news on the dot

january/february 1965

THE BIG LIFT

AN EYE TO THE FUTURE

news on the DOT

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COVER

Ottawa International Airport terminal, which houses the department's air services training school (see story page 14). The building is seen through a decorative aluminum screen created by Montreal Sculptor Louis Archambault.

EDITOR *Yvonne McWilliam*

NEWS ON THE DOT *is a Department of Transport staff magazine published under the authority of the Minister, Hon. J. W. Pickersgill, by the Information Services Division.*

ROGER DUHAMEL, F.R.S.C., QUEEN'S PRINTER AND CONTROLLER OF STATIONERY, OTTAWA, 1965

In his message on the opposite page Mr. Baldwin suggests that readers write in with ideas for articles or simply to let us know what they like or dislike about News On The DOT.

Two thousand and seven years ago a Greek philosopher (weren't all Greeks philosophers?) said: "It is a very hard undertaking to seek to please everybody".

We suspect that Mr. Publilius Syrus was not only a philosopher but an editor, as well. (With a name like that, if he wasn't he should have been.)

News On The DOT hopes that it pleases most of its readers most of the time and tries to do so by adhering to certain basic ground rules.

Our "raison d'être" is to tell employees about the department's activities in the fields of air, marine, meteorology and telecommunications, and about its policies and plans. We therefore devote our time and effort to feature articles, trying to give fair coverage to all branches.

We try to acknowledge the importance of individuals by using "bylines" (i.e. the name of the person who wrote the article), by illustrating articles with photos of employees on the job and by using as many names as possible. However, with nearly 15,000 employees spread from St. John's, Newfoundland to Whitehorse in the Yukon, we believe items of personnel events such as births, marriages, transfers, sports or social activities would be of little interest other than locally. Also, since the magazine is published once every two months, reporting of these would be untimely.

We depend greatly on readers to provide us with leads for future articles—either about present departmental activities or those of the past. (A relatively untapped wealth of information lies with retired employees.) Too, we are interested in all unusual events which concern individuals, whether or not they are related to their work.

This is your publication—take part in it.

The Editor

FROM THE DEPUTY MINISTER'S DESK

LE MOT DU SOUS-MINISTRE

This is not the first time I have repeated myself, but my increasing pride in the contents and role of our staff publication "News on the DOT" leads me once more to congratulate the members of our Information Services responsible for its production and those of you in the field who contribute to it.

If you feel, as I do, that this magazine is filling a valuable place in staff service, why don't you write and let the editor know? Moreover, if you have suggestions to offer about articles which you would like to see, or field items which you think merit attention and of which we here in Ottawa may be unaware, bring these suggestions along as well. I do this regularly myself.

Ce n'est pas la première fois que je me répète, mais comme je suis toujours de plus en plus fier de notre revue du personnel "News on the DOT", tant au point de vue de son contenu que du rôle qu'elle joue dans notre milieu, je me permets de nouveau de féliciter les membres de nos services d'information qui en assurent la publication ainsi que les employés de nos divers services qui y collaborent.

Si vous êtes d'avis, comme moi, que cette revue joue un rôle important au sein du personnel, pourquoi n'en faites-vous pas part au rédacteur? Faites-lui également connaître votre opinion sur le genre d'articles que vous aimeriez y voir paraître ou sur les activités des différentes régions qui méritent d'être connues et dont les fonctionnaires d'Ottawa ne sont peut-être pas au courant. C'est ce que je fais d'ailleurs moi-même régulièrement.

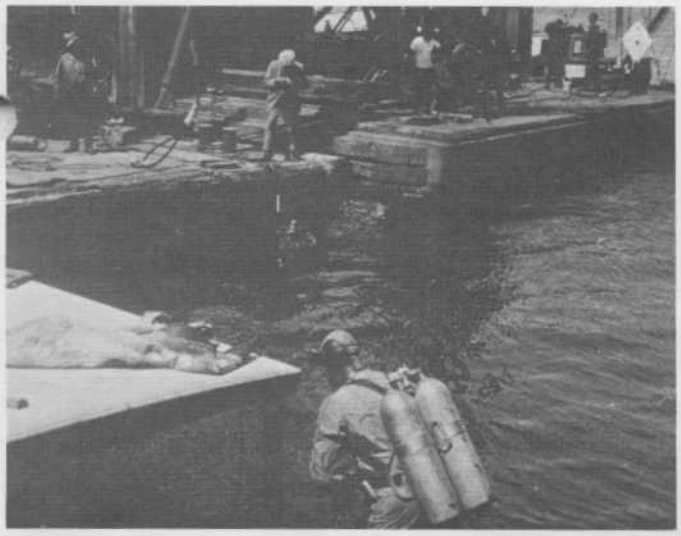
J. R. Baldwin

Oil seeping from a 200-foot barge which sank to the bottom of Howe Sound, B.C. last March fouled 20 miles of coastline, killed wildlife, and hindered industry. How the barge was brought to the surface in the world's deepest salvage operation will go down in D.O.T. history as

the Big Lift

by Yvonne McWilliam

After four months of battling weather and weight Barge No. 10 was brought to the surface 100 yards off Paisley Island. To do the job it took the flotilla of three derrick scows, four tugs and several small scows seen here.



The six divers on the job put in many perilous hours working at man's underwater limit.

The first weeks of the salvage operations were severely hindered by foul weather. Peter Batten shot this photo during a fierce windstorm.

Howe Sound, B.C., endowed by nature with beautiful beaches, clean cool water and superb scenery, is known as a vacationer's paradise. For a time last summer, however, its future was in doubt—beaches were covered with black oil, water was slicked down with an oily scum, and birds and fish were dying by the hundreds.

It all started on March 5, 1964, when a barge carrying 9,000 barrels (300,000 gallons) of oil sank in the Sound in more than 250 feet of water. Soon its cargo was bubbling to the surface in globules the size of tennis balls.

The threat of continuous oil pollution ended six months later when the barge was finally beached in shallow water and pumped dry.

During those months a Vancouver contractor tackled what is believed to be the deepest salvage job of its type ever attempted—and won.

It cost more than a quarter of a million dollars to raise the 200 foot barge, but on the other side of the ledger was the possibility of ruined beaches, landbound cottagers, endangered wildlife and reduced tourist dollars.

Owned by an American company, Barge No. 10 had been chartered to the Gulf of Georgia Towing Company of Vancouver to move some 40,000 to 60,000 barrels of heavy fuel oil from Anacortes, Washington to Ioco, B.C.

