

The Engineer and His Profession's Organization

By T. M. LINVILLE

Engineering as a profession has passed from its phase of private development into that of public development. Long since a profession to its practitioners, it is still in the process of being recognized by the public. The state laws on which public recognition is established are now being improved.

Originally the public could recognize engineers only through eminence—recognition given first by other engineers. But gradually all states and territories have set up boards of engineering examiners to recognize individuals as engineers and require that anyone offering engineering services publicly be examined and licensed. The examining boards, composed of eminent engineers, say in effect, "these individuals are engineers; they belong to the profession." Thus to the public the members of the engineering profession are the lawfully licensed engineers.

Growth of Engineering

As men applied the knowledge of nature's forces and materials to their uses, the engineering profession took root. And it grew as more men expanded that knowledge, taught it, and used it, especially when it concerned applied science.

For these activities, men established the engineering schools. They also formed the technical engineering societies to foster this learning and teaching and to facilitate engineering practice by agreement on codes and standards. A society naturally grew in each branch of engineering and each multiplied through offshoots as the branches enlarged. The engineers—keeping pace with the initiative of free business enterprise and with the teamwork of capital and labor—not only built the engineering profession but also helped build America as we know it today.

Today engineering projects itself into each home, and the health and safety of every citizen is dependent on it. Engineering-conscious citizens have been responsible for the licensing laws of all the states and territories. And on these laws the public profession of engineering established.

By their licensing laws, some states recognize the specialized branches of

engineering — electrical, mechanical, civil, chemical, and others. However, all states recognize only one whole profession—engineering.

Now that the public takes an interest in engineering as a profession, engineers are impelled to unite in a single professional organization to meet the responsibilities such recognition brings. It further interests them to join together to help the public properly recognize their profession and to help protect public health and safety.

The public is organized and represented by municipal, county, state, and federal governments; this suggests that the profession should be organized on the same plan. And because the public recognizes only licensed engineers, it would seem that they should comprise the organization.

The need for this kind of organization creates a problem. Engineers have naturally organized themselves by technological branches, focusing their attention on advancement of technology. The organization of each branch usually has technological subdivisions and geographical districts and sections. Work is done largely by appointed committees in the subdivisions, whereas administration is done jointly by elected representatives from each district and elected representatives from the organization as a whole—a scheme that has worked effectively. It has succeeded because technical organizations deal with engineering science rather than with human relations. These technical societies have neither the organization structure nor the unity that public recognition makes necessary.

Manager of Research Operation Services Department, Research Laboratory, Schenectady, Mr. Linville came to GE in 1926. He followed the Test Course and the Advanced Engineering Program with a varied experience in power system stability and apparatus engineering. More recently his work has concerned management problems and manpower development. In 1946 he received the Coffin Award. Mr. Linville is a Director of AIEE and President of the New York State Society of Professional Engineers.

The Individual vs Organization

When an organization is intended to regulate human relations, it is important to focus attention on some fundamental principles. Otherwise you may find yourself preaching one philosophy and practicing another. One kind of organization will focus on the individual person, the other on the group of persons—one is organization for freedom, the other for collectivism.

Jefferson said that all men are endowed with certain inalienable rights and that the only legitimate function of government—organization to regulate human affairs—is to safeguard those rights. These rights defined as "life, liberty, and the pursuit of happiness" suggest freedom to live; freedom to think and speak; and freedom to use and develop your interests, talents, and influence to the best of your ability.

A free society or a free profession organizes to restrain those who would trespass or strip freedom from its individuals. A minority of one is still important. Freedom "to" rather than freedom "from" is its essence. And freedom has no meaning except with respect to the individual.

Freedom for the individual and democracy in organization go hand in hand. You may ask about democracy in corporate industry where owners vote shares and employees work by agreement. But here the principles of democracy are not violated. Employer and employee work together by specific agreement. The principles of individual rights and democratic freedoms become vastly important when employees agree on a collective basis—through organization.

The professional engineer works by agreement with his client or employer, and his agreement is an individual one. For as long as he is doing professional work, his responsibility and relationship to his employer is as an individual in close contact.

Thus the place of the professional engineer with respect to labor and management is with management. He is first of all, of course, a professional man belonging to his profession. On the one hand, you may see evidence that some managements have stripped the en-

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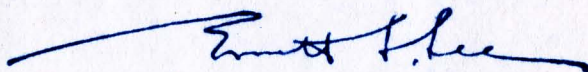
THE RESPONSIBILITY OF THE ENGINEER TO HIMSELF AND HIS PROFESSION

To his technical engineering society and to his professional engineering society each engineer carries a responsibility. How he develops in his engineering society life determines the strength of the engineering profession. Each engineer should thus . . .

- Be a member of the engineering society of his engineering branch and participate actively in its operations.
- Obtain his legal registration, or license, to practice engineering—a state function and an individual responsibility of each engineer.
- Having obtained his legal registration or license, join and participate actively in his state professional society, the majority providing membership in the National Society of Professional Engineers.

To better prepare himself for effective membership in both his technical and professional engineering societies, each engineering student in college should likewise . . .

- Join early and participate actively in his Student Branch and continue on into active membership in his engineering society after graduation.
- Plan in his senior year to take the initial examinations toward his legal registration, or license, in his state immediately after graduation. Passing these, he becomes eligible for engineer-in-training or junior member status in his state and national professional society. Later he can take his final examination for his license after acquiring sufficient experience, when he then becomes eligible to join his state society in active membership and in affiliation with the national society.



