraged to think for themselves, take responsibility for their actions, and be the captain of their sole and fate. To fuel progress they are admonished to think beyond the restrictions placed upon them from government, industry and most of all themselves.

Key topics

Page Principles

Engineering
Freedom
Progress in Society

None

Talk

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Pittsburgh, PA
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TALK

As I understand it, up until about 200 years ago engineering wasn't a self-conscious profession except for the purpose of killing people. The only kind of engineer that Johnson recognized in his dictionary (1755) was the military variety and the line he quoted to explain the meaning of the word was Hamlet's comment—"For 'tis the sport to have the engineer hoist with his own petard."

In a sense and to a degree I think that is what has happened, but the sport was not as good as Hamlet pictured, for the petard was a very big bag of powder and hoisted a lot of other people besides the engineer.

I have a feeling that the engineers have been so successful in making what we loosely call democracy work, that they have undermined a good many people's faith in it. This sounds a little Irish but if you will bear with me a few minutes I will try to lay the case against you before you, so to speak.

In the first place, democracy is a form of government. I do not think really that we are violently interested in forms of government as such. Any form, or next to none as Jefferson preferred, would do us if at the same time we could have personal liberty and reasonable opportunity. It was because other forms of government interfered with people's pursuit of happiness more than representative government, that we chose the representative form, which we call democracy.

The writers on government trace the origins to Runnymede and various other ancient incidents, but the pursuit of happiness for the common man really began to have prospects of success after mankind took up engineering and began to improve the manufacture of clothing, housing, and to make cheap for the multitude the necessities and comforts of life.

This kind of engineering was the product of the liberty and freedom that took a strong hold on men's minds some 200 years ago. Perhaps the publication of Lock's *Of Civil Government* in 1690 is as good a single date as any to mark this. A period followed in the world when more men had a chance to do something for themselves, to think for themselves, to work for themselves, to be freer to follow their own judgments and freer to take on responsibility for their own welfare. For most of the history of the world prior to that a very small proportion of the people had been telling the rest what to do and how to do it and what to think about it. Whoever the few were who were doing the telling, they were the governing classes. They were undoubtedly brighter than the other people, for that is how they got the job of doing the telling, but in spite of that, when their brains were spread out over all the people the coverage was pretty thin. The result was that although mankind had lived for thousands of years on a bountiful earth, practically all of them had a serious case of what is now called under-privilege, except the few who were doing the thinking and telling the others. However, as the license to think for one's self and act for one's self, got to be wider spread, extraordinary things began to happen. All sorts of inconsequential people began to turn up with ideas that worked. Arising out of this freedom to try for one's self did come a time when great numbers of people were fed, clothed and kept warm far better than had ever been done in the world before.

Along with this came another revolutionary idea, which was not only to allow every one wider latitude to think for himself, but actually to try and stimulate thinking. The way they went at it was to send boys to school. I don't know that we can be sure that it is an effective way, but the process has gone on ever since. And it was logical enough, for the little group that had done the thinking and planning had had schools. The old universities were trade schools or professional schools for the ruling classes to learn how to rule. You could teach people how to rule in a school, even if the result was not too good, you might also stimulate their minds in other directions.

So freedom and education marched hand in hand holding up the banner of opportunity. The army that came behind, however underprivileged it would look to present-day standards, was the cheeriest, most confident, best fed, good-natured and disorderly army that had ever appeared on the globe. The men had hope for their generation and the women for the next. Every one tended to go his own gait in his own way. What is more, there was a little margin, which tended to make people speculative and careless. If one thing didn't work, they tried another. They got in each other's way. There was little quiet and little order.

These people made far more progress than had ever been made before, but in a most higgledy-piggledy manner. The disorder of the progress produced jams of one kind or another, disturbances and fights. It was obvious that there had to be some rules to prevent too much interference with each other and at the same time not enough rules and regulations to produce the old result of having the minimum number of rule-makers do all the thinking and tell the others what to do.

