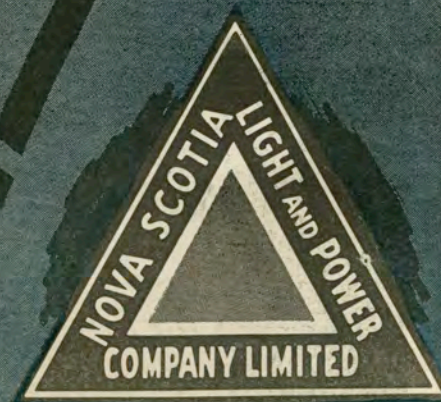


THE EASTERN CANADIAN PORT

*Now it can
be told!*



Sincerely Thank You!

Nova Scotia Light and Power Company, Limited

HALIFAX, NOVA SCOTIA
CANADA

May, 1946

To All Customers:

During the war years this Company had its full share of problems and difficulties in meeting the greatly expanded demands which were placed upon its services by the armed forces and a war swollen population.

An outstanding task was performed by our employees . . . and our customers gladly cooperated. By making the best possible use of the available equipment we were able to serve the needs of all our customers.

We realize that the service was not always perfect when compared with peace-time standards, so we take this opportunity to thank our customers for their patience and their many evidences of cooperation and good will.

We think our 45,000 customers will be interested in the unusual and often spectacular tasks that were assumed by our Company and we have prepared this booklet to tell a part of our story, and send it to you with our compliments.

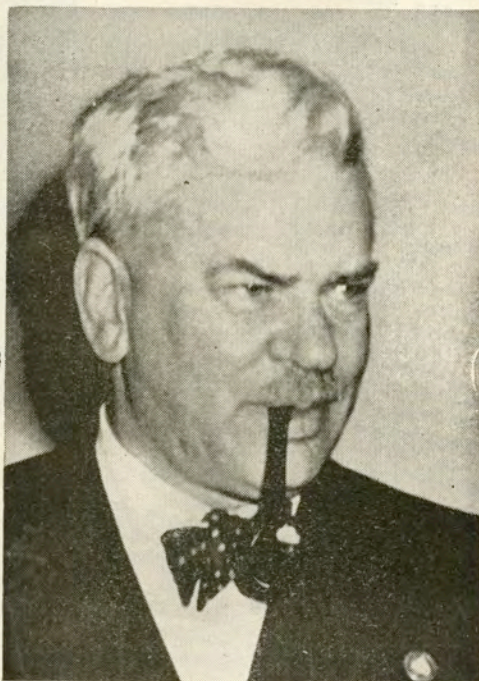
Sincerely

J. C. MacKeen

President

NOVA SCOTIA
LIGHT AND POWER
COMPANY LIMITED

Now... it can be told!



... a message from

MR. J. B. HAYES
MANAGER

**NOVA SCOTIA LIGHT AND POWER
COMPANY, LIMITED**

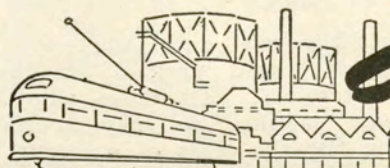
This policy, of course, was to a very large extent dictated by the secrecy and censorship surrounding the operations of many of the industries and organizations to whom we supplied power and services.

Not only do we hope the people of the Province will find these stories of general interest but we know they will share with us a feeling of pardonable pride in the energy, initiative, endurance and loyalty with which our employees tackled and mastered problems which could neither be anticipated nor prepared for in the ordinary manner.

We have told these stories in a series of radio broadcasts and now present this condensed version in booklet form. They are but more evidence of the heights to which a free people can rise in an emergency. They prove beyond contradiction that individual and democratic operation as exemplified on this continent immeasurably excels regimented effort.

WE believe many people in Nova Scotia—and particularly in Halifax—will find intensely interesting the story of the war-time performance and achievements of all the people who help to make the Nova Scotia Light and Power Company, Limited, the great public utility it is.

During the past six war-time years, it was the policy of this Company to refrain from discussing or divulging the nature of its special activities and the extent of its progress.



Nova Scotia
LIGHT AND POWER
COMPANY LIMITED



ROYAL CANADIAN MOUNTED POLICE
"H" DIVISION.

IN REPLY PLEASE QUOTE

DIV. FILE NO. _____

H. Q. FILE NO. _____

HALIFAX, N. S.,
14th November, 1945

J. B. Hayes, Esq.,
Nova Scotia Light, Heat & Power Company,
HALIFAX, Nova Scotia.

Dear Mr. Hayes:-

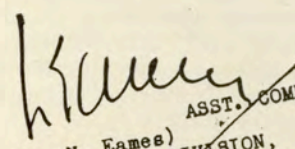
It is my understanding that your Company has in process of compilation a brochure recounting the work performed during the war period.

May I, therefore, take this opportunity, on behalf of the Security Survey and Security Control Service of the R.C.M.P., to express appreciation of the outstanding cooperation and support given by members of your Staff to the Branches indicated during the period 1939 - 1945.

This cooperation commenced even before the outbreak of hostilities, and it can truly be said that many of the features that went to make up the inspection routine of industrial plants in this Province by our Security Survey Branch were suggested at conferences held with your officials. The measures taken by the officials of your Company to provide security, by way of additional outside lighting, steel fencing, walling-in of transformers and additional fire protection at the eight plants under your control, were prompt and adequate, and were maintained throughout the war period. When pass systems in this area became general, under the authority delegated by the Security Control Officer, at least one other was modelled on that in force at your main plant in the City of Halifax.

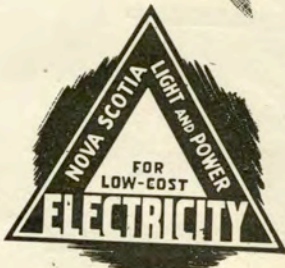
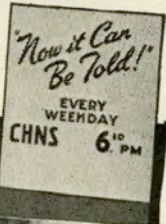
Please accept this as a grateful acknowledgement of your own good counsel and support given before and in the early stages of the conflict, which assisted in no small measure in the rapid inauguration of security in industrial plants throughout the Province. The foregoing would, beyond question, be subscribed to by my predecessor, Deputy Commissioner F. J. Mead, with whom you collaborated so closely.

Yours faithfully,

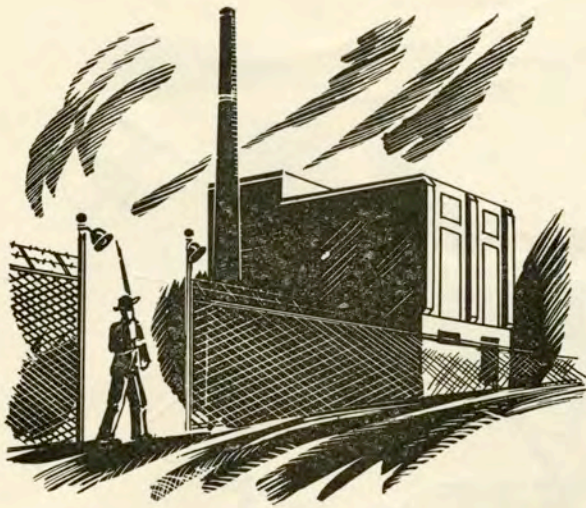

ASST. COMM'R.,
(A. N. Eames)
COMMANDING "H" DIVISION,
R.C.M.P. - Nova Scotia.

E:HDP.

JAMES TAPP, narrator
on the series of "Now It
Can Be Told" radio
broadcasts, Nov. 1945.
Feb. 1946.



One hundred and thirty-four of our employees joined various branches of the armed services. To those who made the supreme sacrifice we pay special tribute. During the six years of war our employees purchased almost a million dollars worth of Victory Bonds and War Savings Certificates, one-seventh of the Company's total payroll.



THWARTING THE SABOTAGE EXPERTS

In February of 1939 while the war clouds were gathering in Europe, but before Canadians at large sensed any real danger, the R.C.M.P. requested a meeting with officials of our Company. At this meeting we were told, confidentially, that war seemed imminent and it was believed that our potential enemies had prepared efficient plans to sabotage power and communication systems, railroads and ships, as well as manufacturing and processing plants throughout the whole country. We were asked to formulate plans and make the necessary preparations to protect all vital points of our system in case of emergency, until the regular Army or Police Units could be organized to take over these duties.

Plans were drawn up accordingly with special attention being given to protection for the Water Street Plant in Halifax, because of its extreme importance. Permanent steel fencing was at once erected around that plant, and temporary fencing to enclose the whole plant area, was prepared and stored for emergency use. Equipment for an elaborate lighting system to illuminate the entire area around the plant was purchased and installed. In our various generating plants, and at other vital points, carefully selected employees were appointed as "key men" and were instructed in their "emergency duties." The plans were quickly completed to the last detail, and our employee organization stood ready to swing into protective action at a moment's notice. During these days of planning and preparing the R.C.M.P. kept us constantly informed on all developments which might affect us.

Then came the day when we were told that war was inevitable and that our anti-sabotage plans should be put into effect the moment the German Armies crossed the Polish border. That news was to be flashed to us by the R.C.M.P.; but as an additional precaution a radio was installed in our Halifax Power Station and our operators were instructed to listen for the much feared news. Suddenly it came. We picked it up over the radio about 5 o'clock in the morning and within a few minutes all "key men" were contacted. Within one hour every vital point on the Company's system was protected by armed guards chosen from the ranks of our employees. By eight o'clock that morning, when the day shift employees were coming to work,

fencing had been erected around the various plants and the sites had been made restricted areas. Notices containing instructions for employees had been posted on all notice-boards; all parcels were inspected before they were allowed to enter the premises; incoming street cars and motor vehicles were checked and inspected for possible incendiaries; all unauthorized persons were forbidden to enter; added precautions against fire were taken and the various groups of employees were instructed in their particular duties in case of local emergency.

All this was done several days before Canada entered the war. Thus began a vigil of protection which lasted throughout the six long years of war. It effectively protected the company's entire system from any attempt at sabotage.

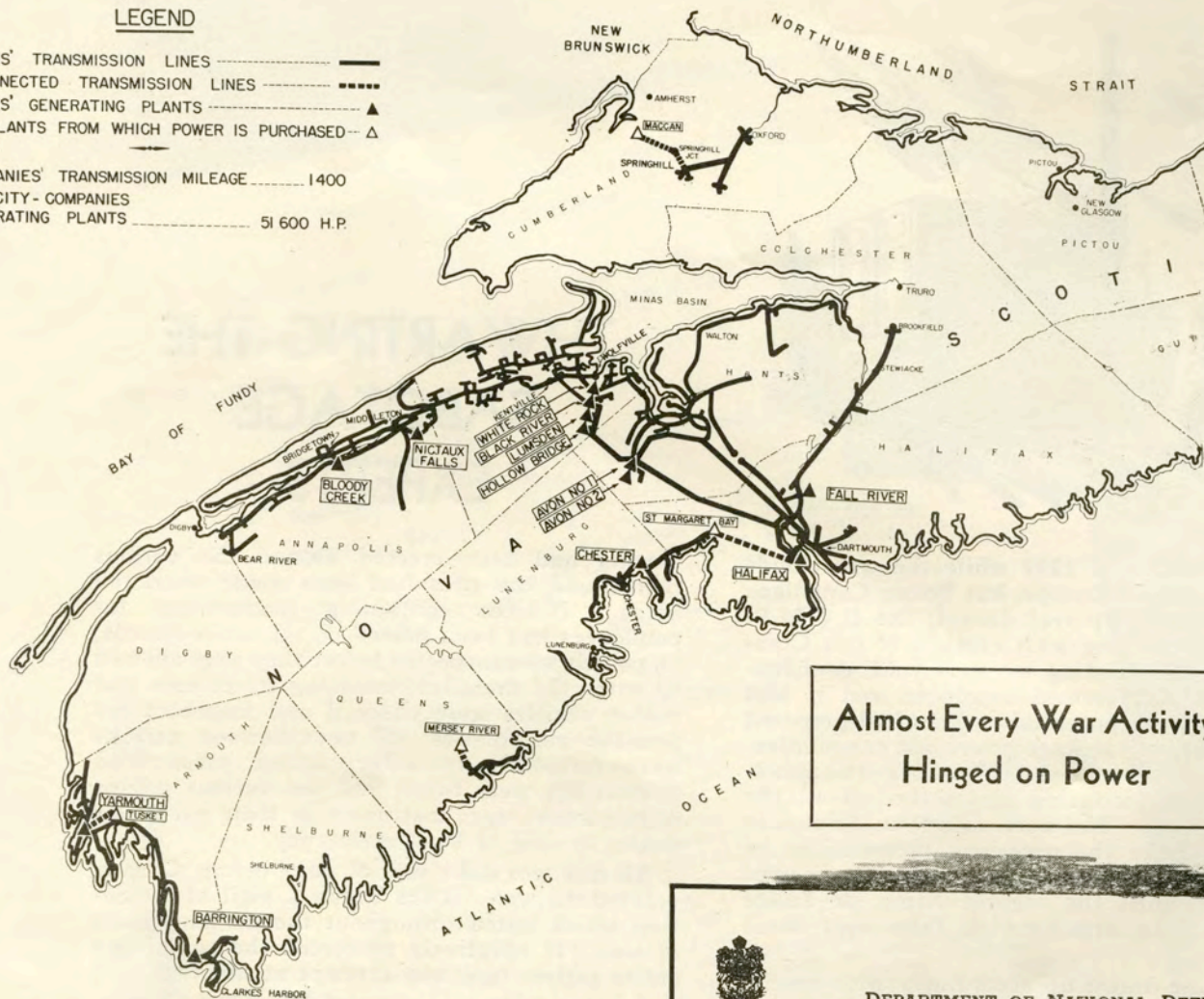
As the days passed carefully selected men, approved by the R.C.M.P., were hired as security control guards to replace our employees who had temporarily filled the breach. At our hydro-plants and dams in remote areas, woodsmen and hunters who were crack shots kept continuous watch, day and night, through summer and winter. These areas had also been fenced and floodlighted to simplify the job of protecting them. The main Water Street Station in Halifax, as well as the important sub-stations at Armdale, Tufts Cove and the Ochterloney Street sub-station in Dartmouth were guarded night and day. Houses of heavy steel were built around many of the main transformers to protect them from bullets or bomb fragments. The main transmission lines were regularly patrolled and every employee of the Company, over its whole system, was made "sabotage conscious" and were ever on the alert to guard against it. When our "security control" organization was abandoned at the close of the war, the warm words of praise from the R.C.M.P. were most gratifying.



LEGEND

COMPANIES' TRANSMISSION LINES ————
 INTERCONNECTED TRANSMISSION LINES ————
 COMPANIES' GENERATING PLANTS ————▲
 OTHER PLANTS FROM WHICH POWER IS PURCHASED ————△

COMPANIES' TRANSMISSION MILEAGE ———— 1400
 CAPACITY - COMPANIES
 GENERATING PLANTS ———— 51 600 H.P.



Almost Every War Activity
 Hinged on Power

TRANSMISSION SYSTEM

NOVA SCOTIA LIGHT AND POWER CO. LTD
 AND
 SUBSIDIARY COMPANIES

0 5 10 20 30
 SCALE IN MILES

Every single day—three hundred and sixty-five days in the year—over half the people using electricity in Nova Scotia enjoy the advantages and conveniences of service supplied by the Nova Scotia Light and Power Company. Putting it another way—in addition to serving the City of Halifax with electric energy, gas and transportation, the Company either directly or through its wholly-owned subsidiaries supplies electric service in eleven of the fourteen mainland counties of Nova Scotia. Surely this efficient electric supply system can be described as Nova Scotia's "Magic Girdle."



CANADA

IN REPLY PLEASE QUOTE
 No. W.W.F.

DEPARTMENT OF NATIONAL DEFENCE
 ARMY

Halifax, N.S., 15th October, 1942.

Mr. J.B. Hayes, Manager,
 Nova Scotia Light and Power Co., Ltd.,
 Halifax, N.S.

Dear Mr. Hayes:

I have perused with much interest the statement of power requirements for the Armed Forces in the Halifax Harbour Area.

It is, of course, obvious that an adequate and continuous supply of electric power should be maintained at all times.

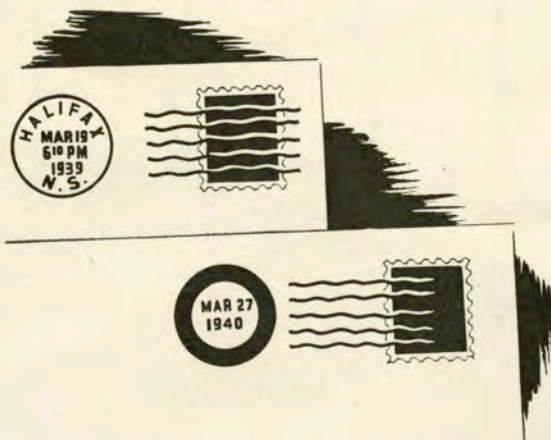
I trust you will be able to carry out the development programme essential to ensure such a supply.

Faithfully yours,

W.W. Foster

(W.W. FOSTER) Brigadier,
 District Officer Commanding,
 Military District No. 6.

GPG



AND HALIFAX BECAME "AN EAST COAST PORT"

With the declaration of war, Halifax, with its great harbour facilities, became one of the key ports of the whole allied campaign. It was the port from which all convoys sailed. It was the Western Base for the ships which fought the battle of the Atlantic. Its name was changed to an "East Coast Port." Its activities were shrouded under censorship. It was ringed with forts, searchlights, and ack ack batteries. Its harbour was protected by anti submarine nets and mine fields while great naval power guarded its outer coastline. In the skies overhead and far out to sea a constant air patrol kept watch for enemy craft. Its population doubled and its streets were crowded with men from many nations. Halifax became in reality a front row seat in the great amphitheatre of the war. It was at this port that our troops embarked on mighty transports and millions of tons of war materials were loaded into ships. Almost 57,000 ships, representing an average of 26 ships per day, entered and cleared this "East Coast Port" during the war years.

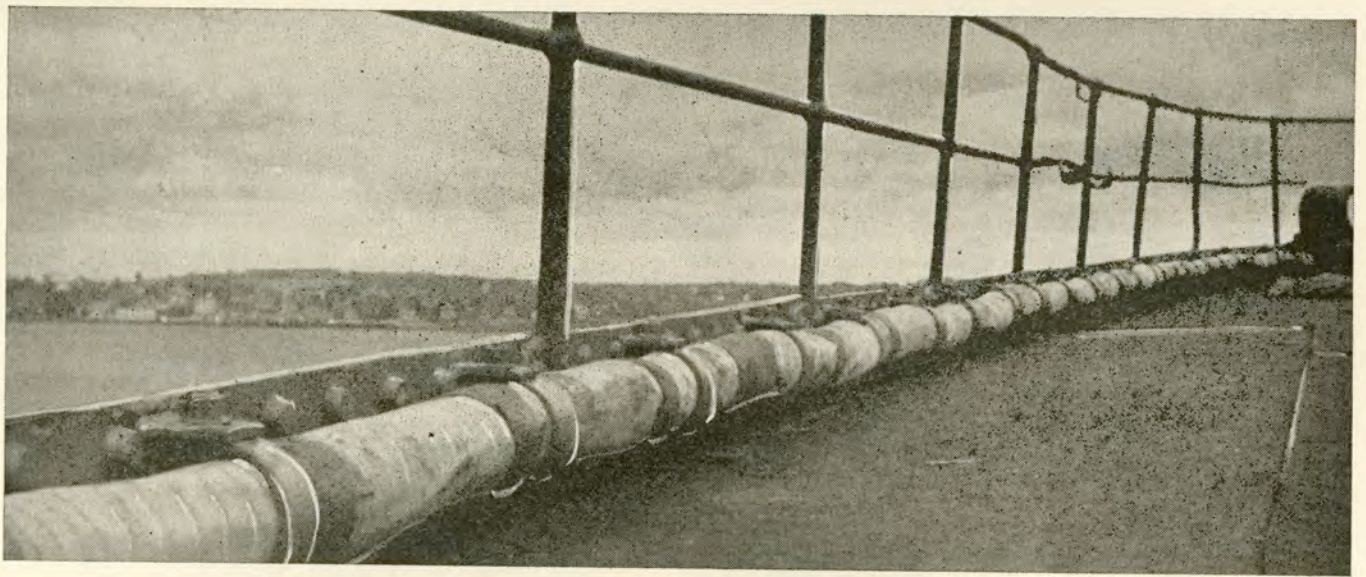
Nova Scotia Light and Power Company supplied the electric light and power for the vast Naval and Air establishments which grew under our very eyes; for the Shipyards which built warships and repaired the war and weather damage suffered by both merchant and naval craft; for the forts and military sites; for the freight yard and wharves; for the machine shops and foundries; for the hostels and the hotels; and for countless other purposes which, all combined, made vast demands upon our equipment and facilities.

To meet this abnormal demand all of the Company's generating plants had to be maintained and operated at maximum efficiency. Two new hydro plants, with an installed capacity of 12,000 HP and a steam generating plant with a capacity of 12,500 KW were built and put in operation during the war years.

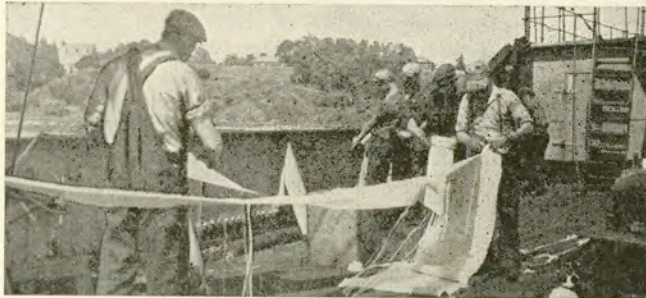
The new Steam Plant, built on the Company's Water Street property in Halifax during the height of the war, was another case of "do or die." The building and completing of that plant was a grim struggle against bad weather, the red tape of priorities, the shortage of materials, the uncertainties of deliveries, the manpower shortage and lack of experienced labour. The foundation was started early in 1942 but it was not until the late summer of 1944, two and one-half years later, that this plant was sufficiently completed to be put in operation. Housed in a separate reinforced concrete building without windows, it is an independent unit designed to withstand the shock of possible nearby bomb explosions.

Before the steam plant was completed we were having some difficulty, not only in meeting the peak load demands on our system, but also in supplying the Kilowatt-hour requirements from our water storages. An emergency arrangement was made with a neighbouring industry which had a surplus of power but had difficulty keeping their own mill running because of the shortage of labour and material. With the co-operation of the Public Utilities Board and the Nova Scotia Government, an agreement was reached. Electrical connections were made and thus an extra generating capacity of 4000KW. was linked to The Avon River Power Company's transmission lines supplying Halifax. The interconnection proved a real "second line of defence." It not only improved our "peak load" capacity but also supplied to us more than 30,000,000 kilowatt hours in the three-year period from 1943 to 1945.





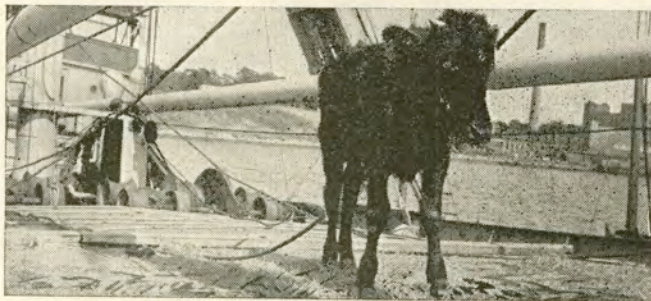
DEGAUSSING CABLE INSTALLATION. Dozens of insulated wires are wrapped in canvas and secured to the ship with special clamps in this typical deck coil.



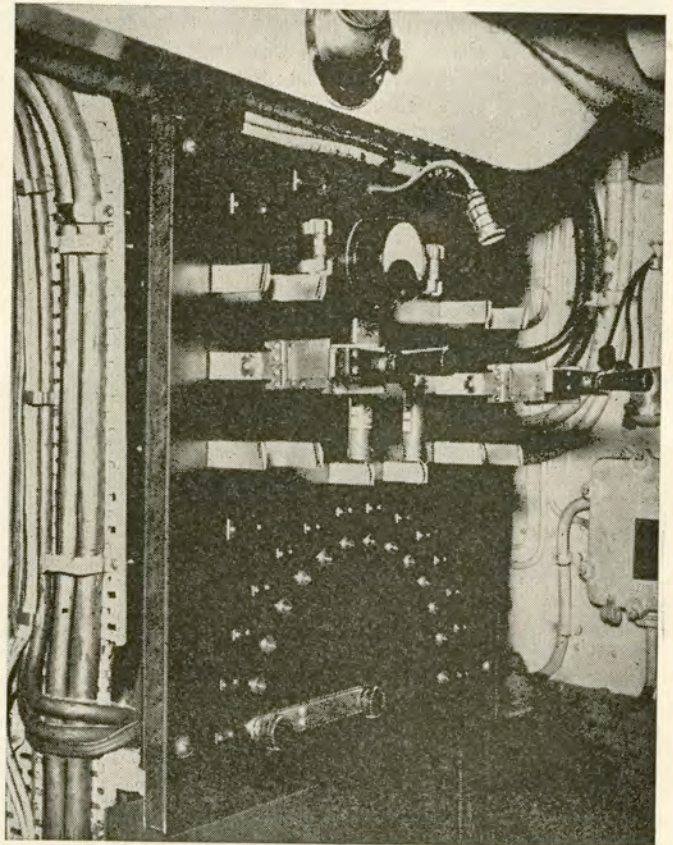
MILES AND MILES of canvas were used for taping degaussing coils.



SPECIAL IRON CLAMPS designed by our Marine Department and adopted by the Admiralty, being welded to a ship's bulwark.



