

## The Knowledge Bank at The Ohio State University

### Ohio State Engineer

**Title:** The Trend of the Education of an Engineer

**Issue Date:** 1943-05

**Publisher:** Ohio State University, College of Engineering

**Citation:** Ohio State Engineer, vol. 26, no. 6 (May, 1943), 24.

**URI:** <http://hdl.handle.net/1811/35962>

# The Trend of the Education of an Engineer

Editorial

The construction of military aids was the primary function of engineering when it was in its infancy. In the main, this consisted of the transportation of military supplies and building military roads, bridges, and fortifications.

Civilian uses for engineering arose which caused a branch of engineering, called civil engineering, to develop. The name was chosen to differentiate between military engineering and engineering for civilian work. Again, it was concerned mostly with structures and transportation. As the engineering tree grew it sprouted more and more branches.

As engineering became more and more diversified the schools simply added subject after subject to their curricula. As the curriculum became more extensive many of the subjects of a cultural nature were crowded from the program. Finally, even the dropping of subjects afforded no relief for the student in this "factual" curriculum. The solution proposed was to separate the trade or technical school from the engineering aspect of the technological system.

Instruction in theory of the various branches of engineering and training in the manual skills required by industry were included in the original technological school curricula. As a result a great deal of instruction verged on apprentice training. However, this was necessary since there was no other place where this essential training could be secured.

With the divorce of the technical school from the technological school and the establishment of training programs for their employees by large manufacturing concerns, the engineering school was relieved of the need to give training in the manual arts. Thus, the technological school turned its attention to the intellectual approach to engineering problems rather than knowledge of routine skilled operations. So the engineer became separate from the technician.

The separation came when technological schools began giving the student training in the fundamental aspects of his subject instead of exposing the prospective engineer to each old and new development in his field and solving each separate situation that might confront an individual in his profession.

As a result, in the last two decades, engineering curricula have tended to become simpler with more emphasis on fundamentals such as chemistry, mathematics and physics. In addition to the foundation in sciences, the fundamental aspects of engineering are taught. These fundamentals

stress the method of approach to a typical engineering problem rather than the solution of a special case of some industrial process. Cascaded on this ground work is the curriculum of the senior year. Here the student selects a special field in which he is interested and applies the fundamentals he has learned to typical problems in his field.

Consequently, most engineering graduates do not have practice in every type of engineering problems. However, they do have the best possible training in fundamental theory and basic engineering approaches to the problems that are encountered.

This design for an engineering education has proved very successful thus far. That industry approves of this plan is demonstrated by the number of training programs for graduate engineers that manufacturing concerns have instituted.

Since during the war period the armed forces are demanding technicians, many colleges and universities are having to modify their curricula for the duration. With the return to normal will be the return of the "fundamental concepts" engineering.