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# ENGINEERING BRUNSWICKIAN

VOL. 70.

FREDERICTON, N. B., WEDNESDAY, FEBRUARY 15th, 1950

No. 12

## ENGINEERS PLAN BIG WEEK

### WASSAIL SETS EVENTS ROLLING

Monday saw a large banner unfurl over the front of the Civil Engineering building to herald in another "Engineering Week" at U.N.B. This week was established years ago in an attempt to get the engineers as a body to know each other better and to foster a feeling of unity and friendliness on the campus.

The Wassail set events rolling on Tuesday night. Castle Hall rocked as festivities reached a high pitch. Starting at 6.30 with a delectable chicken dinner served by the Pythian Sisters, the Wassail proceeded to accomplish its purpose as it spread a warm and friendly "glow" over those attending. Dr. E. O. Turner entertained the engineers with an informal talk which was followed by a toast proposed by J. Harry Moore.

During the evening many good stories, engineering feats, and jokes were swapped. Towards sunrise as the Brunswickian went to bed the last of the merry-makers were seen struggling towards their homes and pits in order to recuperate.

Thus to give these last few a chance to rest, Thursday of this big week has been set aside as recuperation day.

As the final effort of the week,

the engineers present on Friday night, February 17, the "Engineering Ball", the biggest event of its kind for the season. This dance is to be held in the popular Loyalist Ball Room at the Lord Beaverbrook Hotel in the heart of downtown Fredericton. Music supplied by the well-known Criterions will be featured, accompanied by special entertainment and engineering displays.

As an anti-climax to this week of weeks, a very eminent engineer will appear on the campus February 20. Mr. John E. Armstrong, in his official capacity as president of the Engineering Institute of Canada, will speak Monday afternoon in the Memorial Hall.

As Chief Engineer of the Canadian Pacific Railway System, he is a man whom all students should be anxious to hear. Lectures and labs have been cancelled for the event.

### Engineers Train Youth

G. R. RUICKBIE, F/L  
O.C. 333 (Rotary) Sqdn. R.C.A.C.

Perhaps many readers will wonder what "youth movements" have to do with an Engineering edition of a college newspaper; even a casual perusal of the following article will indicate why. The author will confine his opinions and facts to the youth movement with which he has been connected for the past three years, and attempt to point the aims of the organization and the graduates, potential graduates, and the undergrads, who are connected with the organization, particularly engineering personnel. The youth movement involved in this article, is the Royal Canadian Air Cadets.

The majority of officers and instructors engaged in the work of the local Fredericton Squadrons, are graduate, or potential graduate Engineers, and R. C. A. F. veterans.

It would not be fair at this point, to proceed without exemplifying the objects and accomplishments of the R. C. A. F. The primary aim of Air Cadet training is that of citizenship training to some 14,000 Canadian youths. The movement is sponsored by the Air Cadet League of Canada which, consists of leading business and professional men across the Dominion. The League

### Dr. Linus Pauling

#### Addresses Capacity Audience

In a lecture on "The Place of Chemistry in Medical Research" in the Memorial Hall on Tuesday evening, Dr. Linus Pauling impressed a capacity audience with the importance of pure chemical research to the field of medicine. Dr. Pauling who is president of the American Chemical Society and head of the faculty of chemistry at the California Institute of Technology in one of the number of outstanding lecturers to be on the Campus this year in observance of the one hundred and fiftieth anniversary of the university.

The president of the University, Dr. Trueman, in introducing the speaker, listed the impressive array of doctorates conferred on Dr. Pauling by many of the leading universities in the World, in addition to which he mentioned that the speaker was the recipient of the highest civilian award attainable in the United States, the Medal of Merit. Dr. Argue expressed the official thanks of the assemblage to Dr. Pauling.

In an hour-and-a-half talk which was thrown open to the townspeople as well as the students and faculty members of the university Dr. Pauling was at once technical and interesting as he brought his wide knowledge of chemistry to focus on the problems common to chemistry and medicine. He advocated a common undertaking in the field of research for the mutual betterment of the science and illustrated his argument with a variety of examples and informative slides.

The technical aspect of his talk ranged from the formation of fat bodies in the plasma of the rabbit to the hereditary nature of sickle-cell anaemia in negroes. As an illustration of the work that is to be done Dr. Pauling cited the wonders of the age, the operation of which is as yet unknown either to chemists of medical men. He placed the acquisition of this knowledge in the hands of those who would discover the complex structure of the molecules making up the living organism, and went on to discuss the progress which he himself had made along this line.

He termed the advances made by science in the understanding of the material world in recent years "revolutionary" and promised even greater steps in the years to come. In an address Monday afternoon to the students of the Arts and Science Faculties, Dr. Pauling delivered a talk on "The Structure of Metals and Inter-metallic Com-

pounds." Beginning with the arrangement of the carbon molecules in a crystal, the speaker proceeded through the theories of half-valence, metallic orbitals and resonance phenomena to an explanation of the structure of the molecules of a metal. Dr. Pauling managed to maintain a keen interest with a crisp, staccato lecture style and illustrative sketches and slides despite the esoteric nature of his material.

In his final address, Dr. Pauling expressed pleasure at the hospitality shown him on his visit and at the opportunity to visit and lecture in this part of the continent.

Following Dr. Pauling's lecture on Monday afternoon, Dr. D. A. Keys, Vice-President of the National Research Council and officer in charge of Canada's Atomic Energy Department at Chalk River, Ontario, spoke on the Chalk River project. This address was by special arrangement as Dr. Keys appeared in Fredericton by invitation of the Canadian Club.

Dr. Keys spoke of the Chalk River Community, of some of the less secret technical aspects of the plant, and also of the recent developments there. He stressed the fact that those employed there were not concerned with the development of arms primarily, and extended an invitation to university graduates in particular fields who might seek to be employed with the project.

### Third Guest Speaker To Lecture Today

Once again U.N.B. is to be honored by having an eminent Canadian speak to the students on Wednesday, February 15. Mr. G. V. Ferguson, editor of the Montreal Daily Star and well known C.B.C. commentator, will be present on our campus today. Mr. Ferguson will be the third guest speaker to appear up the hill in honor of U.N.B.'s 150th anniversary celebrations.

Mr. Ferguson will present a special lecture in the Memorial Hall this afternoon at 3 p.m. All students are cordially invited to hear him speak on "The Newspaper in a Free Society."

### U.N.B. Senate Meets

Yesterday marked the opening of the University of New Brunswick Senate's regular mid-winter meeting. As in years past this will be the Senate's most important meeting of the year. At press time details of the agenda were not yet available.

is headed by a board of directors, and the chain of command descends to Provincial and regional committees, and local sponsoring bodies. In the case of the local squadron, the sponsoring body is the Fredericton branch of the Rotary Club, the chairman of the committee being Mr. Gerald Cherry.

The Royal Canadian Air Force assists very strenuously in the administrative and training program. Besides providing uniforms and all training equipment and publications, the R.C.A.F. appoints a liaison officer to each Group and Command to administer to the needs of all squadrons within their area.

Training for Air Cadets is divided into three phases, phase one for the first year Cadets, consists of training in Leadership and Morale, Drill, Sports, Navigation and Meteorology, Flying Hygiene, Airmanship, History of the R.C. A.F., etc., a total of 105 hours. Phases two and three, for second and third year Cadets, also includes 105 hours of training, the difference in the program being that special subjects such as airmanship, photography etc., are accentuated rather than some of the general subjects. Besides having the advantage of equipment at hand to work with, which the normal lad cannot afford to buy, many other advantages lie in Air Cadet training. Hobbies, such as photography and model aircraft construction, and sports which include basketball, baseball and hockey, are a part of the Air Cadet curriculum. Exchange visits to other Air Cadet Squadrons, also assume a prominent part in the training program.

Other material benefits, provided for by the R.C.A.F., include the annual period of two weeks at summer camp, at an R.C.A.F. Station;

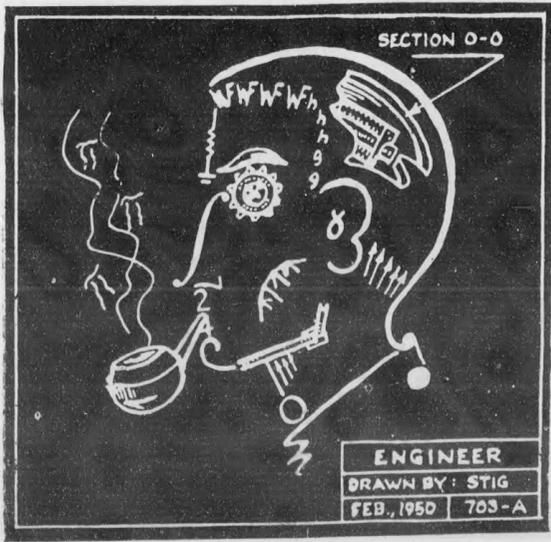
Flying Scholarships to 250 Canadian Air Cadets, for which each Cadet receives at least 15 hours of flying training and 60 hours of ground training at a recognized flying club; and exchange visits to the United States and Great Britain. Each year, 25 Cadets are chosen to visit the U.S.A. and 25 to visit Great Britain; these trips, lasting for three weeks, consist of visits to various allied military establishments, visits to various historical sites of interests, and entertainment of a wide and varied nature. These benefits involve no expense to the Air Cadet himself.

