

U. N.B. AUXILIARY POWER PLANT NEARS COMPLETION

Engineering at U.N.B. 1862-1943

For years now U.N.B. has been training engineers to build the railways, power developments and all types of structures of the modern world. U.N.B. Engineers are recognised as competent men wherever they go, and are accepted to study post graduate work at M.I.T. without examination, a thing that few other men may do.

Let us see where and when these Engineering courses originated, how they have grown through the years, and what the plans are for the future.

When the original College of New Brunswick received its charter on Feb. 12, 1800, probably no one even thought of having courses in applied science, or for that matter, in pure science. Of course the prime objective of the founders was to create an institution which would tend to preserve culture in the virtual wilderness that New Brunswick then was. There was very little use at that time, in this country for scientists and engineers and so, quite reasonably, no effort was made to train them.

When the original college had surrendered its charter and King's College was officially instituted on New Years Day 1820 there were still no traces of Engineering courses. However, interest was evidently growing because in 1857 a committee, reporting on University affairs recommended that courses in Civil Engineering and Surveying be given. After King's College had grown into the University of New Brunswick in 1859 progress began to be made although it was very slow for the first three decades. In 1862 U.N.B. turned out her first Engineer. Any one who is interested may go to the library and see the original diploma granted to H. G. C. Ketchum on June 5, 1862, after he had studied Engineering at U.N.B. The document is signed by Dr. Brydone Jack who was then Chancellor of the college and who was instrumental in bringing Engineering to U.N.B. Mr. Ketchum established a name for himself in railway construction in Eastern Canada and Brazil. He devoted a large part of his life to the task of building a railway across the Isthmus of Chignecto to carry small ships from the head of Fundy to Northumberland Str. This work was three quarters complete when it was stopped for financial reasons and was never resumed. Mr. Ketchum, who was the grandfather of Mrs. John Stephens, left us the Ketchum silver medal which, since 1897, has gone to the Senior Civil Engineer who stands highest in his class.

There were few if any more of these diplomas granted by U.N.B. until, in 1889, the same year that the first woman graduated from our college, the first regular Engineer-

ing professors were appointed to the University. Prof. Allan W. Strong M.A. took the chair of Civil Engineering and Surveying and A. W. Duff became first professor of Experimental Science and Physics.

Soon after this, equipment began to accumulate, coming in from different sources. In '91 Mr. Duff was authorized to purchase \$1,000 worth of Electrical equipment. In '93 the professorship of Physics and Electrical Engineering was taken over by George M. Downing and the Electrical Dep't was granted the use of the dynamos, motors, lines etc. of the Fredericton Electric Lighting Company. At that time the Electrical course was quite complete, including preparation of a thesis; but only a diploma was granted at completion of the course and the Physics and Electrical Departments were combined under one professor.

Between 1889 and 1898 several civil and electrical students left U.N.B. with diplomas and during this time there were numerous articles appeared in the "University Monthly", written by Engineering Students which show that the Engineer was beginning to take his place on the campus.

Some of these articles are very interesting and enlightening and show that the early students took a great interest in their work.

The first degree in Engineering was conferred on P. H. Smith in 1899. He did not receive the B.Sc. in Engineering which is now conferred, but the B.A.L. U.N.B. was the only institution in America giving the B.A.L. degree. Between the years '99 and '06 inclusive, about 32 Engineers, mostly Civils, graduated. The first two Electrical Engineers to graduate with this degree were in the class of '04.

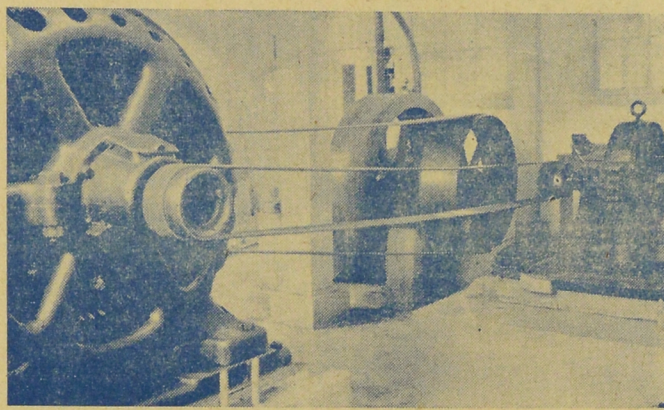
In 1900, the centennial of the founding of the college of New Brunswick, the Engineering building was opened and from that time on U.N.B. has really been "on the map" for her Engineering faculty. Enrolment began to grow and students started to come in from points outside the province and even from the U.S.A.

