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ENGINEERS AT HELM

Once again for the fifth successive year we take pleasure in presenting the "ENGINEERING BRUNSWICKAN", produced and edited by the student engineers "Up the Hill."

It is fast becoming a tradition for this, the largest and most representative faculty of the University, to annually sally forth into the journalistic world of editors, reporters, and proof readers, to prove that it can take its place with the Artsmen to build a bigger and better Brunswickan as well as dynamos and bridges.

This year we have endeavoured to find the happy medium between the claphappy and the strictly technical edition and we hope our product will meet with general approval.

The distinctive features of this issue include four pages of daily tabloid size, giving the equivalent of nine and one half regular Brunswickan pages, a larger number of pictures than ever before, Civil and Electrical crests featured on the front page, together with a large number of feature articles which we hope will prove of interest to all faculties.

The Editor wishes to thank the staff and all those who in any way contributed to the success of this "SUPER BRUNSWICKAN". Hearty congratulations are also due to the Dance Committee of Mackin, Baldwin and Henry who engineered a highly successful venture to fill the coffers of the Engineering Society.

And in parting may I address a word to you, dear readers. Be not too hasty in your judgment of this edition; remember that many were the creaks and groans of novice brains in creating this gem of literary talent. Whatsoever the verdict may be we have enjoyed the privilege of editing this edition and hope it fulfills its duty in upholding the noble profession to which we attain.

FLASH

In order to publicize the nominees for the executive positions 1946-47, we have in cooperation with the S. R. C. produced an extra double page to make this edition a truly "Super" brunswickan, equal in space to fourteen regular Brunswicken pages.

A terrific amount of extra work was involved in editing and producing this extravagance of the literary world, especially by an inexperienced staff.

The editor wishes to express hearty thanks to all the members of the Editorial staff, especially the Managing, two feature and Sports Editors, who put a great deal of valuable time towards making this edition a success.

Thanks are also due Neil Elgee, the regular Business Manager, who lent valuable assistance in obtaining the necessary ads.

To often has it been said that Engineers are strictly "Slide Rule Artists" and far adrift from the field of literary science.

It is unfortunate that the specialized Engineering education of to-day excludes a large measure of broadening Arts and Social studies; for the wise student of to-day cannot afford to lose all contact with the humanities, psychologies, civics, economics and languages which are so much the basic tools of the professional man as Calculus or Trigonometry. During the last century we have made terrific strides in technical knowledge and as a logical sequence students of Engineering to-day require far more knowledge of this type than ever before. Therefore it is almost impossible for them to obtain more than a superficial knowledge of the social sciences in four short years at University.

Thus it remains to the individual Engineer or Technical man to educate himself as well as possible along these lines. This can be done mainly through practical experience and hence a medium such as our own "ENGINEERING BRUNSWICKAN" can be a means of expression for those students of engineering who desire more than a "Slide Rule" education.

This edition proves that when necessary an Engineer can be quite at home outside his customary atmosphere of mathematics and experimental data.

Radar

Many articles have appeared in newspapers recently on the wonders of radar— the amazing electronic device which was one of the greatest developments of the Second World War. Most of these articles refer to the detection of approaching enemy aircraft but few refer to the use of radar as a searching device, navigational aid, bomb sight and gun aiming device for use in aircraft. Airborne radar was one of the most versatile and most secret weapons that the allies possessed. It played a decisive part in at least three major phases of the war:

1. The campaign against enemy submarines.
2. The devastation of Germany by heavy bombers.
3. Th air defence of Great Britain by night fighter aircraft and Ground Controlled Interception.

If one stands a few hundred yards from a cliff and gives a short whistle it will be reflected back. Since the speed that sound travels is known; the distance to the cliff can be calculated by measuring the time interval between the whistle and the echo. This principle is used in radar; instead of a whistle a short pulse of electromagnetic waves is sent out and the time taken for the echo to return is measured on a time base of a cathode ray tube.

BOMBER COMMAND

Radar was used extensively on Bomber Command, as an aid to navigation at night, and for the detection of enemy night fighters. The most extensively used radar in Bomber Command was Gee, H2S and visual Monica. Later in the war, Loran, an American counterpart of British Gee, was used to a great extent.