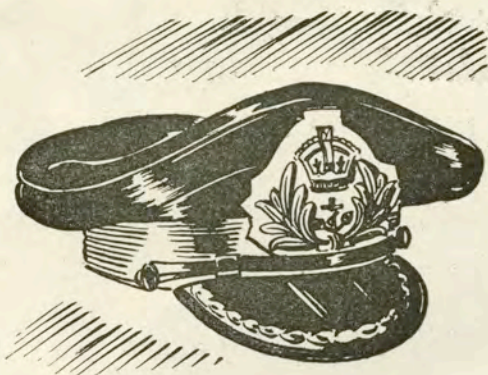
LIVE COWS, sheep, pigs and hens are carried by some ships so that fresh meat is available for the crew.



SWITCHEBOARD to control the degaussing system of a destroyer.

Electricity has become a necessity in our modern civilization. There is plenty of power in Nova Scotia for everybody. But in order that individuals can benefit to the greatest extent, they should see to it **now** that their homes are properly wired to take care of the extra electric current which added new appliances will require. See your neighbourhood electrician—ask him for his recommendations for the re-wiring of your present home—or the installation of proper wiring in the home you plan to build or buy.





AND SO . . . "DEGAUSSING" WAS BORN

Back in the early grim months of the war—in April nineteen forty—a Senior Naval Staff Officer urgently requested our assistance in finding someone to help the Naval Service solve a very critical and disturbing problem. Those were the days when the German magnetic mines were giving allied shipping a terrific beating—very much greater, and more serious than the public generally believed. The Naval Officer described the method of protection which the technical staff of the Admiralty had developed—and put it up to us to find some firm who would install this protective gear—Degaussing—on ships of all nations entering the Port of Halifax.

Briefly the job consisted of fitting a specially designed coil of insulated wires all around the outer rim of a ship's deck and then connecting this coil through suitable switches to the ship's electric generator. It was work that had to be done expertly and quickly—the deck coils had to be well secured and protected against possible sea damage. These degaussing coils had to be in operation twenty-four hours a day.

How effective they were is illustrated by the story of the ship's engineer who decided, while in a certain French port, to save some electrical current—so he pulled the switch on the ship's degaussing system. Unfortunately, his ship was right over one of those devilish magnetic mines—and his ship was blown up and sunk. His example was never repeated—it was a lesson well learned.

Some appreciation of the size and extent of a degaussing job can be gathered from the fact that as much as thirty miles of cable were required for one ship's installation. Yes thirty miles—that's a lot of wire!

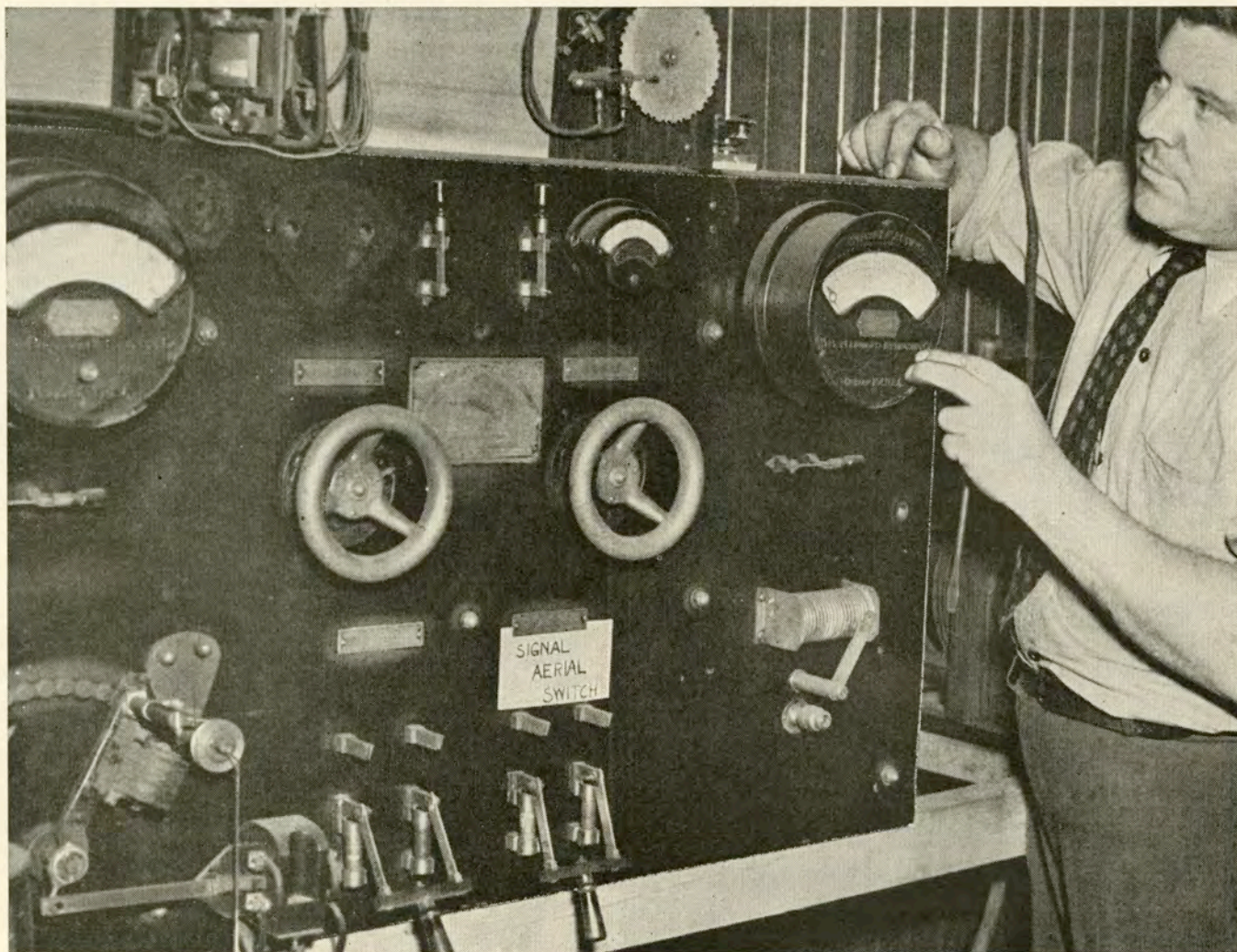
Realizing the size and importance of the problem which confronted us, we promised the Naval Officer to find some electrical contractor to handle the work—or as a last resort do it ourselves. We soon discovered that no local contractors were in a position to do the work—they were all up to their ears in other important war-work. So it was, that the following day we met with a group of naval officials and after some discussion agreed to gather together the necessary men and equipment—and be ready to start work in about ten days' time. Thus was born the secret Marine Department.

Naturally our first worry was—"where to get the men who could do the job?" However, the Navy did not let us nurse this problem too long because without waiting the suggested ten days, or even ten hours, but within one hour we had a rush call to handle a repair job on the degaussing system of a Tanker—the "Henry Dundas"—which had to sail in convoy the following morning. It was an emergency that had to be met—and within a matter of minutes we had fifteen men hard at work replacing a two hundred foot section of damaged degaussing coil. By working all through that cold, wet April night the repairs were completed—the coil tested—and the Tanker sailed according to schedule. This was the first of hundreds of hush-hush jobs handled by the Marine Department.

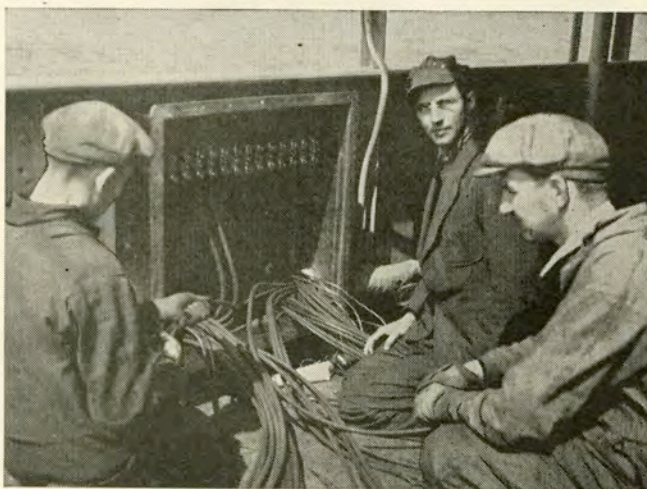
At the outset, nobody had the faintest conception of the amount of work and toil that loomed ahead of us. As a matter of fact, everything was based on a verbal arrangement which was discussed at one of our earliest meetings with the naval officials. We agreed to utilize the facilities, equipment and experience of our organization in every possible way—either in a supervisory capacity or in doing the work ourselves—and all work was to be done on a strictly cost no-profit basis!

Jobs were done on all kinds of Merchant and Naval Ships ranging in size from the mighty Queen Elizabeth to small coastal freighters—from battleships like the H.M.S. Ramillies to small patrol boats. No two jobs were alike. Every single one presented a different problem to be solved—but solved they were.

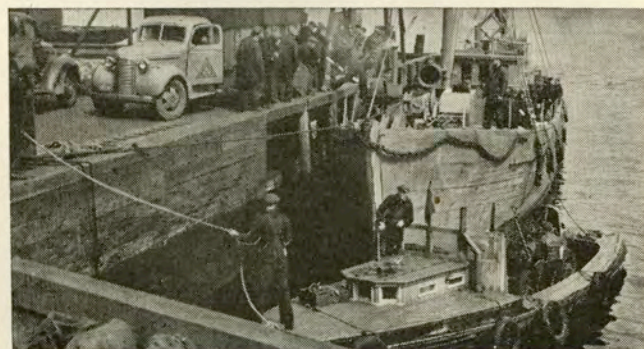




THE ILLEGITIMATE SQUAWKER. A war baby which was the brain child of many people — into it went bits and pieces ranging from an old spark set off a fishing trawler to discarded parts of household electric meters.



SHIP'S DEGAUSSING JUNCTION BOX. The central nerve system of a degaussing installation is being connected up by experts.



GOING TO WORK. With work in progress on ships scattered all over the harbour and basin the degaussing men used special taxi-boats.

In keeping with our policy of Better Service at Lower Cost, electric rates were reduced on January 1, 1945, while the war was still in progress. During 1945 this rate reduction meant an estimated saving of \$425,000 to electric customers in the Halifax—Dartmouth—Bedford area. Similar reductions were made by all subsidiary companies and the estimated saving to our customers in Nova Scotia was \$615,000.





THE CASE OF "THE ILLEGITIMATE SQUAWKER"

Remember back in the war years—that air raid signal that used to come over your radio? Like the sirens, it was a nuisance and an annoyance—that we'll freely admit. But now that it's all past, we'd like to tell the story of what we called the squawker.

Early in the war period when A.R.P. groups were being formed, we organized in our own Company an effective system to protect our own plants. In addition we provided emergency squads of various types to fit in with the City's A.R.P. organization. One of the difficulties was to arrange a suitable Air Raid warning that could be heard in every home, especially if the radios were turned on. Some sort of transmitter that would cause a distinctive type of radio interference when the sirens were sounding was urgently needed.

Everybody rallied round and we were helped by the Department of Transport, by the Marconi Company in Halifax, by the staff of Nova Scotia Technical College, and by some of our own staff who are very able radio technicians. The device finally produced was the brain child of many parents, and that may be the reason it was later declared illegitimate.

We produced a device that would do credit to Rube Goldberg. We secured an old antiquated spark-gap radio transmitting set that should have been in a museum. To get the proper signal we attached a telechron clock motor to a meter disc, and cut out the edge of the disc so that contact was made in a series of alternate dots and dashes. The device worked fine, it would not carry more than twenty or thirty miles from Halifax and it would break through any standard broadcast. Furthermore, and this was essential, it did not interfere with the signals used by the Navy, Army and Airforce; and after repeated tests it had their approval. We were sitting pretty, and thought that what Ottawa didn't know wouldn't hurt them. But everybody forgot that there is a direction finding

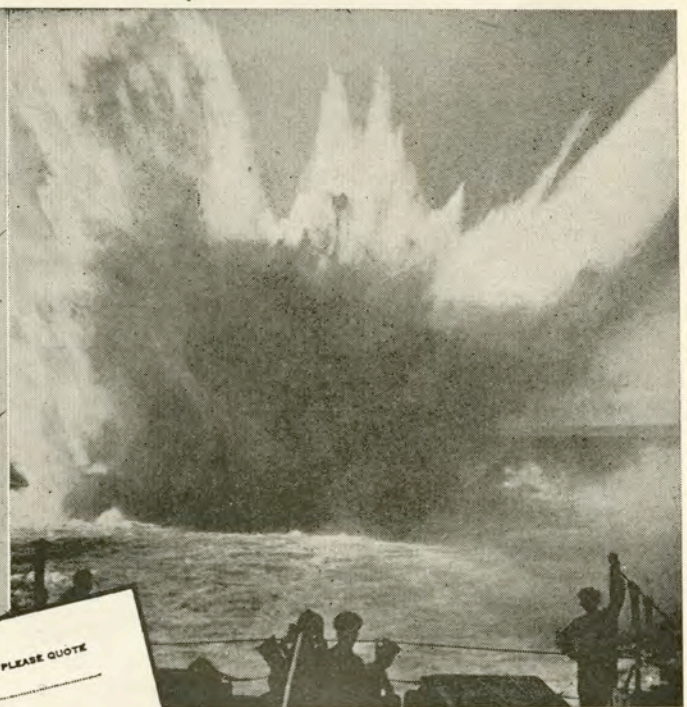
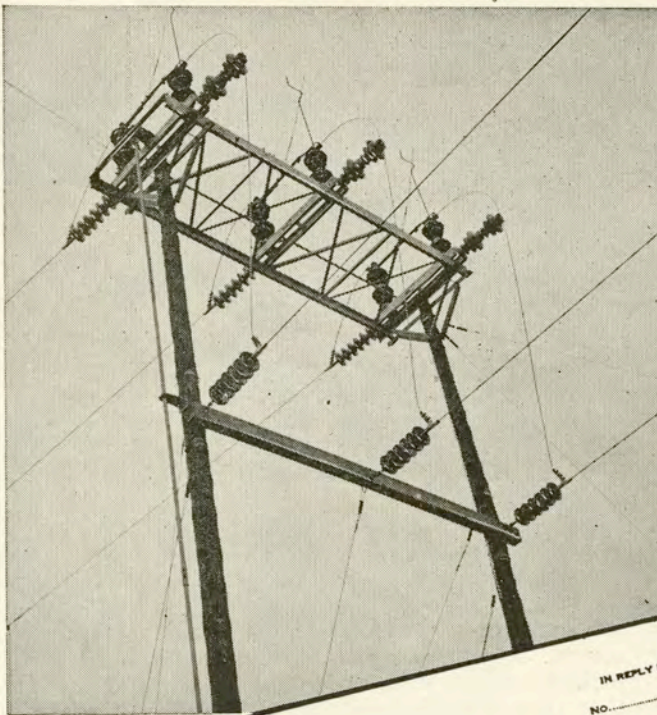
station near the mouth of the harbour, and, of course, when we were practicing, that station picked us up. It immediately wired Ottawa that there was an unauthorized station, presumably of enemy origin, apparently in Halifax. In due course down from Ottawa came an order to cease and desist.

We wrote to the Minister personally and explained the situation to him. We said that this was an essential part of our A.R.P. system and we could not get along without it and asked him to pass an Act of Parliament, or Order-in-Council, or an Act of—or—something to let us carry on. When you send that kind of a letter to Ottawa in those days you used four or more envelopes, marked successively "personal," "private," "confidential," secret," etc.

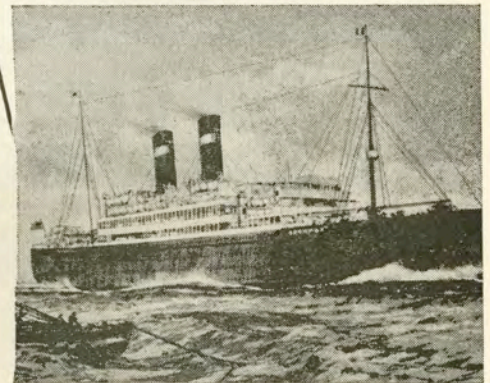
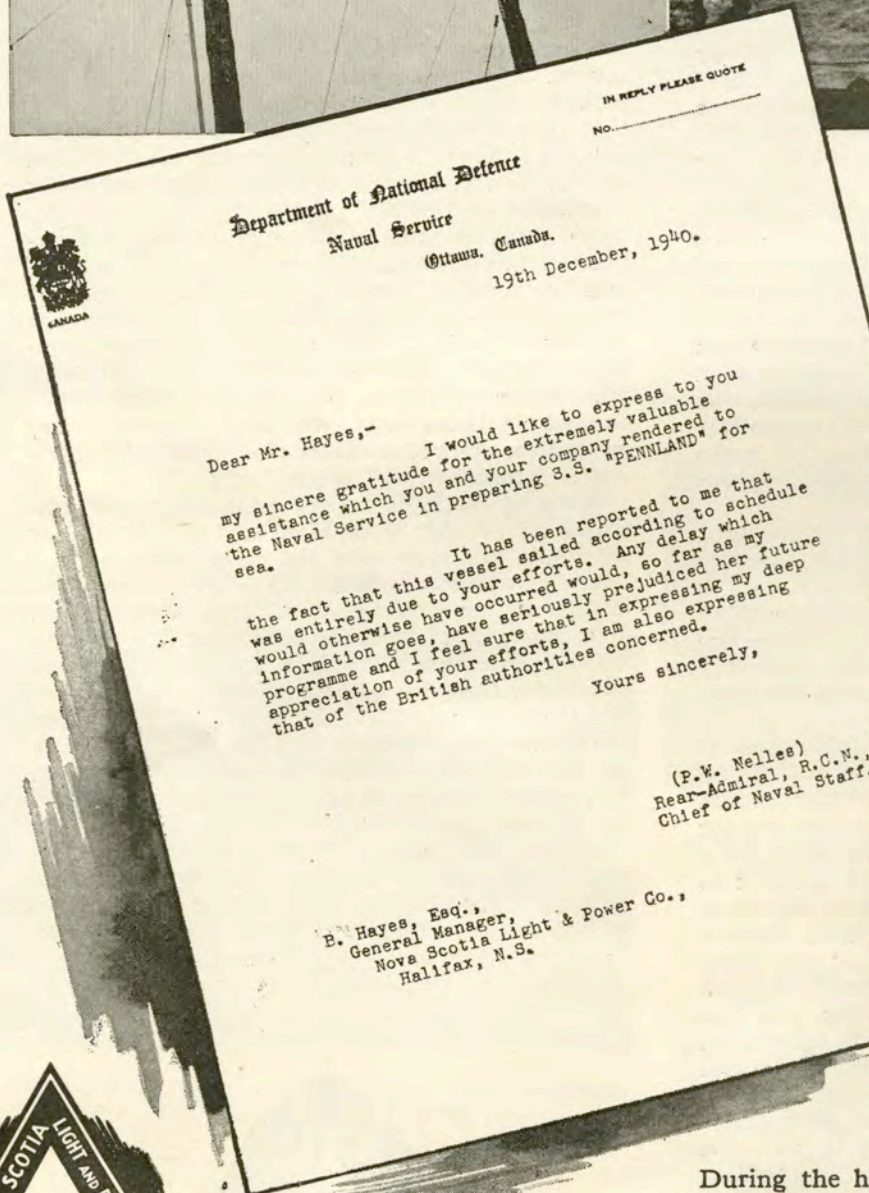
Some weeks later we got an answer. Ottawa was a lot better than Halifax. We used four envelopes but they used six. The Minister said "This is against International Agreements, and is against the Defence of Canada Regulations. You must therefore cease and desist, or—devise a radio interference that does not interfere. But until such time as you have devised such a thing the Department will take no action." Well, we were still going strong on V. J. Day, and we think we had the only device of its kind in the world. But in any event the squawker filled the bill to perfection.

This is just another example of how our electrical staff rose to the occasion and solved a serious problem by the ingenious use of the makeshift materials which were available at the time.





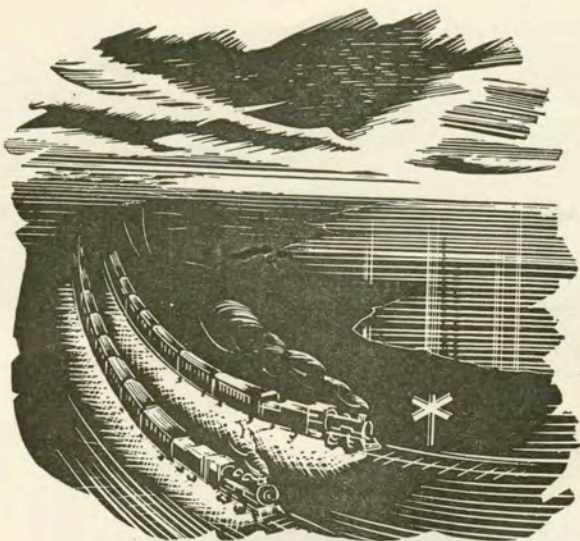
(The Left)—Air break switch on a 66,000 volt line.
(Above)—Depth charge causes quite a stir below as well as on the surface.



The good ship "Pennland"—one of the many peace-time liners which took troops over, and was lost.
(Below)—Soup's on—something cooking here.



During the hundred years of its operation many changes have taken place in the Gas Department. The demand for gas increased with the growth of the City. Because of a greatly expanded civil and service population during the war years the gas producing equipment was expanded by one-third to meet a demand which had increased more than 50% to reach almost 240,000,000 cu. ft. in 1945.



THEY CAME IN ON THE "HIGHBALL"

You have all heard the phrase—everything but the kitchen sink. Well that pretty well describes some of the queer and unusual jobs we were called upon to undertake. Yes, there actually was a time when we helped to win the war with kitchen stoves!

We were asked to go down and look over a ship that had reported serious electrical trouble—and to see what we could do about it. So we took along one of our most experienced electrical technicians and went aboard the liner "Pennland."

Those were the days when captains were at their wits end to keep their ships in sufficient repair without missing their convoy dates. Sometimes half a dozen different ports played a part in the completing of a ship repair job.

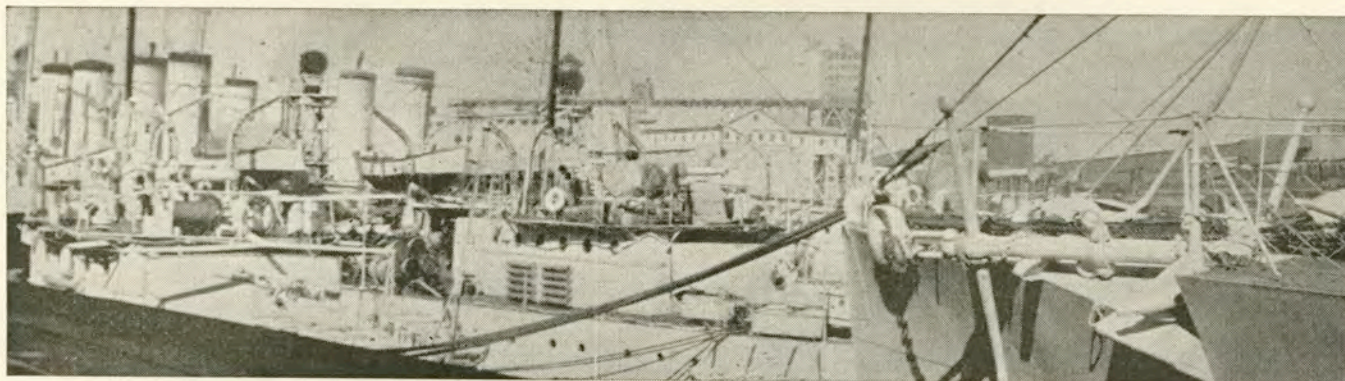
Here's what had happened to the "Pennland". One after another the electric galley stoves had broken down with burnt-out elements—until at last there were little more than enough in operation to cook the meals for the ship's crew. The serious part of the matter was the fact that the "Pennland" was in port in connexion with a large-scale troop movement—and of course could not sail without provision being made for the cooking of the meals for the troops.

Examination revealed that the cooking was done with heating elements similar to those in the ordinary electric irons but working at two hundred and twenty volts. In Halifax at that particular time there was no resistance wire and no mica, and no facilities to make new elements. For once it looked as though we were completely stymied.

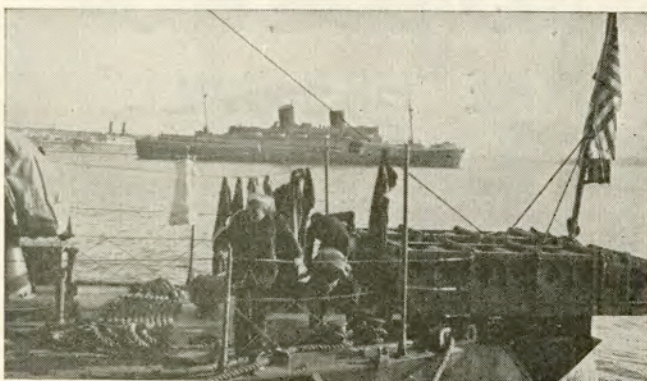
The Naval Officer in charge emphasized the seriousness of the situation as the ship was scheduled to sail in a troop convoy and the trains carrying the troops for the "Pennland" had been halted at various points across Canada. We held a conference at which someone suggested that two calrod heating elements from an ordinary kitchen range might be hooked up in series and bolted to the bottom of the stove tops and thus replace the defective elements. We were granted permission to make the experiment. We spent the whole day at the job and at five o'clock reported to the Navy that while the job looked promising, we could not give an estimate as to the time it could be completed. The Naval Officer said: "When you told me you were going to try something I telegraphed instructions to resume the movement of the troops to Halifax."

This meant that the train loads of men who had been stopped across Canada were on the move. So now it was up to us. We carried the cooking equipment from the ship to our near-by shops. With a great deal of luck we were able to get enough electric range elements to do the job. Then our men really got going in earnest. They worked all night and all day. When they got one galley stove working and reinstalled they started on another, and another—until the job was completed—just in time. The troops came on board, and the ship sailed away with the convoy!