Originally, the Engineering Building, besides housing the Civil and Mechanical Departments was also the home of the Physics and Electrical Department and the Chemistry Department.

More equipment was bought and donated for the new building. The President of Canadian General Electric donated considerable electrical supplies and the testing machine which is now on the ground floor of the Engineering Building was bought at this time.

In 1907 the first B.Sc. in Civil Engineering was conferred; the class of '11 brought the first Electrical to get a B.Sc. and since then

Power Unit



Engineering Philosophy

By Dr. A. F. Baird, Professor of Electrical Engineering

In the change which has recently come over our theories of the nature of the physical Universe, nothing is more striking than our abandonment of the necessity for continuity in physical phenomena. We no longer insist on the representation of all that happens by differential equations, and we are content to accept the view that many phenomena are essentially discontinuous in their nature. Such

well over 400 Engineers have left U.N.B. behind them, to go out and leave their marks on many of the countries of the earth.

In 1908 Prof. Stephens came to us and since then has been Professor of Mechanical Engineering and Drawing, except for the period from 1915 to 1919 when he was serving with the R.C.A. During these years his place was filled by Prof. Baird.

The next big expansion in the Engineering faculty came in 1926, when the completion of the Memorial Hall allowed the Physics and Electrical and Chemistry Departments to move out of the overcrowded Engineering Building, leaving it for the Civil and Mechanical Departments. About \$5,000 worth of hydraulics apparatus and machine tools were brought to the Engineering building when the extra room was made available and the building was rearranged as it is now. At this time also, the Department of Electrical Engineering became separate from the Department of Physics, so that Prof. Baird who had, since 1920, been professor for both departments could devote all his time to Electrical Engineering. In 1941 Mr. J. O. Dineen was appointed assistant to Dr. Baird and since then the Electrical Department has been doing a wonderful job at training upwards of 70 Air Force men in radio work along with giving the regular lectures and supervising the labs. of the college students.

Professor Turner who came to U.N.B. to head the Civil Engineering Department in 1919 carried on alone until 1926 when Mr. Hagerman came to assist him in Surveying and Drawing. In 1938 Mr. Moore was appointed Associate Professor of Civil Engineering and in 1942 Mr. Hagerman became assistant Prof. of Surveying and Mechanical Engineering.

We see that the Engineering faculty has been continually growing and after the war when men and equipment become available we hope to see courses given in Mechanical and Chemical Engineering, although at first, these courses will probably not be complete enough to warrant the conferring of a degree without further study at another University. We will probably see the Engineering courses changed to cover five years, so that more mathematics and physics can be taken early in the course.

This gives a rough idea of the development of our Engineering faculty.—May the future see all our plans realized and may U.N.B. turn out more and better Engineers as time goes on.

H. W. M.

About Month's Work Remains on Project

The thesis project being worked on by four Senior Electricals—the auxiliary power plant to serve the University in an emergency—is rapidly nearing its final stage of completion.

At present the alternator and exciter have been completely installed. Plans have been drawn for the wiring of these respective parts. The transformers and switch board have been brought over to the site and will be installed in due course.

The power plant consists of a 40 H.P. boiler, a 45 H.P. Robb steam engine, a 50 K.V.A. two-phase alternator connected to the steam engine by a belt drive. A 110 volt D.C. generator is used as an exciter for the alternator.

The boiler carries about 125 lbs. per sq. in. under ordinary operating conditions. The steam engine is double acting type built by the Robb Engine Works in Amherst, N. S. The furnace burns wood, thus the unit is not dependent on outside sources for fuel.

The alternator is a 50 K.V.A. two phase type. Transformation of two phase to three phase power will be accomplished by the installation of two transformers connected Scott.

We are hopeful that the power plant will be completed in the course of another month. It cannot be emphasized too strongly the necessity of this project on our campus. As the demand needs for Canada's War Industries increase, the power supply in this province becomes more critical and our needs on and about this campus remain the same.

N. Macn.

In spite of rationing, a lot of local motorists are still fueling around.

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