Now, to return to the U.N.B. Engineers and the part they have played in the establishment and promotion of the Fredericton Air Cadet Squadron. No doubt many of you have the students on parade or taking part in Air Cadet activities and wondered why in blazes

they were taking time out for participation in the movement. Anyone who has an interest in Canada's future and the youth who will some day help to direct Canada's destiny, can readily see the advantages that any lad can derive from such a training program, to fit him for the task. One of the prime requisites of any engineer is to take an active part in the social and welfare activities of the community in which he lives; in what better way could he serve this community and in what better way could he the necessary training, than to aid in the promotion of such an ideal movement?

The first Squadron with which one is connected, seems to hold an attraction and an interest from which one cannot seem to divorce himself. For instance, F/O Bob Fownes, E. E. class '49, performed an exemplary job, first as an aero engine instructor and then as Eq-

(Continued on page 8)



# ENGINEERING BRUNSWICKAN

Established 1867

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Vol. 70 FREDERICTON, N. B. FEBRUARY 15, 1950 No. 12

## The Engineer and Education

A general shake-up of the engineering courses has been apparent in eastern universities in recent years. A broader outlook for and an appreciation of culture and of the humanities by the engineer were the purposes demanding the changes that occurred.

The education of the engineer, as it might be called, is not merely a whim of a few college professors. Leading engineers, both in Canada and the United States, realized that the universities were turning out a great many engineers but that these engineers were basically technicians rather than true professionals, a stature which had already been legally recognized as theirs. They noted, though it took them a long time, that the young engineers arriving before their desks could readily discuss and solve most engineering problems but were left gaping if asked to discuss world markets, the state of politics in Ottawa, slum eradication, the problem of handling men, or the training of Canadian youth. These everyday worries, if they be such, are best handled by the economist, the sociologist, the psychologist, and the educationalist. Yet they affect everyone especially the professional who, as an educated man, is so often called upon to remedy the ills of the world. How can he supply a remedy if he has no knowledge of the ill?

As a result of their complacent qualities art, music, and literature help a man to appreciate the world about him and hence to enjoy life on earth; a study of his fellow being helps him to understand human grandeur as well as human frailties and as a result leads him to a better understanding between himself and his fellow man and hence to the ultimate Utopia sought by him for so many centuries. Thus a general knowledge of the majority of human interests besides a sound, detailed, complete, technical knowledge of his science is required of the professional engineer if he is to be the builder of mankind's future.

## Dedication

It has been my pleasure to be President of the Engineering Society during this year and, as it has to all previous presidents, my time has come to say something for this our Engineering Brunswickan.

This year U.N.B. will graduate more engineers than ever before in her history; the second largest class of Civil Engineers in Canada (excluded only by U. of T.); the fifth largest group of Electrical Engineers in Canada; and has the distinction of graduating a higher percentage of student veterans than any other University in Canada (82%).

For the members of these two groups I express the wish that we may be not only the largest group of engineers to graduate from U.N.B. but also that through our efforts we will live up to the standards set by our predecessors.

I should like to dedicate this issue of the Engineering Brunswickan to our late classmate Lt. R. L. Hunter with a sincere sense of regret that he is not here to share in our activities.

R. G.

## The Engineer Defined

For years engineers and other astute types have been searching for a definition of the term "engineer" which will clearly define for all time just what an engineer is in, say, twenty-five words or less.

So far nobody has done it. Learned gentlemen who have pondered on the subject for some time have been observed, with a frustrated look on their face, to do very erratic things such as—holding a revolver, loaded that is, at their temple and tighten-

ing the grip on their trigger finger—or—heading for Baffin Land to study the migratory habits of the Blue-Billed Ki-Ki bird—or—but the list becomes much too lengthy.

Some of these gentlemen, believing that they have finally found the correct terms and phrases that adequately describe an engineer, have presented their definition to men of the legal world, only to have their masterpiece shot as full of holes as a hesitant bride-groom at a shotgun wedding.

Herewith is what we believe to be one of the better definitions to come to our notice in some time. We print it with sincere appreciation to Mr. Harry McCleave of the St. John staff of the New Brunswick Telephone Co. Ltd.

"An engineer is a person who passes as an exacting expert on the basis of being able to turn out with prolific fortitude infinite strings of incomprehensible formulae calculated with microscopic precision from vague assumptions, which are based on debatable figures taken from inconclusive experiments carried out with instruments of problematical accuracy by persons of doubtful reliability and questionable mentality for the avowed purpose of annoying and confounding a hopeless chimerical group of fanatics referred to too frequently as engineers".

Hmmmm—Webster might object, but us? We like it.

## MID-CENTURY REMINISCENCES

by E. O. Turner  
Dean of Civil Engineering

We are at the mid-century. Everyone is talking about it. Certainly it is in order for the Engineer to take account of stock, for he, as much as anyone, has been rearranging the furniture until we can hardly recognize the room.

Although he hates to admit such things your Dean is old enough to answer questions as to what people were doing, thinking and worrying about at the turn of the century.

What were we doing? Walking, riding bicycles, and contemplating a strange new vehicle called an automobile. Those were the days when we didn't have to decide how to get from place to place. We went by Railway. It was even fashionable to save a little money, and to take pride in owning a few shares in the Railway Company. Everyone did it, they had never heard of the welfare state. Webster knew the definition of subsidy, but the politicians of the time hadn't the power of that process in getting out the votes. Now we are not only in danger of being atomized, but even worse, we are being so oversubsidized that our independence is just a dream.

What were we thinking about? It wasn't how to save enough money to pay the income tax to provide the subsidies. Perhaps it was thinking about getting your friends together to help your neighbor build his house. It was a quiet, comfortable existence. There had been no

war of consequence for thirty years.

What were we worrying about? Certainly we didn't expect to shuffle off this mortal coil by being atomized. Why should we worry anyway? We didn't have to support any psychiatrists in those days. All over the world people were not afraid to stand up and be counted on any issue. Today you should know your geography, or you will only stand up to be counted out (period).

We have created a standard of living at the mid-century, above anything dreamed of at the century's start. But it is against such a grim background, and on such a treacherous footing, that we fear that every step may be our last. In 1900 we sang our Engineer's song, "I've been working on a Railroad" with gusto and enthusiasm, and joy was unrestrained. We had better not forget that song. If we don't observe every precaution, we will be singing it again. In Siberia!

This is not a very cheerful message. But it is given in the hope and expectation that when your children reach the year 2000, through your efforts they will enjoy an increased standard of living, without the spectre of disaster in the background.

## Founders' Day, 1950

Monday, Feb. 13—Founders' Day, 1950, was celebrated in the Memorial Hall at 8.30 p. m.

The following were the highlights of the programme. The Founders' Day Address by the distinguished Principal and Vice-Chancellor of Queen's University, Dr. R. C. Wallace; the payment of the quit rent of one penny to the Lieut. Governor of New Brunswick, the Hon. D. L. McLaren, P.C., who is the visitor to the university on behalf of His Majesty, the King; the chairman's remarks by the president of the university, Dr. A. W. Trueman; and a one act play "The Jest of Hahalaba" by Lord Dunsany, which it is understood had a cast of three professors and one student.

**NOTICE**

Most of the graduate write-ups for the 1950 year book have been received. However for those who have not complied with our request to hand in their write-ups to either the appointed class collectors or to the year book committee, we are extending the deadline to the end of February.

However this deadline is definite as all graduation photos will be in our hands at this time. Only those photos which have an accompanying write-up will be used in the 1950 Year Book.

1950 Year Book Committee

**DEAD OF NIGHT**

DEAD OF NIGHT, produced by RANK-EAGLE-LION, is the forerunner of the famous Somerset Maugham film QUARTET, in that it consists of a series of stories connected only by the psychology trend involved. One of the stars in this magnificent film is Michal Redgrave, who plays the part of a ventriloquist who is obsessed by the idea that his dummy is a real person and that he himself is only a doll.

This picture is an adventure in suspense of the type that has made Hitchcock famous. It will be enjoyed by all who see it.

**"DEAD OF NIGHT"**

PRODUCED BY RANK-EAGLE-LION

TEACHERS COLLEGE

Wednesday, February 15, ..... 7.30 P. M.

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Editors Note—All Technical Reports it is among the be of interest.

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Founders' Day, 1950

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ENGINEERING-AS APPLIED TO THE MANUFACTURE OF NEWSPRINT

by Jack Flowers

Editors Note—Although this is not the winning paper of the annual Technical Report Contest held each year by the Engineering Society, it is among the better ones. It has been printed due to its wider scope of interest.