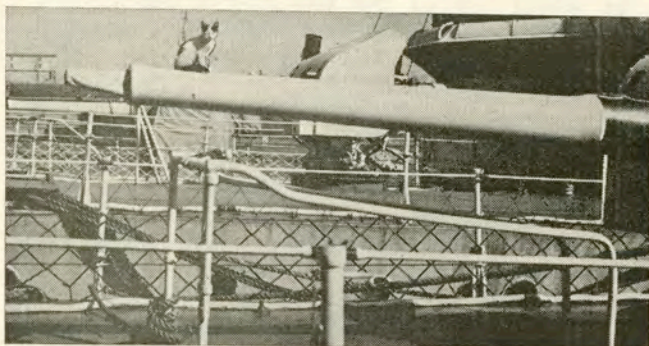
THE FIRST FOUR-STACKERS. A general view of the American destroyers when they tied up in Halifax for transfer to the Royal Navy.



THIS PICTURE was snapped short minutes before the Stars and Stripes were hauled down. S.S. Oslofjord in background.



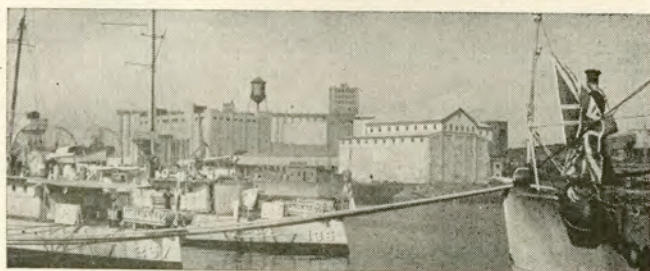
THE CREWS of British Tars marching to "take over."



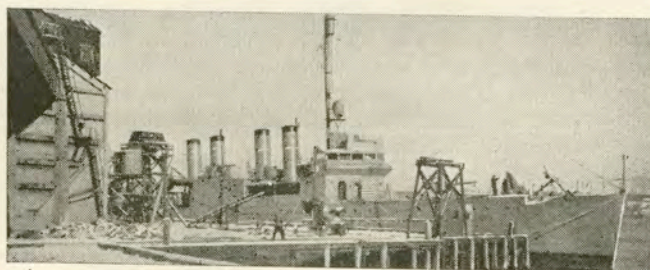
THE ONLY LIVING THING left aboard the destroyers . . . one of the ship's cats.



BRITISH flag parties prepare to break out the Colors.



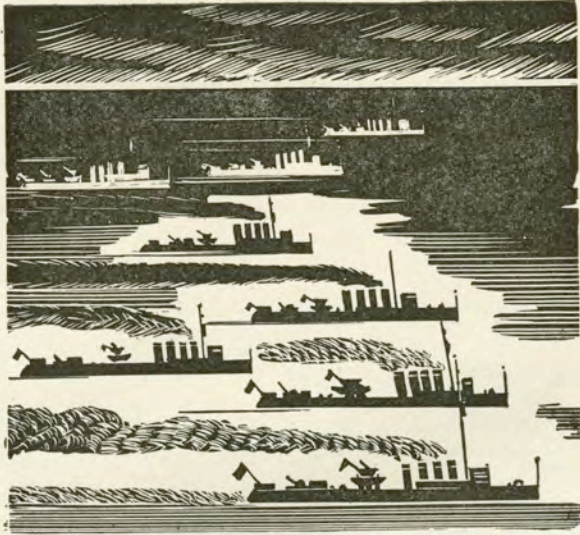
and up she goes She's British now from stem to stern.



ONE OF THE DESTROYERS that was degaussed in record time.



Due to the special nature of the Company's operations, about \$22,000 worth of capital investment is required to provide employment for each and every one of the 828 employees of the Company. This is by the way, approximately four times the capital investment required by the average Canadian industry. This is an indication of the Company's confidence in the future of this Province.



Our Company has claimed many distinctions in the Public Utility field for efficient operation and its ability to meet the unusual; but here is a claim of an entirely different nature.

We believe we are the only electric power company in all history that ever had a fleet of warships completely under its control. True, we were placed in that peculiar position by accident—and it was all over in a few hours time. Here's how it happened. It was back in the days when the battle of the Atlantic was going very badly and the President of the United States had announced that fifty destroyers had been turned over to Great Britain.

Just before these ships arrived in Halifax we were informed, by Admiral Sir Stuart Bonham-Carter of the Royal Navy, that it would be necessary to fit degaussing gear—magnetic mine protection—on all of them. He impressed us with the necessity of doing this work in the shortest possible time so that the ships could be commissioned and put into service without delay. When the first eight destroyers arrived in Halifax we were ready and waiting with all the necessary equipment.

There have been many stories told as to how these ships were transferred. In fact it was most unspectacular. The Americans, having made sure that everything was ship-shape and in order, lowered their flags, abandoned the ships, marched across the Pier, entered waiting railway trains and went on their way. After an interval of about two hours the British crews marched down to the wharf and each crew lined up opposite its particular ship—flag parties were sent on board—and after a brief ceremony the White Ensigns were hoisted. Then the crews marched on board and took over.

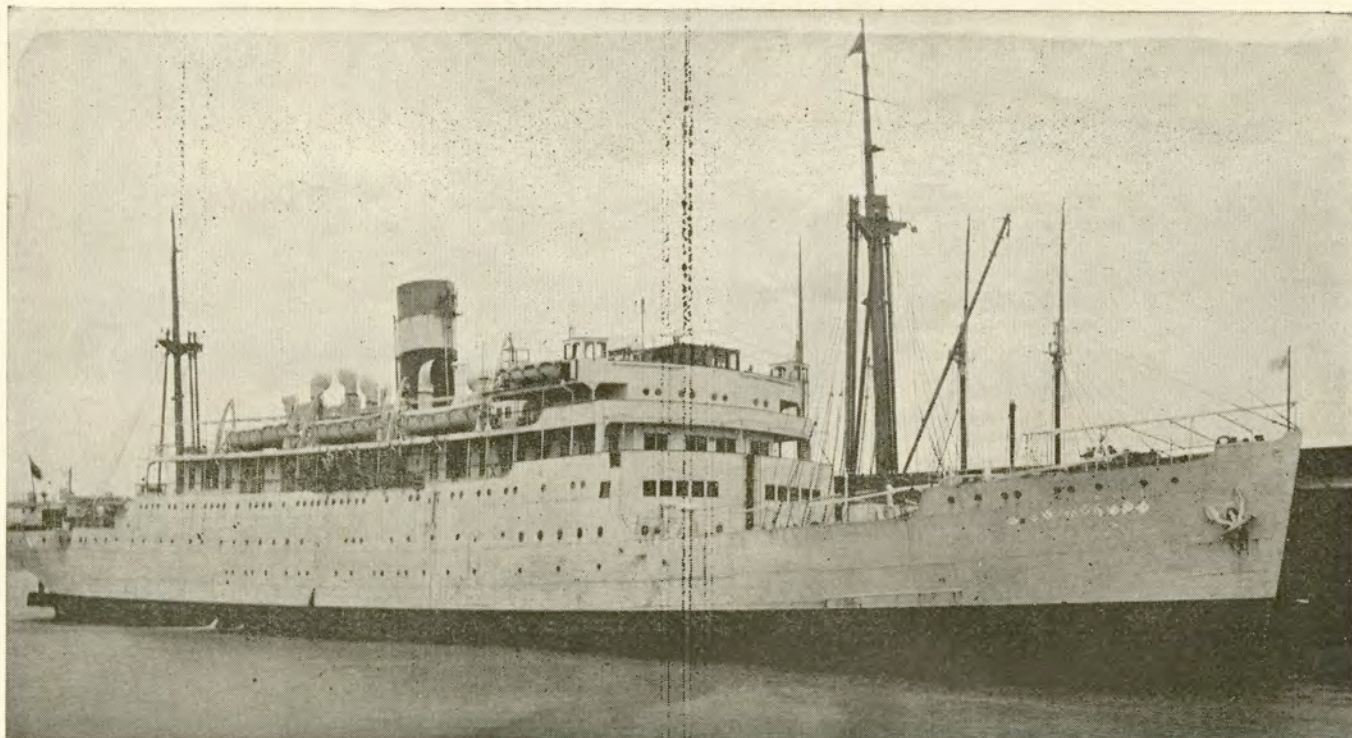
However—upon the arrival of the ships in Halifax neither the naval authorities nor ourselves could find any good reason why our work should be delayed during the interval of changing ownership. Consequently when the last of the Americans had left the ships, that was our green light to go ahead. Then—while no flags were flying—while no naval personnel were on board—while officially these ships did not belong to any nation, we swarmed aboard and started working.

ONCE . . . WE CONTROLLED A FLEET OF WARSHIPS

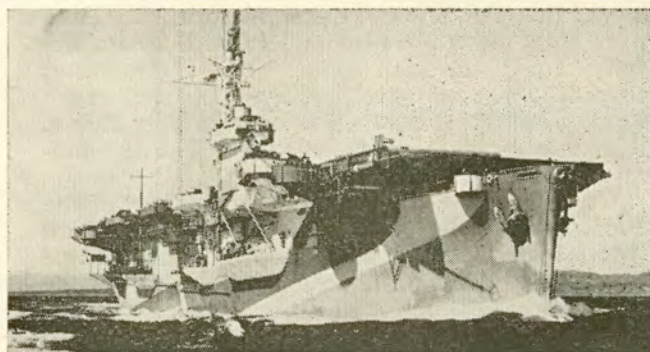
It was truly a strange situation. There was not a sound—not a single sign of activity on any of the destroyers—there was not a soul on board—except the ship's cat that we found on one of the destroyers, crouched on the end of one of the forward guns with a mystified look in its eyes. It certainly gave us cause for a few moments thought before we started to work. Here were eight destroyers—complete with steam up, fully equipped with guns and ammunition, torpedo tubes and depth charges, as well as all kinds of ship's stores. Not a single flag flying, not even a naval rating aboard. But the moment for thought soon passed.

Ever since the day we had been advised of the coming of this first group of destroyers, we had been coaching every individual in our Marine Department as to the exact job he would be expected to do, and for which he would be responsible. The result was that each man went to work on his particular task the moment he was on board the first ship. Our men had been well organized into groups and the work proceeded on smooth-running mass-production lines. For instance, the first crew worked along from one ship to another, removing obstructions with acetylene torches to clear a course where the degaussing cables were to be laid. In less than four days the entire eight destroyers had been completely degaussed—to the surprise and gratification of the Naval officials, from the Admiral down. Our men were also rather proud of the record time in which the work had been completed. Can you blame them?

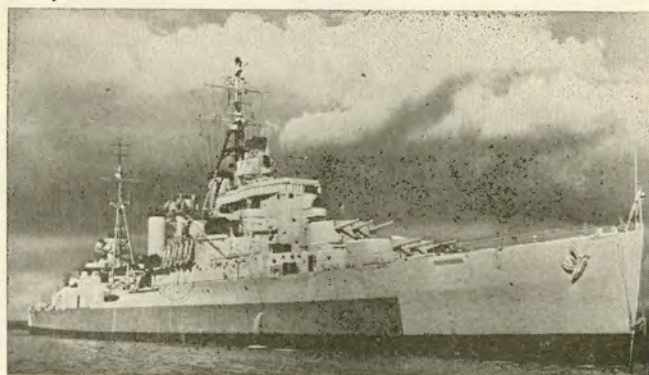




FAMILIAR SIGHT IN HALIFAX—The Lady Rodney. Her sister ship the Lady Nelson when converted to a hospital ship, brought many war-damaged Canadian veterans back home.



H.M.S. PUNCHER—an aircraft carrier loaned by the United States to the Royal Navy and manned by a Canadian Crew.



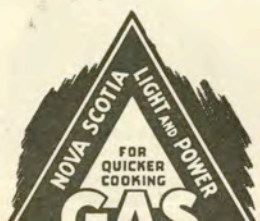
H.M.C.S. UGANDA—A modern cruiser and a war-time addition to Canada's Navy.



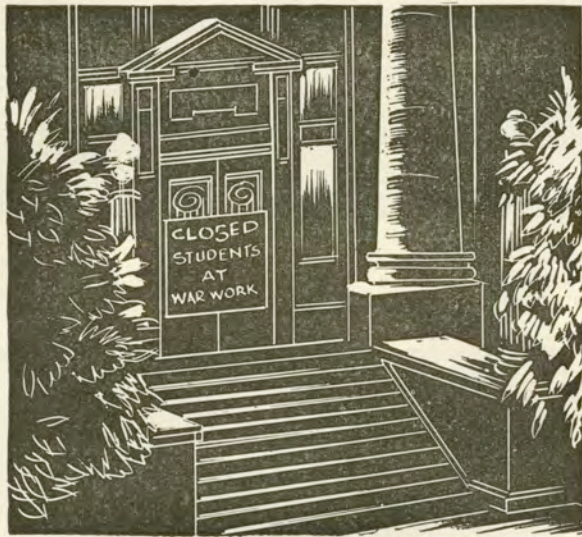
THE DAILY QUESTION—Which ship is first on the list?



LOADING DEGAUSSING CABLE



All vacancies or new positions created are filled from within the organization where possible. Promotion is made solely by merit, based on the ratings made by the executive under whom the employee works and the service record of the individual. This policy applies to all promotions which involve a higher salary or hourly rate of pay.



SO CLASSES WERE SUSPENDED

The docking of the S.S. Lady Rodney at an early hour one day in the late fall of 1945, marked her first Atlantic crossing as a troopship bringing the boys back home. She like other well-known ships—the Empress of Scotland—the Queen Elizabeth—the Lady Nelson—the Puncher—the Mauretania—the Aquitania—have all performed a yeoman task in bringing group after group of service personnel back home to Canada.

These ships are serving the Empire in peace time just as truly as they did during the war years. But talking about the Lady Rodney reminded us of the time back in the hectic war years when she came into port to be fitted with degaussing gear. Perhaps the Captain of the Lady Rodney is not aware that this particular job was the reason for closing down a College! Here's the story.

Our Marine Department was told about this particular task at a time when the efforts of all our men, working day and night—every day of the week—could just keep pace with the top priority naval jobs in hand. And to make matters worse the naval department was quite emphatic—(that's a mild way of phrasing it)—yes, they were quite emphatic that the job on the "Rodney" be done immediately, so that it's especially critical cargo would be free from the menace of magnetic mines. If we had ever before thought that we were up against a tough proposition—now we knew we were.

Every civilian worker who could handle a wrench, or a hammer, a torch, or a pair of pliers, was already tied up on some other work—and the jobs which our Marine Department already had in hand simply could not be delayed. The Navy couldn't help us with a working party because the Lady Rodney was a Merchant Ship. No men were available at the Manning Pool—so what could we do?

Suddenly, somebody had a bright idea—Doctor F. H. Sexton would have a group of Engineering students at the Nova Scotia Technical College. After explaining the urgency of the situation to the Doctor, he promised to see what he could do to help. He called the

students together and allowed us to explain our problem and requirements. He told them that he would suspend all classes, lectures and college work for two days, if they would volunteer to tackle the job. The students volunteered to a man.

The R. C. M. P. who were in charge of the security control for the water front area were advised of the arrangements we had made and they co-operated by issuing special passes to all these students. Early next morning the boys reported for work at our Water Street plant. With a selected few of the trained men from our regular gangs they were loaded into our trucks and taken to the ship. There they tackled the job of degaussing the Lady Rodney.

It was fascinating to watch these boys at work. Their interest was most keen, not only in the work that they were doing but also in the many details of the ship's construction and machinery. They bombarded our men with all sorts of questions about the ship and its equipment. They had an experience during these three days that they will never forget. It was actually an emergency short course in practical engineering which put their abilities to a kind of test they would never experience in the ordinary course of events. It more than compensated for the time they lost from their class rooms.

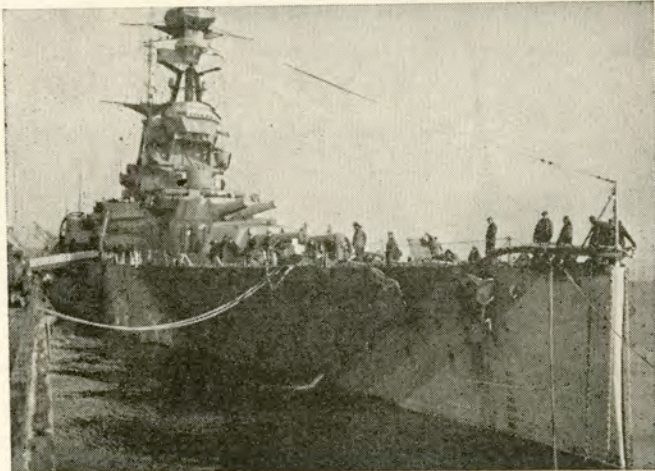
The ship was finished and sailed on time—thanks to Doctor Sexton and his Student body of the Nova Scotia Technical College. Without their help, and the degaussing gear which they helped install, the Rodney might not be here to-day



Τῇ δὲ, τόδε κρήδεμνον ὑπὸ στέρνοιο τανύσσαι
ἄμβροτον· οὐδὲ τί τοι παθέειν δέος οὐδ' ἀπολέσθαι.

ΟΔΥΣΣΕΙΑΣ Ε.

THIS LOOKS LIKE GREEK . . . and so it is. Translated it means
"This magic girdle round thy bosom bind,
Live on . . . and cast thy terrors to the wind."



H.M.S. RAMILLES, showing our "specialists" installing the degaussing coils around the bow.

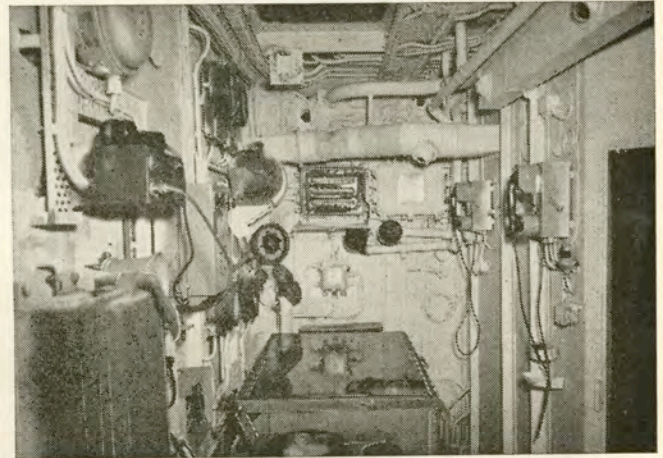
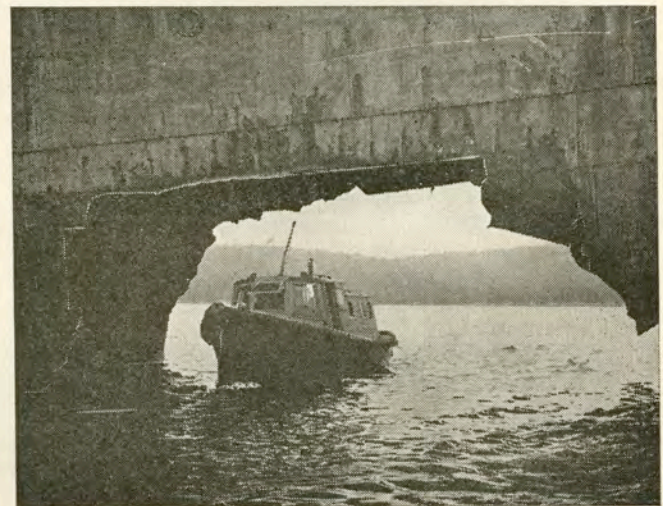


CHART ROOM in an R.C.N. Frigate. The navigating nerve centre.



MINESWEEPERS AT WORK. In fair weather and foul, they patiently kept the sea lanes cleared of mines.



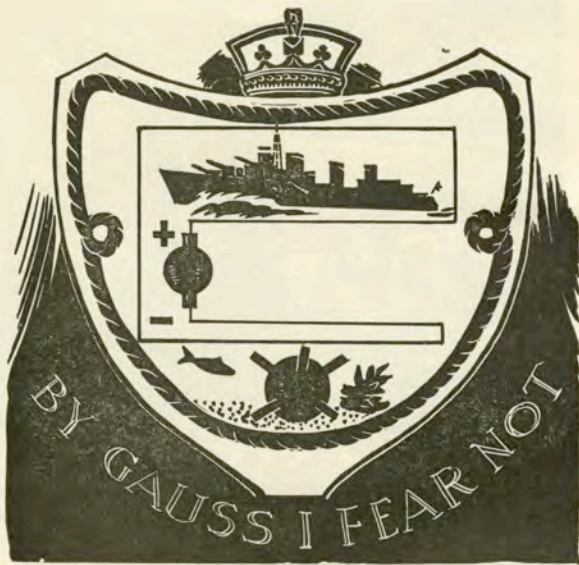
TORPEDO DAMAGE. One of the many ships which survived a submarine attack and was repaired in Halifax



TYPICAL TRANSMISSION LINE and substation. During the war years many miles of line like this were built to serve war needs.

The Company aims to provide its employees with Security of Job—Fair Wages—Good Working Conditions—Opportunity for Advancement—Channel for Expression of Opinion—Benefits and Recreation. Wage scales for instance, are established on the basis of fairness to the individual for the work he is doing. It has been the policy of the Company to pay wages as good as or better than those prevailing in the community for similar work requiring like responsibility, experience and skill.





One of the reasons for calling much of the work done by our Marine Department "secret" and "hush-hush" is that in war-time it is equally important to develop a defence against an enemy weapon and also to keep the enemy from knowing you have developed such a defence.

However, eventually the enemy realized that our ships were not being sunk by his magnetic mines at the rate he anticipated. Just about the same time the British Naval staff had reasons to believe that the Germans knew that the Allies had found a means of protecting their ships against the magnetic mine. The Naval Intelligence learned further that the Germans had developed for their magnetic mine a much more sensitive mechanism for setting them off. Then the race between the Allies and the Germans in this particular field of action began. The Germans were constantly improving their mines and making them much more sensitive, but the Allies were equally on the alert. By this time they had developed an accurate means of measuring the magnetic effect of our ships. This measuring device was extremely sensitive and made it possible to design an individual degaussing system for each ship which would completely neutralize its magnetic effect. This meant, however, that our task was now more difficult than in the beginning. Instead of installing just one deck coil it was necessary to add other coils on the forward and after ends of the ship, and sometimes extra coils were required around the engine-room. In extreme cases on ships such as mine sweepers, even more coils were required to compensate for the added masses of steel where the anchor chains were stored. Sometimes even rudder coils were necessary. The most important ships were treated first and for a long time our efforts were directed toward installing these extra coils on warships whose names are familiar to everyone. Among the first of these were the battleship H.M.S. Ramilles and the cruiser H.M.S. Emerald, both of which played a part in tracking down the German battleship Bismark.

The armed merchant cruisers came next in importance. Among these must be mentioned the names of some whose exploits wrote glorious pages in the annals of Navy history. Remember

HOMER CALLED IT "THE MAGIC CIRCLE"

the Jervis Bay? How, by most heroic action a whole convoy was saved from almost certain destruction? Captain Fogarty Fegan, V.C., kept his guns firing from his blazing ship as long as one could be aimed. Then there were the Ex-Cunarders Asconia and Laconia—the Voltaire and many others—all proud ships which sailed the seven seas during the war years as guardians of their convoys of merchant ships. Many of these cruisers were safely protected with degaussing gear installed by our Marine Department.

Understandably, our men took extraordinary pride in their work—knowing full well the importance of it—and realizing that the lives of many men depended upon the care and accuracy with which the degaussing gear was installed. New-type degaussing coils were also fitted to many of the famous transports which were carrying Canadian and American troops to England. The Pasteur, whose coils required more than thirty miles of wire, was one of the first, and was followed by the new Norwegian Liner Oslofjord. The Nieuw Amsterdam (the flagship of Holland-American Line), the R.M.S. Andes, and the C.P.R. ships bearing a Dutchess or Empress prefix were all "degaussed" by us. It is not surprising therefore that almost from the start a certain amount of sentiment developed over these degaussing installations. One day somebody described the degaussing system as being a sort of girdle for a ship. From that soon developed the idea to present this framed and lettered quotation from Homer—

"This magic girdle round thy bosom bind,
Live on—and cast thy terrors to the wind."

to the captain of each ship on which our Marine Department had completed the installation of degaussing gear. There was a further step—somebody had the bright idea to translate the message into the language of the country from which the ship hailed. When it is remembered that our Marine Department worked on ships of nineteen different nations, you can well imagine that there came a time when the person who thought up the bright idea of these presentations had his hands more than full trying to find interpreters.

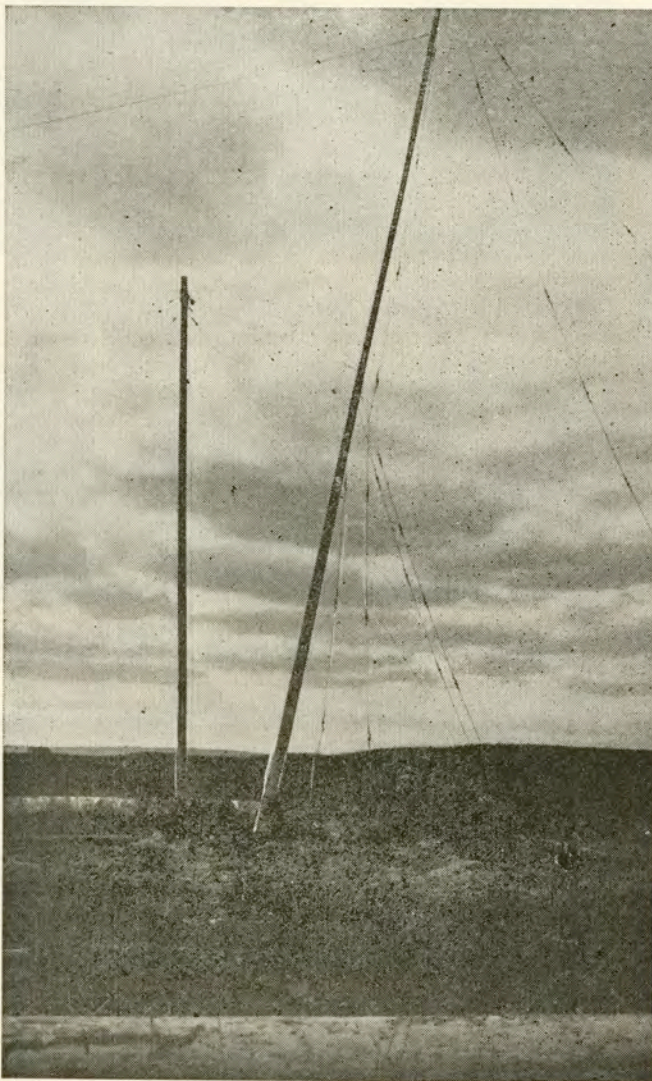




AVON NO. 1. This view shows the Power House in the foreground with the surge tank at the top of the hill.



