

**The Knowledge Bank at The Ohio State University**

**Ohio State Engineer**

**Title:** Two Cents from the Editor

**Issue Date:** 1940-03

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

**Citation:** Ohio State Engineer, vol. 23, no. 4 (March, 1940), 20.

**URI:** <http://hdl.handle.net/1811/35691>

# TWO CENTS *from* the Editor



You may have wondered how this editorship changes hands. The following is a paper written by the present editor in pursuit of the office:

## A NECESSARY ADDITION TO EVERY ENGINEERING CURRICULUM

Time, to most of us, is an overworked alibi. There is, however, one important place where the alibi angle is absolutely correct. It is generally conceded that a fundamental and necessary addition to any engineering curriculum would be an additional year.

There are several notorious faults in most newly graduated engineers. No one doubts that they have had certain valuable courses, but in general, no one doubts, either, that it will take several years for the man to arrive at the state of mind where he and his knowledge are useful. Not only that, but it is entirely possible for a man to graduate without knowing just what an engineer does. Another fault, almost universal, is in the man's sense of values. The student knows the relative efficiencies of various kinds of equipment, and naturally has too many ideas about automatic machinery, boiler feed pumps, and similar things, where sometimes it is better to use less efficient devices because they are cheaper even in the long run.

It seems to me that an additional year of intelligent instruction would have a good effect. The idea would be to cover the same ground, but more thoroughly. Instead of giving the man more theory, one would approximate more closely the work done in practice. By this I do not mean the construction of a kindergarten "choo-choo" train, but that the student should see more parts, how they are built, why one is cheaper than another, and from these things get a good idea of how industry works and what the proper point of view is. Instead of trying to build a perfect machine, he will get the idea of one that wastes a little energy, but makes up for it by costing less. Instead of revolutionary principles, he will expound improvements, knowing that revolutions are not daily occurrences in engineering. Everyone has a bit of the spectacular lurking in the back of his mind, so we needn't worry about losing our creative or inventive genius, whereas if someone thinks that the new and different is the basis of all engineering, he may run amuck.

I realize that today's progressive educators are not in accord at this point, but I contend that there is too much unhampered theory around loose for students to absorb partially as they do and then think about as they do. Neglecting friction in certain kinds of problems in mechanics is all right, until someone wants to use cast iron pistons in a gasoline engine because they act like a flywheel, among their other advantages. Worth while thinking, guided, about things that have worked in the past and things that haven't, and why, is far more likely to end in a successful innovation than any hair brained schemes which ignore past experience.

A little more time to ask questions and think about actual conditions would at least partially solve this situation. Instead of rushing madly to absorb as much theory as possible, a student could let such theory soak a bit; he could mull it about in his mind, watching it work, and get himself acquainted with the way it affects him. He could get an idea of what type of work engineering is. He could believe that aeronautical engineers do not fly airplanes around, and that most air conditioning is planned out of standard equipment, which does not have to be designed anew for every installation.

But above all these things, he would not have such awe before what knowledge he has. Instead of trying to tell people how much he knows, he would know that most of his co-workers already knew it, and that's why someone was able to teach him in college. He would learn to keep his eyes and ears open for knowledge from those around him, instead of trying to impress them. He would have some of that valuable respect for the old school, instead of ignorant conceited ideas about how much he knows.

When a student is rushed to hurriedly cram some facts to pass an exam, he is far more likely to consider them astounding than if he gets a good chance to reason out why they should be as simple as they are.

I think a five-year course is necessary in engineering because it would give the student the chance to gather his facts and reasoning about him, and coordinate them with what he intends to do, giving him an open mind ready to learn and think. That is what makes an engineer.

H.W.E.