

THE STATUS OF THE ENGINEER: HIS OBLIGATIONS AND HIS OPPORTUNITIES.

IN his address on Sept. 14th to the American Association of Engineers Professor F. H. Newell calls attention to the fact that the engineer is rapidly awakening to a realization of his duty to society in general, to his profession, and to himself in particular. He states that the quality which distinguishes the engineer as a professional man from his brother, the mechanic, is education. Also that the public must be educated to a better understanding of the service which the engineering profession can, and is, rendering, and the engineer must present his claims for recognition in such a way that they will be readily accessible to, and understood by, those not technically educated in engineering. For the lack of mutual relation and understanding the speaker shows the engineer to be, to a certain extent, to blame. This and other matters of similar importance are dealt with as indicated in the following abstract of Professor Newell's address:—

The present century is that of organization. The zeal for the study of efficiency, the demand for larger and more effective organizations, the value of preparedness, all of these are being forced on the attention of the thinking man; he is seeing as never before the need of organization and of sacrificing of some of his individuality in the interest of work for and with his neighbor.

What distinguishes an engineer? Before going further into details of this awakening, it may be wise to inquire what we mean when we speak of the engineer. It is a word in common use, but few of us can agree upon a definition.

The quality which distinguishes the engineer as a professional man from his brother, the mechanic, is education. The engineer is undoubtedly benefited if at the same time he is a good mechanic, although he may be a success even if he has little or no mechanical ability. To be an engineer in the true sense, he must have, however, that education which enables him to understand the true perspective of things, to know the big from the little, to obtain facts, and judge correctly from these.

Why should he serve? The education of the engineer, whether obtained through books or through things, has been largely at the expense of some other person—either society, the state, or his more immediate employers. It is safe to say that the great majority of engineers are indebted to some one for the opportunities which they enjoy; as a body they owe a duty to the state and to society as well as to their profession.

Ethics.—It is this recognition of duty which gives rise to the ethics of the engineering profession and which distinguishes the engineer as a professional man from the ordinary mechanic, who from lack of this education does not feel bound to the same degree by written or unwritten codes. These ethics are well recognized, although, like many other matters of common knowledge, they are often difficult of exact definition. We know when they have been violated, and yet may debate long as to the exact line between ethical and unethical conduct. The conception of engineering ethics is fundamental to the profession, and finds its highest expression in service.

Service to the public and to the engineering profession by means of service to the members, should be the motto of any organization of engineers.

What is this service which all should be eager to render and which is the fruition of years of training? What do we mean when we claim that the highest function of the engineer and his greatest reward is found in effective service? The word conveys the idea of help rendered to another, not as a favor involving an obligation, nor, on the other hand, as a matter of self-sacrifice. It is something which may be expected, though it cannot be demanded, and may be performed among equals. Service consists of those acts which tend to lessen trouble or increase the health, prosperity and convenience of others.

Engineers in performing service are by this very fact entitled to full recognition. Service implies a suitable reward, and, while the effort may be altruistic, it does not involve unnecessary self-denial. A proper remuneration, one assuring a good living, is due to the engineer. He who performs service rightfully does it with full expectation of reward, directly or indirectly, in the satisfaction of duty well done.

Among all the various occupations there is none which is more capable of leading in service to mankind and in realizing higher ideals than engineering. The engineer should be a man of vision—a missionary of light and progress. His life is devoted to careful, impartial measurement and weighing of facts. He cannot afford to be deceived or to mislead others on these facts; having ascertained them in their true proportion, it is then his business to idealize, to plan, and to use his ingenuity in devising methods for adding to the comfort and convenience of mankind, such, for example, as through better conditions of transportation, of communication, of heating, lighting, water supply, and of the things which tend to produce better health and longer life in the community.

Educating the Public.—In this work the engineer is far ahead of the public. The latter in many ways has not yet caught up with the growth of knowledge and does not appreciate the possibilities which are awaiting realization under the touch of the skilled engineer. The people as a whole do not as yet have the vision of better things which lie within their grasp and which can be called into being when ignorance is dispelled. Many a community is existing, or even declining, because it does not utilize the available water supply or have constructed the needed sewerage system. The more progressive people and the young men are leaving to go to localities where these better things are accomplished.

The public is not wholly to blame. The engineer in part is to a certain extent culpable. He has not fully felt the need of diffusion of information, except among his professional brothers. He has not taken the public into his confidence and explained in simple terms, in ways that would attract the public, the results already achieved, nor has he given these a setting or application such that the ordinary citizen and taxpayer can comprehend how this work affects him or how his condition may be improved.

Without attempting to discriminate very nicely between the different classes of men who may be considered as engineers, it is safe to assume that there are in North America over 100,000 men whom we would class as "engineers," outside of the purely mechanical occupations. Of these, over 40,000 are members of approximately 100 organizations. The greater part of this number is included in four great national societies. The hundred or more local engineering societies organized