

CHAPTER 11

THE PROFESSION OF ENGINEERING

I cannot leave my profession without some general comment upon it. Within my lifetime it had been transformed from a trade into a profession. It was the American universities that took engineering away from rule-of-thumb surveyors, mechanics, and Cornish foremen and lifted it into the realm of application of science, wider learning in the humanities with the higher ethics of a profession ranking with law, medicine and the clergy. And our American profession had brought a transformation in another direction through the inclusion of administrative work as part of the engineer's job.

The European universities did not acknowledge engineering as a profession until long after America had done so. I took part in one of the debates at Oxford as to whether engineering should be included in its instruction. The major argument put forward by our side was the need of University setting and its cultural influences on the profession. We ventured to assert that not until Oxford and Cambridge recognized engineering as a profession equal to others would engineering secure its due quota of the best English brains, because able young men would always seek the professions held in the highest public esteem. I cited the fact that while various special technical colleges had been existent in England for a long time, yet there were more than a thousand American engineers of all breeds in the British Empire, occupying top positions.

Soon after the Oxford discussions, I returned to America. At my ship's table sat an English lady of great cultivation and a happy mind, who contributed much to the evanescent conversation on government, national customs, literature, art, industry, and whatnot. We were coming [p.132] up New York harbor at the final farewell breakfast, when she turned to me and said:

"I hope you will forgive my dreadful curiosity, but I should like awfully to know—what is your profession?"

I replied that I was an engineer. She emitted an involuntary exclamation, and "Why, I thought you were a gentleman!"

Hundreds of times students and parents have consulted me upon engineering compared with the other professions. My comment usually is: "Its training deals with the exact sciences. That sort of exactness makes for truth and conscience. It might be good for the world if more men had that sort of mental start in life even if they did not pursue the profession. But he who would enter these precincts as a life work must have a test taken of his imaginative faculties, for engineering without imagination sinks to a trade. And those who would enter here must for years abandon their white collars except for Sunday."

In the mining branch of the profession, those who follow the gods of engineering to that success marked by an office of one's own in a large city must be prepared to live for years on the outside borders of civilization; where beds are hard, where cold bites and heat burns, where dress-up clothes are a new pair of overalls, where there is little home life—not for weeks but for years—where often they must perform the menial labor necessary to keep soul and body together. Other branches of the profession mean years on the lower rungs of the ladder—shops, works, and power-houses—where again white collars are not a part of the engineer uniform. But the engineer learns through work with

his own hands not only the mind of the worker but the multitude of true gentlemen among them. On the other hand, men who love a fight with nature, who like to build and see their building grow, men who do not hold themselves above manual labor, men who have the moral courage to do these things soundly, some day will be able to move to town, wear white collars every day, and send out the youngsters to the lower rungs and the frontiers of industry.

It is a great profession. There is the fascination of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realization in stone or metal or energy. Then it brings jobs and homes to men. Then it elevates the standards of living [p.133] and adds to the comforts of life. That is the engineer's high privilege.

The great liability of the engineer compared to men of other professions is that his works are out in the open where all can see them. His acts, step by step, are in hard substance. He cannot bury his mistakes in the grave like the doctors. He cannot argue them into thin air or blame the judge like the lawyers. He cannot, like the architects, cover his failures with trees and vines. He cannot, like the politicians, screen his shortcomings by blaming his opponents and hope that the people will forget. The engineer simply cannot deny that he did it. If his works do not work, he is damned. That is the phantasmagoria that haunts his nights and dogs his days. He comes from the job at the end of the day resolved to calculate it again. He wakes in the night in a cold sweat and puts something on paper that looks silly in the morning. All day he shivers at the thought of the bugs which will inevitably appear to jolt its smooth consummation.

On the other hand, unlike the doctor his is not a life among the weak. Unlike the soldier, destruction is not his purpose. Unlike the lawyer, quarrels are not his daily bread. To the engineer falls the job of clothing the bare bones of science with life, comfort, and hope. No doubt as years go by people forget which engineer did it, even if they ever knew. Or some politician puts his name on it. Or they credit it to some promoter who used other people's money with which to finance it. But the engineer himself looks back at the unending stream of goodness which flows from his successes with satisfactions that few professions may know. And the verdict of his fellow professionals is all the accolade he wants.

With the industrial revolution and the advancement of engineers to the administration of industry as well as its technical direction, the governmental, economic and social impacts upon the engineers have steadily increased. Once, lawyers were the only professional men whose contacts with the problems of government led them on to positions of public responsibility. From the point of view of accuracy and intellectual honesty the more men of engineering background who become public officials, the better for representative government.

The engineer performs many public functions from which he gets [p.134] only philosophical satisfactions. Most people do not know it, but he is an economic and social force. Every time he discovers a new application of science, thereby creating a new industry, providing new jobs, adding to the standards of living, he also disturbs everything that is. New laws and regulations have to be made and new sorts of wickedness curbed. He is also the person who really corrects monopolies and redistributes national wealth.

Four hundred years ago Georgius Agricola wrote of my branch of the profession words as true today as they were then:

“Inasmuch as the chief callings are those of the moneylender, the soldier, the merchant, the farmer, and miner, I say, inasmuch as usury is odious, while the spoil cruelly captured from the possessions of the people innocent of wrong is wicked in the sight of God and man, and inasmuch as the calling of the miner excels in honor and dignity that of the merchant trading for lucre, while it is not less noble though far more profitable than agriculture, who can fail to realize that mining is a calling of peculiar dignity?”