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Some Thoughts For Undergraduates

E. A. HITCHCOCK

To you undergraduate engineers, for whom this little article is intended as a greeting, seven years may seem a long time. To the writer, however, the past seven years, for reasons that you will come to recognize and understand more fully after graduation, and after serving for several years in the engineering profession, have been very short ones.

As I returned to Ohio State University on the morning of July 19, after seven years absence, to become once more a unit in the leading educational industry of Ohio, and passed through the Neil Avenue gateway to the campus I looked, quite naturally, first for the changes which had taken place. There were some new buildings; Mirror Lake was undergoing a transformation; there were many new walks. With the exception of some stalwart trees that had formerly guarded the spring, the trees were all still there. The grass under foot was just as green and fresh, and the sky over head was the same beautiful blue that it was in those other years. Within the engineering instructional force, there were many members who were here seven years before, unchanged in their enthusiasm and in their love for their work, and in their desire to so guide the engineering student that he will become a credit to himself and an asset to his institution, to his state, and to his country.

Ye these seven years had brought changes—other changes besides new faces in the instructional and administrative forces of the university. The greatest probably and the most important was that several thousand young men and women have gone out of Ohio State to be a part of that large and useful company whose primary purpose is and always should be to serve humanity. The field of that service or the direction that it takes does not matter. It may be medicine, journalism, engineering.

The undergraduate engineer, as he equips himself in college to serve, may profit by the deficiencies of those who have graduated and are now in the engineering game in earnest. In the undergraduate days, therefore, there are a few factors which the engineering student should take seriously and act upon if he is to avoid the mud holes and hummocks on his engineering highway. The first of the factors is attention to accuracy. In college, it is such a simple matter to make a little arithmetical mistake. "Only a slight mistake in addition or subtraction—the principle was all right," is the way the student often puts it. Neglecting to divide by two or brushing that old decimal point to the right or left is, of course, a very small matter. In itself, the "slip" is small. In the practice of engineering, however, this small "slip" may be a very serious matter that will cost many thousands of dollars and will ruin a professional reputation. But the engineer should be accurate now in college. He should not leave his training in this important factor until after

graduation. Inaccuracy might cost him his opportunity in life.

Secondly, the engineer should remember the engineering fundamentals, that is the underlying principles of mathematics, English, physics and chemistry. In the great game of football, the ball itself is a main factor. Much of the time it is down—covered up, apparently insignificant. Yet when it is pushed over the goal, it means something; when it is kicked over, it counts for something. Indeed, in playing football, it is important to keep the ball in sight and not forget it. The fundamentals of engineering are often covered by the mass of other matter that is learned. They, however, are there just the same. If the engineer loses sight of them, he is sure to lose. He must, therefore, hang on to them, shove them, push them, kick them when necessary if he wins. Sometimes it takes a long, long time to recover a "slip," or a "fumble" in fundamentals.

Thirdly, the engineer must know the English language and how to use it if he is to advance in his profession. He must express his ideas correctly, accurately and concisely both in speaking and in writing. He must bear in mind to whom he is talking, to whom he is writing a letter or a report and make his language fit the case. This adaptation of language to the particular case requires skill, but it is worth the time and the energy that the engineer may invest to acquire this power in English.

Fourthly, the engineer should have a definite purpose that will hold him to the particular course which he has selected. A great many engineering students upon entering the university have some difficulty in deciding the college they will enter; later on, the special course that they will take; then after graduation, the particular kind of work that they will follow. Happy and fortunate is that student in whose mind there linger few doubts and questions as to their fitness for the work they have chosen, and as to the possibilities of that work bringing them the durable satisfaction of life. Those who have found themselves as to college and course, one would strongly urge to select their particular field during the junior year, if possible; to concentrate upon it as much as time will permit; then at graduation, to enter for further training and experience their particular field. Under no circumstances should they yield to the temptation to go into some other field which at first seems to offer greater monetary inducements than that of the chosen field.

The engineering profession today and in the future has and will have an important place for every graduate engineer who is accurate; who does not lose his fundamentals; who will get, hold and use properly and powerfully the English language; who will form early a definiteness of purpose and stick to it, because he likes his work; who will always show consideration for his colleagues and his associates no matter what their station in life.