What kind of an Engineer are YOU?

CIVIL?

Now that special branches of the profession have developed, what is the field of service of the man now known as a civil engineer? It remains a very wide one. While civil engineering is not directly concerned, for example, with the designing of machines or the operation of mining or chemical processes, it has to do with the provision of the foundations for machines and with the structures that house them. Roads, tracks, and bridges for transportation; dams, tunnels, and pipe lines feeding the turbines of water power plants; reservoirs, tanks and distribution systems for water supplies — all the static or stationary structures involved in modern engineering are in the field of the civil engineer.

His work covers all that may be included in the term "structural engineering", not only the design of structures and their foundations, but also their construction. In order to appraise a proposal or to locate the works to be built, surveying is necessary and forms part of the training of every civil engineer. Good maps and charts are essential for many purposes and they are the work of civil engineers and land surveyors.

Municipal engineering is a division of civil engineering, the provision of adequate water, sewerage and highway systems being essential to city life. City management is a special outgrowth of municipal engineering, the broad training of civil engineers fitting many for work of this kind. Correspondingly, in Canada and other parts of the world, irrigation projects are directed by civil engineers, and many great works have been built for this purpose, of which the Boulder Dam is an outstanding example.

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ELECTRICAL?

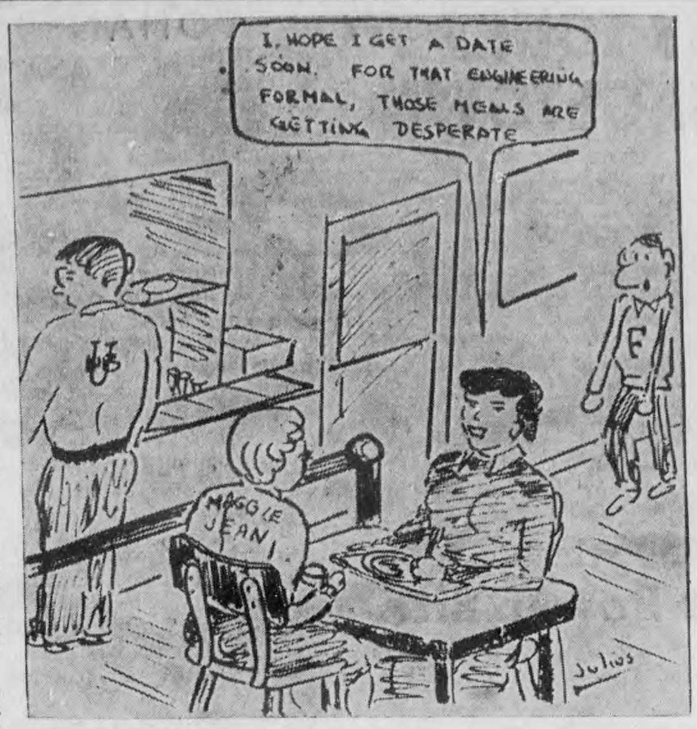
Electricity has become a dynamic and vital part of all phases of life, in the factory, in the home, in transportation. Although electrical phenomena have been known for hundreds of years, the commercial use of electricity dates back to 1831, when Faraday demonstrated the first dynamo. Since then, the telegraph, electric light, and radio have followed in rapid succession until today the applications of the electrical principles are practically limitless.

Electrical engineering can be divided into four branches: electrical equipment manufacturing, light and power, communication and electronics. The electrical engineer engaged in equipment manufacture may aid in the design and manufacture of motors, radios, household electrical equipment, etc. The field of light and power includes the design and operation of power generation and utility plants. Communication engineers are concerned with research and development, and the problems affecting the fields of radio, telegraph, and telephone. Electronics generally includes special applications of electrical principles involved in radar, television photoemmission, and countless other devices of importance to industry.

Regardless of the electrical engineering field he enters, the electrical engineer must combine several phases of science in his work. The application of the electrical phenomena requires a working knowledge of algebra, calculus, and trigonometry in designing motors, communication equipment, electrical devices, and electric power distribution systems. He must often use this theoretical knowledge of mechanics, heat, light or acoustics in practical knowledge application of such devices as illumination systems, transformers, public address systems, and electrical power driven machinery.

Over one-fourth of electrical engineers are employed by manufacturers of electrical equipment; twenty per cent are engaged in communications; and seventeen in power generation and public utilities.

Because of the broad range of electrical engineering, the new entrant in the profession will probably spend one or two years in a training program conducted by the concern employing him, during which time he will be expected to become familiar with the various applications of the electrical principles in the plant, and the plants



equipment. With additional experience, he may achieve a position in management or research.

Government agencies predict that the use of electrical power will double in the next decade. Morover, new applications or radar, the expansion of ultra-high-frequency carrier systems and to television, and the development of other new uses of electrical principles in industry and communications indicate a steady expansion of the profession which should provide many new areas of electrical engineering in the next decade.

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MECHANICAL?

Many years ago, one of our ancestors probably discovered that crude wheels attached to an axle relieved him of the task of carrying his food, water, and fuel on his back. Perhaps when his cart became mired in the prehistoric slime, he cut a long pole, braced it against the wheels, and pried them loose. It is not inconceivable to suggest that, in employing the basic principles of the wheel and the lever, some enterprising primative man became the first mechanical engineer. For many centuries, man's knowledge of mechanical principles was so limited that no specialists were required to apply them. But, the industrial revolution, accelerated by the invention and application of many new types of machinery, created a need of men whose training and experience qualified them to design and construct new machines.

