OUTLOOK FOR GRADUATES

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Electrical engineering is peculiarly a profession of young men. There are few fields of human endeavor in which so many of the greatest names are borne by men who have not yet passed the climax of their powers. The reason for this state is found in the extreme youth of the profession, as its history extends back but little more than thirty years. It is a natural inference that a profession so vigorous and virile affords the graduate exceptional opportunities, some of which have no precise counterpart in the older fields of engineering. Electrical engineering is not overcrowded, in America at least, and it is a field less easy of access than many others. The intelligent artisan can master much of its empirical data but finds its precise scientific foundation a difficult barrier to professional standing. Such a barrier is not insuperable, but it is none the less true that few men enter the profession from the ranks of skilled labor. In no other branch of engineering is the highest grade of professional education at so great a premium, though the prospective electrical engineer at graduation has acquired relatively less of the practical data of his profession than the men of other courses. Furthemore, the graduate finds much of the more highly specialized theory of the profession still before him, stimulating the continuance of the habit of study as a means of progress.

It is frequently the case that graduates in electrical engineering at the outset are called upon to perform more menial tasks and receive smaller salaries than their classmates of other courses. In soem cases it amounts to a disillusionment to discover that one has little information immediately convertible into cash. On the other side of the case, however, are the possibilities of more prompt individual recognition in a rapidly developing field whose processes and standards have not yet settled into a traditional mold. The professional outlook for young men is therefore promising.

Successful engineers have reached the general concensus of opinion that two years of apprenticeship training afford the average graduate the best initiation to the profession. Much of the service required is doubtless below the graduate's highest abilities, the hours of labor are long, night work is often required and the associations of the shop differ from those of the chapter house and social club to an extent not always agreeable. The work, however, is usually carefully planned and the apprentice passes from department to department in rotation with a long enough time in each to afford an intimacy with the essentials. In the process the young engineer learns to fit himself efficiently into a great organization. He develops the indispensable capacity for co-operation with other men of all ranks and stations. In many of his problems the most important tools of the engineer are men, and a knowledge of their characteristics will still be indispensable when the calculus is rusty and precision of measurement forgotten with the formal rules of grammar. Many students anticipate a good portion of their apprenticeship by work during vacations, the gain in some cases being as great as a year.

Given the proposition that apprenticeship is necessary in the average case and, to some extent, desirable in every case, there remains the problem of determining where it may best be undertaken. As a rule the graduate who is in doubt as to the particular phase of electrical engineering which he wishes to pursue will do not amiss to enter the employ of one of the large manufacturing companies if the opportunity is open. He will thus gain intimate knowledge of many aspects of engineering which will guide him to his individual opportunity. To the man whose future work is to be the designing, construction, selling of, erection of electrical machinery this type of shop apprenticeship is wellnigh indispensable.

Many engineers have found the shop course an excellent foundation for the requirements of central station and electric railway practice. In recent years some of the larger operating companies have provided special training courses which give a more direct introduction to their special problems, methods and forms of organization.

Illuminating engineering is at present a peculiarly attractive field because of its recent recognition and the present rate of its development. An association of the leading lamp manufacturing companies offers to graduates an excellent course of training which fits them for responsible positions in the research, commercial and technical departments of the several member compaines and with the central stations with whom they have close relations. The illuminating engineer is a valuable adjunct to the contract department of a large central station company. Graduates frequently enter this field as solicitors for new lighting business with good success.

It has been said that the telephone engineer is more kinds of an engineer than any other sort of man. Telephony is the most rapidly growing semi-public industry of the day and this growth involves many broad and exacting technical problems. In its artisanship telephony is largely a matter of refined detail, but its engineering proglems demand exceptional breadth of view and afford most attractive opportunities to well-qualified men. The important man-offer well-planned courses of training in the essentials of telehpone engineering and can generally accommodate as many graduates as desire to enter upon such work.

The work of teaching is always attractive to a small percentage of engineering graduates. Some enter upon it as a permanent profession, renouncing the expectation of large financial gain for the sake of primary rewards not to be measured by commercial standards. Other seek teaching position for a brief period to gain the admirable review of fundamentals and the cleared perspective of the various aspects of engineering thus afforded. In either case a position which provides the opportunity to pursue graduate study and research should be sought by the beginner in preference to one whose chief attraction is a large salary. One or two years of graduate study, with or without teaching duties, will generally prove an excellent investment to men of initiative and ability.

Whatever avenue of approach to the profession the graduate may select, the present year should be a peculiarly favorable one in which to begin a career. The present rate of increase in the volume of business and the development of electrical enterprises is epoch-making. Although the demand for the Institute's product has ever exceeded the supply, the present year bids fair to establish a new record. No graduate need fail of success with the plea that he was not wanted.

In conclusion, it may be of interest to note that 720 men have been graduated from Course VI in the twenty-five years of its history. The standard of attainment set by these men has been admirable. Many have attained great eminence, enriching the profession by their researches and experience and reflecting no small honor upon the Institute and upon their course.

COURSE RELATIONS

(Continued from page 52.)

many cases be useful, but it must be clearly understood that a knowledge of facts alone is not sufficient to give an engineer that breadth of view by means of which he may intelligently consider all features of a problem. Thus, detailed information should be regarded of value, not so much for itself, as in illustration of the fundamental principles; for a sound knowledge of fundamental principles can alone furnish a basis for the intelligent interpretation of the performance of electrical machinery.

A very great advantage of sound training in the fundamentals of electricity for students of other sciences is to be found, as Dr. Steinmetz has pointed out, in showing "the close relations that exist between all branches of science no matter how different they appear at first sight."