After the sinking, Captain George Dobereiner, master of the tug Gulf Bird which was towing the barge, said that when he left Anacortes on March 4 everything was ship shape. But the next morning strong winds and heavy swells were encountered. About 10 a.m. the barge started to sink. The Gulf Bird's speed was reduced. It didn't help. In less than a minute the barge was vertical with only six feet of the after end above water.

The Captain ordered a line for the barge's stern cleat in an attempt to jockey the sinking vessel to nearby Paisley Island. It was no use. About half a mile east of the island it sank.

An undetermined amount of oil escaped during the sinking, and beach pollution followed almost immediately. The chartering company used extensive quantities of a chemical compound to dissolve the oil and clean the surface of the sea. It spread out booms to contain the affected area and sent divers down to the 230-foot level, man's underwater limit, to plug vents and tank openings.

After four days of feverish effort the company advised the steamship inspection division of the Department of Transport, whose responsibility it is to administer oil pollution regulations and prosecute violations, that the depth of the barge and the danger to divers made it mandatory that they abandon the operation. Salvage attempts, the company believed, might rupture the hull and cause all the oil to escape.

The cause of the sinking was unknown, so no one could be prosecuted for the resulting pollution. The wreck was not a hazard to navigation because of the extreme depth at which it lay, so the charterers could not be ordered to raise it. However, residents complained the oil pollution was increasing.

In the public interest D.O.T. sought the advice of the Department of Public Works and it was decided to call in salvage experts, McKenzie Barge and Derrick Ltd. of Vancouver, for consultation. They were asked to find answers to several questions. Had the low temperatures reduced the oil to a tar-like consistency? Would shifting currents cause further leakage? Could the barge be lifted? What would it cost? If the barge were left on the bottom, could it be permanently sealed up to prevent escape of the oil still in its hull?

While the salvors wrestled with these problems, the charterers, Gulf of Georgia Towing Company, tangled with a few of their own. They were concerned with the amount of oil pollution that had already occurred. Divers sent down March 26 reported the barge had shifted some 50 feet and more oil was escaping. It was lying on the sea bed in such a way that the high end (the stern) was in 230 feet of water and the low end in more than 300 feet.

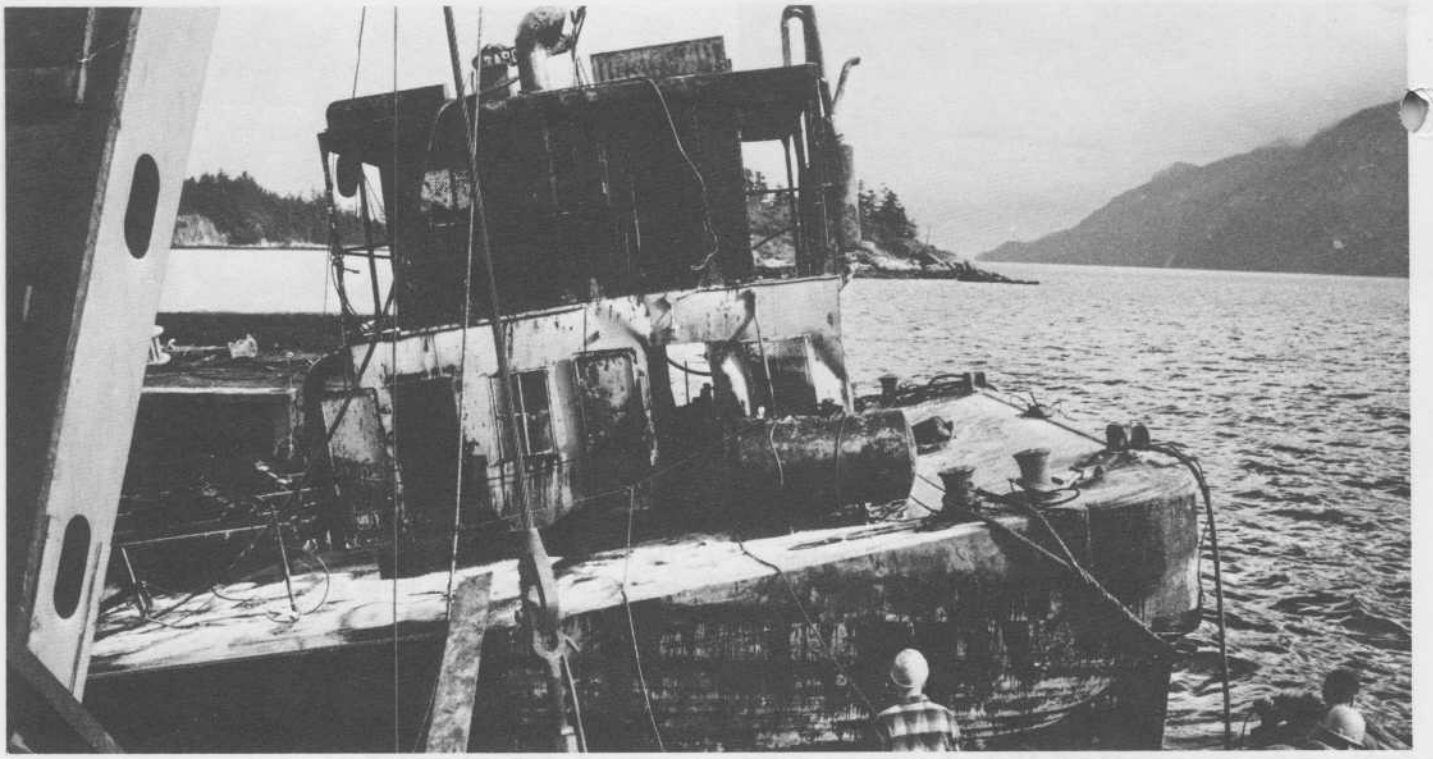
For three days after the reported shift, divers kept going down to patch leaks. But it was laboriously slow because each diver was limited to a 12-minute dive in any 12-hour period.

Then came the expert opinion from McKenzie salvors. In effect they said the barge couldn't be patched. Salvage was the only long-term solution to this constant source of pollution.

McKenzie Company, on the basis of the lowest bid, was given the job. Peter Batten, of steamship inspection at Ottawa, was sent out to work with Rod Boomer and J. C. Young, steamship inspection at Vancouver.

The first meeting between the D.O.T. people, D.P.W. District Engineer A. W. Walkey and the salvors was to come up with a plan to raise the barge, not only in the most economical manner, but also without damage to the hull structure.