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gineer of his professional responsibilities. On the other hand, you may know of managements who depend on each engineer to stop production at once, partly or completely, if the product is not as intended. And they also depend on the engineers to say how the products will meet the needs of the customer or the market.

When engineers are not making intellectual engineering decisions, they are not doing the work of professional engineers. Good management does not group professionals and nonprofessionals together nor put professionals on nonprofessional work, because they differ so basically. Rather, it encourages engineers to mingle on a professional basis with managers and individual professional workers without distinguishing between them. This can be done by participating in technical societies.

This bit of sketchy philosophy suggests that the purpose of engineering organization in the human and public relations areas is educational. In other

words, it is the collection and dissemination of information for the guidance of engineers in their individual acts; the medium for exchange, discussion, and recording of ideas; and the collector, integrator, and communicator of engineer's opinions. In this way the standards of ethics, education, legislation, and public welfare and relations can be improved. Such a purpose can go a long way toward obtaining for all engineers the right to life, liberty, and the pursuit of happiness in their professional work.

Let's assume a single over-all professional society is founded on these principles. Because the functions of the organization are common to all branches of engineering, are focused on the individual's needs, and are closely related to his recognition, freedom, and welfare, membership should appeal to most of the 185,000 licensed engineers in the country. An equal number at least are qualified but not licensed, and the

appeal to join the professional ranks by becoming licensed should be strong. Membership would then be large; sheer numbers, as well as relations with the public, would require a decentralized organization paralleling civil government units. Too, the areas of interest would generally expand.

Concept of Organization's Structure

The single over-all professional organization emerging from this discussion is one having the following three fundamental characteristics . . .

- The field of interest and responsibility supporting human and public relations, and advancement of knowledge, teaching, and practice of engineering technology being reserved for the technical society in each special branch.
- An organization of licensed engineers, each having met the public's requirements and having thereby obtained the public's recognition as a member of the engineering profession.
- A decentralized organization of units paralleling those of civil government.

Thus the total organization picture for engineering consists of the technical societies and a large all-inclusive society of licensed engineers. Now, you may ask, "Why can't there be just one society with technical branches, one membership, and one bill for dues?"

In answer to this question, I believe each society should be autonomous. The technology of electrical engineering, for example, can best be developed by electrical engineers acting in such a society with concentration of interest and purpose. The money for developing electrical engineering should come directly from the pockets of individual electrical engineers, with no possibility of diversion for other purposes. Furthermore, functions joined together serve no purpose when they can best be performed separately without a hierarchy over them. This also applies to people who have no common interest and purpose. For example, only electrical engineers have the technology of electrical engineering as their common, foremost interest.

You may say that the technical societies do have interests in common because they have always been impelled to form a council. True, they need to communicate with one another and join forces on technical matters if several societies are simultaneously involved. Moreover, the very absence of recognition of a society to handle human and public

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relations compels them to unite in a council. And a liaison council will always be needed.

The mistake is substituting a federation of technical societies for the needed all-inclusive professional society. In the first place, the areas of interest of the technical societies are restricted constitutionally, with sharp focus on technology. The council can be no more than its constituent societies. In the second place, the decision of whether to establish the all-inclusive society should be one of individual choice and action. Provide the engineer with the alternatives; then by action rather than words he can choose between them of his own free will.

Developing Present Organization

Engineers now have the independent technical societies that they do or do not choose to join. They have a rapidly developing, independent all-inclusive society of licensed professional engineers that they can join provided they are or become licensed. They also have a federation, or council, of technical societies.

This federation would meet the engineer's needs, it seems to me, provided it established a component (society) charged with the human and public relations responsibilities and provided

this component has units paralleling those of civil government and has its own members. This needed organization exists independently with its membership restricted to licensed engineers.

This leads to two ultimate questions: 1) Should the technical and the all-inclusive societies be independent with separate bills for dues? 2) Should the all-inclusive society be restricted to licensed engineers?

My answer to the first question is yes. Independence affords the individual engineer an excellent opportunity to express his wishes. It's the best way, I believe, to determine how much money should be spent in each area and how the work should be done. Each independent society is directly and separately responsive to the engineers' individual interests. I am sure the bill for dues with equal work is no more with separate bills.

To the second question I also answer yes. Because public relations is the important purpose of the all-inclusive society, it should exclude engineers not recognized by the public—those not licensed.

Hence, I conclude that autonomous, independent technical societies as now exist are needed, that an independent all-inclusive society of licensed engineers is needed, and that a council of the independent societies for communi-

cation and co-ordination is also needed.

Fortunately all three of these organizations already exist, although they are not all fully developed. But confusion results because only less than half of the members recognized by the profession itself are presently recognized by the public. This alone explains why many engineers presently want an organization that does not exclude the unlicensed engineer or the nonprofessional affiliates of the technical societies. Nor does the council of technical societies yet recognize the human and public relations areas as a special domain for the existing all-inclusive society of licensed engineers. The latter position is natural because the all-inclusive society of licensed engineers is young, small, and not all-inclusive, and the council has not yet felt willing to leave such a domain to it. But the handling of this domain is the reason for existence of the society of licensed engineers. This situation, I'm sure, explains why the society and the council have not joined forces.

And so confusion exists. But the targets are becoming clearer, and the choices are open for individual engineers to act as they think right. Thus the organization of the profession promises to grow rapidly and soundly by developing the elements already established. Ω