The 131 pulp and paper mills now in operation in Canada constitute an industry that stands first in employment, in wages paid, in value of production, in capital investment, and as a buyer of goods and services. The industry makes Canada the largest exporter of pulp and paper in the globe, and produces three of every five newspaper pages in the world. It accounts for the fifth of all exports—the largest item in Canada's foreign trade—and for more than a third of all exports to the United States. It uses half the electric power generated for all Canadian industry. It's the largest user of transportation services, and accounts for more than one of every ten freight cars loaded in Canada. The pulp and paper industry is the largest contributor to national wealth, and generates, at a minimum, ten percent of the total annual value of all Canadian goods and services. It manages and conserves its forests, and uses less than one fifth of the annual wood consumption of Canada. In view of current national interest in the sale abroad of goods manufactured from Canadian pulpwood, this paper will deal with one particular phase of the industry—the manufacture of newsprint.

Newsprint Paper, as manufactured at Dalhousie, New Brunswick, is made from spruce and balsam wood. The wood is delivered to the mill by water, with the bark still on it, in four-foot lengths. These are made up into booms, and logs from the booms are fed to a hydraulic pack-ladder, and dropped on to a conveyor.

The conveyor carries the logs to a set of barking drums. These measure twelve feet in diameter, are forty-five feet long, and revolve about in a horizontal axis at four-and-a-half revolutions a minute. The logs enter at one end of the barking drums, and tumble and rub against each other until all the bark is removed. By this time they have reached the other end of the drum, and as they tumble out, they pass through a water shower, which washes them clean of bark and dirt. These logs are now ready for use, either in the mill, or for storage in the yard, to be used throughout the winter months when water is frozen.

The bark from the logs is dried, and burned in a special bark-burning plant, which produces from this waste material one-tenth of the total steam used throughout the plant.

The cleaned wood, to be used right away, is then divided: 20% goes to the sulphite pulp mill, and 80% to the groundwood pulp mill. We will now follow the path of the wood through the two mills, and describe the different treatment given to each percentage.

The manufacture of groundwood pulp is exactly what the name implies. It's a mechanical separation of the fibres, one from the other, by abrasion. There are several kinds of machines used for this work, but they all operate on the same principle. The type of machine used in Dalhousie is a magazine loading grinder, made by Waterous Ltd. of Brantford, Ontario. The grinding-wheel used is artificial, and is composed of blocks of carborandum grit of different sizes; these blocks are bound and cemented on a metal frame, to form a cylinder 64 inches in diameter and 54 inches long. Two of these grinding wheels are mounted on one 10 inch shaft, one on each side of a motor; thus, it's possible to run two grinders from the one motor. The motors used are 2400 and 3600 horsepower, and run at 225 revolutions per minute. The rough surface, so essential for the grinding wheels is maintained by a hydraulically operated sharpening device, on which is mounted steel burrs: these move constantly across the face of the grinding stone.

Above the grinding wheels, supplying them with a constant flow of logs, in the magazine—a metal box measuring 51 inches by 45 inches. As the wood is fed into the magazine, it passes through to the bottom, to be mechanically placed against the grinding stones below—the axis of the log lying in the same line as the axis of the stone; fresh wood is then piled into the magazine to ensure it is constantly charged and full of logs.

Meantime, a large metal shoe, operated by a hydraulic ram, forces the wood against the rough surface of the grinding stone. There are two hydraulic rams for each grinder, mounted on either side of the grinding stone; by grinding logs on both sides of the stone, full use is made of the grinding surface.

Under each grindstone are water showers, which wash the pulp fibre from the stone into a shallow pit, in which the stone is submerged three or four inches; the temperature of the water is regulated at 130 degrees Fahrenheit, to ensure efficient absorption of heat generated into the wood by friction against the stone.

After the pulp fibre is washed from the grinding stone, it flows through canals to coarse screens, called Bull screens. These screens are rotating cylinders with 3/16ths of an inch perforated plates mounted on the outside surface. The stock enters the cylinder at one end, and rejected stock is passed through to the other end: this rejected stock is further refined, and used to

make coarse wrapper paper. The accepted stock passes through the fine screens. Here it goes through perforated plates, is washed off, collected in tanks, and pumped to yet another process of elimination. The accepted stock is separated from rejected stock by centrifugal screens. The perforations in these screens are .065 inches, and only stock which comes through these plates is used to make newsprint paper; the rejected stock is, once again, passed on to the wrapper mill.

The accepted stock is run over filters, or deckers, which remove some of the water, and thus increase the consistency of the stock. The stock thus thickened, is then stored in large tanks, with propeller agitators to keep it constantly in motion, until it is needed on the paper machines.

The logs that were sent to the sulphite mill are treated chemically. They are prepared for this process by feeding them into a machine called a clipper, which is a heavy revolving disc equipped with four or more long heavy knives. These knives slice off the ends of the logs so quickly that a stick is reduced to chips within three seconds. The chips are pieces of wood about one inch long, and an eighth of an inch thick. It is necessary that the wood be in this form for the chemical treatment, so that the cooking liquor can penetrate the wood easily and digest, or dissolve, the sugars, and lignin or binding material between the wood fibres, without trouble or subsequent waste.

After passing through the chipper, the chips are screened; all the large pieces are removed, crushed and rescreened, and the sawdust and other dirt is removed as waste. This sawdust waste goes to the bark-burning plant mentioned previously, where it is burned. The good wood or chips are then elevated to large bins located under the roof of the digester building, and stored there until dumped into the cooking boilers or digesters with the cooking acid. The cooking acid is produced in the mill by a chemical process involving sulphur in the form of brimstone, and limestone. The digestors are large steel boilers lined with brick into which the chips are dropped until the digester is full: the spaces between the individual chips are filled with cooking acid. The digester is then closed, and steam is forced in at the bottom. The temperature rises, and a pressure of steam and sulphur dioxide is built up. This pressure is relieved at the top of the digester—the excess gas being expelled through special pipes.

After 7 1/2 hours of steaming or cooking, the wood in the digester has been reduced to a pulp by the acid dissolving the lignin or binding material between the wood fibres: the end of the cooking process is noted by testing some of the liquor in the digester. This liquor contains only .3% of total SO2 gas, and is a waste. It contains sugars, lignins and resins amounting to almost half the weight of the dry chips. Some mills use this waste for the manufacture of yeast, and others for alcohol while still others make a paste or glue with it. The digester containing the finished cooked wood is blown by pressure being released through a ten-inch valve and pipe line at the bottom. When the digester is empty, all of the pulped wood is in this blow-pit. Now clean, fresh water is run in, until the top of the pulp is completely covered. The liquor drains out of the perforated bottom, and the water filters through the pulp, washing practically all traces of this liquor away.

The stock thus left is unscreened sulphite pulp. This material is then sluiced into a chest, and

pumped to coarse screens or knot-ters, where the large chunks of wood are removed; then it flows to centrifugal screens, where the sulphite fibres are screened again through thousands of 1/16th inch diameter holes, perforated through copper plates. These machines are called fine screens. The slivers and small uncooked chips are removed here, and are a waste. The total waste from screening amounts to about 4 1/2% of the pulp made, and is used in the wrapper paper mill. The good stock from these fine screens contains a lot of water, which is removed by filters: the thickened pulp drops into chests for temporary storage, where it is treated with a solution of alum dissolved in water. . . . this eliminates the pitch, or any stickiness of the pulp resulting from improper removal of the liquor when the pit was washed. The alum also hardens and prepares the pulp, so that it will flow onto the paper machines without any trouble.

All the logs have now been turned into groundwood pulp, and sulphite pulp, ready for the paper machines.

The fibres of the sulphite pulp are long and slender—almost a quarter of an inch long, and very fine. This long length ensures strength to a sheet of paper, as these fibres mat together in a criss-cross manner, forming a screen on which the shorter groundwood fibres are caught and lie, closing up the sheet of paper when it is formed on the paper machines. The sulphite pulp, and the groundwood pulp, are pumped to a measuring machine, where the exact amounts of both pulps are allowed to pass, after which they mix together with broke paper: broke paper is the name given to paper which was not properly made—it's mixed with water, and returned to be made over again. Some colouring dye is also added to colour the finished paper any colour desired, and the whole lot is mixed with water, resulting in liquid paper.

This liquid paper is allowed to flow through a box, so that there are no eddies or surging, and then through a wide nozzle, which extends the full width of the machine—in the Dalhousie Mill this measures 223 inches, or slightly more

than eighteen and one half feet. This nozzle is open about half an inch, so that we have a rectangular opening half an inch high, and and eighteen and one foot long. The liquid paper flows through this opening out to a continuous wire screen, known as Fourdriner wire. The excess water drains through the wire, and the fibres form a criss-cross screen on the wire. The short groundwood fibres give the paper bulk, while the long sulphite fibres bind the mass together, and give it strength.

Since it costs a lot of money to evaporate the water, as much water as possible is removed before stock goes to the dryers, so vacuum boxes, placed under the wire are designed to draw off excess moisture. The web of paper is then pressed between rolls in a manner similar to a large clothes' wringer. A continuous woolen blanket felt carries the wet web of paper between the nip of these rolls, and protects the paper from damage, while helping to remove even more of the water. After passing through two sets of rolls like this, the wet web of paper still has 66% of water in it, and then runs into the dryer section of the machine. This section is made up of fifty drying cylinders five feet in diameter, and nineteen feet wide. These revolve on horizontal axes, in roller bearings, and can attain a peripheral speed of fifteen hundred feet per minute. Steam is injected into these drying cylinders, which are placed in two rows, one above the other, in such a manner that the cylinders in the top row come between the cylinders in the bottom row. The paper runs round a top drying cylinder, then down to a bottom drying cylinder, and so on, to the end of the rows. Long, continuous canvas dryer felts follow the progress of the paper, over these dryers: their function is to hold the web of paper against the dryer, to help in the quick drying process, and stop any possibility of bulging.