With the low end of the barge considerably below the depths divers could safely descend to, they knew their methods were severely restricted. The first course of action was to pump the



Stern of oil-blackened barge as it was being brought to surface. At this point the bow was still resting on bottom in 28 feet of water.

water out of the barge's after compartment which was now in the highest position.

The estimated lifting weight of the barge and its cargo was 275 tons (it was found later, however, that it should have been about 325 tons because of the mud and sand that collected on the deck while the barge was on the bottom) and it was calculated that pumping in air would give additional buoyancy equivalent to a 70 ton lift. This, combined with two 50 ton floating derricks hooked to slings around the high end of the barge would, they hoped, be sufficient to raise it.

Salvage operations began early in June. The first snag was heavy weather—southeast winds of considerable strength blowing for as long as 48 hours at a time. Diving was impossible and holding the derricks and assorted scows in position required two tugs and plenty of luck. Even so some damage was done to the surface equipment.

Finally, the divers managed to attach the air hose to the barge and cut a hole about 12 inches in diameter at the turn of the bilge to allow water to escape. Air pressure was then applied with the highest capacity compressor that could be found in Vancouver. As air was pumped into the compartment, the barge's weight was taken on the slings by the derricks. The salvage crew fully expected this attempt would be successful.

At 10 p.m. Saturday, June 27, there was great dismay when a tremendous quantity of air bubbles were seen breaking the surface. It was obvious the compartment was not air tight after all and divers were sent below to survey the hull.

They reported the deck plating had been set up a few inches and it would take much time and effort to weld cracks.

Basically the time problem lay in the divers themselves. The story of the diving in this operation is an epic in itself.

Six of the best divers in Canada were used; four skin divers and two deep-sea divers. All were, of course, working at maximum depth and the strain brought about two serious attacks of the bends which required hospitalization. Another attack was serious enough to require the diver to be in a decompression chamber for 48 hours with a doctor in attendance. Medical restrictions put on the divers allowed them to stay on the bottom only 12 minutes in any 12-hour period—and the Workmen's Compensation Board limited the dives to one per day per man with a day off every five.

Sometimes when the divers got down to the sunken barge they couldn't do a specific task at all or, after they surfaced, they couldn't remember whether or not it had been done correctly.

They always worked in pairs with the skin divers having an advantage over the deep-sea divers inasmuch as they had more freedom to manœuvre. Although the deep-sea divers, or hard-hat divers as they are called, were more cumbersome because of heavy equipment and air hoses, they had the advantage of being able to talk back and forth with the people on the surface, which often assisted operations.

After several weeks of routine diving to repair the deck plating the barge was judged airtight and a second attempt was made to lift it.

Again the weight was taken on the derricks, and air pumped into the after end compartment. Just when the barge began to raise off the bottom the lifting slings carried away. Another failure. Fortunately, dropping this weight back onto the ocean bed did not result in injuries or further damage to the barge itself.

It was now mid-August and the barge had been moved only 70 feet towards shore. Leakage was steady.

Once again Rod Boomer, Pete Batten, A. W. Walkey and the salvors got together to decide on new or different measures. They agreed that more power was needed on the surface, not only to lift the offending hulk, but to drag it into the beach.

Heavy anchor cables were dragged under the high end of the barge and two more floating derricks were added. All went well and by the first week in September they were ready to attempt another lift. This time failure came when the mast on the fourth derrick buckled.

Back at the conference table it was decided that what was needed was the large derrick from nearby Esquimalt naval dockyard. It was also agreed that a study of the contours of the sea bed to determine the barge's route to shore, would be helpful.

The Canadian Navy cooperated to the fullest extent. On September 21 they received the official request to borrow the derrick and within 24 hours it arrived to join the flotilla of three derrick scows, four tugs and several smaller scows.

The plan was to position a scow over the wreck, pass two lengths of 2¼ inch diameter wire under it and secure the lifting wires to four sets of lifting tackles on the deck of the scow.

The total lifting effort then obtained would be from the combined efforts of the three floating derricks and the lifting scow, along with the air being pumped into the after compartment.

They hoped to raise the oil barge from the sea bed, lift it bodily into shallower water and set it down again while the lifting tackle was overhauled. By repeating the same performance several times, the wreck should be brought right up on to the beach.

All was ready for the fourth try.

This time it was successful! The barge was picked up bodily from the sea bed and brought into shallow water. On October 13 Rod Boomer wired Director of Marine Regulations Alan Cumyn at Ottawa: "By use of derricks and lift scow, oil barge 10 raised over weekend from 250 foot depth and landed sandy bottom 28 feet water one hundred yards off Paisley Island... expect to be able surface barge later this week."

The job was done. All that remained was the mopping up. About 4,500 barrels of oil and water mixture were pumped out and delivered to Imperial Oil's refinery at Ioco. Temporary patches were slapped on the barge, she was cleaned up and towed to Vancouver harbor to be disposed of by Crown Assets.

A survey of Howe Sound made shortly after the barge was raised showed that the oil pollution was gradually diminishing. Winter should clean up most of the remaining black muck and erase the ugly memory of the sinking of Barge No. 10.

Rod Boomer, supervisor of steamship inspection at Vancouver, inspected the stern end of the barge shortly after the raising while it was still sling borne. Note how sling post off right corner was partially severed and bollard securing clamp had lost its collar and turned to a precarious position.

Watching every phase of the successful lift operations was Department of Public Works District Engineer A. W. Walkey. Steamship Inspectors Rod Boomer and J. C. Young (white coveralls) are in background.

From Staff Statistics to Stock in Stores—the data processing centre processes all

Located at the basement level of No. 3 temporary building at headquarters is the little-publicized but vitally important data processing centre of the department. Headed by Don Burgess and staffed by 45 specially trained men and women, the centre does work for all branches and divisions of the department.

Its stock in trade is figures and these it turns out to cover every conceivable aspect of the department's operations—personnel statistics, allocation of radio frequencies, air traffic movements, air accident investigation statistics, stock control and inventory, pilotage tariff calculations, financial estimates, stores items and on and on.

Like business and industry throughout the country, D.O.T.'s record keeping requirements have mounted over the years and the need for a data processing system that could be expanded to meet the ever-increasing demands on it was paramount. And so last November the centre, by the addition of an IBM 1401 Data Processing System, was converted into a large, flexible, more sophisticated computer installation ready to tackle future demands.

The data processing centre was created in 1953 to eliminate manual systems of producing radio frequency data, radio licensing, etc. During the next decade, like Topsy, it growed and growed, spurred on by necessity to make more and more use of its equipment.