The first radar to be used in Bomber Command was "Gee". This was a British development. It consisted of three ground transmitters and an airborne receiver and indicator. The time interval between the three pulses received from the ground transmitters is measured on the time base of a cathode ray tube and is immediately read off on a specially prepared map, giving the position of the bomber.

Also extensively used as Bomber Command was visual Monica. Monica was a device for detection of enemy night fighters. It gave range and direction of enemy aircraft approaching from the rear. From directions given by the radar operator, the gunner would know where to look for the approaching enemy fighters. Eventually the Germ developed an instrument that would enable their fighters to pick up the transmitted signals from Monica and home onto the bomber. Thus instead of enabling a bomber to detect an enemy fighter without being seen, it acted just the opposite hence its use was abandoned.

American Loran, which stands for LO (ng)g RAnge N(avigation appeared in Bomber Command in 1944. It was developed by British Gee experts working with Philco Radio Corporation experts. It's use was the same as Gee, but although less accurate, it had a greater range.

H2S, a search radar instrument gave the outline of coasts, rivers and outline of cities. Sharp outlines such as large buildings could be seen on H2S and bombing was actually done by H2S when clouds and weather prevented the target from being seen. H2S was largely responsible for the success of the Royal Air Force Battle of Berlin.

COASTAL COMMAND

At the beginning of the war, with the range of patrol aircraft limited, and the number of aircraft available limited, a rush programme on the development of a search radar was ordered for Coastal Command. This radar was used to increase the efficiency of patrols, to make night and bad weather patrols possible and worth while. If on a night patrol aircraft the radar became unservicesable the aircraft was ordered to discontinue the patrol because it would be useless without radar.

The radar, that was used by Coastal Command early in the war, worked on comparatively low frequencies and gave direction and range of submarines and surface vessels. It had a fairly limited range and would detect objects on the surface in front of the aircraft and 50 degrees to port and starboard. The aerials were large and mounted in such a position that the performance and range of the aircraft was affected. This radar was called ASV (aircraft and surface vessels) and proved its value by increasing the number of aircraft attacks on submarines. The enemy eventually developed a receiver which would pick up transmissions from this ASV and were warned of approaching aircraft. This made ASV almost useless against submarines.

A conversion was quickly made to radar employing centimetre wavelengths as soon as the high powered, ultra high frequency transmitting tube called a magnetron had been developed. This radar was a modification of H2S. Some of the advantages of the centimetre radar over the older type are that it gave a much clearer picture, an increase in range and had omni directional aerials. By having an indicator that showed the outline of coasts and objects, the screen was much easier to interpret. The number of submarine sightings increased and eventually the enemy were forced to remain submerged for long periods because of the danger of being attacked by radar equipped aircraft. The enemy, with their ingenious minds, developed an underwater breathing device thus making the centimetre radar almost useless. Fortunately, this breather was not used until late in the war and had little effect on the outcome.

This is only one of the many uses made of radar by Coastal Command. Usually on returning from a patrol landfall was seen on the radar screen long before it was seen visually. This provided an excellent check for the navigator on his position.

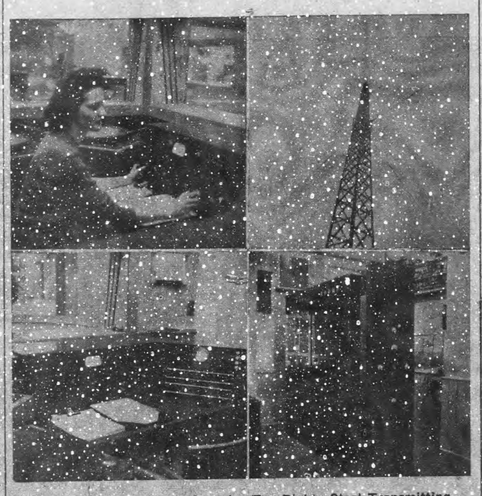
IFF, identification friend or foe, was also carried. This set contained a small receiver and transmitter which returned amplifict pulses to any searching radar equipment. Thus, it provided friendly aircraft, ships or ground radar stations, a means of identifying the aircraft.