THE AVON RIVER POWER CO., LTD. Office building at Windsor, with transformer equipment and power lines.

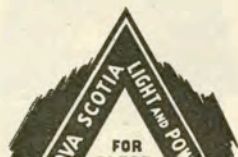


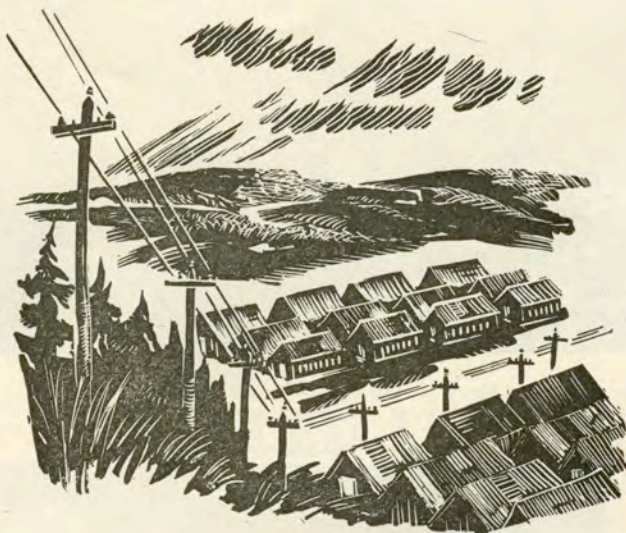
WIRELESS STATION. Poles in process of erection. Special power lines had to be constructed to serve this and other war-time wireless installations.



BIRD'S EYE VIEW, of Avon No. 2 Power House.

You call it your light bill—but it's not that. It is your electric service bill. If it were itemized, you'd see a lot of items like this:—So much for washing, so much for cleaning, so much for running the radio, so much for toasting the bread, making the coffee, mixing the dough, and if you have an electric range—so much for cooking. If you have a refrigerator—so much for keeping food fresh. In the old days it was an electric light bill; but to-day it is far more than that. Really, electric service is one of the biggest bargains you get to-day.





So far in these little stories we have confined our remarks to happenings which occurred in and about the Halifax district. We have dealt with the tremendous increase in the demand for more and more power by civilian users—both industrial firms and house-holders. But the building and operation of military and naval establishments created problems which were by no means easy to solve. For instance, there was no electrical contractor in Nova Scotia who could build the many miles of distribution lines and numerous substations that were necessary to serve the out-of-the-way areas such as the Forts, Ack Ack Batteries and Airports. Hence we were asked to tackle this problem. The work had to be done and there was just no one else who could do it. Our duty was clear, we did it—and without profit.

We built a line and substation as well as a complete distribution system for the R.C.A.F. Station in Dartmouth. This was equivalent to building a complete distribution system for a good-sized town. Distribution systems of almost equal size were built for the three Wartime Housing sites in the Halifax area, as well as for the Bedford Rifle Range. Other lines were built to supply light and power service to the Forts on both sides of the entrance to the harbour, and to the numerous other establishments which the three Armed Services had set up all around the city. Our construction crews, while headed by experienced men, were drastically reduced and were made up largely of inexperienced labour. It was only by strenuous effort that the jobs were completed.

While the work was being done in the Halifax area similar demands were being made upon the staff of The Avon River Power Company in the Annapolis Valley districts.

Here again we acted as contractors for the Government and repeated our Halifax performance by building a transmission line and supplying power for the Royal Naval Beam Station at Newport. At this site we also erected all of the extremely high wooden poles used in that tremendous Naval radio station—the largest of its kind in the whole Empire. A complete distribution system was built for the large Army Camp

PINCH HITTING WITHOUT PROFIT

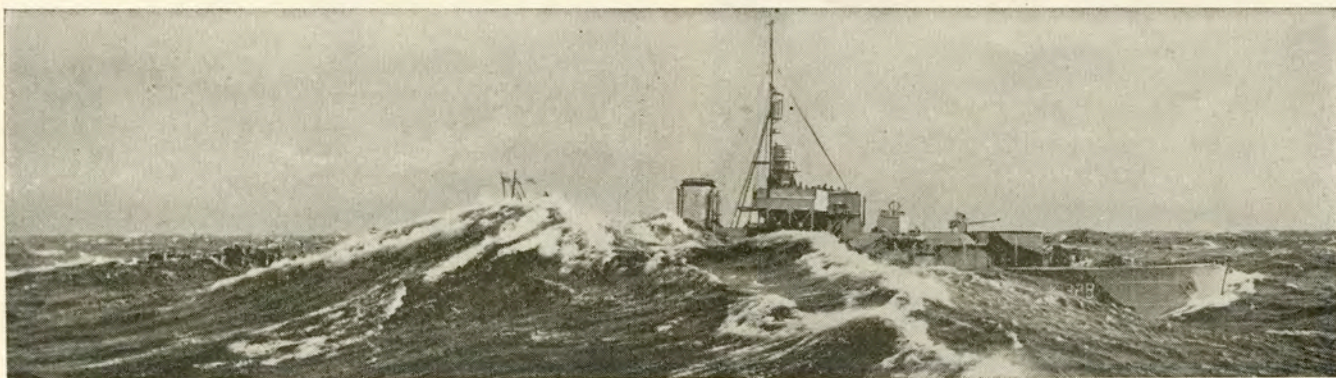
at Windsor; and at the Greenwood Airport we not only built a line extension to carry the required power, but also installed the necessary distribution system for the numerous buildings located there.

In addition to all this, similar work was being done to supply power to serve other small beam and radio stations for the R.C.A.F. All of the power requirements for the construction work of the Empire's greatest Naval Training Base at Deep Brook was supplied by our Avon Company at a time when power was scarce and facilities in that area were loaded to capacity.

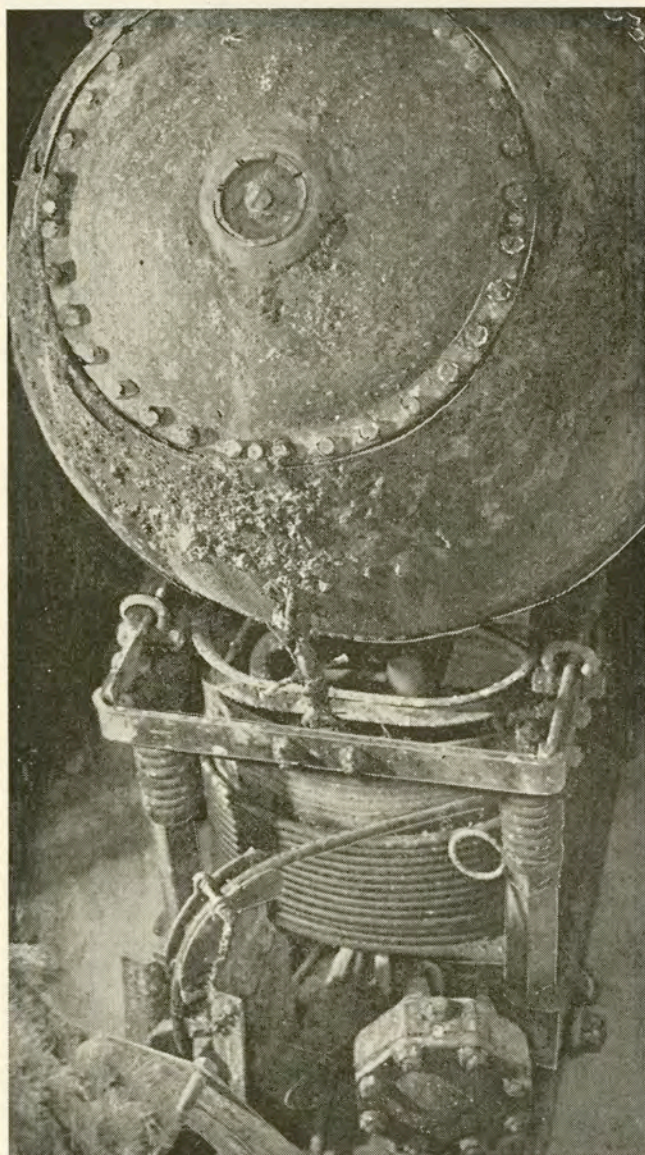
The equivalent of whole towns were constructed. Towns where thousands of men and women worked and trained and lived under conditions which compared more than favourably with other service establishments throughout Canada. So from that brief summary some idea can be gained of the size and extent of the Armed Services which were established, and which operated in this Province during the war years.

A plentiful supply of electricity made these camps possible. Without it they would never have got beyond the blueprint stage—let alone placed in successful operation within such a short period of time. When power reserves were used up—new generating units were built and placed in operation—where transmission lines were required they were constructed without delay—sub-stations sprang up in the most unexpected places—electrical equipment was moved around as changing military conditions brought changes in power requirements. The Armed services never went short of power—even in the most critical times.

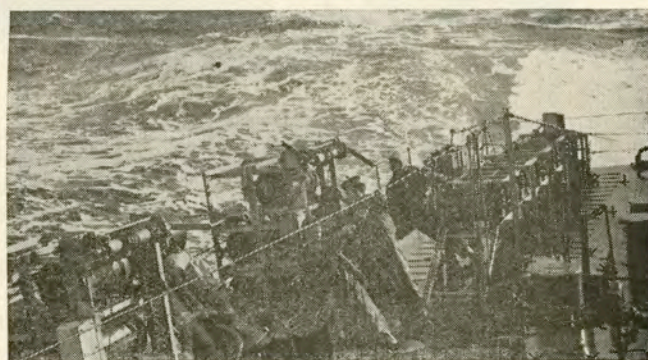




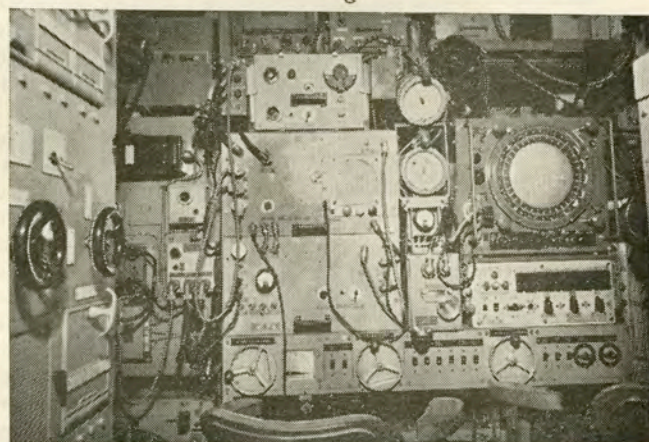
STORMY WEATHER. Some idea of the conditions under which the Navy carried out its duties can be gathered from this picture of a frigate at sea.



UNDERSEA MINE. A menace to shipping until its "teeth were pulled" . . . or the ships fitted with degaussing gear



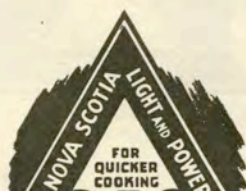
READY FOR ACTION. Racks loaded with depth charges . . . ready to be dropped for the special benefit of lurking submarines.



RADAR PANEL A glimpse at some of the complicated apparatus that helped to win the war from behind closed doors.



ANOTHER CONVOY SAILS One of many . . . but one of the few pictures published.



Electric, gas and tram rates and conditions of service are subject to the provisions of the Public Utilities Act of Nova Scotia and all the Companies are under the jurisdiction of the Board of Commissioners of Public Utilities of Nova Scotia.



SEALED LIPS WILL SAVE OUR SHIPS

As more and more ships of all types were equipped with degaussing protective gear, the struggle against the menace of the magnetic mine was being won—slowly but surely. But about this time the German submarine wolf packs were playing havoc with our convoys, so in addition to carrying on with degaussing work, our Marine Department was now called upon by the Navy to instal various types of alarm systems to call the ship's crews and gunners to action stations in case of attack at sea. Then came the job of installing telephone systems on the ships so that the gunnery control officer could have proper communication with all of the gunpits of the ship to better direct their fire and control.

Still later came the job of installing, on Naval Minesweepers, the complicated gear which was required to explode magnetic mines so that mine-free channels would be available for our ships. German submarines had, on at least one occasion, laid a considerable number of magnetic mines at the entrance to Halifax Harbour and this was a real job for the "Sweepers." It was gratifying to learn how quickly and effectively these brave little warships, equipped with the gear which we had installed, did their job. In one day they swept a safe channel for our ships and "the eggs which Jerry laid" had all been accounted for.

Life in those days was just one thing after another. There came the time when it was realized the Germans had developed and were using new type "acoustic" mines. These mines were set off by the noise of the ship as it passed over the mine. We were given the job of installing in the minesweepers "Sound-Acoustic Gear" designed to explode the mines harmlessly. They spent many hours in troubled waters patiently sweeping channels through these acoustic mine fields so that other ships could pass in safety.

Incidentally, the operation of this sound acoustic gear and its effectiveness was so nearly perfect, that our enemies must have felt something more than a slight sense of frustration when they saw their efforts at destruction being thwarted so easily. Early in 1944 the work of our men was concentrated to capacity on installing this important S. A. Gear and other types of mine-sweeping equipment in the armada of gallant Canadian ships, which helped form the flotillas that cleared

BEHIND CLOSED DOORS

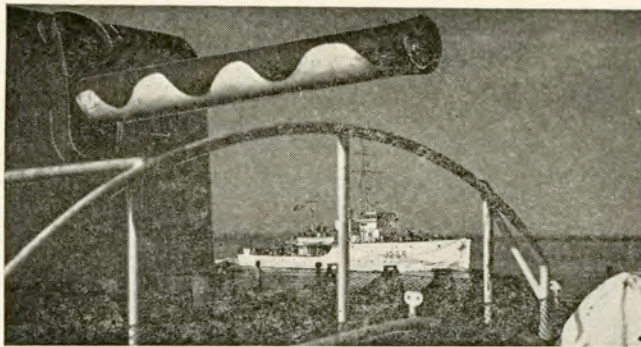
the mines from the Coast of France for the invasion of D-day.

Still another Naval Department asked our help to carry out its programme on the most secret of all wartime devices, "Radar." Special approval had to be obtained from Naval Service Headquarters in Ottawa for us to do this work. Discussions took place behind tightly closed doors and though it seemed then to us as if the Naval Officers were over-cautious, we soon realized the reasons for it. The men that we chose for this phase of our activities were carefully selected; they worked very closely with this most secret Naval Department, and the record of their accomplishments is a story in itself.

We have mentioned here only the tasks that our Marine Department did for the Naval Department, but through all of the war years, this Department undertook many electrical jobs, of widely different character, for Merchant ships on the ship owner's account. Lights were installed and repaired, steam engine-driven generators were supplied and fitted, electric steering gear and gyro compasses were serviced and in several cases engine-rooms were completely rewired. The airplane elevators on the Merchant Aircraft Carriers were adjusted and repaired and a host of other jobs were done.

During the more than five years we worked on almost sixteen hundred ships, ranging in size from the mighty Queen Elizabeth to small wooden tugboats, and flying the flags of nineteen different nations. All classes of Naval vessels including Trawlers, Mine Sweepers, Corvettes, Frigates, Destroyers, Cruisers, Battleships and Aircraft Carriers have their names on our list of "ships done." The Merchant ships were of widely different types, so our men are familiar not only with the former luxury liners, but also the whalers, the tankers, and all types of cargo ships ranging from the resurrected Hog Islanders, built during the last war, to the modern Empire and Victory Ships.

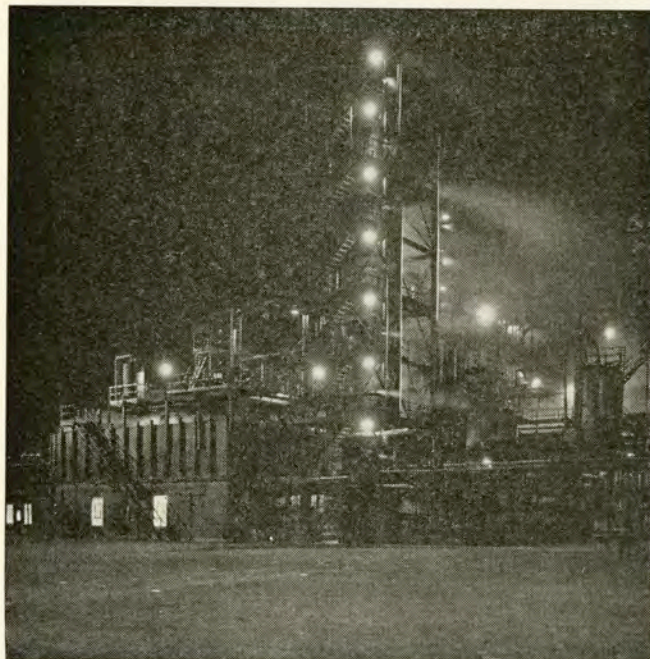




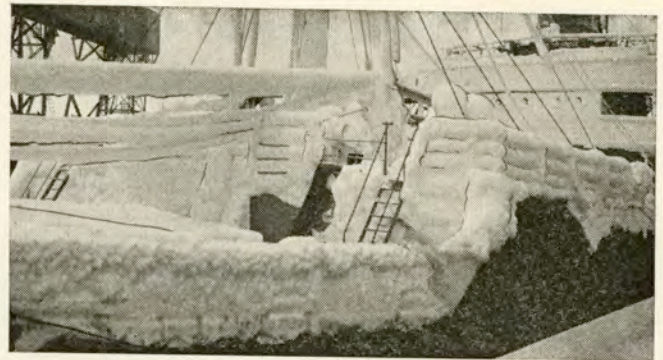
ON PATROL DUTY. An unusual view that typifies the "little" ships which helped to guard the sea-lanes.



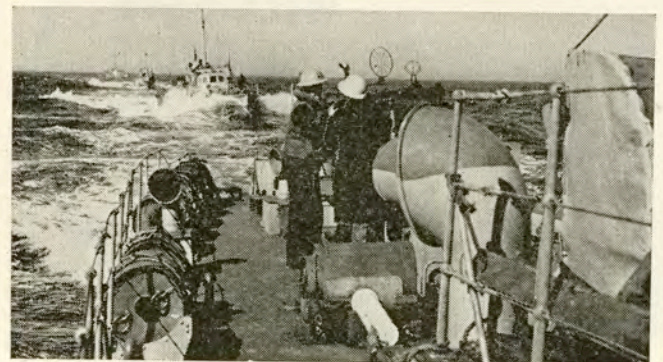
KISS 'EM AND LEAVE 'EM. What happens when too many ships have to navigate in a congested area in the dark or fog



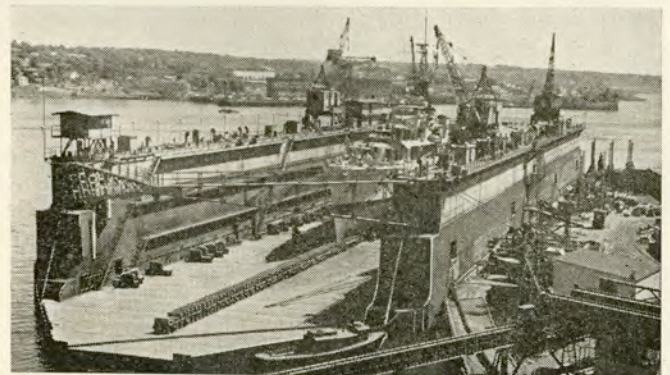
ALL LIT UP. Remember industries working night and day? Fortunately there was never any shortage of electric power then . . . and there is none to-day.



COVERED WITH ICE. Mines and torpedoes were not the only worries of sea captains. Ice accumulations have their crippling effect too.

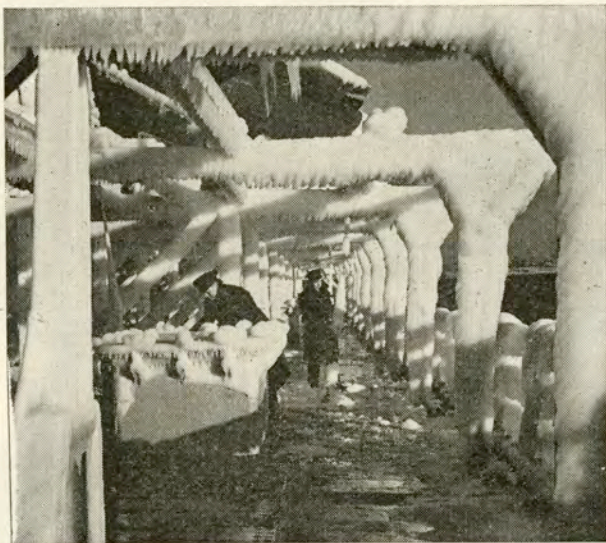


GOING PLACES. Two members of the crew of a FAIRMILE discuss where they're planning to go, as soon as they finish this particular sea patrol.



WAR-TIME ADDITION. The 600-foot floating drydock at the Halifax shipyards proved its worth time and time again.

Visitors from other parts of Canada often comment on the freedom from power interruptions in the Halifax area. The reason is that here in Halifax we can draw power from ten hydro and two steam generating plants owned by Nova Scotia Light and Power Company, as well as from three hydro plants at St. Margaret's Bay owned by the Nova Scotia Power Commission. For example—during the most severe storms of the past winter season—there was no interruption to the electric service in Halifax. This is one of the advantages of the interconnected system which has been developed by the Nova Scotia Light and Power Company over a period of years.



From time to time, emergency situations arose along the waterfront where our staff and facilities were sought to lend a helping—and willing hand.

There was the time when the ex-Pacific and Orient Liner—the armed cruiser H.M.S. Rampura, arrived in Halifax sheathed with ice—and with real trouble. Before she could sail again, it was going to be necessary to have one of the main steam pipes taken down for repairs. To do this, all the ship's boilers had to be shut down—and, one thing leading to another—it meant that the ship would be without light, heat or power of any description while the ship's boilers were out of commission. Now that sort of thing just had to be avoided—the Rampura with its crew of over six hundred was really a community the size of a small town. No, in normal times it just couldn't be done—but in war-time, when the ship had to be turned around in a big hurry and made ready to sail with its convoy—well, light and heat had to be provided by some method or other without delay.

Naturally, the problem was put up to the Nova Scotia Light and Power Company—for no other reason probably than the fact that we are in the business of making and distributing electric power. As matters turned out, the problem was more difficult than would appear on the surface. The Rampura's complete electrical system was designed to operate at two hundred and twenty volts direct current—and two hundred and twenty volts only! It would have been quite simple for us to supply the same kind of current as we do to household customers. This would have taken care of the ship's lights and possibly some or all of its electric heaters—but not a single motor to operate pumps and other essential ship's services could have been used.

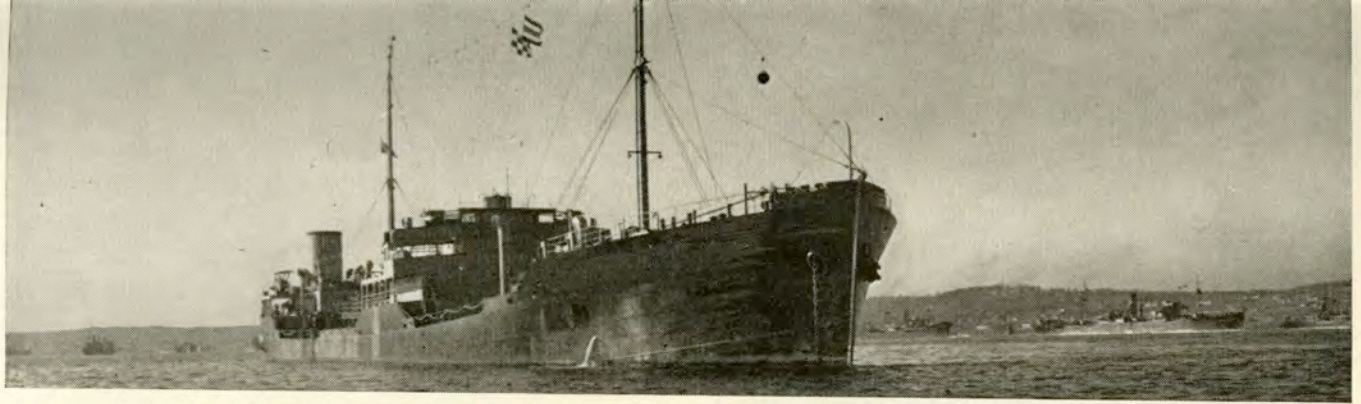
TROUBLE ABOARD AND COVERED WITH ICE

So far as we knew, there was no such thing as two hundred and twenty volts direct current obtainable anywhere along this section of the coast at that time. It looked as though the best that could be expected would be—the convoy would have to sail without the protection of the Rampura. Here was an urgent technical problem—so our engineers went into a huddle with their thinking caps on. Our advice in general is never to tell an electrical engineer there is no answer to a problem—because usually he can get one—even though it may be a bit unusual.