The 1401 installation is the first part of a program which by late 1965 will see D.O.T. operating the most advanced equipment in the business computer field. In fact, equipment on order for the department is so advanced it is not yet available. The 1401 is an interim measure until the IBM system/360 can be delivered.

D.O.T. is one of the first operating government departments to have such sophisticated equipment. Others, like Trade and Commerce's Dominion Bureau of Statistics and Finance's income tax and treasury divisions, have, of course, an urgent need for equipment capable of turning out zillions of figures, forms and reports in seconds, minutes or days depending on the complexity of the job. But Transport is, perhaps, the first to turn out such material in volume for its own use. Before 1401, (almost B.C. in the minds of the D.P. centre) D.O.T. rented time on the same type of machine from the treasury division of Finance to supplement its conventional punched card equipment.

The 1401 provides high speed input-output, arithmetic and logical ability, with stored program techniques. It can carry out a series of instructions designed to solve a specific problem (this is called a program) at high speed. Because it stores its instructions internally it is called a stored program system.

Known as a digital computer, it is really a glorified adding machine that on instruction can subtract, divide, multiply and even make simple decisions if the correct information is fed into it. This is perhaps the most important point. A computer, no matter how advanced or complex, is not a brain and does not have human abilities to solve problems. Information, accurate information, must be fed into it before it can turn out any kind of an answer. As Mr. Burgess was quick to point out to News on the DOT, the computer's output (i.e. its answers) is only as good as its input. Therefore the people who instruct the machine, the programmers, are obviously the key to the whole operation.

There are six programmers on D.O.T.'s staff. They must design a set of instructions for every job. The more familiar a programmer is with the department's operations in any specific job, the better program he can come up with. He works with source documents and people. First he must determine what results the machine is required to produce and then, from the material he reads and the people he interviews, he must design a program of instructions to feed into the machine to get the desired results. It may take five minutes to produce a simple program, but in many cases it can take three weeks or longer. In effect a programmer "talks" to the machine. He has a vocabulary of key words which he translates into a code language of letters, symbols and numbers.

The centre is responsible for processing data by mechanical and electronic means for all branches and divisions of the department. This means large-volume statistical analysis, machine accounting, and recording and processing. It involves editing, coding and transposition of information to cards and tapes, maintaining control records, operational costing and review of existing applications to determine their current and continued need, as well as study and research related to mechanization of new applications.

Since last July the staff of 23 keypunch and verifier operators, 6 programmers, 6 computer operators and 10 assorted supervising personnel, typists and clerks, have been carrying out the gigantic task of transferring information from some 6,000,000 keypunch cards to 200 tapes for use on the new computer. (Each tape can hold the information previously held on 100,000 cards). All the jobs already on punch cards had to be reprogrammed before they could be transferred to tape. This, along with the daily workload which still went on, kept the section literally hopping. But now with a new year under way they have completed the job and can offer the department an efficient service to extend and improve management and engineering efficiency.

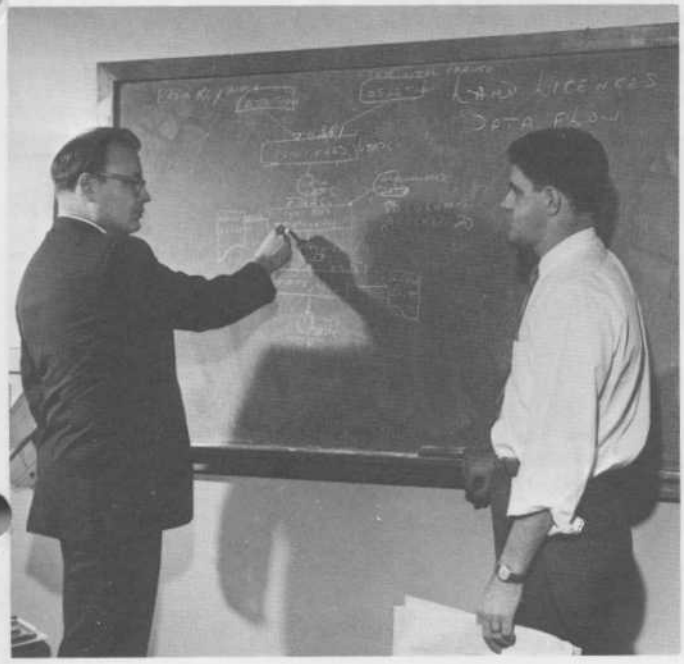
(Continued on page 12)

The key punching and verifying section, staffed by 23 operators, performs the first step in the data processing operation. Information from source material is punched onto cards. Once verified it is converted to magnetic tape for feeding into computor.

La section de perforation et de vérification des cartes—qui comprend 23 opérateurs—accomplit la première phase de l'opération de traitement des données. L'information provenant de la documentation de base est perforée sur des cartes. Après vérification, elle est portée sur une bande magnétique qui alimente la calculatrice.

Computer programmers Terry Strachan (left) and Gerald Gervais are confronted with a "logic" problem in programming a job for the telecommunications branch.

Les programmeurs Terry Strachan (à gauche) et Gérald Gervais ont à résoudre un problème de «logique» lors de la mise en programme de données provenant de la Direction des télécommunications.



Gilbert Lavigne, an electronic data processor, puts a bundle of cards through the high speed sorter. Used for sequencing, selecting or rearranging cards, it operates at the rate of 1,000 cards per minute.

Gilbert Lavigne, affecté au traitement électronique des données, dépose un paquet de cartes dans une trieuse à grande vitesse. Utilisée pour ordonner, choisir ou réassortir les cartes, cette machine fonctionne au rythme de 1,000 cartes à la minute.

Data Processing Manager Don Burgess (left) and Programmer Gerald St. Amour check out a "memory dump" on the high speed printer to see if instructions relating to a program assembly are correct. This printer, as well as providing accuracy checks, produces the answers or results to the problems fed into the computer.

Le chef du traitement des données Don Burgess (à gauche) et le programmeur Gérald Saint-Amour vérifient un «transfert de mémoire» sur l'imprimante à grande vitesse afin de constater si les instructions relatives à un programme sont correctes. Cette imprimante, en plus d'assurer des vérifications de précision, donne les réponses aux problèmes posés à la calculatrice.

More than 200 tape records are maintained and stored in the magnetic tape library. John Taggart, tape librarian, is responsible for selecting tapes and making out job tickets for specific jobs.