In the Dalhousie mill the paper machines have operated at speeds slightly over 1400 feet per minute, which is among the highest rates of speed which paper is being made. In order to carry the wet web of paper through the dryers (continued on page seven)

NOTICE

The graduate write-ups for the 1950 year book have been completed. However for those who have not yet completed their write-ups to either the class collectors or to the year book committee, we are extending the deadline to the end of the year.

This deadline is definite. No extension photos will be in at this time. Only those who have an accompanying photo will be used in the year book.

Year Book Committee

AD OF NIGHT

AD OF NIGHT, produced by the famous Somerset film QUARTET, in that of a series of stories only by the psychology of the stars. One of the stars is Michal who plays the part of a man who is obsessed by his dummy is a real man that he himself is only

is an adventure in the type that has made famous. It will be an all who see it.

HT" LE-LION

7.30 P. M.

rise

MEMBER- WITH WATERPROOF PAPER BACK TO YOUR LIPS RETTES

U. N. B. Coat Sweaters

Pure Wool and Good Wearing

\$14.50

U. N. B. Jackets (Two-Tone)

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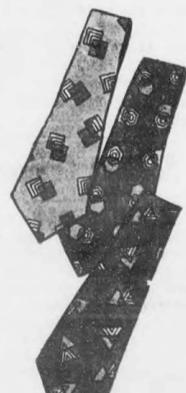


How to get kissed this Feb. 14 (Maybe)

Just hand him an Arrow Valentie and pucker up. If he's not too busy admiring it, he'll likely do the right thing.

Arrow Valenties are sure-fire beau-pleasers. Men are really sent by those handsome Arrow colors. And as for neat-knotting . . . they slip around his neck as neat as your arms.

Well don't just sit there day-dreaming! Hop along to the nearest Arrow dealer. He'll be glad to help you select a tie or two to please that guy!



ARROW VALENTIES

Look for the registered Trade Mark ARROW Cluett, Peabody & Co. of Canada, Limited.

# Hillmen In Triple Win

## Varsity Outshoot Swampmen

Things looked pretty good for Senior Varsity over the weekend as the boys tripped up the old rival from the Swampland on Friday night and on Saturday afternoon bounced right back again to take the measure of Aroostook State Normal School. Both games took place at the Lady Beaverbrook Gym.

The Mt. A. game got off to a ragged start, but at the two minute mark Buchan broke the monotony by dropping in the first field goal for the Red and Black. U.N.B. was never overtaken. The boys outplayed the Mounties in all departments and led at quarter time by a score of 17-8.

The second quarter saw some really fine team work by the Varsity squad as Buchan, playing his best game of the year, Roberts and Smith carried the play continually into the Mt. A. zone. The Mounties defence seemed pretty tight for a while but finally cracked and stayed cracked. U.N.B. out-scored Mt. A. 13-6 in the quarter and led 30-14 at half time.

The second half got off with a bang as the boys played rings around the hapless Garnet and Gold squad. The forwards broke, passed and played together like veterans and guards Moe Atkinson and Rudy Hanusiak broke up nearly every attempt by the Mounties at field goals. In the third quarter Mt. A. racked up the amazing total of three points while Varsity sank 18.

As the fourth quarter began a different story started to unfold. What happened no one seemed to know but something sure did. Varsity passes missed, plays failed to click and everything went into a general snafu. Maybe it was overconfidence, Gaud knows. While all this was going on Mt. A. was steadily overcoming the long lead. With thirty seconds left in the game the Mounties had outscored Varsity 15-4 in the fourth quarter. And then all of a sudden something else happened. The boys once more became inspired and three field goals were scored in the last thirty seconds. The final score was 58-32.

Johnny Roberts and Bob Smith topped the scorers with 14 and 13 respectively. Holmes sank ten for the visitors. Also standing out for Varsity, Buchan, Hanusiak, Atkinson and Jenkinson.

There isn't much to say about Mr. Crawford and Co., Holmes, Warner and Stothard tried hard. Mr. Ed. (Tantramar Terror) Cameron covered himself with glory by sinking five foul shots and no field goals. The Mounties played without the services of Eastman to which they will, no doubt attribute the loss.

The first game of the N. B. Intercollegiate finals is over and the Swampers were ground into the dust. Let's hope that they are ground in a little farther in Sackville next week. Ted says that the score should be even bigger in the Stove Town. We shall see.

**LINEUPS:**  
Mt. A.: Cameron 5, Wallace, Holmes 10, Marshall, Tuttle, Warner 7, Stothard 1, Mills 7, Barritt 2.  
U.N.B.: Stairs, Nakash 2, Roberts 14, Atkinson 4, Hanusiak 9, Smith 13, Jardine 2, Boulton, Buchan 8, Jenkinson 6.  
Referees: Fitzpatrick and Rothernel.

## Senators Govern Game

McAdom, a town of 3000, saw U.N.B. get licked 11-4 by St. Andrews Senators in the first game played in their new rink. On Thursday last the reformed Senators, starring Bud Stewart a former U.N.B. man, skated through our defence to whip varsity. The Stewart-MacNichol line was the most outstanding on the ice-scoring eight of the eleven with Stewart himself getting seven. This score however does not tell a true tale since U.N.B. actually put up a good fight with the Malone line standing out. Several plays were spectacular. Twice St. Andrews scored and UNB retaliated in less than forty seconds—one play in twelve seconds flat.

## Co-Eds Lose By Single Point

On Friday night the U.N.B. Co-eds lost a close 28-27 decision to the Mount Allison Co-eds. It was the first game of a two game home and home series for the New Brunswick intercollegiate title. The girls from the swamps started very fast and led 13-3 at the quarter, 21-8 at the half. The Mount A. girls showed superior speed and shooting during this half and seemed headed for an easy victory.

In the second half the Red and Black showed a complete reversal of form, and it looked as though they would pull the game out of the fire. They held Mount A. scoreless from the field, and but for the sensational foul shooting of Thompson, would have won handily. Thompson hit with eight of ten free tosses, while the U.N.B. girls made only seven out of eighteen.

Trailing 21-8 as the second half got under way, the Red and Black, led by Webb and Moores, dropped in 14 straight points to forge into the lead. From then on the leadership changed hands several times, with Mount A. winning in the final minute. The teams conclude the series next Friday at Sackville.

**LINEUPS:**  
Mount Allison: Grant 10, Fawcett 2, Thompson 12, Semple 4, Harvey, Wassie, Tubb, Allen, Goodspeed, Eaton, Heartz, Teakle.  
U. N. B.: Moores 8, Webb 6, Stewart 5, Vermeeran 1, Wylie 7, Scribner, Golding, Holder, Spicer, Lakes, Clark, Needler.

## Senior Civils vs. Civil Seniors

Monday Feb. 6th.—Prof. Moore stalked into the Senior lab to find only one or two of the boys at work and upon a very definite inquiry found out that this was the day of the big game; Senior Civils vs. Civil Seniors.

Of course there could be only one outcome of the game the Senior Civils would win. But it would be a lot of fun, and they would just coast along and make a game of it for the sake of the many Civil spectators. They couldn't help but be a powerful team with "Wild Bill" Matheson, "Rocket" Poirier, "You'r a dirty player" Steele, "Silent Bill" in the cage and of course the mightiest of them all, "look at my wrist" Dick. Can't you imagine the gaunt feeling of the poor unfortunate Civil Seniors as they sat there and watched these stalwarts dress?

The puck is dropped and sticks fly. Bang! Bang! What's this? Two goals so soon. Oh well we expected that, but wait, it's not the Senior Civils but the Civil Seniors who scored. Back come the Red-shirts to tie up the game and forge ahead on goals by "Wild Bill" and Domville. See, they can't lose. By the time the second period is over the score stands at four to three for the Senior Civils.

Back on the ice come the two teams to start the third and final period. Play is rough and hard but the game is very, very clean. John Bell and Killen cheer them on to victory and clean play. Rus North (continued in column 5)

## U.N.B. Victor Over A.S.N.S.

by Bill Ayer

On Saturday afternoon the U.N.B. Senior Varsity went on their biggest scoring spree of the year as they defeated Aroostook State Normal 77-65. The start of the game was delayed an hour and a half due to the late arrival of the American team, but the fans who stuck it out were treated to some of the best basketball of the year. It was the second meeting between the two teams this season, Aroostook taking the first game 59-50 at Presque Isle, but the round went to U.N.B. 127-124. The win was Varsity's sixth of the year, against five defeats.