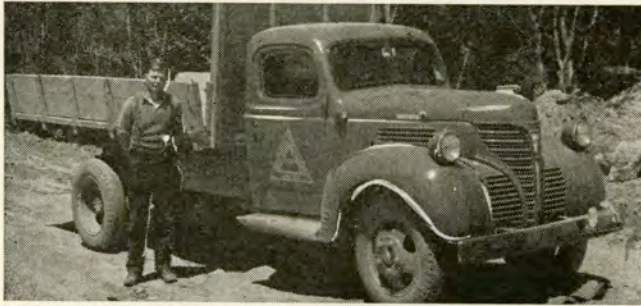
As a starting point our engineers took over one of the motor-generating sets that are normally used to produce five hundred and fifty volts direct current for the tram service. By experimenting with resistance coils and shunts they succeeded in reducing the voltage to two hundred and fifty. Then they had wires strung on temporary poles across the plant yard—over the railway tracks—over the roof of the Harbour Board office building and finally down a hatch to the main switchboard. When the ship's electric heaters and motors were turned on, there was a sufficient drop in voltage to bring it down to the required two hundred and twenty mark.

This might sound like a simple job to most people—but it required ingenuity and quick action on the part of our electrical staff. The repairs were made—and H.M.S. Rampura was back on convoy duty right on schedule.

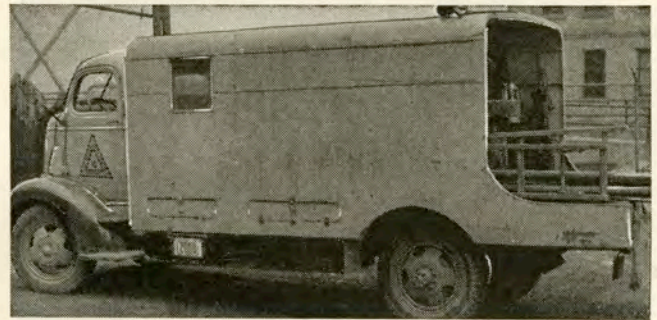




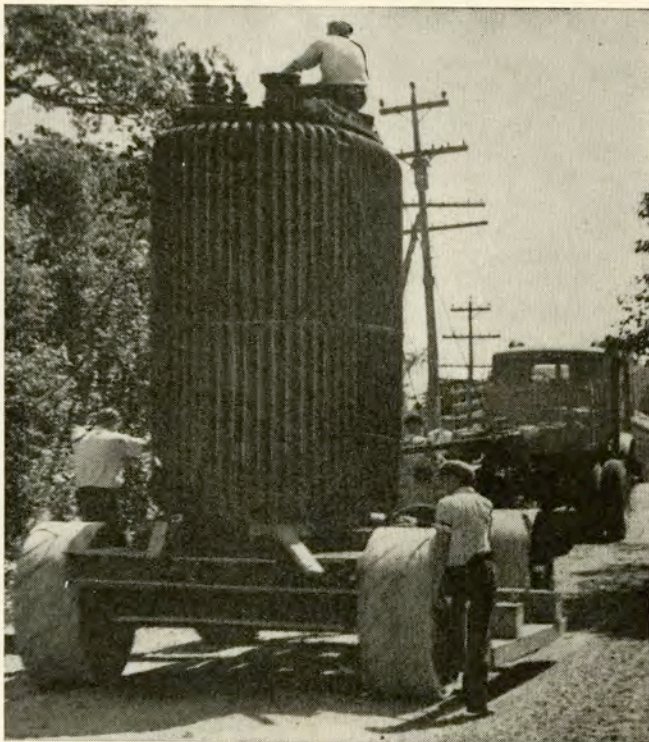
PART OF THE LIFE-LINE. Typical of the hundreds of tankers which made the Atlantic Life-line also a pipeline. Brave men sailed these deeply laden craft.



CONSTRUCTION TRUCK. One of the sizeable fleet of trucks used in construction and maintenance work.



LINE TRUCK. One of many which are ready to go into action at a moment's notice . . . wherever and whatever the trouble may be.



MOVING HEAVY EQUIPMENT. Heavy duty electric transformers like this are moved on specially constructed trailers into remote sections of the country.



Even oxen have been used on some construction projects



In 1938—after being in the electric business for 56 years—the power generated on the main interconnected system was 73,000,000 kilowatt hours. In 1945 it increased, because of the war demands, to 180,000,000 kilowatt hours, an increase of 140% during six years. All the demands were met—power was not rationed in Nova Scotia.



ONE SATURDAY NIGHT

Imagine, if you can, a lovely Saturday afternoon in mid-summer. Everybody who can is out of town—and those who can't—have settled down for a long lazy weekend. Well, it was on just such a Saturday, late in the afternoon, back in July, 1941—that the Pan Carolina—a United States Tanker carrying an eight million dollar cargo of urgently needed oil—came into port, and anchored in the Basin. About seven o'clock on that Saturday evening the chief engineer of the Pan Carolina put out a distress call. Just after the main engines had been shut down and some routine tests were being made—trouble had developed. In engineering language, it involved the re-winding of a small motor—(about the size of the motor on a vacuum cleaner)—which operated the oil filter for the lubricating oil used in the ship's main engines. Believe it or not, the question of whether this huge tanker could sail with its convoy next morning or not—depended entirely upon getting this little motor repaired and in proper running order.

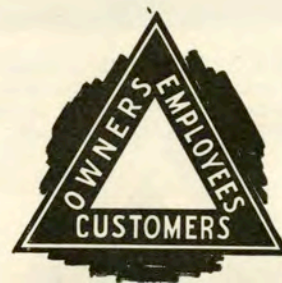
Re-winding a motor is a monotonous job under the best of circumstances. In this particular case, it involved putting thirty-seven hundred turns of fine hair-like copper wire on four separate coils. All coils had to be evenly and accurately wound, bound with tape, painted and baked in an oven.

Ordinarily, this would be a job for one of the local electrical repair firms—but none of these could be contacted on that particular Saturday evening. So the engineers from the United States Shipping Administration called us and we agreed to try and get the motor re-wound in time. It was nearly midnight when we contacted one of the officials of the Northern Electric Company who agreed to open up their stock-

room. There we obtained a sufficient quantity of the proper grade of copper wire which was needed for this special motor. It was fine hair-like copper wire—the kind that will kink or get snarled in a moment if it isn't handled carefully.

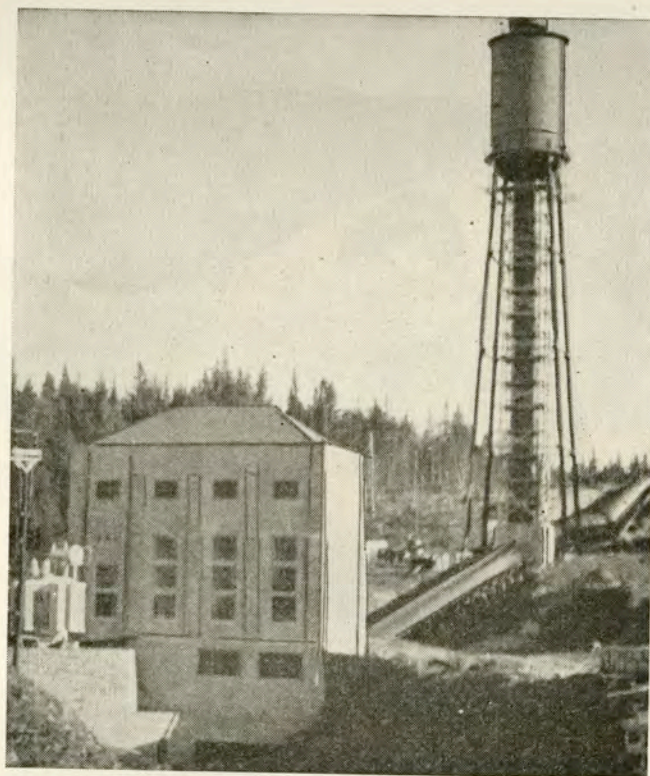
Then our electricians went to work on a painstaking, time-consuming job. Careful count had to be kept of the number of turns on each coil and the successive layers of wire had to be perfectly smooth and even. Lacking the really correct type of equipment for this job, our electricians improvised a winding device of their own that speeded up the work considerably. They stuck with the job all through that hot summer night. Periodically, the telephone would ring and a certain Port Engineer—who by this time was really worried—would inquire in a somewhat anxious voice as to the progress of the work.

It was just before seven o'clock on Sunday morning when the boys finished a job in which they had taken considerable pride. After a quick trip to Bedford Basin, our men re-installed the motor and tested it thoroughly. For their night's work, they had the satisfaction of seeing the Pan Carolina sail on time with her convoy. She passed through the Narrows at exactly eight thirty-two. Incidentally this was just one of the many emergency jobs which our electrical staff handled in addition to their regular work. They never said "NO" when an emergency arose. And there was always someone—"on call."

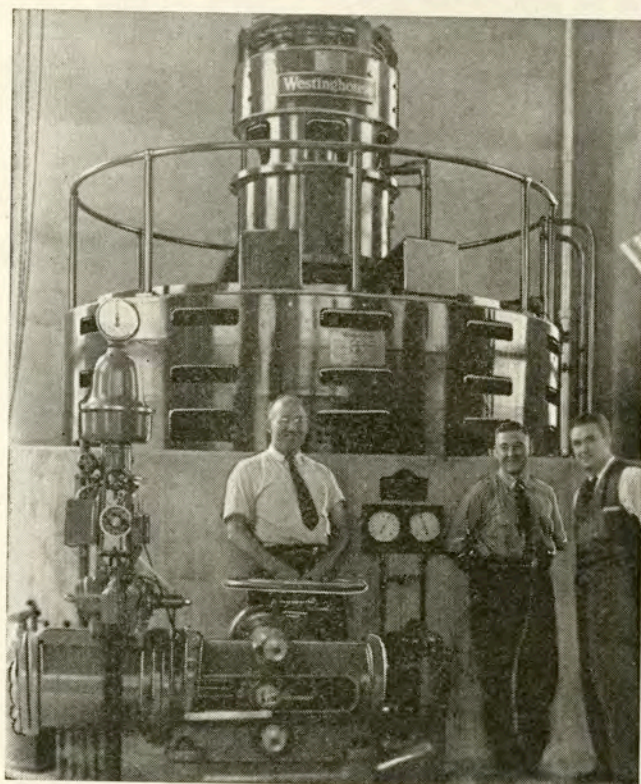




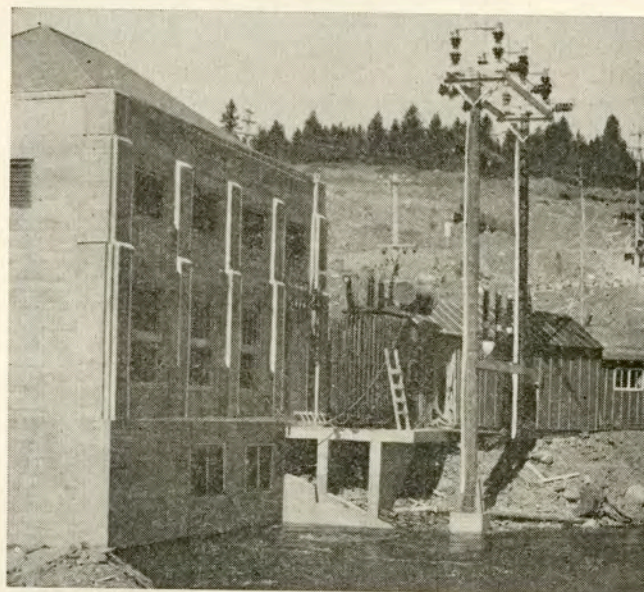
BLACK RIVER POWER HOUSE. A view showing the penstock and surge tank.



HOLLOW BRIDGE POWER HOUSE on the Black River was constructed during the war years.



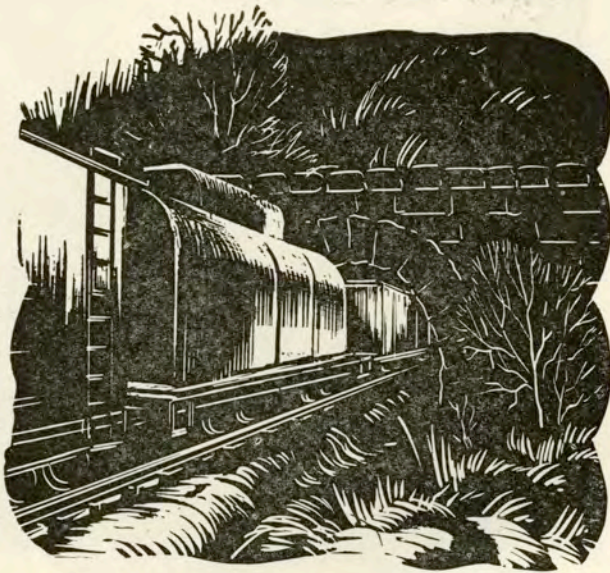
CANADIAN BUILT GENERATOR installed at the Lumsden Plant. It is interesting to note that the water of the Black River passes successively through three separate hydro-electric developments.



LUMSDEN POWER PLANT is another hydro-electric generating plant on the Black River system which was constructed during the war years in order to meet the vastly increased demand for power.

The vast majority of the shareholders of the Nova Scotia Light and Power Company, Limited are residents of this Province. About 2200 shareholders—nearly 90% of the total—reside in Nova Scotia. Included in these are a great many of the Company's customers as well as a number of employees. The ten largest shareholders together own only about 25% of the outstanding shares of the Company. The Bonds of this Company are largely held by institutions such as Life Insurance Companies—and thus most insurance policyholders are indirect investors.





THE SMALL SIBERIAN TUNNEL

To most people, Siberia is a vast area on the other side of the globe, famous for snow and ice and plenty of it. But to certain individuals in the engineering department of the Nova Scotia Light and Power Company—the outstanding feature of Siberia is its long narrow railway tunnels—and therein lies a tale!

In ordinary times it is a policy of the Company to shop around in world markets when purchasing new power station equipment. By doing this the Company is not only able to take advantage of the latest developments in the electric equipment industry and thereby supply our customers with the best possible service—but is also able to buy to the greatest advantage, at lowest cost! And so it happened that just before the war broke out we had on order, with a Swedish firm, a seventy-five hundred horsepower generator specially designed for the new Hollow Bridge plant, then under construction on The Avon River Power Company's Black River system.

As the international situation became more and more grave, we became more worried about the generator in Sweden. Then the war broke out—the Athenia was sunk and we could easily picture what might happen to the ship that would be carrying our new generator. We did not want to find ourselves with a whole new Hydro plant—and without the power producing machinery. As insurance against such a situation, we decided to proceed with plans for another power plant on the Black River—this time on a site at Lumsden. This plant would only require a forty-five hundred horsepower generator so our engineers drew up specifications for a unit with the same speed characteristics as the larger Swedish made machine—and we placed the order for this generator with a Canadian firm. Now we felt more secure because this Canadian built machine could be used at the Hollow Bridge Plant if the Swedes were unable to make delivery.

More and more demands were being made upon our generating capacity. Our plants could barely handle the increased war-time load. The Swedish generator was all ready to be shipped at the time the Germans entered Norway. And then—to put it in diplomatic language—the ship which was to carry the generator from Sweden was “temporarily and unavoidably detained in Port.”

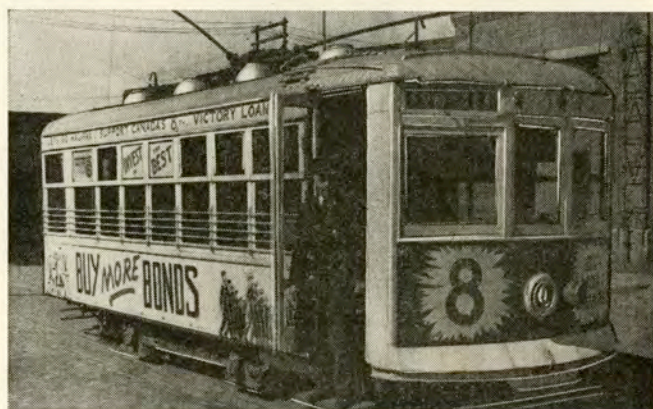
Weeks later the Swedes suggested that the generator be shipped across Russia to Vladivostok—across the Pacific—and then across Canada to its final destination at Hollow Bridge. That suggestion at the time sounded like a fairly logical solution. But somebody in Sweden had forgotten that in Siberia the Russians have wide gauge tracks but small tunnel clearances. As it turned out, the big generator got stalled at the front end of one of these narrow tunnels—and so far as we know it may still be there. In any event we soon gave up all hope of ever getting delivery of that particular generator. In the meantime the forty-five hundred horsepower generator, which we had ordered in Canada for the Lumsden plant, had been rushed to completion and was temporarily installed at Hollow Bridge—just in time to supply the ever growing war-time load on our system.

Then we proceeded to make arrangements with a Canadian firm to make a duplicate seventy-five hundred horsepower generator. In due course, the new unit was completed and installed at the Hollow Bridge Plant, and the forty-five hundred horsepower unit which had served there temporarily, was transferred to the Lumsden plant which by that time had been completed. Here, we think, is a good example of long range planning and ability upon the part of our engineers to meet even the most unusual of circumstances and unexpected difficulties.

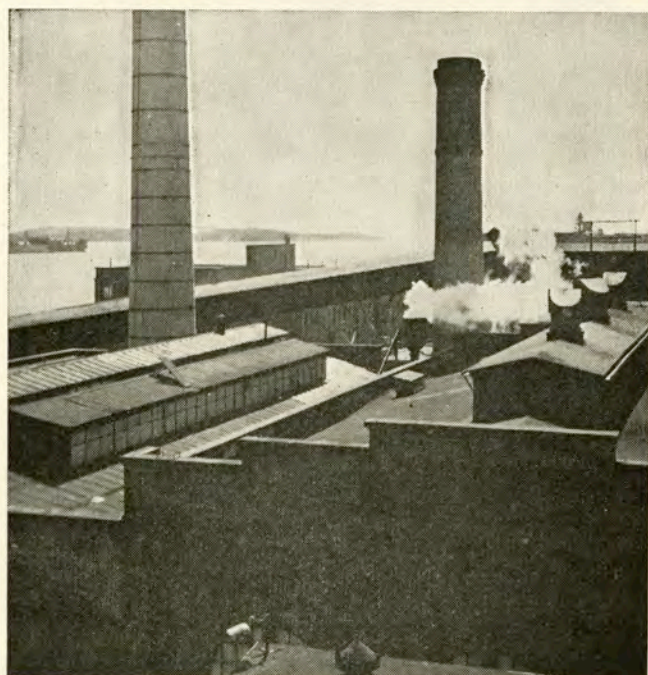




BARRINGTON STREET AT SPRING GARDEN ROAD
as it appeared over fifty years ago. The horse-car is
passing the site of the present Capitol Building.



SELLING VICTORY BONDS. One of the trams has been
a regular and faithful "silent salesman" in the
Victory Bond campaigns.



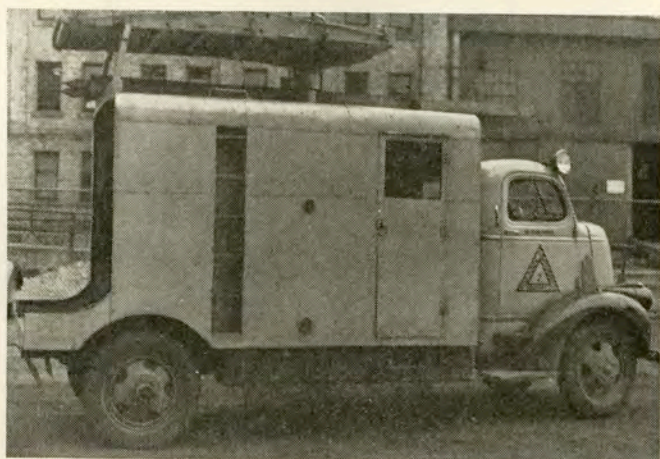
POWER CENTRE for the trams.



DECORATIONS FOR ROYAL VISIT. Remember?
Only a few years ago.



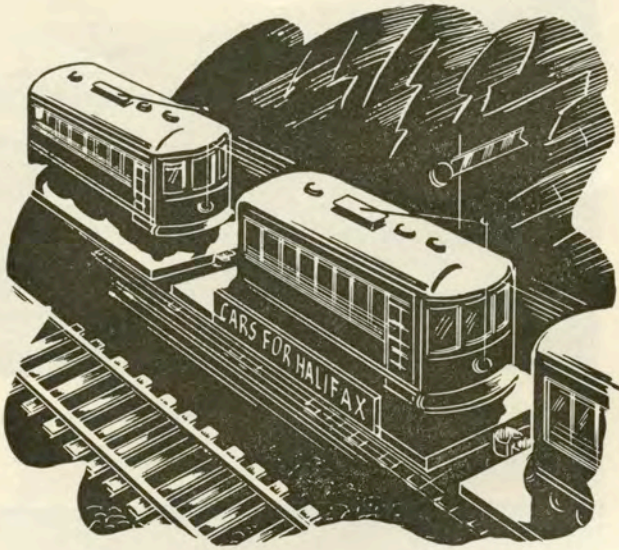
MECHANICAL ELBOW GREASE. This tractor-loader
combination is used in order to speed up snow
removal on tram-lines.



HIGH-LEVEL PLATFORM TRUCK specially designed
for work on the overhead trolley wires.

Just before the war the number of passengers carried on the Halifax trams was 9,000,000 annually. Curtailed use of motor cars coupled with a transient population swollen beyond all expectations, taxed the system to its capacity. In 1945 the 82 trams—23 more than in 1939—carried more than 31,000,000 passengers.





Everybody knows the seriousness of the transportation situation in the Halifax area during the war years. But few realize that it might have been very much worse—but for a couple of fortunate circumstances.

Halifax was affected by war conditions earlier probably, than any other City on the North American Continent. Back in 1939, the Tramway Department laid plans to prepare to meet a situation which they felt sure was bound to arise. To fully appreciate the situation it must be remembered that the present type of trams—called Birney cars—is the only one which is practical for use in Halifax—due to the narrow streets and heavy grades. With the co-operation of the Canadian and American Transit Associations every street railway on the Continent where Birney type cars were in operation, was contacted. By talking fast and in dead earnest we convinced the other Companies using Birney cars that the needs of the people of Halifax were greater than the people in the areas served by their Companies. As a matter of fact, congestion and over crowding occurred in Halifax a year ahead of practically any other centre. In any event, our tram-scouts explored possibilities all the way from Cape Breton to California—and in the course of the early war years were able to obtain a total of twenty-three cars. Incidentally fourteen of the cars were obtained from the Transportation Commission in Toronto—while five were shipped in from Bakersfield in California—two from Sydney in Cape Breton and two from Thetford Mines in Quebec!

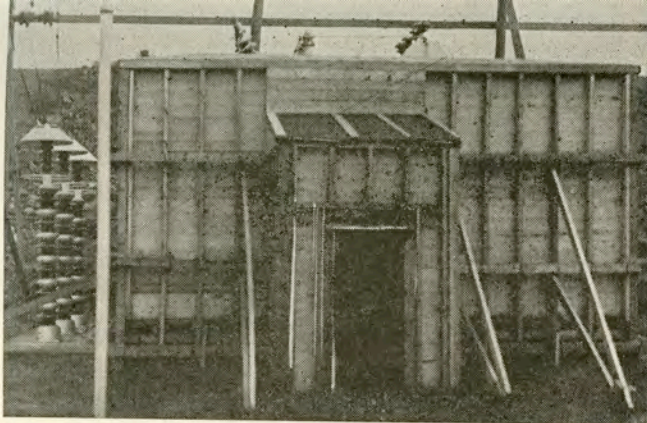
So far as we know, we obtained every available Birney car that was suitable for operation in the Halifax district before the need became acute elsewhere. If we had delayed—in all likelihood we would not have been able to buy anything

CAPE BRETON TO CALIFORNIA

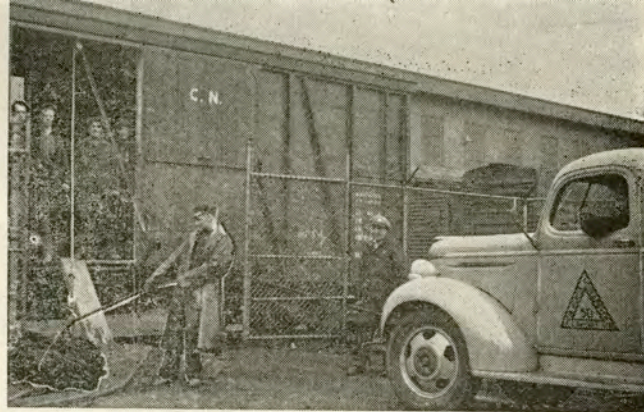
like the number of extra trams which we were fortunate in securing. But obtaining these extra cars was only part of the problem confronting the Tram Department. With thousands of newcomers crowding into Halifax, it was found necessary to extend the tracks in the north end of the City. Obtaining new rails was “out” for the duration so that difficulty had to be overcome by lifting tracks on less frequently travelled sections of the system, and re-laying them where they were more urgently needed. So the rails were removed from Point Pleasant Park and installed at the end of Gottingen Street.

Not only was the passenger burden placed upon the tramways greatly multiplied, but it was in this department that the manpower shortage was most acute. Many of the permanent trained employees had joined the services, and it was almost impossible to replace them. Hence those on duty worked longer hours, and many extra shifts. At times there were barely enough available operators to operate the cars. The repair men in the car barns worked long overtime hours to keep the cars in repair and on the road. The track repair crews were handicapped, not only with the shortage of men, but also the shortage of steel rails which were urgently needed for repair and replacements. The struggle to maintain the tracks which were wearing faster under their added burden was a real one.