Plus de 200 enregistrements sur bande sont gardés dans la bibliothèque. Le bibliothécaire, John Taggart, a pour tâche de choisir les bandes et de préparer les fiches des travaux à exécuter.

The air-conditioned computer room houses the IBM 1401 data processing equipment consisting of (clockwise from the left) three magnetic tape drives, a card reader punch, the central processing unit with control panel, and a high speed printer. Electronic data processing operators in the photo are Emily Moffitt, Jack Regan and Lucien Desjardins (seated)

La salle de calcul climatisée loge le matériel de traitement des données IBM 1401 qui comprend (dans le sens horaire à partir de la gauche) trois dispositifs d'entraînement de bande magnétique, un lecteur de cartes perforées, la machine de traitement centrale et son tableau de commande, et une imprimante à grande vitesse. Les opérateurs de traitement électronique sont Emily Moffitt, Jack Regan et Lucien Desjardins (assis).

Tout passe par le Centre de traitement des données du ministère des Transports

Au sous-sol de l'immeuble temporaire nº 3 du bureau central du Ministère est situé le Centre de traitement des données dont on entend peu parler mais qui joue un rôle fort important. Un personnel de 45 employés masculins et féminins, qui ont subi une formation poussée dans leur domaine, y poursuit, sous la direction de M. Don Burgess, des travaux pour toutes les directions et divisions du Ministère.

Ce Centre se spécialise dans des chiffres qui embrassent tous les aspects imaginables des opérations du Ministère: statistiques sur le personnel, assignation des fréquences radio, mouvements du trafic aérien, statistiques sur les enquêtes relatives aux accidents d'aviation, contrôle et inventaire des stocks, calcul des tarifs de pilotage, prévisions financières, statistiques sur les magasins, etc.

Tout comme dans le cas des entreprises commerciales et industrielles d'un bout à l'autre du pays, les besoins du ministère des Transports en matière de statistiques se sont accrus au cours des années; il était donc essentiel d'établir un système de traitement des données d'une grande souplesse en vue de satisfaire aux besoins de plus en plus nombreux qui se manifestent dans ce domaine. C'est pourquoi en novembre dernier, par suite de l'installation d'un ordinateur électronique IBM 1401, ce Centre est devenu un centre de calcul important, souple, plus perfectionné, afin de répondre aux besoins de l'avenir.

Le Centre de traitement des données a été établi en 1953 pour remplacer le matériel manuel servant à l'établissement de données relatives aux fréquences radio, aux licences de radio, etc. Au cours de la décennie suivante, il n'a cessé de croître, à mesure que s'affirmait la nécessité d'une plus grande utilisation de son matériel.

L'installation de l'ordinateur 1401 constitue la réalisation de la première partie d'un programme, grâce auquel à la fin de 1965 le ministère des Transports utilisera un matériel des plus perfectionnés dans le domaine du calcul. En réalité, le matériel qui a été commandé pour le Ministère est tellement moderne qu'il n'est pas encore disponible. L'ordinateur 1401 a été installé provisoirement jusqu'à ce que l'ordinateur IBM 360 puisse être livré.

Le ministère des Transports est un des premiers ministères de l'État à utiliser un matériel aussi perfectionné. D'autres organismes, comme le Bureau de la statistique du ministère du Commerce et les divisions de l'impôt sur le Revenu et du Trésor du ministère des Finances, ont évidemment un besoin plus pressant de matériel pouvant établir des quantités énormes de chiffres, de formules et de rapports en l'espace de secondes, de minutes ou de jours, selon la complexité du travail. Toutefois, le ministère des Transports est peut-être le premier à les établir en quantité pour son propre usage. Avant l'ère de l'ordinateur 1401 (presque avant l'ère chrétienne, au dire des employés du Centre des données) le Ministère louait le même genre d'installation, pour une certaine période, de la division du Trésor du ministère des Finances afin de compléter le travail de ses machines classiques à cartes perforées.

L'ordinateur 1401 peut exécuter des opérations arithmétiques et logiques rapides à l'entrée et à la sortie, selon des programmes internes. Il peut remplir une série d'instructions (qu'on appelle un programme) destinées à résoudre très rapidement un problème déterminé. Étant donné qu'il emmagasine ses instructions, on l'appelle système de programme interne.

Connue sous le nom de calculatrice numérique, il s'agit en réalité d'une machine à additionner perfectionnée qui, selon les instructions qui lui sont données, peut soustraire, diviser, multiplier et même prendre certaines décisions faciles si on lui donne les renseignements exacts. C'est peut-être là le point le plus important de ce système. Une calculatrice, peu importe son degré de perfectionnement ou de complexité, n'est pas un cerveau et n'en possède pas les aptitudes pour résoudre des problèmes. Elle doit recevoir des renseignements exacts avant de fournir une réponse. Ainsi que M. Burgess n'a pas manqué de signaler au rédacteur du présent article, la valeur des données de sortie (les réponses) n'est pas supérieure à celle des données d'entrée. En conséquence, le rôle le plus important dans toute cette opération revient aux personnes qui alimentent la calculatrice, c'est-à-dire aux programmeurs.

Le personnel du Centre comprend six programmeurs. Ils doivent établir une série d'instructions pour chaque opération. Plus un programmeur est au courant des opérations du Ministère relativement à un travail particulier, plus le programme qu'il établit est au point. Ses sources de renseignements sont des documents et les employés des divers services. Il doit d'abord déterminer quels résultats l'ordinateur doit fournir, puis d'après les ouvrages qu'il lit et les personnes qu'il interroge, il doit établir un programme d'instructions qui sera transmis à la calculatrice en vue des résultats attendus. L'établissement d'un programme non compliqué peut prendre cinq minutes, mais dans plusieurs cas il peut prendre trois semaines ou plus. En réalité, le programmeur "parle" à la machine. Il possède un vocabulaire de mots-clefs qu'il codifie au moyen de lettres, de symboles et de nombres.

Le Centre est chargé du traitement, au moyen de procédés mécaniques et électroniques, de données intéressant toutes les directions et divisions du Ministère. Il doit donc effectuer l'analyse statistique de nombreux chiffres, exécuter des opérations comptables, inscrire et traiter des données. Il doit arranger et codifier les renseignements, les porter sur des cartes et des bandes, tenir des registres de contrôle, établir le coût d'opération et effectuer la revision des demandes actuelles afin d'en déterminer le besoin actuel et continu, et poursuivre des études et des

The system is comprised of a central processing unit with magnetic core memory which contains all logic and arithmetic hardware of the system; a 1402 card reader punch which seems to "eat" cards; a 1403 printer, which prints reports at the rate of 600 lines a minute (at 132 characters to a line that works out to 1320 characters per second compared to a good typist's approximately six characters per second); and three magnetic tape drives which can read information into the computer at 20,000 characters per second.