In the first half, the Red and Black, led by Smith, Jardine and Nakash raced to a 35-24 lead. Each team employed a fast break to good advantage, with U.N.B. controlling most of the rebounds and scoring many times on passing plays which generally ended with someone breaking through for a lay-up. The American team had trouble breaking away from their checks and were often forced to shoot from outside.

The second half saw the Aroostook five open with a terrific drive and they moved into a 33-36 lead shortly after the half opened. At this point the Hillman called a time out and from then on they gradually pulled away from their tiring opponents. The feature of the half was the shooting of big Rudy Hanusiak, who poured in 15 points, scoring both on tap-ins and on push shots from around the key. Gerry Boulton also scored several nice baskets, and Johnny Roberts played his usual brilliant floor game. Every member of the Varsity got in on the scoring, with "Beanie" Stairs netting a basket as the whistle went to end the game. For Aroostook, Manzo, Scott and Prince stood out.

High scorer for the game was the Red and Black's Rudy Hanusiak, with 19 points. He was followed closely by Scott and Manzo of Aroostook, who had 18 and 17 respectively.

**LINEUPS:**  
AROSTOOK STATE NORMAL  
Carlson 14, Prince 10, Clark 4, (Continued on page 8)

## Mt. A. Weakens in Final Minutes

by Terry Kelly

For 48 minutes on Saturday night it was a rugged, close checking contest between Mt. A. and Varsity at York Arena. Then Tim Bliss broke a two all deadlock while his team was short-handed and thence the writing was on the wall for the Mounties who collapsed under an attack which added three goals in these last few minutes. The win gained U.N.B. first place in the N. B.—P. E. I. league.

With two more games per team remaining in the regular schedule, the intra mural basketball play is nearing completion. In Section A the Foolish Frosh have gained number one position, two points up on the Faculty who were beaten by the Jr. Kigmies. If Foolish Frosh can defeat the Faculty whom they have yet to face, they will probably end up on top; however, if the Faculty comes up the win a three-way tie way follow. In Section B the Newman Club is still on top, with a no-loss record to date. There is a three-way tie for second place between the Mooseheads, Alumni and Deb. Society but each of these teams have only 6 points while the Newman Club has ten.

Bud Bowlin is the leading scorer to date with 89 points—an average of 17.8 points per game, which have definitely helped the Newman Club to retain their undefeated record. Bowlin is closely followed by Elliot of Soph. Forester with 85. Results of last Wednesday's play were:

**Section A**  
Hangovers 44—Frosh Combines 33, Kigmies 41—Faculty 39  
Soph. Science 45—Eastern Townships 36.  
Foolish Frosh 51—Residence 33.  
**Section B**  
Sr. Foresters 23, Deb. Society 31, Sr. Civils 24,—Soph. Foresters 63, Soph. Engineers 19—Alumni Hasbeens 53.  
Mooseheads 15—Newman Club 37.

### STANDINGS:

Team	Won	Lost	Pl'd	Pts.
Foolish Frosh	5	0	5	10
Faculty	4	1	5	8
Jr. Kigmies	4	1	5	8
Combines	3	2	5	6
Soph. Science	2	3	5	4
Residence	1	4	5	2

Team	Won	Lost	Pl'd	Pts.
Newman Club	5	0	5	0
Mooseheads	3	2	5	6
Alumni	3	0	3	6
Deb. Society	3	2	5	6
Sr. Civils	2	3	5	4
Soph. Foresters	2	3	5	4
Sr. Foresters	1	3	4	2
Soph. Engineers	0	4	4	0

### TEN TOP SCORERS

Player	Team	Points
Bowlin	Newman Club	89
Elliot	Soph. Foresters	85
Little	Soph. Science	76
Burt	Debating Society	72
Owens	Faculty	70
Clark	Foolish Frosh	63
Russell	Frosh Combines	62
Gorman	Newman Club	52
Miller	Jr. Kigmies	49
Coster	Soph. Science	48

### SENIOR CIVILS

(continued from column 2)  
rup comes through with the tying goal and play gets cleaner and cleaner with Tom Steel retiring because of a split lip, inflicted upon him by, "we haven't the money" Armstrong, his partner on Defence. At approximately 15.00 minutes of the third period Weston fired in the winning goal for the Civil Seniors on a pass from Al Hayes.

Thus ends this sad story of the downfall of the mighty Civil Seniors. Of course it was the ice or just luck but it couldn't have been that the Civil Seniors were the better team.

**QUIZ:—**  
n. a puzzle; a. hoax; one who quizzes; v. to puzzle so as to make fun of; to look closely at;

## PILE-UP IN MT. A. ZONE



Most of the U.N.B. attacks ended as in the above shot Saturday Night against Mt. A. at York Arena. Three Allisonians defend Goalle Irving. U.N.B. players in the picture are (l to r) Bob Bliss, George Steele, George Kennedy and Tom Ballantyne. Linesman Bishop is on the extreme right.



## Axem

Wolfville (CUP)—powerpacked Acadia A from Dal on Saturday to one. Major Kelly's tallied twice in the first three to win the Intercollegiate Title. Feature of the game fired 90 shots at the Acadia also defended Valley league.

## NOVA SCOTIA HOCKEY

Feb. Feb. Feb. Feb. Mar.

I tried to kiss her by the One lovely, starry night She shook her head And sweetly said, "No, not by a dam site"

And what did the poor this morning? Nothing. Naturally, but just express it this time!

## Compliments

Ann's Dress

596 Queen St. D

For best SHOE RE materials, good work reasonable price, and service come

## Sam Sheple

515 King Street, CAPITAL THE. Also Leather Pat. U.N.B. Sweaters and

## CREST

FORESTIC PRE-MEDIC SCIENCE ENGINEER RESIDENCE ARTS

FLEMING of course Est. 1889

Minutes

ed, close checking  
Then Tim Bliss  
handed and thence  
collapsed under an  
minutes. The win

1	4	5	2
0	5	5	0

Team Points

Man Club	89
Foresters	85
a. Science	76
ng Society	72
Faculty	70
ish Frosh	63
a Combines	62
wman Club	52
Kigmies	49
a. Science	48

I tried to kiss her by the mill,  
One lovely, starry night;  
She shook her head  
And sweetly said,  
"No, not by a dam site."

# SPORTS

## Axemen Smother Dal.

Wolfville (CUP)—Showing superiority in every department the power-packed Acadia Axemen soundly trounced the 'Terrible Tabbies' from Dal on Saturday night at University Rink to the tune of 16 goals to one. Major Kelly's Lamplighters, led by Moe Slith's four goals, tallied twice in the first, six times in the second and added eight in the third to win the opening game of their defense of their Maritime Intercollegiate Title.

Feature of the game was the Superiority of Acadia forwards who fired 90 shots at the Tiger Goaltender, 40 of them in the final period.

Acadia also defended Kentville Wildcats 9-2 to wind up leading the Valley league.

## Intramural Basketball

Perhaps the Allisonians learned a lesson in last week's defeat at Sackville. Throughout Saturday's tilt they relied on packing inside their own blue-line and disorganizing the smooth skating U.N.B. forwards. As a result their attacks were limited to one and two men rushes which paid off with two goals by Tom Eastman and a few close shaves at the Red and Black cage which saw Harrigan give his very best.

Inaccurate shooting, brilliant goal tending and goal posts kept Varsity from gaining an impressive lead in a dull opening period. Lorimer opened the scoring after two minutes on passes from Ballantyne and Malone and from then until the ten minute mark the Hillmen did everything except put the puck in the net. A post was struck on three occasions; Lorimer skate deflected Snow's drive which was labelled for an open corner and Irving rose to great heights in the Mt. A. goal. In the second period Bob Bliss scored after twelve minutes to nullify Eastman's first period clinches but the driving Sackville centre came back to rack his second counter of the evening when Harrigan's arm deflected his high shot into the cage.

In the first twelve minutes of the third session it looked as if the tactics of the mounties would give them at least a tie but the aforementioned break finally came. After Tim Bliss' tie breaking goal Malone drew Irving out of his cage after a centre ice break to score the best goal of the night. Gandet was given credit for number five after the puck had ricocheted off a defenceman's shoulder. George Kennedy ended the scoring with Ballantyne and Tim Bliss in on the play.

Slap Shots . . . The crowd was not as big as expected. . . . Saturday night is not a popular hockey night in Fredericton with the stores open till nine and Foster Hewitt on the air at ten. . . . Tom Ballan-



Sandy Valentine — Junior Civil Representative on the Ski Team

## NOVA SCOTIA INTERCOLLEGIATE HOCKEY SCHEDULE

Feb.	2	St. F. X. at Dal.	(St. F. X. 10-2)
Feb.	4	Dal. at Acadia	(Acadia 16-1)
Feb.	11	Acadia at St. F. X.	
Feb.	16	Acadia at Dal.	
Feb.	25	St. F. X. at Dal.	
Mar.	4	Dal. at St. F. X.	

## Engineers Lead Ski Races

### Intramural Downhill Race Results

The Engineers proved their supremacy in numbers and ability to win the first of the intramural ski races. The members of last years Varsity team were not allowed to compete. The large turnout and enthusiasm of the contestants overshadowed the poor ski conditions. Keith Taylor of Montreal flashed by the finish flags to record the best time of 30.4 secs. Second place went to Howie Boucher who was close behind, just 1/5 of a second slower.