In general, mechanical engineers design and supervise the operation or manufacture of machines for producing, transmitting, or using power. Power generating machines include steam, internal combustion, and hydraulic engines. Transmission equipment includes conveyers, gears, shafting, and heat transfer equipment. Machines that use power include lathes, fans, industrial furnaces, automobiles, lcomotives and countless other machines which are indispensable to factory, home and office.

Mechanical engineers find employment chiefly in industries which process iron and steel, and which manufacture machinery and transportation equipment. They may do research into methods of producing basic metals, or they may plan, design or supervise the construction of drill presses, gasoline engines, jet engines, washing machines, refrigeration equipment, machine tools, etc.

The engineers first job usually resembles a professional apprenticeship in which he gets practical experience and learns to apply his theoretical knowledge. Mechanical engineers frequently work at a factory production job or in the drafting department. Later promotions may lead to positions as assistant engineers, designers, superintendents, managers, or chief engineers. Many mechanical engineers who possess exceptional ability occupy executive positions.

Mechanical engineers constitute the largest professional group in the U.S.; they number about 130,000.

The prospective mechanical engineer can look forward to excellent employment opportunities in the field of his choice.

Are You Prepared?

Has the average graduate engineer the preparation required to enter industry, and be worthy of his degree? Has he had the opportunity for adequate preparation through the university? Does his passing exams give him the right to feel prepared? Whose fault is it if he is not prepared? Whose loss is it if he is not prepared? (a) His (b) Industry's (c) or the university's?

The average engineer graduating from this faculty is expected to have a basic knowledge of engineering fundamentals plus enough practical experience in the field so that he can integrate himself into industry quickly.

In most cases it can be safely stated that:—the student does not know what phase of industry he is interested in until he is in his graduating year or later; he has not gained any practical experience in any particular industry; his knowledge of engineering principles is not gained for application reasons entirely, but rather in order to pass examinations; his applications of these fundamentals in labs is not usually done to his advantage; he does not make good use of the professors and lecturers, the brains of whom he is paying $600 a year to pick.

The practical experience system used in Canada is probably not as effective as the apprenticeship system of Great Britain becase experience seldom gained along desirable and advantageous lines here, whereas in the U.K. the engineer has two years to get oriented before professional demands are made on him.

The engineer loses because he is not prepared to carry out the function required of him by the firm. Many young engineers are disliked by people who must co-operate with them because they are put in a position where their administrative authority is not backed up by the kind of technical knowledge that can only be gained through experience.

The firm loses because engineers are in high demand and the company must pay high wages to a graduate while he undergoes an extensive training program.

For both these preceding reasons a bad taste would reflect back on the University.

It would be advisable for larger companies to send their personnel men to the University to interview the freshmen, offering summer training programs and possibilities for jobs after graduation. It would be much less expensive to train, or lose, an undergraduate trainee than a graduate one. The student's incentive would increase and the failure rate would probably drop.

—(Reprinted from "Toike Oike")

LETTERS TO THE EDITOR

(Continued From Page 2)

people, who, unCanadian-like, had **not** organized themselves, maintaining their place on the campus none the less.

The faculty of arts has now degraded itself to an organization with many sub-committees I hope, writing letters in a style (judging from that note), they would expect from their fellow-campus organizations, such as Forestry association and Engineering Society.

A great pity! A pedestal constructed by a great many earnest artsmen over many years has been destroyed by a direct blow from from within their own group, in an attempt to organize, as everything apparently has to be organized. Individuality is no virtue anymore, it seems.

I sincerely hope I do not stand alone in my regret. My last and final hope is that the science people, who feel in that direction will be able to restrain their organizational urges and refrain from erecting an unnecessary counterbalance to the now existing illustrious groups.

Gino Blink
Science

Dear Editor,

The Students' Representative Council has a deficit of $508.81 in its Spring Budget. Tonight the members of the SRC and a few concerned students who are interested in how their $17.00 SRC fee is spent will meet in the Oak Room of the Student Centre to complete the Spring Budgets.

This Spring the SRC has a disposable income of $1282.77 more than last Spring yet the budgets total $508.81 more than the funds available. The figures above do not include the $600.00 loan to the Winter Carnival. This deficit will have to be cut at the meeting tonight.

I sincerely hope many of our fellow students will take the opportunity presented tonight to show an interest in their money and in the student government of UNB. It is true that only our elected representatives have a vote but the students have the freedom to express their opinions in the meeting and to advise their representatives on any matter.

Yours truly,
Jim McKenzie
Treasurer SRC

Fictionary Dictionary

BACHELOR: A man who never makes the same mistake once, or one who falls into a woman's arms without falling.

BACTERIA: The rear of a cafeteria.

BAD ACTOR: A man who is egged on by ambition and egged off by the audience.

BEET: A potato with high blood pressure.

BLOTTER: Something you look for while the ink dries.

BOY: Like a canoe; he's handled more easily if paddled in the rear.

BRIDE: Hit or miss proposition. If you don't make a hit you remain a miss.

COLD CASH: So called because few of us can keep it long enough to warm it up.

COLLECTION: Church function in which many take no more than passing interest.

COURTSHIP: Period in which the girl looks around to decide whether she can do any better.