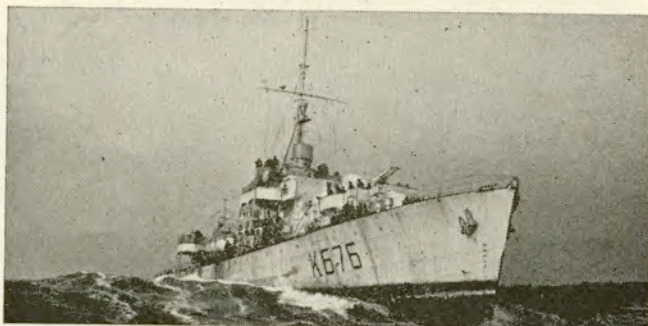




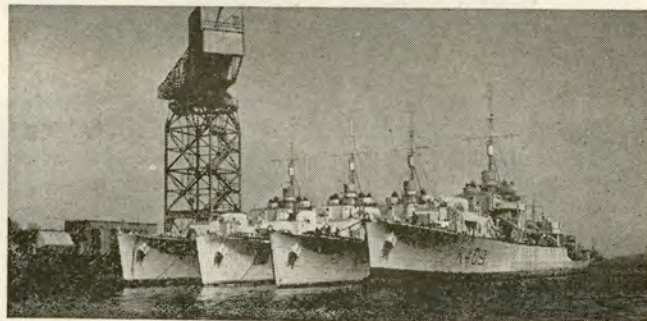
WAR-TIME PROTECTION. Two feet of sand and gravel protect a main transformer from sabotage.



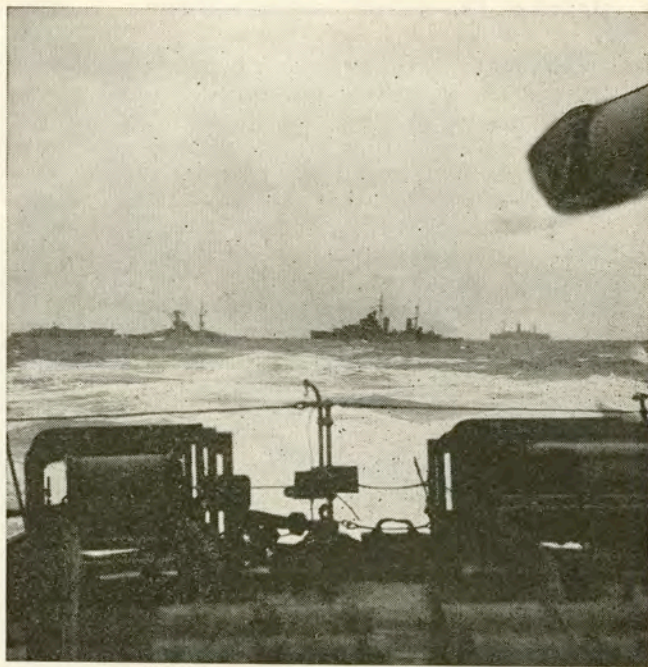
SALVAGING SCRAP COPPER. Workmen loading one of the fifty carloads of scrap copper which were "salvaged" during the Marine Department's war-time operations.



PLOWING AHEAD. This sturdy little frigate is doing her bit although the sea has a bit of a lift to it.



REPAIR, REFIT OR RECUPERATE. We don't know which, but these four frigates make a pretty sight for a navy man's eyes.



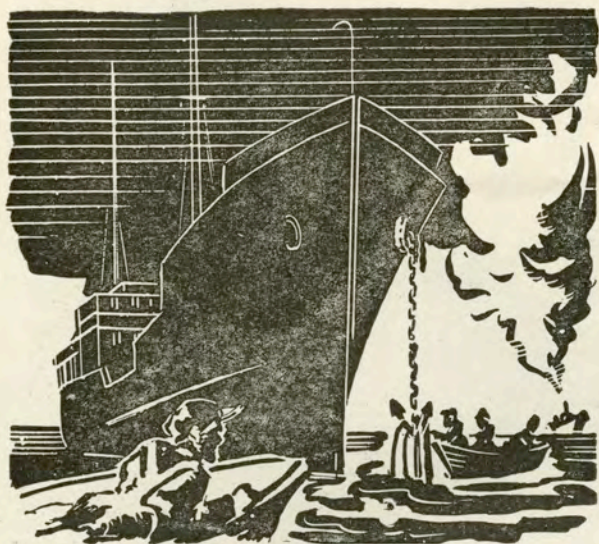
ON CONVOY DUTY. Eternal vigilance was the price of getting the ships through safely.



D-DAY IN NORMANDY. This picture was snapped by a Canadian naval officer on the big day. Note the men are taking their bicycles with them!



The President and Directors of the Company are all Nova Scotians—and with one exception are to-day residents of Nova Scotia. Similarly the majority of our employees are native born within the Province. Thus in ownership, direction and operation the Company is peculiarly and almost exclusively, Nova Scotian.



Did you ever hear of a ship called the OPALIA? NO? And neither did we—here at the Power Company—before the Opalia, in a way, burned its name into our memory. Back in the war days there was an occasion when this ship was scheduled to sail out of the Basin along with the rest of its convoy. Everything on board was in order—the great diesel engines were turning over as smoothly as a spinning top—the pilot was on the bridge ready to guide the ship out of the Harbour—the order was given to “weight the anchor”—and then it happened.

Just by way of explanation—in those days the Naval Control Officer called a conference the day before a convoy was due to sail. Here the Captains of the various ships gathered to receive their instructions governing the voyage. They were told the exact time that each ship was to weight anchor and sail through the Narrows. They were assigned numbers for their ships and a definite place in the convoy formation. The secret signals that were to be used were explained. All the other details were arranged and each Captain was given his sealed orders. In order to get the convoy safely out of the Harbour everything depended on teamwork and exact timing.

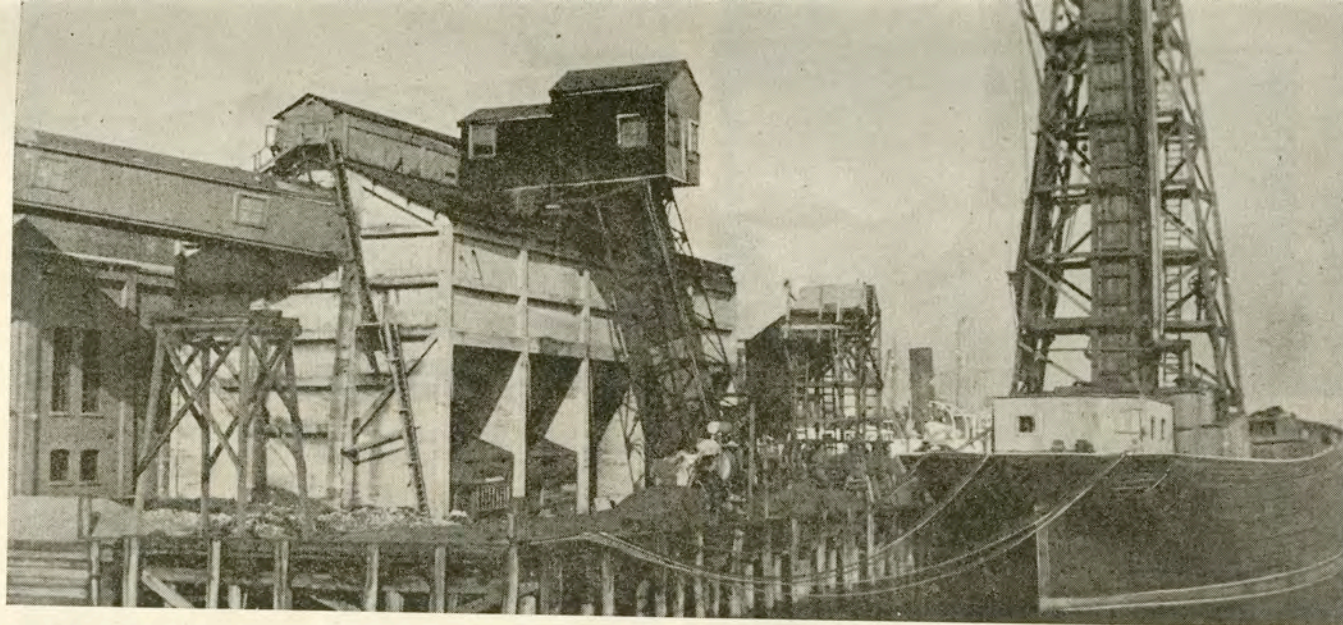
When the Opalia's starboard anchor was lifted—at the specified time—it brought up with it the grandest collection of wire rope and marine hardware that you would see outside of a junk dealer's yard. It was so snarled and twisted that the crew could not possibly clear it from the anchor. It was so heavy that the winches were strained—and it was so bulky that the anchor could not be lifted much above the water line.

ANCHORS AWEIGH

Just imagine a tanker trying to sail across the Atlantic with tons of scrap wire and rusted metal hanging against its prow. When the Opalia reached the Narrows, the Captain reported his trouble to the Naval Control Officer and asked to be dropped out of the convoy. He was told to heave-to in the Harbour and a repair crew would be sent out. Then the Naval Control Officer got busy on the telephone and tried to contact the various ship repair firms for help. But it was noon on Sunday—a difficult time to get quick action. It looked hopeless—but at that moment he thought of the Marine Department of Nova Scotia Light and Power. When his call came in, our men were at their dinner in our Company-operated boarding house. Within seven minutes a quickly assembled gang with oxyacetylene gear were in a launch and on their way to the Opalia, which by this time was well down the Harbour. In almost less time than it takes to tell, our launch was alongside—the men went to work and the anchor was cleared of its tangled load. The Opalia sailed again and soon caught up with the convoy. This was just a small job but an important one because the ship was not delayed.

It proved again the value of always having trained men “on call.”





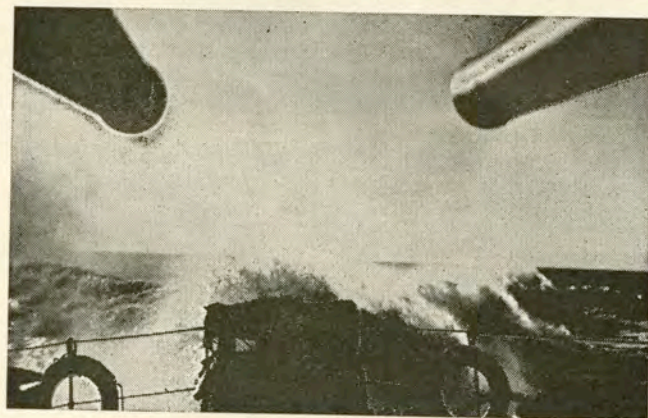
UNLOADING COAL AT OUR DOCKS. Here coal is unloaded from the coal barge. It will be used in the gas works and in the steam-electric generating plant.



IMPROVING THE SHINING MOMENT. At sea the boys use their "time off" to catch up on their correspondence with home . . . and elsewhere.



TRIBAL CLASS DESTROYER. One of the flotilla which saw real action in overseas waters.



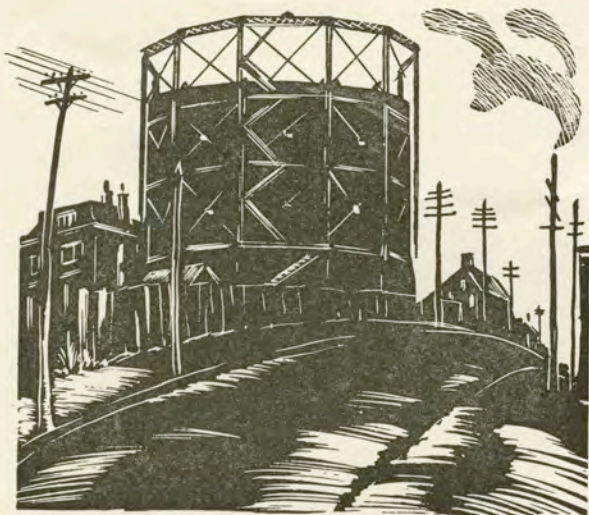
WHICH ARE THE ANGRIER? The guns or the churning seas?



CAR-BARNS AND GAS WORKS located on tide water for the economical handling of the vital element from which gas is manufactured. . . Nova Scotia coal.



Miles and Miles of power lines as well as town-size electrical distribution systems were constructed during the war years to serve the needs of service establishments which mushroomed into existence all over the Province. This work for the Government—as well as that done by our Marine Department—was executed on a strict no-profit basis.



GIVE THEM THE GAS AND WE DID

Despite the fact that the Gas Department dates back over more than a hundred years—actually it was the first unit of the Company that operated in Halifax—you have never heard very much about it. Like old established customs or habits, the Gas Department is pretty much taken for granted and that probably is the reason why we ourselves sometimes call it The Silent Service.

Actually, making artificial gas is basically the same process as it was a century ago. It's quite simple—really just a matter of roasting soft coal in a sealed chamber, with the resulting gas being drawn off through a tube into a storage tank.

Of course, supplying gas to the homes and industrial centres in a large community like Halifax means making gas on a large scale. The important thing is to have the gas plant so organized that the process of manufacturing the gas carries on without interruption—always keeping a reserve on hand to take care of emergency or peak loads.

During the hundred years of its operations, many changes and expansions have taken place in the Gas Department. The demand for gas service increased in corresponding relation to the growth of the City. Larger ovens had to be installed as well as larger storage tanks. As a matter of fact the present gas plant is the third which has been erected in approximately the same location—because despite the efforts to keep pace with demand—the plant has literally outgrown itself several times in the past and this required re-building.

But like in everything else, the war brought problems to the Gas Department, far and above anything that would ordinarily have been expected—and while its record perhaps is not quite so spectacular as others—it nevertheless played a vital part in the local war effort. There are no short cuts in making coal gas—if more gas is needed, you simply have to roast more tons of coal in larger ovens, or as they are usually called—gas retorts.

Over a period of years our staff developed a process which made possible the use of Nova Scotia coal for the manufacture of gas.

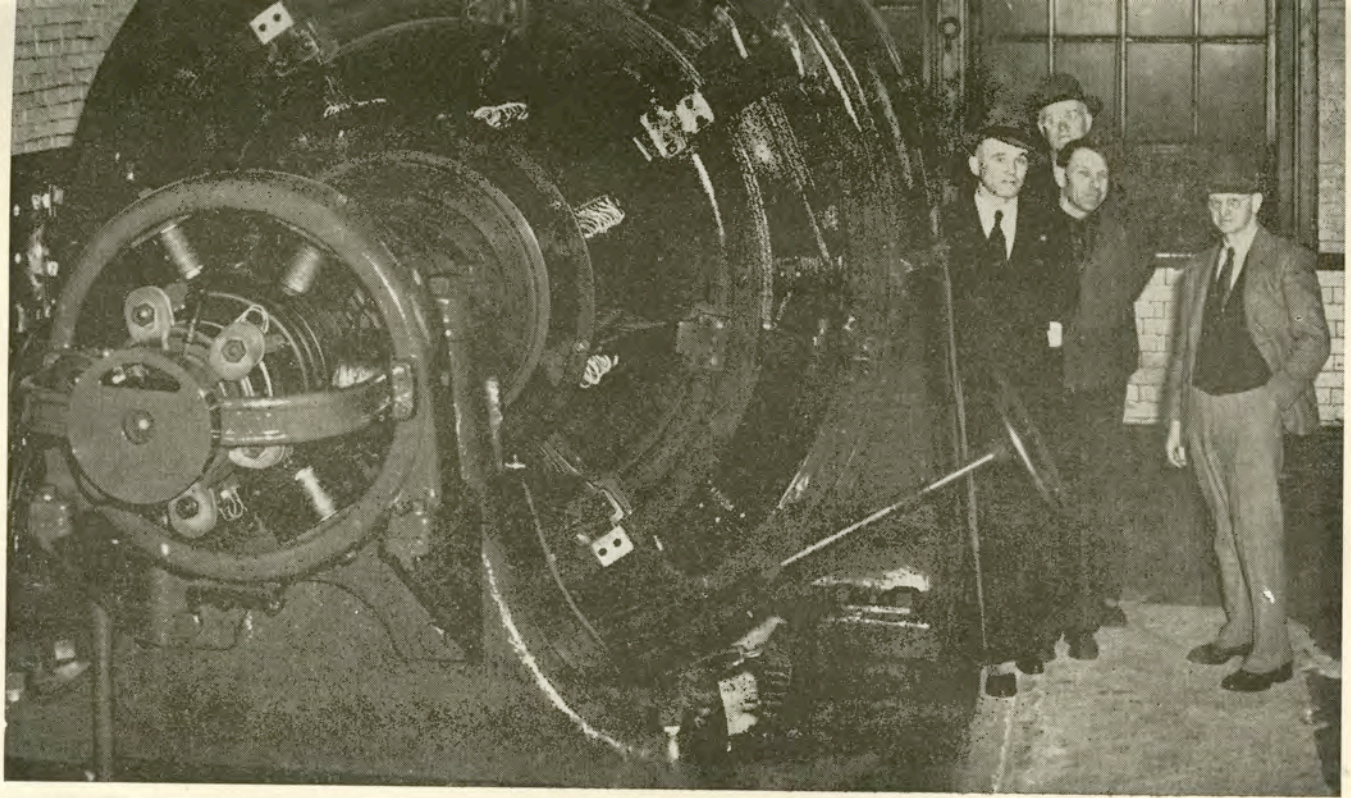
At the outbreak of the war, the Gas Department was very comfortably situated, with equipment to produce a supply of gas which was ample

and sufficient to meet the needs of its regular customers. Naturally as war workers flocked into the area and service establishments sprang into being, the demand for gas increased sharply and rapidly. Within two years the plant, working twenty-four hours a day was barely keeping abreast of the demand. Huge gas-fired ovens had been installed at the naval dockyard to supply the bakery and cooking requirements of the new establishment known as H.M.C.S. Stadacona. To aggravate the situation, fuel oil by that time had become a scarce commodity and several of the larger bakeries in the City were ordered by the Government to stop using fuel oil and we in turn were ordered to supply these customers with gas to the very limit of our capacity.

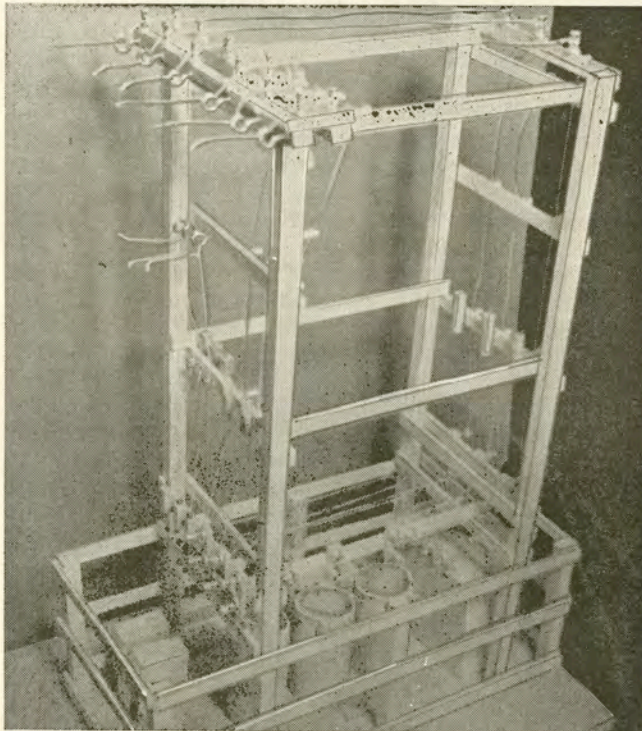
During nineteen forty-two and three—despite the shortage of labour and materials—four additional gas producing retorts were installed in order to take care of a demand which by the end of nineteen forty-three had increased to almost half again as much as the pre-war demand. By the end of nineteen forty-four the demand had again caught up with the producing capacity of the plant. Fortunately, through herculean efforts on the part of the Gas Department staff—a staff that had been seriously affected by the manpower shortage—the plant was kept working at top speed night and day until the crisis had been passed.

That is the story of the Gas Department and fortunately the beginning of the peace time years finds it in a better position than ever to serve the needs of its customers.

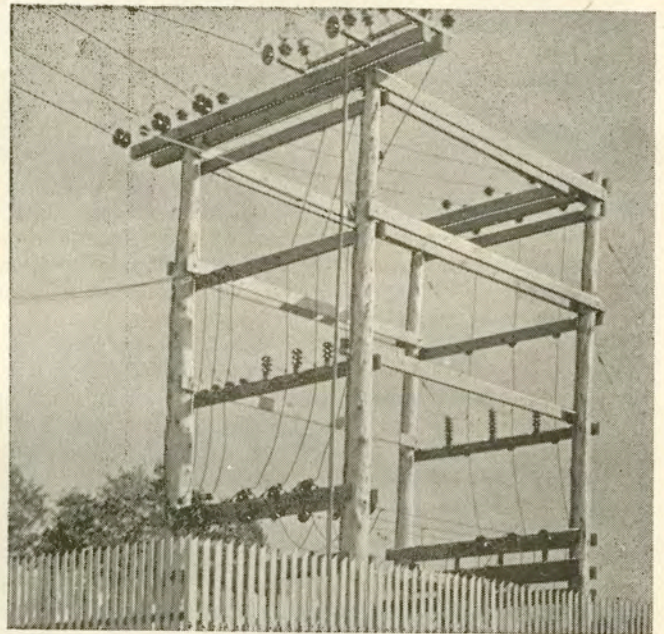




ALL THE WAY FROM TENNESSEE. When 23 trams were added to the Halifax system during the war years, extra power was needed to run them. This unit was located in Tennessee . . . the only one available. It converts high voltage alternating current to the required 550 volts direct current.



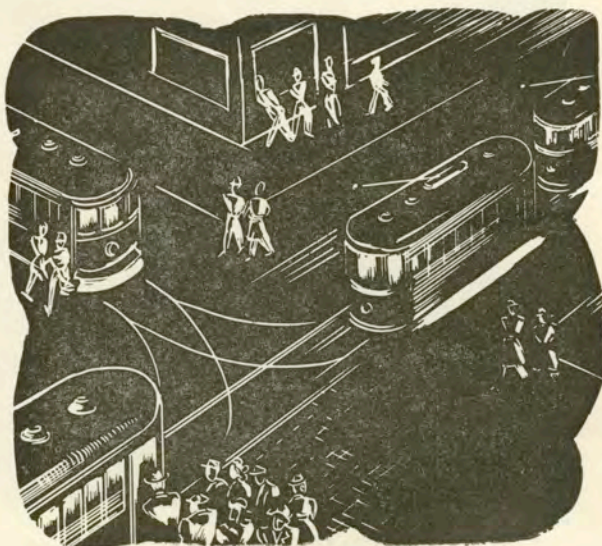
LINE CONSTRUCTION [SHORT-CUT. Ordinarily a transformer installation is made from carefully prepared blue-prints. Scale models like this give workmen a better idea of what is required, and the work is speeded up accordingly.



THE COMPLETED JOB. See how closely it follows the detail of the model.

The success of the Company and its subsidiaries as public utilities serving their respective communities, hinges upon the continuing support and goodwill of three groups of people: Customers—Employees—Owners. No one of these three groups can benefit at the expense of the other two. This community of interest is something we keep constantly before us and strive to preserve.





You have already read the story of how we met the tram-traffic demands of a war-swollen population. How we were successful in obtaining twenty-three Birney type trams—the only type of tram car suitable for operation in the City of Halifax. But just getting the additional cars was not enough—we had to have the men to operate them and the power to run them. As men, who were suited to the work of operating trams became available, they were carefully trained in all the various duties of a tram platform man—manipulating the mechanical equipment—maintaining schedules—collecting fares—making change—loading and unloading of passengers and the Safety Rules. They learned quickly and did excellent work. They put in long strenuous hours of overtime just like the older operators had already been doing.

But the power to run these extra cars—that was another problem. Tram cars have to operate on a special type of current—five hundred and fifty volts direct current—and they won't move an inch on any other kind of current.

At the Water Street plant the alternating current, which comes in over the transmission lines is converted to direct current at five hundred and fifty volts for the Tram System. This is done by the use of several large motor-generators and a high efficiency electronic device called a mercury arc rectifier. At the time that the additional Birney trams were acquired, these Direct Current generating units were loaded to capacity due to the greatly increased traffic then being handled—and it was impossible to increase the load any more because of the danger of a complete breakdown of the generating equipment.

In those days all electrical manufacturers were up to their necks in essential war work and, the supplying of new special converting equipment which we so desperately needed, was impossible. It was just one of the hundreds of needs that could not be filled.

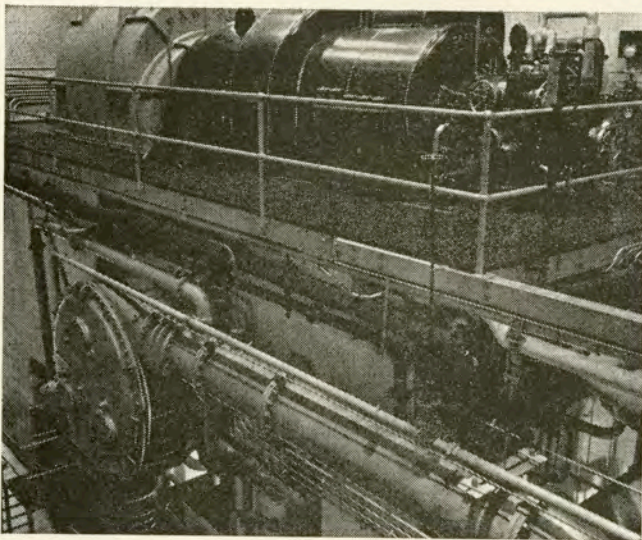
DIRECT CURRENT FROM TENNESSEE

With the cooperation of the electrical suppliers and Canadian Transit Association, we searched the country from one end to the other in the hope of finding some existing equipment which might be spared. There wasn't a single unit in the whole of Canada. So we turned to the United States—and finally, when the search seemed almost hopeless, we found one—of all places—down in Tennessee. Never was a piece of electrical equipment bought so eagerly and a deal more quickly closed. Without delay, the apparatus was shipped to Halifax taking as many short cuts in the process of war-time shipping procedure as were possible.

