water. This renders it imperative for them to have in their employ one or more men who are competent to solve these engineering problems for them, and they cannot afford to do without the services of such men, as the margin of profit is too small for them to take the risk of failure, due to running their establishment in an uneconomical or inefficient manner.

The nature of the machinery to be dealt with will be more or less special, according to the nature of the goods manufactured; but, in any case, such a man, if he is to meet with success, must be well grounded in the fundamental principles of engineering, as otherwise he is likely to be a source of expense rather than a source of profit to his employers.

He must be familiar with the principles of mechanism, with the strength of materials, with the thermodynamics of the steam-engine, and the ways of obtaining economy in the steam-plant, and in most cases in the principles of hydraulics and hydraulic motors, all of which may be called the fundamentals of all engineering, and in order to acquire these, he must, of course, possess a familiarity with mathematics, and physics.

Moreover, whether a man designate his profession by the general title mechanical engineering, or by some one of the more special titles referred to, he must be primarily an engineer, and those men who are not versed in the fundamentals of engineering are finding fewer and fewer chances every day. Hence it follows that the greater part of Course II. is devoted to as thorough a study as possible of the fundamentals mentioned, and the later portion of the work of the Course deals with the development and the application of these fundamentals in the directions most needed by an engineer who is liable to be called upon to perform such duties as pertain to the mechanical engineer of an industrial establishment.

Thus the drawing is machine drawing, there is a course in machine design, the laboratory work gives practice in making a great variety of tests of steam-plants, of water, or of other machinery. The shop work bears of course upon the side of machinery, and also the three options of marine, locomotive, and mill engineering deal more directly with practical engineering problems.

As to the class of work which a graduate of Course II. will be likely to be called upon to perform after graduation, it may be said that the two most natural places for starting in his life work, are either in the draughting room or in the shop of some industrial establishment, and that in these places he can gain experience, which is necessary for his professional success, and which cannot be given him in any school. How fast, and how far he advances will depend on many circumstances, but mainly upon himself, upon his own energy, judgment, intelligence, and industry; and, when he does advance, he will find that he is most fortunate who has not merely a certain routine work to perform, but who is called upon to solve problems by which the economy or efficiency of the work can be improved, and he ought to grasp every such opportunity with alacrity, even if it does require him to work extra hours.

As to the variety of establishments in which he may find employment, perhaps the best idea can be gained from the list of graduates and their occupations, in the catalogue. I may mention here, marine engine works, locomotive works, manufacturing establishments of all sorts, the motive power, or test departments of railroads, and a great variety of establishments where industrial pursuits are followed.

Before closing however, a few words will be said in regard to the choice of Courses by the Freshmen:

1. Do not raise the question as to which Course affords the best chances for making money; for by the time of your graduation conditions may have changed, and you may find yourself disappointed if your choice has been made upon this basis.

2. Do not choose a certain Course because your friend Tom is to take that Course, as you