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Title:	The Young Mechanical Engineer
Creators:	Beitler, S. R.
Issue Date:	Nov-1929
Publisher:	Ohio State University, College of Engineering
Citation:	Ohio State Engineer, vol. 13, no. 2 (November, 1929), 20.
URI:	http://hdl.handle.net/1811/34632
Appears in Collections:	Ohio State Engineer: Volume 13, no. 2 (November, 1929)

THE YOUNG MECHANICAL ENGINEER

By S. R. BEITLER, '20
Department of Mechanical Engineering

What is a mechanical engineer? What will he do after he graduates? Is he a mechanical engineer after he has been graduated from college? No!

He is still far from being a true mechanical engineer. He has studied the principles which control the actions of matter and has worked some academic problems which give him the method of attack for the same sort of problems in actuality, but he has not yet been up against the real thing. He has spent long tiresome hours on these problems, and on the mastering of principles and more long and tiresome hours in laboratories and in preparing reports for these laboratories. He has found that compared to the students in some of the other colleges, his hours have been longer, his work harder, and he has not had so much time for other university activities. But he has also found that this work has given him a knowledge of how to work, and that if he is any good at all that his services are very much in demand.

During the last six or eight months of his college career, he has found that he has some important decisions, as to his life work, to make all over again. About this time he finds that he must choose a job for his life work. And such a variety of positions as are offered to some of the graduates. Some are with small companies and some with large ones. Some are highly technical places in research or design, some are semi-technical in production and manufacturing and some are selling positions requiring only a technical background. The range of products and operations represented by these positions open is almost unlimited. They may be with manufacturers, and a few of the products produced by these are rubber, automobiles, boilers, furnaces, engines, turbines, telephones, electrical equipment, airplanes, metering equipment, ball and roller bearings, etc. Or, they may be with some company producing power or gas, or both, where the demand for engineers is extremely large. Or, it may be helping to operate the network of telephones over the country. There are many other types of work which might be mentioned but I think that even those named will show that the choice is almost unlimited. These positions may be located at or near the graduates' homes, or may be at the far corners of the globe.

Some of the graduates are fortunate in that they have been studying for a certain definite job. They made this decision years before. But the average graduate is not so situated and must decide it now. However, the factors which enter into making a decision must be weighed, for each graduate should enter the job which seems to suit him best.

When he has made his decision, he finds that he is a freshman all over again. He is starting off at the bottom in an organization doing work about which he knows very little, for it is impossible to teach in four years any of the specialized knowledge that is required for any particular job. When you consider all of the different kinds of work into which a graduate mechanical engineer can enter and the different types of jobs available in each kind of work, it can readily be seen that it would be impossible to train for any particular job.

If he has decided to go with some large company, he will probably be started in in some sort of a training course. For as most of the big companies expect to get their sales and manufacturing executives from the ranks of their engineering employees, the young man just starting in must have a general knowledge of the whole organization in addition to the specialized knowledge for any particular job.

In the smaller company he will probably be started in on his particular work right away. He may, however, start at the bottom, possible under somebody who has been in school with him, but who went to work instead of going to college. But, if he has spent his time profitably in school, he will find that the problems which he runs into are a great deal like the problms which he has solved in school and that the methods of attack which he has learned enable him to solve these problems very rapidly. If he sticks to his work he will find that before long he is given more and more responsibility and more and more power until after a few years he can feel that he knows exactly what to do in the case of any particular problem and is willing to accept the responsibility for this solution. This may be a question as to whether a certain machine is strong enough, or not, and then the lives of hundreds of people may hang on the decision. It may be a question of the choice of equipment which means profit or loss of millions of dollars. It may be of some very minor question of design or policy. When he is ready to settle these things unhesitatingly, and to accept fully the responsibility for the solution, then he is a real "mechanical engineer."