The place and time of the racers is as follows—  
1-Kieth Taylor, Eng. 30.4 secs.  
2-Howie Boucher For. 30.6 secs.  
3-Dick Balance Eng. 31.2 secs.  
4-Leon Pond, For. 34.4 secs.  
5-Stig Harvor, Eng. 34.8 secs.  
6-Bob Neill, Eng. 35.8 secs.  
7-Dave Ballantyne, Eng. 36.0 secs.  
8-M. Cyr, Eng. 40.2 secs.  
9-C. Edgecombe, Eng. 44.2 secs.  
10-Allan Neill, Eng. 46.9 secs.

As far as we know Bob Coke is still on his way down. Using the system of 3, 2, 1, points for first, second and third place this gives the Engineers a commanding lead of 4 points to the Foresters 2 points. Next week a slalom race will be run which might easily change the whole picture.

For a comparison, some members of the Varsity team ran the same course, and their times were—  
Bud Mackley 29.0 secs.  
Gordie White 30.0 secs.  
Ian Scott 32.8 secs.  
Geo. King 30.0 secs.  
Cynthia Balch 42.6 secs.

An elimination cross-country race was held a week ago Saturday. The course started from the Gym, up through the orchard and wandered through the woodlot nearly to the Rangers School, and then back down to the Gym. Starter Bud Mackley sent off 4 langlofters on their lengthy run of a little over three miles and the best recorded time was that of Howie Boucher who completed the course in 32 minutes.

Bill Murray and Ian Scott were right behind for a complete elapsed time of 34 mins, and Bud Balance and Don Maclaran trailed them.

From these elimination races a

tyne lost another tooth when struck by a high stick. Saint Dunstan's come in Thursday night for an encounter with the leaders. They play a more open type of game than Mt. A. . . . The Bliss-Kennedy line is the hottest in Intercollegiate circles at the moment. They racked up seven points between them Saturday night.

### INTERCOLLEGIATE TABLE

	P.	W.	L.	F.	Ag.	Pts.
U.N.B.	3	3	0	21	4	6
Mt. A.	4	2	2	21	26	4
St. Thomas	1	0	1	8	10	0
St. Dunstans	2	0	2	6	16	0

### FUTURE GAMES

Thursday, Feb. 16—St. Dunstans at U.N.B.  
Saturday Feb. 25—St. Thomas at U.N.B.

team will be picked to represent the college in the Maritime Meet on Feb. 24-25, and the Inter-Collegiate Meet on the 3rd and 4th of March at St. Sauveur in the Laurentians.

## Odds 'N Ends . . .

Ad in paper—"Daughter, come home! All is forgiven. We're calling it Diploma because you brought it home from college.

The girl I left behind me  
I think of night and day.  
For if she ever finds me  
There'll sure be hell to pay.

"F-e-e-t," the teacher spelled out  
"what does that spell Mary?"  
"I dunno."

"Well, what is it that a cow has  
four of and I have only two?"  
So Mary told her.

Mark Antony: "I want to see  
Cleopatra."  
"But Sir, she's in bed with laryngitis."

"Damn Greeks!"  
"How was the burlesque?"  
"Abdominal."

"Do you know what good clean  
fun is?"  
"No, what good is it?"

Sign in nudist colony: Gentle-  
men playing leap frog, please com-  
plete your leaps.

1st Student: "Did'ya pass trig?"  
2nd Student: "No I flunked. . . .  
My teacher thaid I didn't know  
math from a hole in the ground."

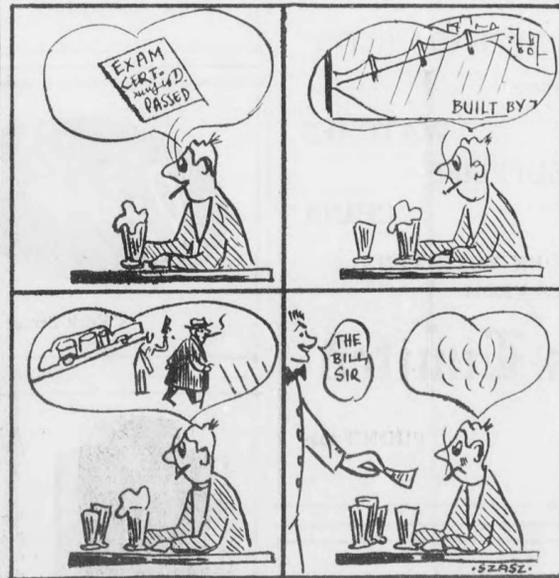
Compliments of  
**Ann's Dress Shop**  
596 Queen St. Dial 8083

For best SHOE REPAIR, At materials, good workmanship, reasonable price, and prompt service come to  
**Sam Shepherd**  
515 King Street, opposite CAPITAL THEATRE  
Also Leather Patches on U.N.B. Sweaters and Jackets

**CRESTS**  
FORESTERS  
PRE-MEDICAL  
SCIENCE  
ENGINEERS  
RESIDENCE  
ARTS  
**FLEMING'S**  
of course  
Est. 1889

A young woman  
Stepped out of bed  
Slipped into her robe  
Stepped into her slippers  
Raised the shade  
Uncovered the parrot  
Put on the coffee pot  
And answered the phone  
A masculine voice said  
"Hello, honey, just got a 24 hour leave"

I'll be right up  
She hung up the phone  
Took off the coffee pot  
Covered the parrot  
Pulled down the shade  
Stepped out of her slippers  
Slipped out of her robe  
Crawled into bed and  
Heard the parrot say:  
"Kee-rist, what a short day!"



-THE ENGINEER.-  
By courtesy McGill Daily

You are always welcome at  
**Herby's Music Store**  
306 Queen Street

**EXPORT**  
CANADA'S FINEST  
CIGARETTE

## RADIO TELETYPE

By Ken Creelman E. E. '50 and Bert Cosman E. E. '50

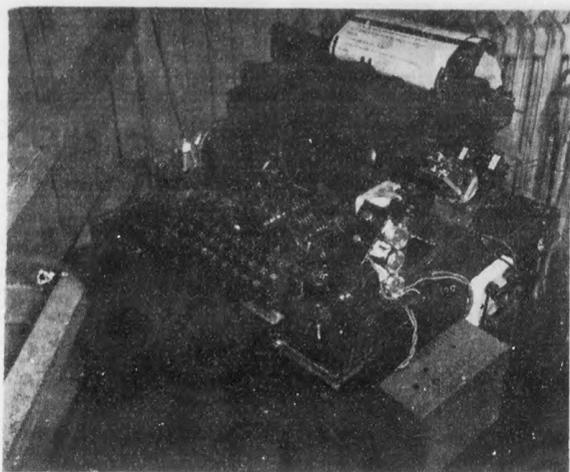
If you have tuned over the short wave bands of your radio and heard some wierd noises that didn't seem to make any sense, they may have been teletype signals or possibly telephoto signals. Many of these are trans-Atlantic news stations. Others send private radiograms overseas and to ships at sea. The military services of Canada and the United States are using radio teletype to an increasingly great extent for their signals traffic. It is somewhat amazing to see news printed out in front of you after tuning in one of the teletype stations.

For our thesis work in our senior year of Electrical Engineering a unit to receive radio teletype signals was constructed. The Electrical Engineering department had two obsolete Model 12 page printers. These teleprinters were of the type used in news offices of radio stations and newspapers a number of years ago. They normally operated from the telegraph lines which are connected to the central newsrooms of Canadian Press and British United Press. While these lines were not available to us there are a number of radio stations transmitting news with the same telegraphic code as the Model 12, but in the form of two radio frequencies. This code, called Baudot, it not like Morse code but is made up of "spaces" and "marks" rather than "dots" and "dashes". The problem for us was to receive these radio signals and convert them into marks and spaces to operate our teleprinter.

The first thing that had to be done was to change the speed of our printer from 40 words per minute to 60 words per minute to correspond to the standard speed of the stations we wished to receive. Special gears were obtained through the kindness of Canadian Pacific telegraphs in Montreal to convert our machine to the 60 word speed.

A communications receiver was a necessity also and luckily one was available in our laboratory. The main item to construct was a discriminator unit consisting of tuned amplifiers, detectors, and D. C. amplifiers. The tube complement of the unit was 4-6J5's, 2-6H6's and 2-6V6's. Four special transformers were obtained from a manufacturer who designed them especially for this use. A power supply delivering 250 volts at 100 milliamperes was also constructed to operate the discriminator unit.

After the procedure of tuning, obtaining frequency response curves and measuring teletype distortion, the equipment was tried out. Tuning the receiver to the radio teletype signals was critical at first but this adjustment was mastered



—Duke  
Teletype Printer in the Electrical Lab. used in the Cosman-Creelman Radio-Teletype Project.