To understand a little better just how the system turns out such volumes of statistics and figures, one has to see the various pieces of equipment operating. It is very impressive—if a little less than comprehensible.

Take, for example, the complex job of turning out statistics for airport and international and domestic originations and destinations.

The 1401 can turn out in eight hours what it previously took the old unit record equipment 152 hours to produce. By using tape to store the information it requires only two per cent of the space previously occupied by cards and accuracy is increased by the reduction of human intervention.

In this particular application the computer automatically assigns weight and class to aircraft. It is "told", for instance, that the type of aircraft is a Viscount and it immediately "knows" it weighs 31 tons and it is turbo prop class. Another thing it does automatically is convert Greenwich Time to local times — 20.00 GMT to 3.00 p.m. EST.

In this operation (as in all operations) the computer is capable of providing more accurate statistics than any manual method and, with the use of magnetic tape, such information can be quickly and readily exchanged with the United States. This places Canada in a more favorable position than before when negotiating for international air routes.

Senior and middle management people are now undergoing indoctrination courses to familiarize themselves with the centre's capabilities and the way in which it can help them.

Once the new 360 system is installed, D.O.T. will be able to rent time to other government departments. The minimum rate of combined machine and operator time is roughly $35 an hour, which seems very reasonable for a service that is infinitely more speedy and accurate than any mere human.

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recherches concernant la mécanisation des nouvelles demandes.

Depuis juillet dernier, lè personnel du Centre, qui compte 23 opérateurs de perforatrices et vérificatrices, 6 programmeurs, 6 opérateurs de calculatrice, 10 employés divers (surveillants, dactylographes et commis) a accompli un travail de géant, soit l'inscription de renseignements provenant de 6 millions de cartes perforées sur 200 bandes servant à la nouvelle calculatrice. (Chaque bande peut contenir les renseignements qui étaient inscrits antérieurement sur 100,000 cartes). Tous les travaux déjà inscrits sur les cartes perforées ont dû faire l'objet de nouveaux programmes avant d'être portés sur les bandes. Les employés de la section, qui devaient également accomplir leur travail quotidien, ne savaient vraiment où donner de la tête. A l'aube de la nouvelle année, ils ont maintenant terminé ce travail et sont en mesure d'offrir au Ministère un service efficace en vue d'augmenter et d'améliorer l'efficacité de la gestion et des services techniques.

L'installation comprend un ordinateur principal doté d'une mémoire à tores magnétiques pour toutes les opérations logiques et arithmétiques; un lecteur de cartes perforées 1402 qui semble «manger» les cartes; une imprimante 1403, qui imprime des rapports au rythme de 600 lignes à la minute (à 132 caractères par ligne, cela représente 1,320 caractères à la seconde, en comparaison d'environ 6 caractères à la seconde que peut écrire une dactylographe d'expérience); il comprend trois lecteurs de bande magnétique qui peuvent lire les renseignements qui entrent dans la calculatrice au rythme de 20,000 caractères à la seconde.

Afin de mieux comprendre comment l'ordinateur réussit à produire une si grande quantité de statistiques et de chiffres, il faut voir en fonctionnement les diverses machines. C'est très impressionnant bien qu'assez difficile à comprendre.

Prenons le cas, par exemple, du travail complexe qui consiste à produire les statistiques relatives aux aéroports ainsi qu'aux départs et aux arrivées des vols internationaux et intérieurs.

L'ordinateur 1401 ne prend que huit heures pour fournir les renseignements que l'ancienne installation prenait 152 heures à produire. En se servant de bandes pour emmagasiner les renseignements, il faut seulement 2 p. 100 de l'espace que prenaient antérieurement les cartes, sans compter que le travail est plus précis vu que l'intervention humaine est moindre.

Dans le cas susmentionné, l'ordinateur calcule automatiquement le poids et la catégorie d'un aéronef. On lui «dit», par exemple, qu'il s'agit d'un Viscount et il «connaît» immédiatement le poids de l'appareil qui s'établit à 31 tonnes et sa catégorie, celle des avions à turbo-hélices. Il peut aussi convertir automatiquement le temps de Greenwich en heure locale, par exemple 20.00 TMG à 3 p.m. HNE.

Dans cette opération, comme dans toutes les opérations, la calculatrice peut fournir des statistiques d'une façon plus précise que par toute méthode manuelle; grâce à l'emploi de bandes magnétiques, ces statistiques peuvent être échangées rapidement et facilement avec les États-Unis. Le Canada occupe ainsi une situation beaucoup plus favorable qu'antérieurement lorsqu'il doit négocier pour l'établissement des routes aériennes internationales.

Les fonctionnaires de l'échelon supérieur et moyen des services administratifs suivent à l'heure actuelle des cours qui leur permettront de connaître les possibilités qu'offre le Centre ainsi que la façon dont ils peuvent en tirer profit.

Une fois que le nouvel ordinateur 360 sera installé, le ministère des Transports pourra le louer à d'autres ministères de l'État. Le taux minimum de location de la machine et de l'opérateur est d'environ $35 l'heure, ce qui semble un prix très raisonnable pour l'utilisation d'un service qui est beaucoup plus rapide et plus exact que tout service assuré par un simple employé.