Gee and Loran, two useful sets of radar, provided the navigator with an accurate check on his position.

The outstanding part that radar played in the Battle of the Atlantic was clearly shown when the Bismarck was located by a radar equipped Catalina aircraft of Coastal Command. Many incidents could be told where radar played a decisive role in helping win the victory.

A bachelor is a man who didn't have a car when he was young.

C F N B



Top Left—Operator at Console; Top Right—Steel Transmitting Tower; Bottom Left—Studio Control Room; Bottom Right, Marconi Transmitter.

Photos by D. E. Bastedo.

One of the first radio broadcasting stations in Canada was CFNB, which was on the air as early as February 1923. In those days the station operated under an amateur-commercial license with a power output of ten watts and was located at the home of Mr. Stewart Neill. The station grew slowly during the late twenties rising in power from ten watts to fifteen and later fifty. By 1929 it was on the air daily with two transmissions one in the morning and one in the afternoon and was located at James S. Neill Hardware store. In 1933 the first studios were built and a 100 watt transmitter was installed in the Forestry Building at the University of New Brunswick. In 1938 the stations power output was raised to 1000 watts.

Since 1941 the transmitter has been located at Lincoln, N. B., some five miles from the studios. Transmitting equipment consists of a Marconi air cooled broadcast transmitter and a 301 foot steel radiator. A ground system of 120 radials set two degrees apart radiate from the base of the tower. A gasoline generator supplies an auxiliary source of power and will put the transmitter back on the air forty-five to ninety seconds after power fails.

The frequency of 550 kilocycles, first on the dial is shared by nine other stations in the United States. The transmitter has a coverage area which includes Eastern Maine, Central and Southern New Brunswick and Northern Nova Scotia, but under freak conditions signals have been received in England and New Zealand. A system of private telephone lines links transmitter to studio network and remote control pickup points. They are used for carrying programmes and for telephone communication.

The present studios on the corner of York and Queen Streets were occupied in January of 1945. They include one large studio, one speech studio and a control room. CFNB is the only station in Canada to employ a complete female staff of control room operators and during war years the only station in Canada employing female transmitter operators. The staff consists of Mr. Malcom Neill, general manager, an Engineering staff of eight, an announcing staff of eight and a secretarial staff of six, making a total of twenty-three. In connection with the studios is a transcription library of some 9000 selections. British United Press Teletype Service supplies complete news casts typed on an eight inch reel of copy paper at sixty-five words per minute.

CFNB studios on the corner of York and Queen streets are open to visitors at all times and if you want an idea of how a radio studio operates drop in and look around the premises of the Capital Station (550 on your dial).

Unset young co-ed: "I've been misbehaving and my conscience is bothering me.

Doctor: "Should I give you something to strengthen your will power?"

Young Co-ed: "No, give me something to weaken my conscience."

* * *

Birth notice in Gleaner: Baby born with its mother's features and father's fixtures.

* * *

Daughter your hair is all mussed up. Did that college boy kiss you against your will?

He thinks he did, Mother.

* * *

Dr. Turner: Why are you tardy this morning, Mr. Merring?

Merring: Class started before I got here.

* * * *

Many a girl who puts up a swell front in society is flat busted at home.

TO THE FORESTERS—

Dear Mr. Anthony:

"Mr. Anthony—I have a question and here is my story. As I set out for the land of college my father took me aside to explain the facts of life to me. "Son", he said, "I have told you about the birds and the bees and now you are old enough to learn about—Yes, son, it is about the Foresters. I have been a faithful father and have kept you from all wrongs, so now take heed to my warning and instructions. The birds and the bees can take care of themselves but the Forester need care and protection as their race is almost extinct. Have indulgence and pity, yes, even lend a helping hand but do not approach too near or you will have had it. They are divided into two groups. A which is for Axemen and B which is for Bugs, however this is beside the point. You can always tell a Forester by the way he walks, which is a slouching lopping gait known as the Woodman's Shuffle. He is always with an axe and wears a vivid plaid mackinaw and hip boots. It however, is not always necessary to see him as the wind will tell you from which direction he is approaching. They are kept for the sole purpose of supplying wood to the college. Son, as you go to college shun these men for I want you to become a gentleman and a scholar, unaffected by these." With these words my father patted my golden locks and sent me off on my journey.