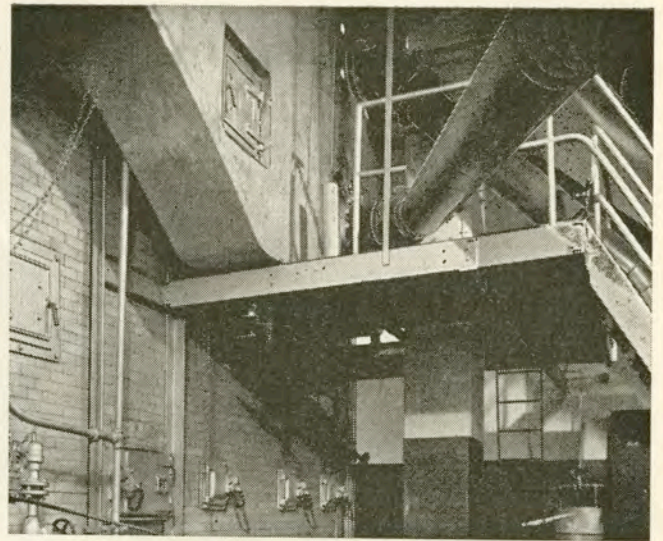
In the meantime, the men at the Water Street Plant were moving electrical equipment to other locations to make room for this new generating unit so that it could be quickly hooked up with the existing power supply system for the trams. Everything worked fine—the additional trams were placed in operation—doing much to relieve a traffic problem that had reached the critical stage.

Everything went along smoothly until the summer of nineteen forty-five when trouble developed and the windings on the generator burned out. It was then that our electrical staff tackled what we believe to be the biggest re-winding job ever done in Nova Scotia. When it came to the final taping of the coils in the generator—none of the white cotton tape ordinarily used for such a purpose was obtainable—but strangely enough—a high grade of tape made from spun glass was available and was used, with satisfactory results. This unit has been back in service for several months—supplying power to the Trams and that is the story behind the story of securing the equipment, the men and the power which made possible a threefold increase in the number of passengers carried on the Halifax trams during the past six years.

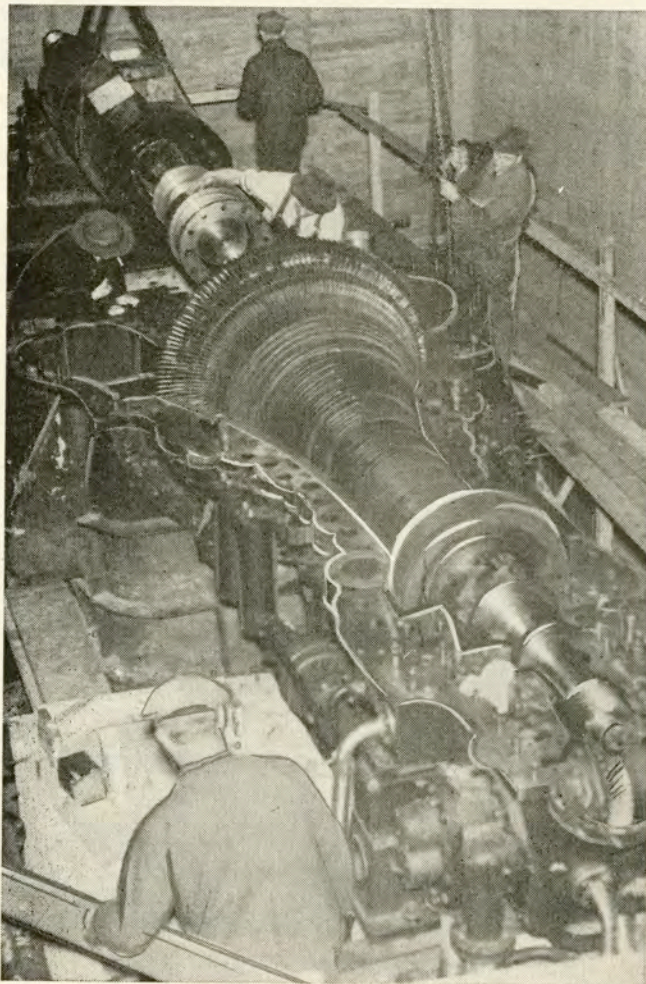




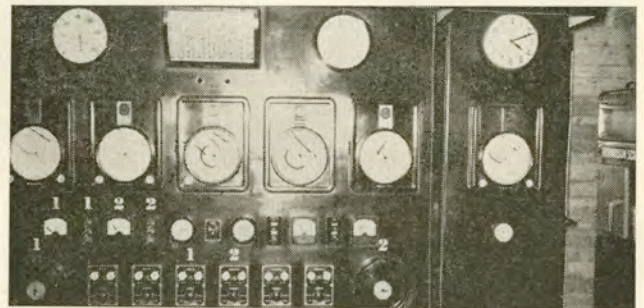
THE 16,000 H.P. STEAM-GENERATOR at the recently completed Water Street plant . . . the most efficient in the country. It runs so smoothly a coin can be balanced edgewise on its top casing.



A TON OF STEAM A MINUTE is produced in this modern boiler, which provides the steam at 600 lbs. per square inch pressure to run the turbo-generator.



MULTI-STAGE TURBINE WHEEL of the new steam generator is shown here being installed.



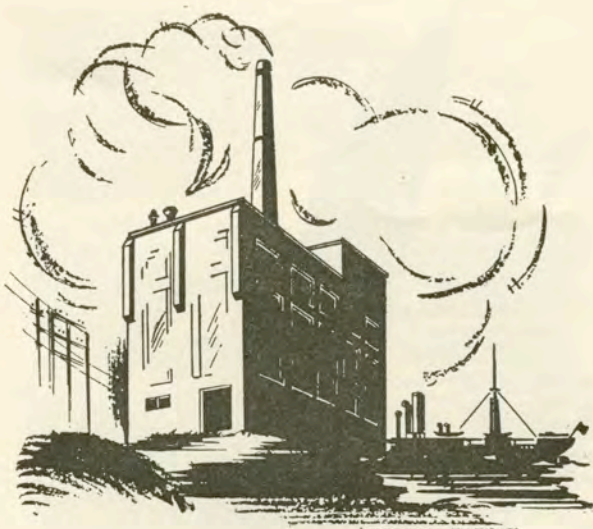
MAIN CONTROL PANEL in the new steam plant at Water Street. Steam pressure and temperature generator speed, power output and many other essential phases of power generation are accurately recorded and literally under finger-tip control.



TEN MILES OF PIPE . . . enough to stretch from Halifax to Bedford . . . of which this is a section, is installed inside the huge boiler.



This station can achieve an efficiency, long the goal of engineers. It can generate a Kilo-watt hour of electricity from one pound of coal.



Early in nineteen forty-one it appeared obvious to Nova Scotia Light and Power engineers that if we were to run into a particularly "dry" season, the available water in the storage areas might fall below a certain level—and Halifax would be faced with a power famine. The additional demands for power by new and expanding war industries as well as by the growth of the Armed Service establishments, and the influx of war workers, turned our local power problem into one of national importance.

And so it was that when plans were drawn up and submitted to the proper authorities for a new steam plant at Water Street—the whole proposition received prompt approval. Not only that, but top priorities were obtained for all the machinery and equipment needed for this new plant. Constructing a new building in those days was an even more difficult problem than building a new home to-day—if that is possible. In any event, making the fastest progress with the limited supply of experienced labour and materials which was available—through fair weather and foul—(and by describing it as "foul" we are really flattering some of the weather we ran into)—but despite all the difficulties the building was completed and ready when the electrical equipment began to arrive from the manufacturers and the supply houses. And not any too soon—because by this time the fears of our engineers about a pending power shortage began to be near realization. But even after building the plant and getting most of the equipment—there was still a task ahead to be done. Making electric energy by burning coal is quite an intricate problem. First the coal—by the way all the coal we use comes from Cape Breton—has to be ground and pulverized in huge grinders to the same degree of fineness as pastry flour. This is done at the rate of eight thousand pounds of coal per hour. There it is blown into the furnace by a cyclone-like blast of hot air. This air is pre-heated by the hot waste gases before they go up the smokestack—that's something like being in a packing house where they utilize about everything but the pig's last squeal.

FROM COAL TO KILOWATTS

This mixture of powdered coal and hot gaseous air burns furiously at intense heat the moment it enters the furnace. The object of all this is to produce steam by evaporating water at the rate of sixty tons per hour! Imagine if you can, ten and a half miles of steel tubing of various sizes—enough to stretch from Halifax to Bedford through which tons of water are forced under pressure—and converted almost instantaneously into steam. But in order to turn the huge turbine which drives the generator, this steam must be built up to a pressure of six hundred pounds per square inch at a temperature of eight hundred degrees fahrenheit—hot enough to make the water and steam filled pipes almost glow. For purposes of comparison your kitchen kettle boils at two hundred and twelve degrees fahrenheit and the water in your kitchen tap has a pressure behind it—on an average—of about fifty pounds. This high pressure steam drives the turbine at a speed of thirty-six hundred revolutions per minute and there are actually some moving parts of the turbine which travel at the almost incredible speed of ten miles a minute.

We would like to end this story of the new steam plant with one of those "believe-it-or-not" true fables. This is a fact. Despite all the priorities it was possible to have issued—after all the man-hours had been invested in the construction of the plant and the manufacture and assembly of the machinery—in view of the urgent demand for the extra power the plant would supply—not a wheel could turn in this new million dollar establishment, all for the lack of a mere two-thirds of an ounce of special steel alloy spring material. Yes, that's all! But it was essential to the proper control mechanism of that high pressure steam turbine. Certain engineers we know very well, had gotten down almost to a diet of chewed finger nails before the release order came through from the War Priorities Board. But it's a good story that ends well—and out of it all Halifax citizens will, in the peace-time years ahead—benefit from the extra power which is always available in good weather or bad.



WAR SHIPPING ADMINISTRATION
614 Bank of N. S. Bldg.
Halifax, N. S.
P. O. Box 426

November 20, 1945
P.M.

Mr. J. B. Hayes
Manager
N. S. Light & Power Co. Ltd.
Halifax, N. S.

Dear Sir:

During the past four years there has been a considerable number of vessels calling at Halifax for convoy among which were 3,000 vessels controlled by the U. S. Government. On 50% of these vessels emergency repairs to electrical equipment and the degaussing were required before the vessels could depart in convoy.

The class of work required skilled workmen to prepare the jobs without delaying the vessels. There were other problems, weather conditions and harbor transportation to vessels that were anchored in the harbor and in Bedford Basin. This work had to be performed on non-stop basis to avoid delays in making the scheduled convoy dates.

To the faithful and reliable employees of your organization I wish to express the thanks for the wonderful co-operation and assistance in the successful operations of the U. S. War Shipping Administration during the past four years in Nova Scotia.

Yours truly,

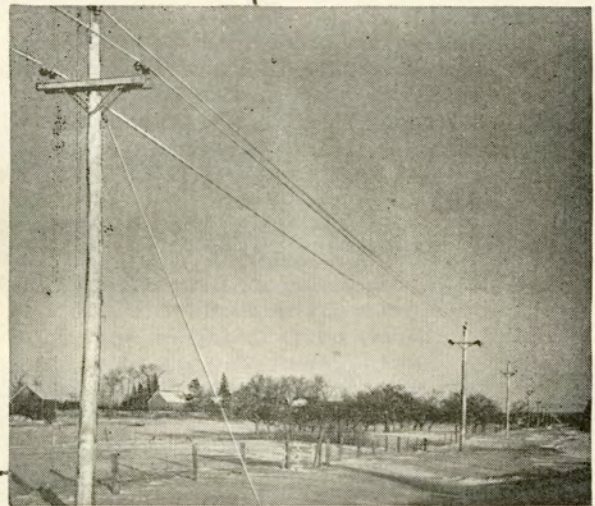
WAR SHIPPING ADMINISTRATION

J. J. Bahorich
J. J. Bahorich
District Manager

VJB/MCI

c.c. Mr. Doug. Anderson

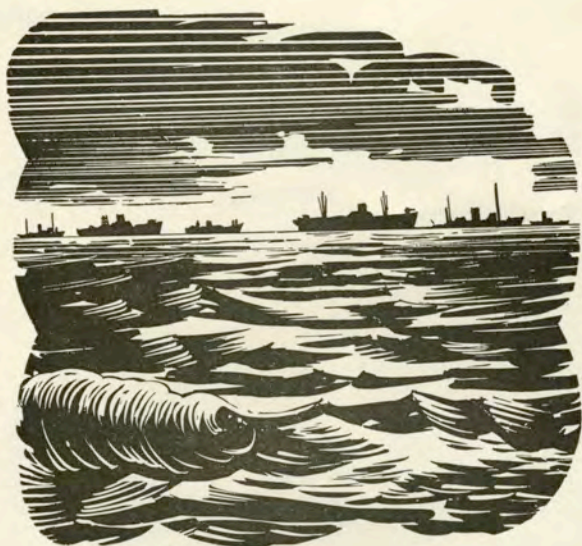
UP HILL AND DOWN DALE—power lines like this criss-cross the sections of the Province served by Nova Scotia Light and Power Company, Limited.



Our employees recognize the fact that their opportunities are balanced by their obligations to each other as fellow-workers as well as to the owners of the Company and to the general public which it is their privilege to serve. Employees are encouraged to participate in social, fraternal, welfare and sports activities in the communities in which they live.

The Company believes that a good worker must first be a contented worker. To assure the protection of their dependents and relieve private apprehensions, the Company has provided a sound insurance pension and sickness benefit plan. Annual vacations with pay are enjoyed by all regular employees, and in addition certain privileges are allowed employees with respect to the use of the Company's services.





For the past number of years we have heard much of the term "Lend-lease"—but we don't suppose one person in ten could give much more than a vague definition of what it really means. And we don't propose to take time to enlighten you—even if we could—but are calling tonight's story a case of "lease-lend" because it was almost a case of Lend-lease operating in reverse gear.

Back in March of nineteen forty-four a convoy outward bound from New York to Russia ran into some bad weather, and the farther they steamed on the worse it got until the gale reached hurricane proportions. The ships were pounded and battered by heavy seas in sub zero weather and to add to their troubles there was every evidence of a wolf pack of subs lurking and waiting to make a killing. The outcome was that many of the ships were so badly knocked about that the convoy was forced to turn in to Halifax for shelter and repairs. And what a picture of near-ruin they presented. Forward guns were buried in ice—telephones for gun control were water soaked and out of commission. Navigation lights broken and torn away. Railings and steel work twisted and bent—steam pipes on deck frozen tight. In many cases the cargo had shifted with Army tanks and trucks running loose in the holds—their gas tanks smashed and everything generally in a mess. According to our records, made at the time, there were twenty-eight ships that needed urgent repair work done on them before they could put to sea again. Here are some of the ships that you may remember—The Matthew W. Ransom—Champ Clark—Thomas Howell—American Robin—William T. Coleman—Roger Moore—Mary Austin—Sahale—Alexander Hamilton—G. P. Garrison—Arthur W. Perry and so on. In order to get the work done quickly, the ships were berthed in the Harbour and that was the time that somebody said the name should be "Cripple Creek" instead of Halifax Harbour!

CRIPPLE CREEK

Every ship repair firm in Halifax was called in on the job of putting the ships in shape so that they could complete their ocean crossing at the earliest possible moment. And then it was that "lease-lend" really and truly was put into effect. Rush calls were put into New York for replacement parts—but there was no time to wait for the parts to be shipped into Halifax. Almost everything from electric generators to steel braces were blithely and politely "borrowed"—that's the term "borrowed" from other ships berthed in the Harbour and the Basin. Of course this equipment was later replaced when it arrived from the States—but in the meantime the huge task of getting those twenty-eight ships in seaworthy shape was speeded night and day to meet the date for the next eastbound convoy. The date was met and every ship sailed—another task well done.

The pressure of the work never stopped so we just kept going at top speed—every installation presented a different set of problems—no wonder that within a relatively short period of time our men became real specialists in this particular work.

Despite the pressure it was a fascinating experience. On the many Naval and Merchant ships on which we worked, we met some grand fellows. We heard many wonderful tales of the war at sea, and we formed friendships which will never be forgotten. We watched the convoys sail away with mixed emotions—a feeling of pride and satisfaction for our job, and a feeling of admiration for the men who sailed those deeply laden crafts. We had developed an intimacy with these ships; we felt as though they were our wards, as in a sense, they were.

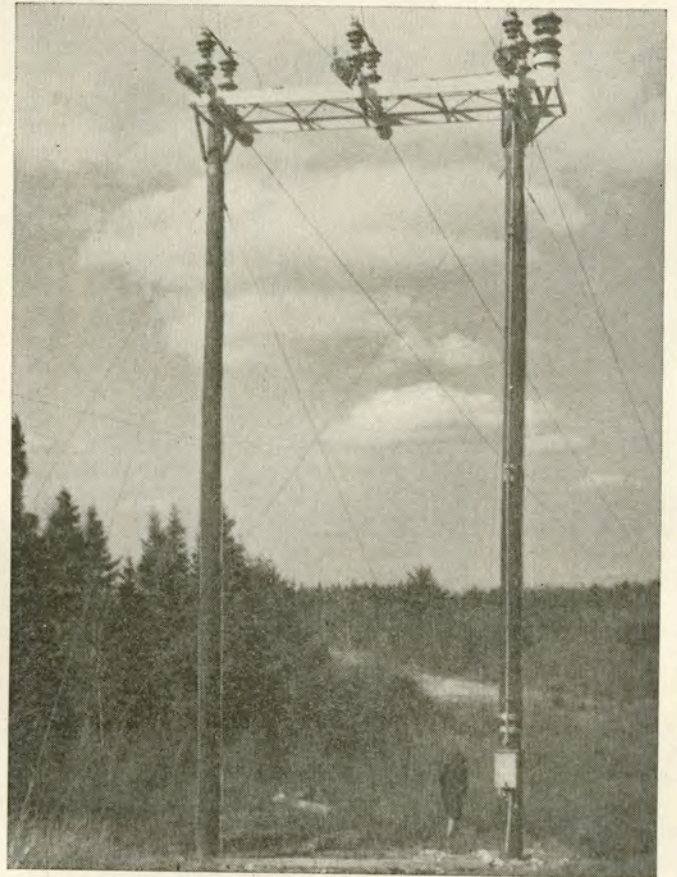




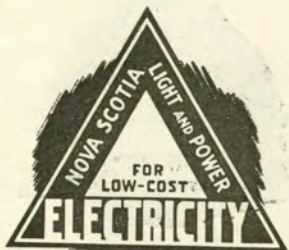
DER TAG—But not the way the Germans had planned it. This U-boat has just surrendered to the Royal Canadian Navy.



NIGHT PATROL. As the day comes to an end, watchers of the night slip quietly out to sea.



DESIGNED FOR HEAVY LOADS. A transmission line like this must not only carry a heavy power load . . . but also a heavy load of cable and line equipment. It has to stand up in all kinds of weather all through the year.



We abandoned the use of glass insulators on our system thirty years ago but now there is no porcelain and we are using an improved type of glass insulator.



R.C.A.F. TO THE RESCUE

It is not very often that there is a power interruption on our system of interconnected transmission lines. But one time back in the war days there was a rather mysterious interruption.

It was one of those peaceful winter days. There was plenty of snow on the ground but there had been no storms or high winds for days—the sun was shining brightly and everything was running as smoothly as could be. Suddenly one of the power lines from Avon went out—and to use a popular phrase—it was deader than a dead mackerel. Our load despatchers jumped into action and started to try and locate the trouble. After a quick exchange of 'phone calls there did not appear to be any real reason for that power line going out of service—taking into consideration the really calm and peaceful weather that had been reported all over the Province for several days.

The maintenance crews got on the job and patrolled the various sections of the line which could be easily reached—and all the places where a break might ordinarily be expected. All these were checked but everything was found in good working order. It was a time-consuming job to patrol the whole line—particularly in the back country areas—and to examine the lines between every single tower. It meant walking through snow that was literally up to the necks of the men.

Because of the urgent need for the power, we called upon the Royal Canadian Air Force for assistance. They responded with all despatch; put a plane at our disposal and took our engineers for an inspection flight over the line. They patiently flew almost at ground level, back and forth over the whole length of the transmission line. Finally the break was spotted away in the wilds of the unsettled back country. Quickly the news and the location of the break was flashed to our waiting repair crews. With the necessary equipment—a repair gang was sent out—they waded and plowed through miles of snow-covered bush country and repaired the break—no small job in itself. Then they returned to the nearest 'phone and reported "All clear."

Power was soon flowing through the lines again and all that remained was to hold the regular post-mortem to find out, if possible, the cause of the break so that the proper precautions could be taken to prevent a possible recurrence. The men in the repair gang were as completely mystified as we were. At other times of the year we might have blamed the break on some enthusiastic person with a high-powered rifle who—with nothing better to shoot at—had indulged in a little target practice at the insulators on a transmission tower. This by the way, is a common practice with some misguided persons who don't realize the extent of the damage they cause and the inconveniences other people must suffer. But this was neither the place nor the season for people to be out shooting either insulators or wild animals. Moreover, the repair gang reported that everything was O.K. except for the wire which had broken between two towers. The wire which had given away, was brought in by the repair crews—it was carefully examined and streaks of yellow paint were found at the breakage point. The problem was solved. The Air Force authorities were advised and every training plane that had been in the air at the time was examined from nose to tail. And every pilot was questioned. At last the plane that did the damage was found. Close checking of the logs turned in by the pilots and the planes they had been using failed to reveal any occurrence out of the ordinary or any damage to the planes. So somewhere—and we sincerely hope he is still alive—there is an Air Force pilot who perhaps never knew that he came within inches of cracking up his plane on a high voltage power line, and possibly killing himself and the others in the plane. At the time, if he had heard us, he would have blushed at the names he was called—but it was just another happening of the kind that keeps life from getting too monotonous. To-day the net result of that episode is visible only by the few extra gray hairs on the heads of our operating staff.

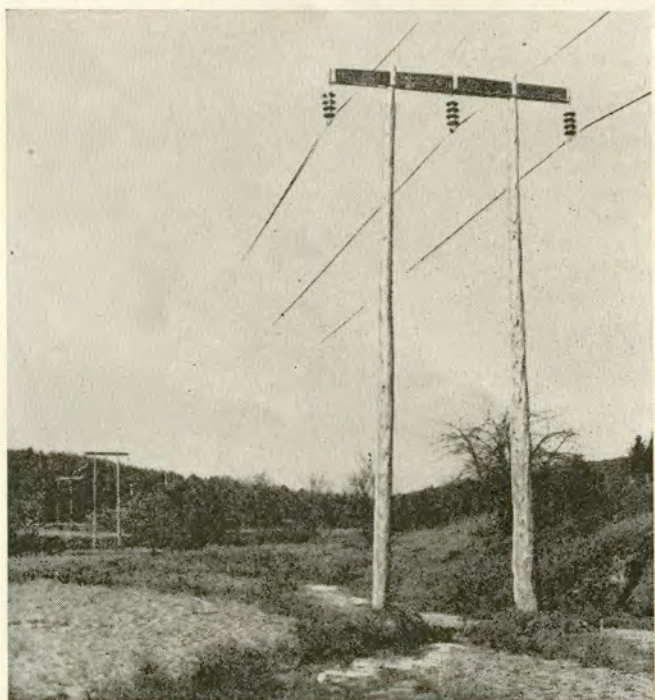




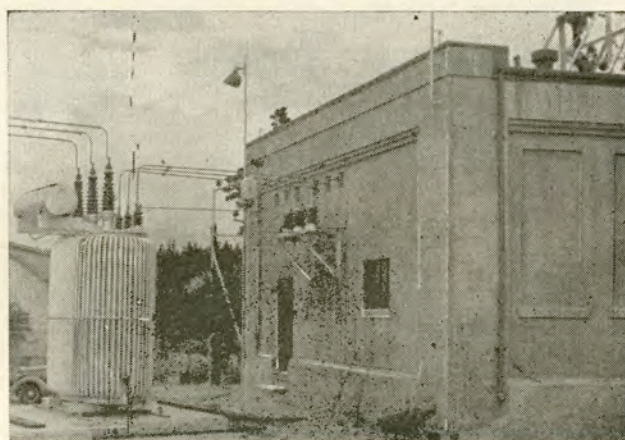
AFTER THE EXPLOSION. View at the magazine jetty and looking across the Basin, after things had cooled off a bit last July



SOME OF THE EVIDENCE. Naval personnel assemble some of the leftovers and seem at home handling such things.



HIGH TENSION POWER LINE. Our line-men working literally "under fire" risked their lives to repair this line which was damaged by the explosion.



TUFT'S COVE SUB-STATION. An important link in the electrical distribution system for the Dartmouth area.



INSULATORS AND POTHEADS. Here a lineman is assembling the end fittings for a high voltage cable.



A "Marine Department" formed in 1940 at the request of Naval authorities did secret work on almost 1600 ships flying the flags of 19 different nations. The main task was installation of degaussing equipment on naval and merchant ships; but Radar and Asdic equipment, mine sweeping equipment, convoy lights, mine sweeping equipment, telephone and alarm systems and many other types of equipment were installed or repaired by this war-time department.



One of the most recent—and probably the best illustrations of the value of the interconnected electrical transmission system of the Nova Scotia Light and Power Company was at the time of the explosion of the Magazine last summer.

The initial explosive blast knocked out, not only a stretch of the high tension transmission line from the Avon River which serves the Dartmouth area, but also a number of distribution transformers in the vicinity of the explosion. Within a matter of minutes of the first explosion an emergency crew had made a quick survey of the damage to the power lines—risking their lives in the bargain—and reported the impossibility of attempting any immediate repair work.

In the meantime, operators at all generating plants on the entire system had been warned to stand by and to be prepared to act quickly in whatever emergency that might arise. Extra operators and personnel were called in—and right here those men in the Halifax area deserve a real thank you for their loyalty to their work and their desire to help in keeping the electric service operating.