The history of what we call democracy has been a constant struggle between liberty and regimentation to strike a happy balance. In a country like ours which for many purposes is but a single market and in which, therefore, commercial actions ramify over great areas it is natural that we get in each other's way, natural that there are clashes of interest. It is also natural that this leads to a demand for the regulation of the conflicts. All during our history the people who have felt that they were getting the worst of these clashes have run to the government for relief, manufacturers, distributors, consumers, farmers, labor, every one runs for special protection. And this is not a new phenomenon. It did not begin with the N.R.A., it has been with us a hundred years. Before the revolution the price of tobacco was maintained as cotton is now. Years ago state money was used to build railroads at the instance of certain groups as state money is used to furnish electricity now. There is a constant tendency for one part after another of our means of making a living to get under the limitation of the thinking of a few people in authority. But at the same time there is a tendency to have the whole process constantly revitalized by new industries, which come up with vigor, untrammelled by restraint—a succession like the steel, the automobile, and the chemical industries.

What is the difference between having a few men at the head of big industry do the thinking and deciding for the many and having the deciding by a few men in governmental positions? This centralization of power in government is often to prevent the centralization of power in industry. The difference I think is clear enough. In the industrial world a few men do not do the thinking—a very large number of people contribute to the decisions and the teams of people that do this have to live with the results of their actions. They are responsible—individually and in groups. The concentration of authority in government agencies is not accompanied with the same responsibilities, and while the public can always appeal to the government about industry, it can't appeal to anyone about government operations except a general election, which is not likely to be effective for this purpose. Putting management in the hands of the representatives of everybody, while it sounds like the acme of liberty, in practice tends to reduce the chances of men to do their own thinking for their own profit, and by the same token tends to degenerate the vitality of the American experiment. That brings us to the kind of quandary that is usual in human affairs. The more complex our civilization grows because of the success of individual initiative, the more clashes of interest arise and the more it seems necessary to curb individualism in order to preserve liberty. Yet the very curbing tends not to preserve liberty but to reduce it by placing as a ceiling on national thinking the brains of the small number of rule-makers. It is this kind of circle in human affairs that makes them defy solutions. It is this kind of thing that makes those who have never really had a belief in the capacity of mankind give up the struggle and seek the comfort of a definite answer in authority and uniformity—in short to accept a dictatorship or anything that will let them quit thinking and be rid of responsibility. They crave a formula, a theory, an answer to life. And when people get this way they are half licked.

So far, however, in this country we have had more courage in following freedom than have any other people. We have gone further than the democracies abroad.

We for the most part have been freer from taxes and freer in opportunity. Up until recently we have been more a low tax, high return, high opportunity, more or less classless society. In Europe the democracies have had equally the rights of free speech and religion, but they have had higher taxes, lower return for their thinking, less opportunity and a more stratified society, looking to security more on a pooled basis than an individual one because the individual's chance was less than here. And on the whole, they were more orderly.

Yet from their almost perfect state, many people used to be eager to come to our disorder for the extra freedom and opportunity it offered. The reason is plain enough.

If you translate the pursuit of happiness into the language of the common man, he had with us more opportunity to do as he pleased, plan for himself and his family with hope of success—and an hour of labor here would buy about twice the food that it would anywhere in Europe. He could earn a shirt here in an hour and a half that would take him four hours in England, and more than two days in Italy. He could earn three pairs of socks here in the time he could earn one in Germany, and a radio in less than half the time he could earn it anywhere in Europe.

There are those who think these results came because this is a rich country. Undoubtedly that gave the inventors, scientists, salesmen and engineers something to work on, but it was the incentives of freedom to think and work—each man for his own—that produced the result. Russia is a rich country, but Russia is a country where men only have had the liberty to do and to think what the Czar or Stalin wants them to. The pursuit of happiness there has but little chance of catching anything.

With us the race was to the swift but pretty much every one ran some and almost everyone who ran at all got some kind of a prize. I don't think we realized how successful our civilization was nor how completely the success was tied to the higgledy-piggledy method of progress that is inevitable in a country where all kinds of people have real liberty of thought, of action, of hope, and aspiration. The very lack of uniformity is the result and the evidence of the individual pursuit of happiness.

When the depression hit, many people temporarily lost faith in a process that depended on themselves. Mankind in such circumstances always wants an answer a panacea wants safety. That isn't a new kind of crisis. It has happened before, but it was aggravated this time by having the engineer's petard go off. That scattered a belief in formulas, and blueprints all over the land. They called attention to the fact that engineers controlled the difficult forces of nature, that research could make two blades of grass grow where before there had been but one, that chemistry and electricity had revolutionized the world, that science was the magic by which everything could be planned including the hopes and fears of 135 million people. This idea had been gaining ground for some time. With the depression it became a religion.