### ODE TO A FORESTER . . .

I think that I shall never see,  
A clod so dumb as you seem to be;  
When from my lofty perch I see  
You staring fondly at a tree,  
A tree which dogs would fain go near,  
But which to you seems Oh so dear.  
And how the citizens do shout,  
To see you, great big sodden lout,  
Chase the sexy coeds, slim,  
From tree to tree, and limb to limb—  
You never seem to get the dame,  
For coeds play a subtler game.  
Like a homing pigeon back to roost,  
When for some clues you need a boost,  
Who is it that you come to see?  
But the Engineers from U. N. B.

With abject apologies to Joyce Kilmer and our coeds for even associating them with (Ugh!) Foresters.

with a little practice. So far we have copied about a dozen different teletype stations transmitting news, stockmarket quotations, radiograms and military traffic. Some of the traffic is in cypher form for secrecy purposes. The results of our work have been gratifying and worth our many hours of work since October.

TICKETS FOR  
ENGINEER'S DANCE  
ON SALE AT—  
ENGINEER'S STORE

### STORES OF CHARACTER and DEPENDABILITY

DIAMONDS WATCHES  
U. N. B. SUPPLIES  
SILVERWARE CHINA

IF IT CAN BE WORN WITH PRIDE  
IT COMES FROM

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## Red 'N Black Revue Telephone Building Toured By Radio Club

Once again, as in the two past years, the Senior Class Up the Hill is presenting the Red 'n Black Revue. Originated by the Class of '48, the Revue is a community effort under the direction of the Graduating Class. Bringing forth all the available acting talent at UNB it affords to the students as well as to the citizens of Fredericton an event which may be looked forward to. For three evenings—this year March 1, 2 and 3—the auditorium of Teacher's College will be the scene of a stage show which has no competition in the Maritime Provinces. A Revue which presents skits, songs, chorus lines and feature soloists, it is unique in this part of the country.

The thrill of producing such a show belongs to the marvellous cast which includes students from the Freshman to the Senior Class. Many hours of gruelling work in rehearsal are put in by these budding stage aspirants but they enjoy doing it.

Time given by these young actors and actresses is free. Proceeds from the show go to the Senior Class which uses them in order to sponsor the Senior Dance during Encaenia week. The remainder of the funds is handed over to the Life Executive of the Graduating class to be used to defray any future correspondence costs or expenses which the class as a whole might incur.

Tickets for the show of the year will be available shortly. The critics who have had a preview of the production highly recommend it and hope that every one will be present on March 1, 2 and 3 to enjoy it.

What well-known Senior Electrical Disc Jockey leaned against the doorbell at 1 A. M. Friday morning when bidding his girl friend good night? We hear that the landlady was very annoyed.

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Drug Company**

Wednesday, Feb. 1—The U.N.B. Radio Club met at the office of the New Brunswick Telephone Co. on King Street and were met by Mr. Ralph Williams who conducted them on a tour of the building, showing them how the exchange in Fredericton is run. Some of the luckier fellows were taken upstairs where they were allowed to watch the long distance operators at their work. Mr. Williams and two assistants explained the workings of the automatic dialing system and also showed the group a teletype machine in operation. They were then taken to the room containing the emergency power supplies and equipment used in producing the dial tone and the busy signals etc. The functions of this equipment were also explained to the interested groups.

Finally the groups arrived in the testing room and were shown how the various instruments are used to keep the communication lines in working condition.

All questions were answered very ably by the group's hosts.

### Red 'n Black Revue

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Thurs. 16 — Engineering Bld.  
Fri. 17 — Arts Bld.

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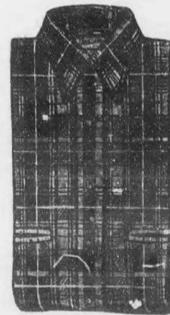
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### Building Toured Radio Club

ay, Feb. 1—The U.N.B. met at the office of the Brunswick Telephone Co. on and were met by Mr. Williams who conducted a tour of the building, showing the exchange in operation. Some of the members were taken upstairs to watch the work of the telephone operators at their stations. Williams and two assistants explained the dialing system and also the workings of a group of a teletype machine. They were then shown the room containing the power supplies and equipment used in producing the signals and the busy signals etc. Williams explained the operation of this equipment to the members.

The groups arrived in the room and were shown various instruments and equipment used in the communication system. Questions were answered by the group's hosts.

### Black Revue

TICKETS ON SALE  
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16 — Engineering Bld.  
— Arts Bld.

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WHO'S GOING TO WIN THE MARITIME  
INTERCOLLEGIATE HOCKEY TITLE?

### WALKER'S MEN'S SHOP

The Smart Quality Shop For Men

## Television for Canada in 1951 . . .

by Arnold Duke

Television broadcasting in Canada will become a reality in the fall of 1951 with the setting up of three transmitters by the Canadian Broadcasting Corporation. Toronto and Montreal will be the first cities to be served by Canadian Television. Toronto will have one English video outlet while Montreal will have one English, and one French.

The standard to be adopted will be American. This will mean the picture image will consist of 525

the transcription disc and magnetic tape. In remote and network broadcasting coaxial cable and the micro wave beam replace the telephone line in carrying the programme from point to point. Included in this article is a photograph of a Bell Telephone Company micro wave repeater stations in the Boston-New York circuit. Stations of this type are located about every 35 miles and carry television programmes from one city



—Duke

Television News Broadcast as received from WBZ-TV Boston Channel 4 and originating in Washington, D. C.

horizontal lines scanned 30 times a second. A few television receivers have already been made in Canada to these standards. These are used in southern Ontario and British Columbia, areas now covered by American television stations. At present twelve channels are available for television, and are numbered 2 to 13. Allocation of these channels to Canadian cities within 250 miles of the U. S. border has already been made through an agreement between the American Federal Communications Commission and the Canadian Department of Transport. The channels allotted follow a pattern similar to the A. M. broadcast channels now in operation. In New Brunswick, Fredericton, Moncton, Sackville, Campbellton and Edmundston were given one channel each while Saint John received two.

Television Broadcasting Techniques are very similar to those developed in twenty years of audio broadcasting. Radio broadcasts may originate from four sources, "live" in the studio, recorded, remote control, or from a network. In television the same sources are available. In the recorded group the medium is different, motion picture film and slides replaced

to the other where they are broadcast through regular television stations.

In the United States eighty-four television stations are now in operation, thirty-three more have construction permits. A television network now operates along the Atlantic coast from Boston south to Atlanta, and from New York west to Chicago. A second network operates along the west coast. At present programmes on one network have to be recorded to be used on the other. It is hoped that the two can soon be linked, to form one coast to coast network.

The first network in Canada will probably join the stations in Toronto and Montreal. A second link



—Duke  
Bell Telephone Micro Wave Repeater Station near Hartford Conn.

from Toronto to Buffalo would join it to the American Network; however, most of the programmes will be of Canadian origin. Television on any major scale in Canada will be impossible for some time as it is at present economically unsound to place transmitters in areas serving less than 100,000 people in its 65 mile radius. It would probably cost Canada her total annual budget to build a video network equal to her present radio networks.

### ENGINEERING AS APPLIED

(continued from page three)

at high speeds, a system of rope carriers has been devised, which is known at the Sheehan rope carrier. Two ropes run parallel to each other, and pinch together, thus holding the wet sheet, and carrying it under one dryer, around the bottom of it, up between it and the next dryer, up over the top of the top dryer, down again, and so on, until the paper has passed over every dryer. In this way different sections of the sheet come into contact with different dryers at different times, so that water is evaporated uniformly from the sheet.

The sheet then passes through calender stacks, which are a series of smooth iron rolls, mounted on top of each other. These revolve and press and iron out the dried paper until a smooth surface is obtained. To help get a good finish, the paper is dampened slightly before calendaring.

The paper has now been made.

It is wound on large iron cores to diameters up to forty inches by means of a drum winder, which simply revolves the core as the paper comes out of the calender stack, and rolls it up on the core into a large roll called a reel. The reel is transferred by means of a hoist to a stand behind another winder machine; here the paper on the reel is unwound, and passed through a winder machine, to be slit into any width desired, and again wound on paper cores to whatever diameter is desired. A roll of paper sixty-nine inches wide, will contain about 8,760 yards of paper if the diameter is thirty inches, and will weigh 1,625 pounds; the weight of paper is thirty-two pounds for 500 sheets twenty-four by thirty-six inches in size.

These rolls now go through a process called finishing. In this process the roll of paper is numbered, and then wrapped with the heavy cardboard paper made from the rejected pulp, mentioned previously. Three inch wooden plugs are put in the ends of the paper cores, and circular pieces of the same cardboard wrapper are put on the ends; the whole is wrapped up and pasted.

Each roll is weighed, the weight of the wrapper used is deducted, and the net weight of the roll stencilled on labels, which are pasted on the wrapped roll. The name of the customer is also stencilled on, and the paper is ready to be shipped, either by railroad, or by steamship, to wherever the customer's newspaper is located.

From forest to printing press, the manufacture of newspaper is made possible through the efforts of engineers, and application of engineering principles.

### Model United Nations

A meeting of representatives from various campus societies was held on Tuesday night Feb. 7 for the purpose of forming a model United Nations. Stig Harvir was elected President of the committee and Derek Wiggs was elected secretary.