On arrival at college I was impressed by the lack of trees, however—"Foresters, you know"—was all I could find given as an explanation. As an Engineer I was first taught respect and how to salute a Forester—You know—the greeting with thumb to nose, fingers outstretched, that all faculties teach. I was also warned to keep away from such. Up to this point I had never seen a Forester until one day I heard a cry, "Unclean, Unclean", come from around behind the Forestry Building. It must be a Forester I thought and I was all a tremble with excitement as I looked around. At last I was to see a Forester. I opened my eyes and saw

Now here—Mr. Anthony is my question—"Was it really a Forester I saw or not?"

"What's that you say, Mr. Anthony—it wasn't?"

Well, Mr. Anthony—You coulda fooled me!!

It is rumoured that a Girl doesn't mind losing her heart to a fellow but she hates to have him search for it.

* * *

One Siamese Twin to another: You must have had a swell time last nite; I look a wreck today.

* * * *

She: I weigh 128 lbs.
He: Stripped
She: No, the drug store was crowded.

* * * *

A rolling stone gathers no moss but it gets damn smooth.

Presenting . . .

ALWYN J. CAMERON

"Al the Student's Pal" is the name by which we know this senior civil. This term is not just a handy rhyme for no other student on the campus has done more for "Joe College" than this practical minded Monctonor.

It is not necessary to repeat here the saga of the lights on the Hill. Rather let us say thanks to you Al for your energy and practical knowledge which put these lights right where they were needed.

Not so long ago the S. R. C. had a hair-raising problem on its hands in the form of a rink with no one to keep it up. Once more Al offered his services and took on the brunt of the hard and thankless job of chairman of the rink committee. In doing this job in such an able and efficient manner, Cameron distinguished himself as being a unique and notable character.

In spare moments, Al enjoys dabbling in astronomy and right now has a telescope under construction in the machine shop.

So much for the practical—in the administrative field Al is president of the Senior Class, on the executive of the S. C. M., serves on the Social Committee as well as chairman of the committee on the "point system". Whenever you've seen the college band at games, there was the maestro right out in front directing the pack.

We are proud to present you Al in our Engineering Brunswickan as an exponent of the undergraduate engineer.

FRANK J. HORGAN

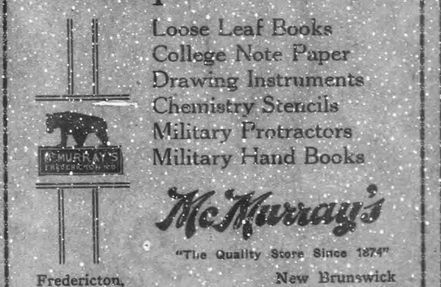
To try to list the activities of Frank Horgan over the past four years is rather like listing the societies active on the the campus. Last year he was Business Manager of the Year Book, and this year he holds the job of Editor-in-Chief of that publication. He has also acted as Sec'y-Treas. and President of the Newman Club for the past two years.

On the sporting side, Frank is right there. In his sophomore year he organized and held the job of Sec'y-Treas. of the bowling league filling the same position in his Junior Year. This year he advanced to the presidency. He managed the hockey team during his Junior year, and has been a member of the sports staff of the Brunswickan since his Sophomore year. In this issue he is your Sports Editor.

Academically Frank has also comfortably held his own. He has won the President of Alumni and the John C. Dolan Memorial prizes and acted as a surveying instructor in his Junior Year.

This genial well liked Senior from Saint John can be seen around the campus any time, and even though busier than the proverbial beaver, always has time for a cheery hello.

On a rather warm day an old lady went up in an airplane for the first time. When the plane had been in the air for some time she pointed to the propellor and said, "All right my man, you can turn off the fan now, I feel much cooler."



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