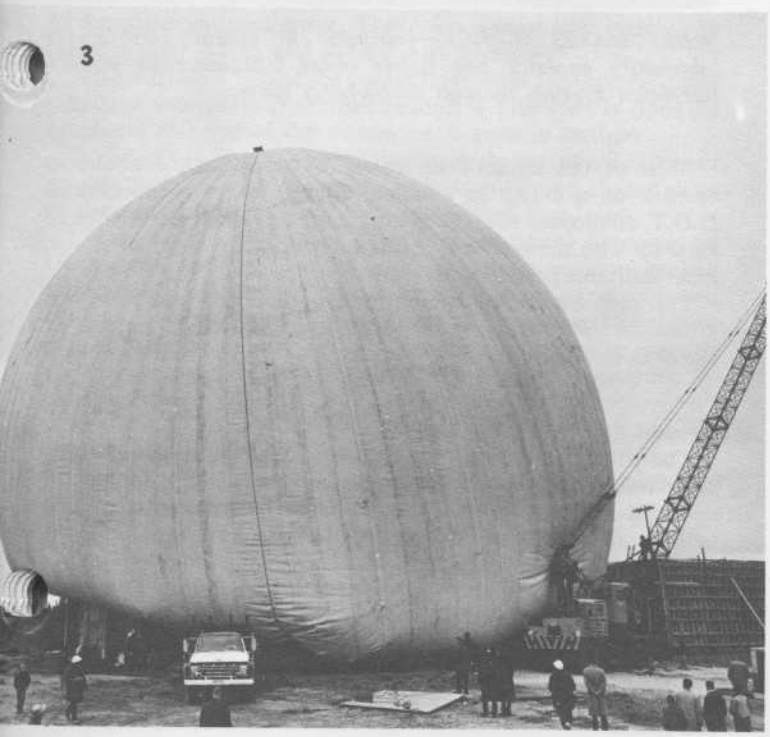
Space-Age PUFFBALL

Ninety-five-foot dacron cover for soon-to-be-installed antenna on D.O.T. communications satellite ground station near Mill Village, N.S. is neatly folded (1), mushrooms as air is pumped in (2), then sags over edges, crowding trucks (3), but ends up as tight balloon (4). Filling of the radome took place early in November.

1

2

3



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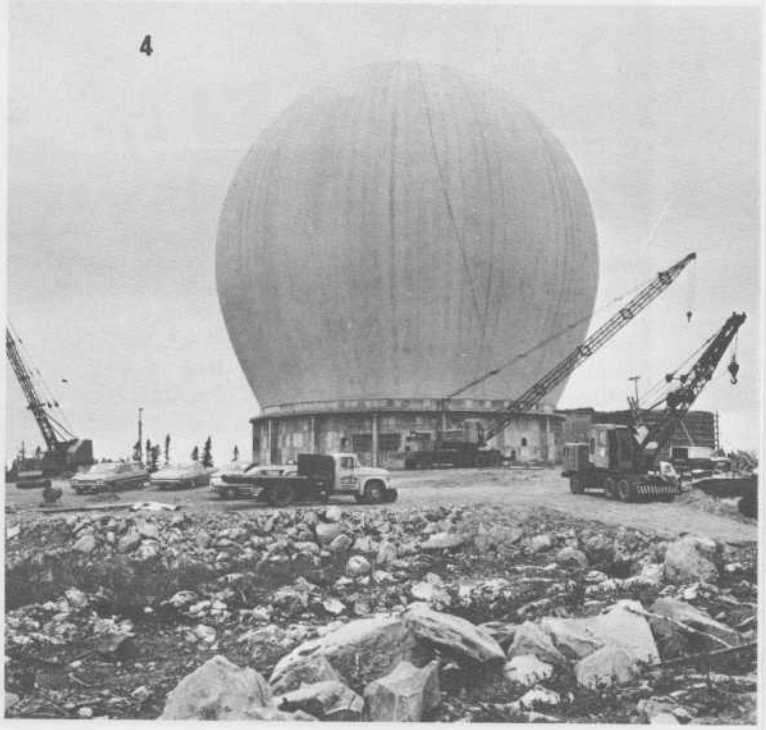


To keep the planes flying, the department trains air services personnel in a special school designed with

AN EYE TO THE FUTURE

by John de Bondt

WHAT MAKES IT TICK—Instructor in school's instruments laboratory explains fine points about transistors to student technician looking through magnifying glass.

Time was when a career in aviation meant you were either a pilot or a mechanic.

To keep the planes in the air today it takes air traffic controllers, radar operators, meteorological observers, radio operators, plus a multitude of highly qualified technicians to look after the incredible array of electronic equipment.

The department is responsible for providing all these services and employs thousands of men and women who possess the special skills and know-how needed in these jobs.

Where does it get such personnel? High schools provide the basis for many of these jobs but they don't offer the sharply focused training necessary. Vocational schools teach many useful and even indispensable skills but they don't turn out the specialists needed.

That is why, in 1959, the department established its central Air Services Training School (ASTS) at Ottawa International Airport—a consolidation of several smaller government courses previously run in scattered parts of the country.

Here, in classrooms and workshops, through lectures and practice under carefully simulated "on the job" conditions, the department trains the elite corps of men and women who carry out that vital utility known as air services.

Most of the school's students are young people about to embark on a career in aviation. Many, too, are experienced D.O.T. employees who are getting more advanced knowledge to keep up with the new and increasingly complex types of equipment continually being installed.

This combination of courses for beginners and brush-up programs for "old hands" makes for the fascinating curriculum at the D.O.T. school.

Courses Cover Three Catagories

The courses fall into three main groups: air traffic control, meteorology and telecommunications.

The longest course given at the school is for air traffic controllers. It lasts 20 weeks. High school graduates are recruited across Canada for this course.

About half the time is spent in the classroom while the rest of the course is devoted to practice under simulated conditions. These simulated exercises are done with two electronic training devices that let the student practice the control of air traffic under conditions that are almost a perfect duplicate of the real job ahead.

After his graduation the student is assigned to a control tower for three months of practical training before receiving his air traffic controller's license.

Two more courses for air traffic controllers are available at the school. One is a two-week radar course for qualified area controllers who have no radar experience, the other a three-week advanced technical course for supervisors.

Basic and Advanced Meteorological Courses

To train meteorological technicians capable of taking weather observations needed in the preparation of forecasts, the school presents a three-month basic weather course. High school graduates are hired as either surface observers or radiosonde observers. The latter are sent on to a 16-week upper atmosphere course at Scarborough, Ontario, after completion of the course in Ottawa.

In addition to the basic course for newly recruited trainees, the ASTS presents a number of advanced courses in meteorology to practising meteorological technicians.

Each of these courses is designed to increase the employee's knowledge in meteorology and to prepare him to perform the specific duties of higher positions. One course teaches them how to provide weather information to pilots, another trains them to support the forecaster in the preparation of weather maps and charts, and still another covers radar.

Six other courses are presented and more are in the planning stage.

Over 20 Telecommunication Courses

In the fast-growing field of telecommunications and electronics, the ASTS trains employees from three main occupational groups: radio operators, electronic technicians and radio regulations personnel. More than 20 different courses have already been presented in these three areas and a dozen or so more are in the offing.

For radio operators there is a four-and-a-half month course. These men have already had training in the elementary aspects of their occupation and hold international certificates of proficiency.

They study Department of Transport procedures, and the use of departmental equipment. They also take special training to increase their typing and Morse code speeds.