It was decided seeing that the idea was adopted so late in the year that instead of a model assembly which would be too large an undertaking on such short notice that instead a committee on economic and social affairs would be formed. So far cooperation has been received from several societies and those who have not sent representatives are asked to do so. A meeting will be held in the near future.



### ENGINEERS IN SPORTS

by Gus McIntyre, C. E. '50 and Bob Gander, C. E. '50

This year as in the past the Engineers have played a prominent part in sports on the campus, both on Varsity and Intramural teams. Through their keen interest and the sacrifice of valuable time, they have helped to maintain a standard in sports at U.N.B. which is second to none in the Maritimes. This credit is due to a great extent to the influence of the veteran students, who have helped in a large degree to increase the interest in intramural sports and we are sure that they will be missed on the campus next year.

Taking a look at the past, we remember such names as Ryan, Garland, Stothard, Cye Spear and Bud Stuart all of which are now graduate engineers and who helped the college capture championships. Today we have Gaudet, Steele, Kennedy, Bliss, Smith, Jardine, Hunter,

Bert Dunphy whose injury while participating in English Rugby has forced him to discontinue his college career. George Jardine one of the most enthusiastic sportsmen on the campus showed up well in English Rugby and at the close of that season migrated across the tracks to the Gym to become a favorite of the gallery in his basketball prowess, along with Bob Smith and Nakash both members of anyone's all-star team.

With the arrival of winter the hockey team commenced intensive training. Engineers were well represented on the Varsity team with Gaudet, Steele, Walker, Kennedy, Thompson, Donkin, Dohaney, all prominent members of the Varsity line-up. You can be assured that all of these Engineers will do their utmost to bring the Intercollegiate Hockey title to U.N.B. this year.

Laurie Hunter another Engineer whose outstanding performance at the Intercollegiate Swimming Meet (undefeated in any intercollegiate competition) played a stellar role in bringing the Maritime Swimming Crown to U.N.B.

In intramural sports we find the Senior Civils well represented with teams in hockey, basketball, volleyball, bowling, softball, soccer and two teams entered in the new Curling League.

Much appreciation is felt by the Engineers who participated in these activities toward the Faculty members who have been so considerate in their attitude towards sports.

#### A Civil



—Henderson  
George (Teeder) Kennedy is the driving centre of U.N.B.'s powerful second line which is the top scoring threesome in the N. B. P. E. I. League...George, who hails from the Port City is a Junior Civil Engineer.

Walker, Harvor, (Biddiscombe!!!) and many others all doing their part to keep U.N.B. at the forefront of intercollegiate sports.

Last fall, returning students found Canadian Football well established on the campus due to the efforts of MacIntyre and several others. It is the opinion of the Engineers that this sport be given full recognition and the full support of the S.R.C., and that any movement to do away with this sport would not be in the best interest of the university.

Soccer, another comparatively new activity on the campus was bolstered by such stars as Body, Harriott, Geneau, Mosher, Harvor, in their quest for the Maritime Intercollegiate Championship which was successful even against the boys from the swamp with their classy imports from the West Indies.

In track we had Boby and Dick Gale who although not starrng supported their team to the utmost.

Tribute should be paid at this point to the sacrificing efforts of

#### An Electrical



—Henderson  
Bob Bliss, Right Winger on the Varsity hockey team scored the all important 3rd goal at the twelve minute mark of the 3rd period which proved to be the winning counter against Mt. A. Bob is a Junior Electrical from Fredericton.

#### U. N. B. VICTOR

(continued from page 4)

Sommers 2, Clapp, Scott 18, Manzo 17, Clayton.

U. N. B. Jardine 13, Nakash 6, Boulton 10, Stairs 2, Roberts 7, Smith 10, Atkinson 3, Buchan 6, Hanusiak 19, Jenkinson 2.

### Engineers Train Youth

(Continued from page 1)  
Equipment Officer; in any article of correspondent, Bob's opening remarks have concerned "our Squadron". P/O Phil Hastings, E. E. class '49, came up the hard way, getting his start as a Cadet with the Saint John Squadron, and offered his assistance to the Fredericton Squadron as a drill instructor. Phil is now taking over the adjutant's job in the local Squadron. P/O Ralph MacWilliam, E. E. class '50 has assisted very ably as Equipment Officer and is a Flight Commander since Bob left. F/O Harry Kalpakis, E. E. class '50, confines his activities to landing the Cadets in the Link Trainer in soupy weather, and to teaching airmanship and Theory of Flight; the lads are wondering how they'll get the Link "airborne" when Harry leaves, F/O Ken, "Spider" Dick, C. E., class '50 has been the boys' Navigation and how to get the Link back to Fredericton when the ceiling is zero at Barker's Point. F/O Tom Steele, C. E., class '50, has provided excellent training in Armanent and on Range work; the only "shot" he failed to miss, being the one he stopped during an intramural hockey game.

Before closing this article, it would not be fair to omit mentioning the names of the officers and instructors of other faculties, who have done so much in the promotion of the Fredericton Squadron First, and foremost, there is Len Barrett, Forestry, class '50; Len has been with the Squadron since it started in '47, and there are five Cadets, amongst all the others, who owe him a hearty vote of thanks, for his training in Navigation and Meteorology, which helped them to gain their Air Cadet Wings, thanks, Len. Others include Les Dobson, class '52, Tom Prescott, class '49, and Les Gray, class '50.

Fellow students, there you have it. A youth movement where you can derive unlimited benefit and satisfaction yourself, and at the same time, perform an invaluable service to the youth of Canada.



### Intramural Hockey

by MOTT

Alex. rink saw a series of bloody hard-fought hockey games last week as the Intramural season drew to a close. Two serious injuries were sustained by Lowery of Frosh Combines and goalie Bumbury of Angels, both had to be taken to the hospital to get slashes sewed up. The brand of hockey which has been played shows that the boys are really keen on our National sport. There was only one let-down in the week when the Sophomore-Science team failed to show up to play York River Cruisers.

In the first game of the finals, Junior Foresters whipped their Upper Classmates, the Seniors by a 2-1 tally. Lloyd and Hanusiak for the Juniors and Keith for the Seniors were the scorers. The Juniors have thus far kept their record clean, not one defeat all season. They have forty-six goals to their credit and only six against, two shutouts and no team has ever scored more than one goal on them in a game. They seem to be the favorites to win the "cup".

In the consolation series (best of three) Hut 13 was beaten by a score of 6-4 by the York River Cruisers. Both teams finished up in the basement of the two leagues but seem to be doing all right for themselves.

Note to Managers. At the conclusion of the finals, if weather permits, there will be an elimination tournament for all the teams interested in playing more hockey. If interested please advise the

### Physical Education Department. PLAY-OFFS

Monday Feb. 6—  
Civil Seniors—5, Senior Civils—4.  
Tuesday, Feb. 7—  
Sr. Foresters—5, Alex Angels—3.  
Wednesday, Feb. 8—  
Silver Streaks—5, Fresh Foresters—3.  
Semi-Finals, Saturday, Feb. 11—  
Senior Foresters—3, Silver Streaks—1.

### Jr. Foresters—6, Civil Seniors—1

Consolation Series—  
Tuesday Feb. 7—  
Hut 13—5, Fresh Combines—4....  
Soph. Science default game to Y. R. Cruisers.  
Finals—(Best of 3)  
Sunday, Feb. 12—  
Jr. Foresters—2, Senior Foresters—1.  
Consolation (Best of 3)  
York River Cruisers—6, Hut 13—4.

## YEAR BOOK PHOTOS

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VARSITY HOCKEY VS SAINT JOHN SATURDAY

VOL. 69

## FERGUSON AUDIENCE

Stresses R

The Editor of Ferguson, addressed on Wednesday a Role of the New series of lectures New Brunswick granting of its ch Dr. A. W. Trueman the University of spoke, in his introduction of the speaker's journey which included the "London Times" and "Nipigon Free Press" with the position of "Montreal Daily Star" guson is also a well commentator and with the United Nations mission on Freedom and the Press.

In his most interesting address, Mr. Ferguson spoke of the role of the free press in a democracy, which, he thought, was the only way of ensuring the freedom of students, faculty and members of the community. He stressed that the "Freedom of Information Act" has been rightly called the keystone of all

He then went on to speak of the birth and growth of the modern newspaper and for freedom of expression the value of today. Mr. Ferguson's power to sway the truth was great but that at the part in the whole process was a vital marked that for the properly, it must be a general frame work and spoke of the la Information when comes a state mon complete state mo ler and Stalin.

Although Mr. Ferguson stressed that the press is open to criticism that there was ample opportunity in the papers in Canada after objectivity in the manner. He criticized by reference to the British Royal the Press.

In closing Mr. Ferguson stated that in the main is swayed by the ed and although the its share of the "versity student m his responsibility.

These addresses, eminent men represent fields of study, show how academic out on the campus ial role in the bu fessional life of th

### From Dr. T

"... the Uni Brunswick claims further the aims ship, to enrich the the spirit of every the hill, to equip women with the t ful living in a w miracle, and to do of God and in gre those who with f plotted our course half ago."

—From Dr. A. V. Founder's Day, F