The problem that soon presented itself was simply this—electric power in the Halifax area comes from three sources—the Hydro electric developments at St. Margaret's Bay and Avon River, and also the big steam plant at Water Street. The power from the Avon River developments is brought to Halifax over two high voltage transmission lines and these power lines are fitted with what are called air break switches, so that in the event of an emergency—a forest fire, a sleet storm or, as in this case, an explosion, one line can be cut out and the other made to do what almost amounts to double duty.

So by a careful manipulation of switches and other kinds of power control equipment, electricity was being fed from Halifax through the submarine cables across the Harbour to Dartmouth—a reversal of the usual direction of current flow. True, it was not the usual way to supply Dartmouth customers but it proved the value of the submarine cable interconnection, and it meant that electric service kept operating throughout the emergency period.

HALIFAX EMERGENCY

We, in this area, all had our private worries—and plenty of them—because nobody knew what would happen next. Rumours flew thick and fast and a panic could quite easily have developed with disastrous consequences. Three things prevented this occurring. One was the cool-headed courageous and efficient manner in which the local A.R.P. went into almost instant action. The population in the exposed areas were evacuated with a minimum of delay and confusion. Then there was the tremendous service performed by the local radio stations in broadcasting official warnings and directions. Continuity of electric service made possible the sending of these broadcasts as well as the reception of them by radios operating on the ordinary household electric current. And finally as the evening wore on the street lights went on just as though there had been no explosion. An editor of a nationally known publication in speaking of the explosion, made the comment that having the streets lighted all through the emergency period was one important reason why a possible panic with unpredictable results was averted.

So much for the explosion and the handling of the immediate emergency. But it was important that the service and the system be put back into normal operating condition as quickly as possible. At the first opportunity—it was the afternoon of the day following the explosion—an inspection crew made a survey of the damage done and estimated the amount of replacement material required. Then they arranged for repair crews to go into the area early the following morning. It is to the credit of these men that they worked without let-up under extremely dangerous conditions—it amounted to working under fire in a very real sense of the word—until the whole transmission line was in working order once again.

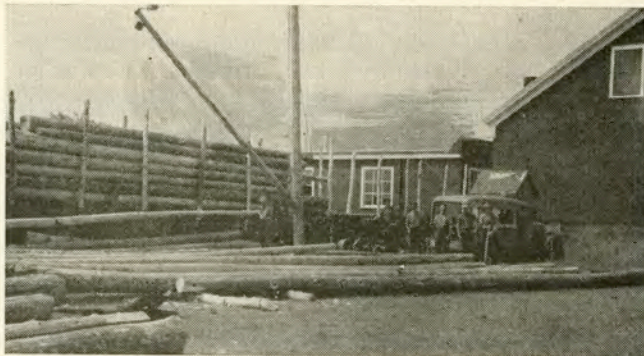




WHEN POLES WERE SCARCE. This is part of the stand of timber on the farm the Company purchased.



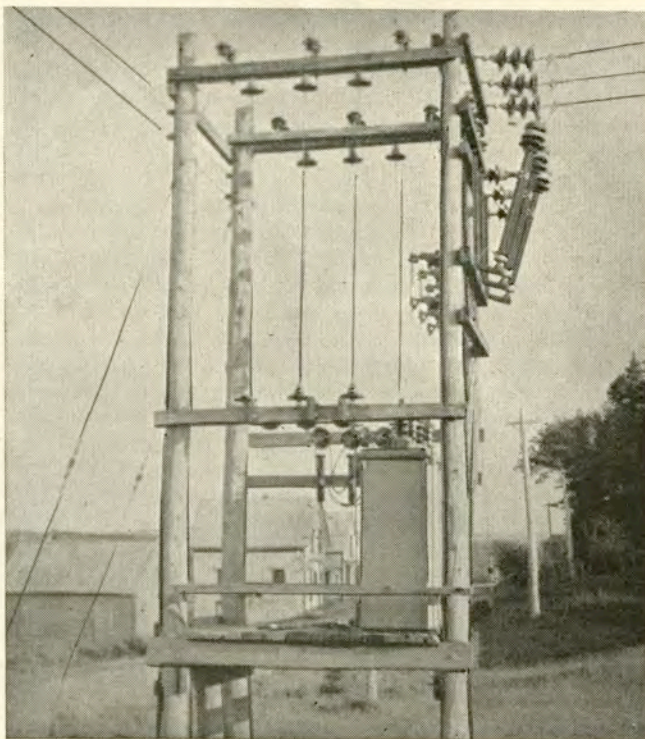
ONE WINTER'S OPERATION resulted in a splendid harvest of first class pine poles.



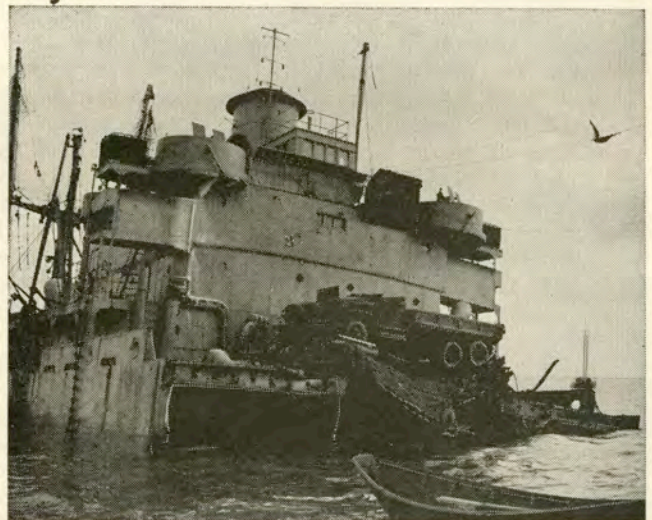
HERE ARE SOME OF THE POLES being shipped to Truro for creosote treatment.



TRIMMING AND PEELING the poles is important and this is one job where there are no shortcuts.



TYPICAL RURAL SUB-STATION . . . this one on the Avon River transmission system, is equipped with cut-out fuses and lightning arresters.



SHIP IN DISTRESS. What happens when a shipload of tanks and locomotives goes on the rocks. In this case the S.S. Van Buren.

The Company has endeavoured for years to lessen accident hazards by the introduction of safety devices and practices—and by safety instruction and supervision among its employees. Constant study is carried on to discover possible sources of accidents and to plan means of avoiding them. As a result of this intensive work both the number and the severity of accidents have been kept at a lower level than that of the industry as a whole.





You have read about the miles and miles of distribution lines that were built during the war years in many parts of the province, for the Army, Navy and Air Force. At first in order to speed the construction of these urgently needed power lines we used poles and crossarms, bolts and insulators, hardware and wire, that we had in our own storerooms. But soon we found that our own stock piles were gone and it was practically impossible to get replacement material. It was then that we had to tell the various Armed Services that we could build no more lines for them unless they supplied the materials—ours were all gone and we could get no more.

For weeks and months we struggled with priorities and manufacturers—materials were scarce—shipments were terribly slow—it was difficult to get enough materials, even with high priorities, to take care of our own maintenance work. Priorities could help to get the pieces and parts that were made of metal. But after all—high voltage wires must be kept off the ground—sturdy poles were needed and these just could not be obtained—priorities, or no priorities. All the suppliers from whom we ordinarily bought our poles were contacted and they all had the same story to tell us—no poles. The manpower shortage had caught up with them and they just could not get enough men to make up the wood's crews to cut the poles and prepare them for shipment.

Early in 1944 when the situation was really acute, we remembered a lovely stand of pine trees that was located near Kingston in the Annapolis Valley. The drowning man will grasp at a straw—we had a look at the pine trees and found out who owned the property. Almost quicker than it takes to tell the story, the owner was contacted and every effort was made to buy the pine timber on his land. But the owner refused to sell—he said he would sell the whole farm but not the pine alone. Now the farm was really a double one—originally it had been two adjoining farms and it all added up to over 300 acres, with some cleared land, a sizeable orchard, two farm houses, and the lovely stand

SO WE BOUGHT A FARM

of pine. It was a case of all or nothing—so, with no alternative—we bought it all.

Soon afterward our men and equipment were assembled and we went into the logging business.

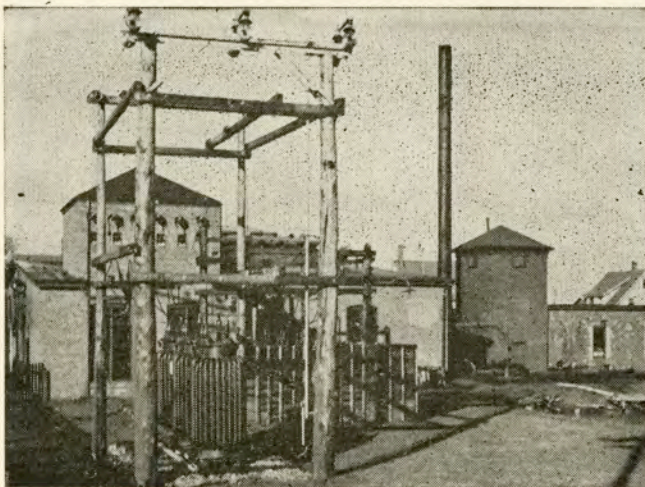
The boys went to work and in a short time the trees were cut. How many poles did we get? Just over two thousand. Yes, two thousand high grade pine poles ranging in length from twenty-seven to forty-five feet. At the farm the poles were cut, trimmed, peeled and dried. Then they were loaded on flat cars at Kingston and shipped to Truro where they were properly seasoned and then pressure treated with preservative creosote.

But that is not the whole story—apart from getting two thousand badly needed high grade poles—there was a considerable quantity of logs that were too small for our use. These were sold, and later so was the farm. The final result was a supply of poles in our storerooms.

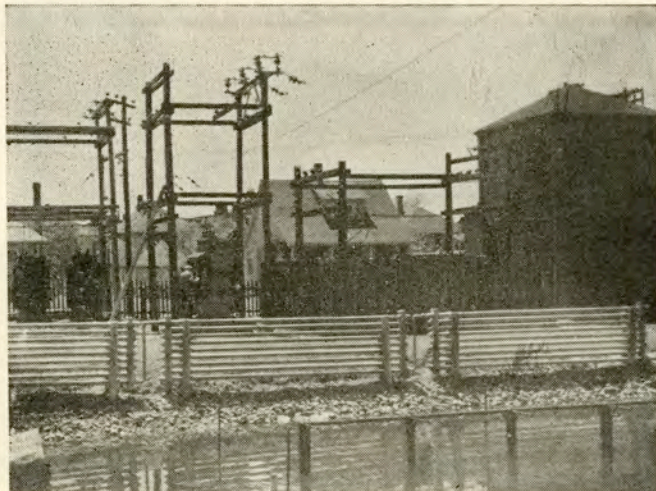
This, we think, is a good example of how Nova Scotia Light and Power engineers can act in emergencies. But apart from the ingenuity so clearly exemplified there was a practical angle that should be mentioned. The company not only obtained two thousand high grade poles when they were so badly needed—but all of the money involved stayed within the Province.

And now for the final chapter. You naturally ask—what did we do with the poles? Well, early last summer we began to get them back from Truro—creosoted and ready for use. These poles made it possible for us to resume our extensive programme of rural electrification which was interrupted by the war. To-day those two thousand pine poles are widely scattered over the territories we serve—most of them are in rural lines that are either under construction or have just been completed.

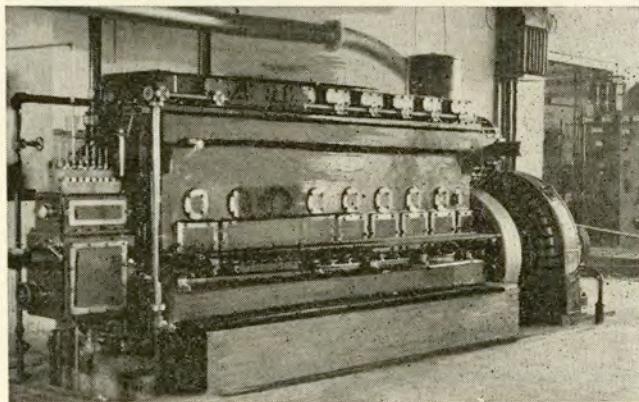




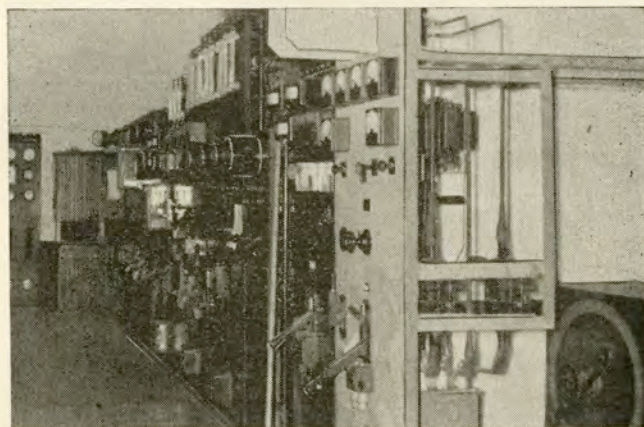
OUTDOOR TRANSFORMERS at Yarmouth. An example of the type of practical installations made throughout the system.



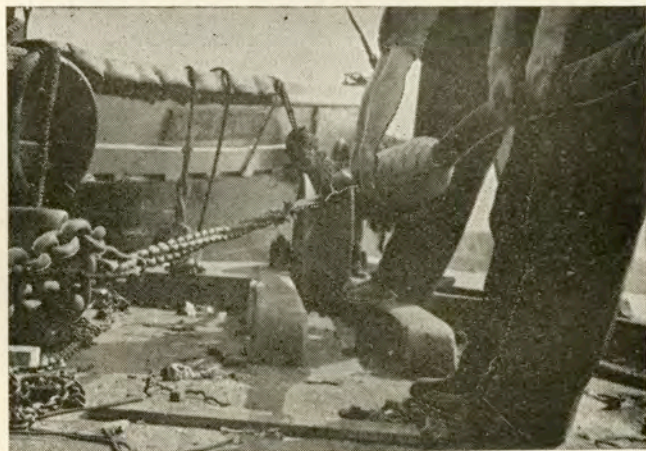
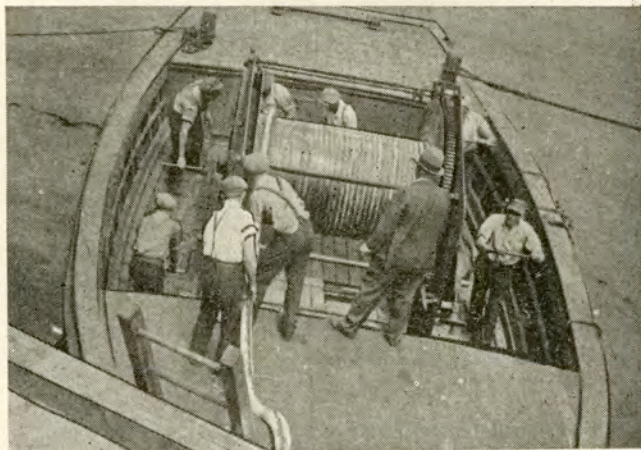
WATER COOLING COILS for the diesel-generators at Yarmouth. Like the engine in your car diesels are water-cooled.



SOME OF THE ELECTRICITY supplied on the Yarmouth system is produced by means of diesel-generators. Here is one of the units in the King Street Station.



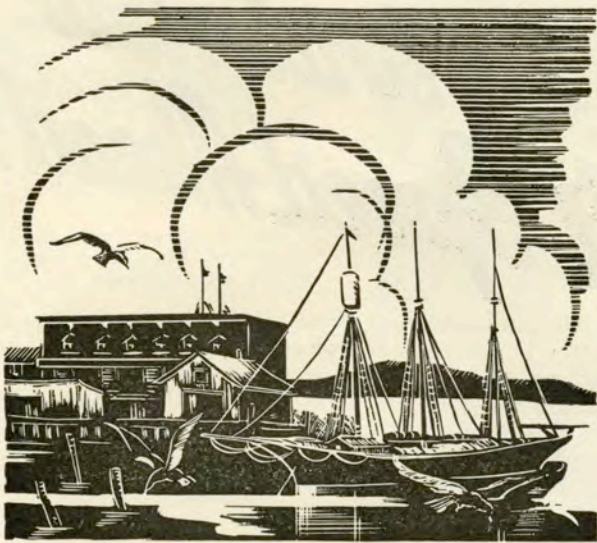
MAIN CONTROL PANEL at Yarmouth makes possible a close and accurate check on all incoming and outgoing power.



CABLE TO DARTMOUTH. When a ship dragged its anchor through the Narrows in the war-days, and broke one of the submarine power cables, the damage had to be remedied as quickly as possible. In these two pictures the men are hard at the task of laying a new cable.



Here is an interesting fact. The Manager—as well as every single member of the Engineering Staff of the Nova Scotia Light and Power Company—all received their engineering training at the Nova Scotia Technical College in Halifax. These are men who have grown up with Nova Scotia. They understand its problems and they are the ones who are planning to-day for tomorrow's electrical requirements.



Most people fully appreciate the vast scale upon which military establishments were organized in Nova Scotia during the war years. But what is often overlooked is the fact that many—in fact most of these establishments literally mushroomed into being over night. In those days everybody was working at top speed with little time to realize what was going on around them. Looking back now, it is difficult to believe that so much was actually accomplished.

Here is an example of what we have in mind. Down at the southern end of the Province there sprang up in a matter of months a group of service establishments equal in size, and requiring the same amount of electric power as the nearby community of Yarmouth used in peace-time years. Thousands of troops were processed at the Army Basic Training Depot—and, of course, an adequate supply of electric power was an essential part of the operation right from the start. Thousands of other men were located at the equally large Air Force establishment. The R.C.A.F. used it as a training centre, as did the Fleet Air Arm for its air gunners. The Coastal Command operated out of this area and for a time a portion of this centre formed a part of the British Commonwealth Air Training Plan. Radar and beam stations were also operated by both the Navy and Air Force at nearby locations for which an uninterrupted supply of power was a prime essential.

All these establishments sprang into being with hardly any warning. Despite an acute shortage of trained men it was necessary not only to take care of our own war-time construction and maintenance in the Yarmouth area; but we had to act as contractors for the Government and build several miles of eleven thousand volt transmission line as well as a whole town-size distribution system within the service area itself. While all this was happening, the power demands of the Company's customers in Yarmouth had

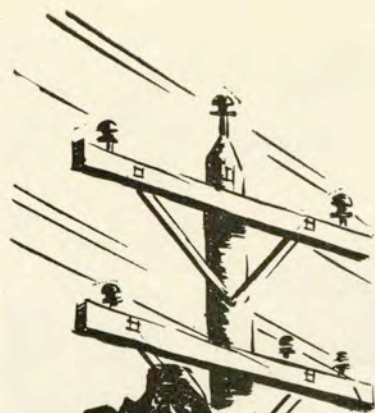
DOWN YARMOUTH WAY

steadily increased. Ordinarily power for Yarmouth is obtained from the Nova Scotia Power Commission's hydro plant at Tusket, supplemented by a Company-owned diesel generating plant which was used as a stand-by in cases of power interruption or during low water seasons. However, to meet the greatly increased demand, it was found necessary to add two additional diesel-driven generators to the Company's King Street plant at Yarmouth.

Even all this extra power was hardly sufficient at times to supply the demand. Then, of course, in order to carry this vastly increased load, large transformers as well as the necessary switching equipment had to be obtained and installed at the main generating plant.

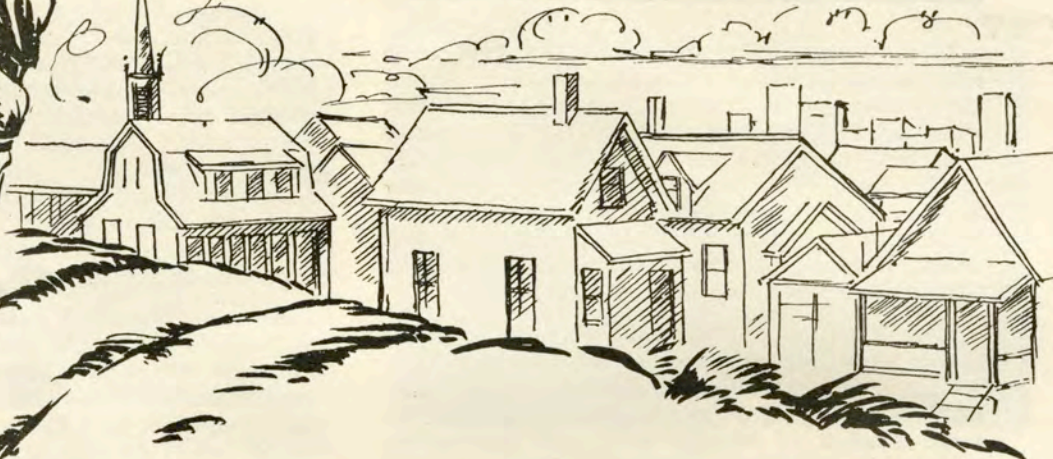
And that is just a brief outline of the war-time development of a defence and training area which was equal in importance to those located in the Halifax district. It is to the credit of the electrical companies that almost insuperable difficulties were overcome in the supplying of the miles of wire and cable—the tons of specialized equipment that were required. To an equal degree the men who did the work under the most trying conditions must be remembered—as well as the technical men who planned and directed the whole operation. To sum it all up—the entire nation was fighting for its very life—mountainous tasks had to be faced by fewer trained men—but the jobs were done—ON TIME!





and now Full Speed Ahead!

We are informed that a particular Nova Scotia industry has already completed its reconversion to peacetime operation and is now going full speed ahead and seeking more new business. In this case there are no ifs and buts—no promises or hopes—the job has already been done. We, too, are ready—ready and eager to serve other industries with electric power as fast as they can come into production.



It is also appropriate here to make mention of our rural electrification programme which is being pushed ahead as rapidly as possible. Before the war broke out, very elaborate and complete plans had been prepared by Nova Scotia Light and Power Company for the extension of power lines into rural areas contiguous to the territories that we serve in many parts of the Province—areas not already getting the many benefits of electric service. The plan was well under way in nineteen thirty-eight and thirty-nine—but the work had to be suspended during the war years. However, right after V-J Day, construction crews were formed and sent out—and the work resumed and 125 miles were built in 1945. This year a number of other lines have already been completed and right now construction crews are working at full speed on more than 30 separate jobs in many parts of the country.

Some work cannot be tackled until new electrical equipment and apparatus can be manufactured and delivered to us—and of course, this takes time even under normal conditions. However, plans call for the completion of more than 200 miles of line this year.

Someone made an observation that is worth repeating here—he pointed out that power lines are never built with alibis—they are built by trained men with plenty of the right kind of material and equipment with which to work. Truer words were never spoken! So, now that the war is over, let's all get down to work for a more prosperous Nova Scotia—and **FULL SPEED AHEAD!**



A CENTURY of PROGRESS and DEVELOPMENT



1843

A group of Halifax citizens formed a Company,—built a gas plant, laid mains and supplied 281 dwellings and stores, and 60 street lights.



1863

Halifax City Railroad Company formed and first horse cars operated along Water Street from the Dockyard to the present site of the Nova Scotian Hotel.



1896

First electric cars operated on Barrington Street. From the time of the first electric plant (in 1883) power was distributed on a constantly expanding scale.



1914

During the previous twenty years, Halifax Electric Tramway Company, Limited, operated and expanded all three services.



1917

Dartmouth Company was purchased and cable laid across the Harbour. A new gas plant was built at Water Street. Halifax Explosion took a heavy toll of this Company's rolling stock and other equipment.



1921

Power lines from St. Margaret's Bay to Halifax were completed. Twenty-four Birney Safety trams were purchased. Halifax electric distribution system rebuilt.



1929

During the ensuing 10 years a policy of expansion throughout the Province was followed. A number of smaller electric undertakings were purchased and consolidated under uniform management.



1939

World War II stopped the programme of rural electrification. A second power line was completed from Avon to Halifax. Two new hydro plants built—great demands placed upon all of the Company's services.



1942

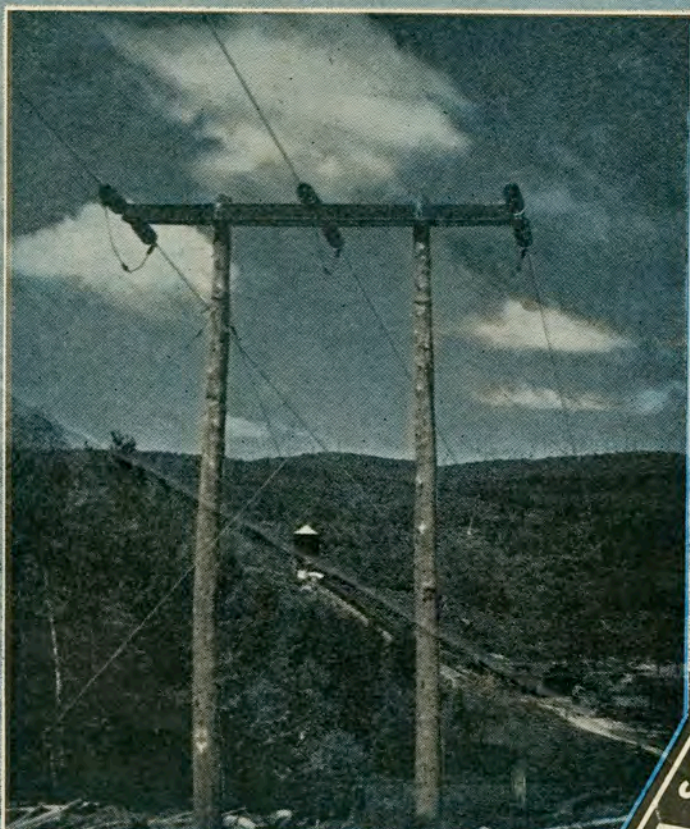
New steam plant built at Water Street. More trams placed in service. Extra gas-producing equipment added. Marine Department formed for secret naval work.



1945

The end of the war finds us with greatly expanded facilities, ready and eager to play our part in the requirements of the Peace time years ahead.





POWER - TO HALIFAX