The old engineers, like Ben Franklin, had mixed engineering with philosophy and observation of people. They had quite a lot of good ideas on physical subjects and equally

useful ones on what makes people do as they do, but they had no idea that they could engineer humanity. When our engineering schools had really gotten into full career they more or less abandoned the old subjects of humanity, for, except in medicine, no one seemed to get on with it with great rapidity on the other hand, by careful study you could get something new on nature with startling frequency. In fact, almost any good man could add to the sum of human knowledge in science, whereas in other fields it was a tough problem. As a consequence the scientific and engineering people got most of the citations in the army of education.

Every time they published a paper they got a new star. If you were not trained in the scientific method you were in a fair way to be sent to the rear. Old-fashioned scholarship had lost its flavor. It is more than the humanists could stand. They changed their standard from political economy and the like to Social Science, to get in the charmed word "science." They more or less abandoned the application of the accumulated experience of mankind to the changing scene, and began counting and classifying the plumbing and automobiles of the population as a basis for judging human nature.

They figured that if two and two made four in mathematics it was bound to do so in human values also. There has been immense excitement in the solving of human problems by formulas, blueprints and statistics when, in fact, no human problem is ever solved until the humans in question are dead. Up to that time, human affairs have to be managed day by day continuously, and managed more by experience, judgment and a good sense of inherent probability than by statistics, blueprints or surveys, however useful these may be.

Now I know that engineering education has turned toward more human consideration, but the idea of the omnipotence of planning had gained a fine foothold and it only needed an occasion like the depression to develop into a religion. Bright people again rushed forward to do all the thinking for the crowd. Again they began to tell everyone what to do and how to do it. Under the name of liberalism, we headed back toward the old order wherein liberty was rigidly restricted. Why did we think it would work now when it had not worked before? Because the scientist and the engineer had conquered nature. Because we could now with science plan anything. With science and engineering on the job we at last could blueprint the future of mankind and put our foot on the accelerator of progress in a planned and orderly world.

In the last fifteen years we have had quite a number of people in many walks of life in business, in the colleges, in the government, who knew the answers to almost everything. Their picture of democracy was much like that of the man who organized a society for people to do as they damned pleased even if he had to make them.

But still the brains of the few won't cover the many any thicker than they used to do.

And so I earnestly beseech you to bring a suit against the scholars to make them return the word science to you who deal in material things, and to give up the slide rules, the formulas, the instruments of precision, and the engineering methods which when applied to materials had freed man, and when applied to man are in a fair way to enslave him. And I beseech you to let mankind pursue happiness with as much freedom as

possible and not ask him to fit his future to a provisional estimate worked out in a logical size and shape, but one for which God never intended him.

Years ago there was a story in New York of an Irishman recently landed who saw a good fight starting up in a saloon. With the instinct of European restraint he asked if it were a private fight or whether anyone could get in. If he had been over a little longer he'd have joined without asking. I hope we are not going to get into the state of mind where people are timid about taking a hand in the game of life, timid about thinking for themselves and doing for themselves and thereby making that real if disorderly progress in the pursuit of happiness which has been the salvation of this country.

I have a feeling that this depends in a large measure on the management of what we call private business. If it can continue to improve the average man's chances, continue to make use of more people's thinking and interest I have no doubt we shall succeed. The success of private management in making the pursuit of happiness a reality to the average man is the test of our democracy. The brains which, used in the science and engineering, give us the tools necessary to success have got to make progress in the more difficult art of managing human beings. And I have every faith that it will.

The success of the America, which has been the most hopeful experiment in human history, has been the result of freeing more and more people to think for themselves, building up more and more people to responsibility for themselves, dignifying the individual so that he has the will to be the captain of his soul and of his fate. In such a free country mankind slowly grades up, both in general capacity and in leadership. On the other hand, as freedom is circumscribed mankind tends to grade down and leadership to dwindle until it falls into the hands of a few people or a dictator. We are witnessing an industrial contest between two systems, one in which there is the responsibility to participate as free men under the multifarious leadership such a society builds up, and the other where men are ordered to participate under the leadership circumscribed by the limited thinking of a few. For those who have any faith in mankind there can be no doubt of the ultimate outcome. Nor can there be any doubt of the duty of American industry to demonstrate the values of a free civilization as well as to save it.