A month and a half of the course is set aside for training in the taking of meteorological observations, a task that is done by operators in some of the department's aeradio stations.

Radio technicians are given courses in the use of aviation and weather radar as well as marine radar such as used aboard ships of the department's Canadian Coast Guard fleet.

Other courses cover the Very High Frequency Omni-range, Instrument Landing System, airborne radio equipment and other related electronic aids, automatic error-correcting and channelizing equipment, transister and miniature techniques, marine radio beacon training for lightkeepers, and radio training for Department of Northern Affairs personnel assigned to isolated posts.

In the realm of radio regulations the school trains radio inspectors and monitoring operators.

The inspectors study such subjects as the enforcement of international regulations, assignment of frequencies to radio stations, detection and remedying of radio interference, and the licensing and inspection of radio broadcasting stations from the big commercial organizations down to the taxi stand operator's communications system.

The school also trains monitoring operators whose job it is to police the radio spectrum to ensure that all users remain on their assigned frequencies and conduct communications in accordance with international regulations.

School Has Three Establishments

The ASTS occupies three locations. The classrooms and the electronic trainer for aspiring air traffic controllers, as well as all meteorological training laboratories, are situated in the department's air terminal at Ottawa International Airport.

Maintenance of equipment is taught in the airport's former terminal, where there is plenty of room to dismantle, and put together again, a bewildering array of electronic devices.

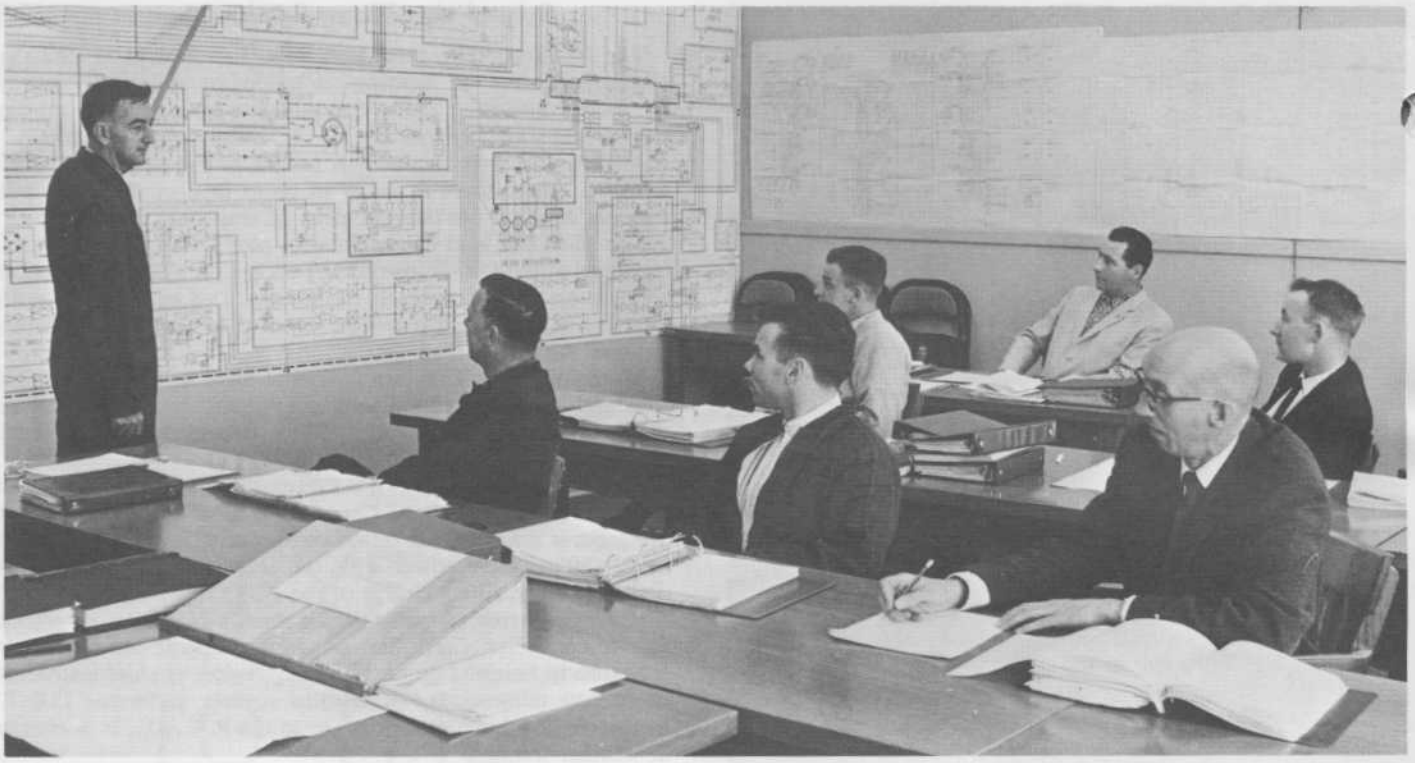
The third site is at Carp, Ontario, near Ottawa, where seven buildings at the D.O.T.-owned airport are set aside for practical training on radio aids to air navigation. This equipment would interfere with aviation if it were installed at busy Ottawa International Airport.

The buildings at Carp are typical of those at real operational sites and provide students with conditions almost identical to the ones they may expect after being assigned to departmental duty.

The department has drawn the teachers from its own numerous establishments throughout Canada. Head of the school is Art Johnson, a seasoned air traffic controller who spent five years as a staff training officer with the training and development division before taking charge of the ASTS.

Chief instructor of controllers is Archie Novakowski, also a former controller. Clark Stewart, former operations supervisor for radio technicians in the Winnipeg region, is chief instructor of telecommunications, while Otto Andres, a former D.O.T. meteorological instructor attached to the R.C.A.F., is in charge of weather training.

LIGHT ON THE SUBJECT—Aspiring air traffic controllers manipulate tiny projectors (centre of table) that throw dots of light on ceiling screen. The dots represent aircraft which students "pilot" according to instructions given them through head phones by other students in adjoining room who see ceiling picture on closed circuit TV.



MODERN ART—Huge diagrams adorn walls of classroom in former terminal at Ottawa International Airport. The terminal is now used by the air services school for refresher electronic technicians training.

Short Courses Dictate Study Efficiency

The combination of modern teaching methods and a carefully selected student body have resulted in a curriculum designed to teach a lot in a very short time. To enable them to keep up with the school's pace, students are taught efficient study habits.

Apart from giving such obvious—but oft forgotten—hints as "get enough sleep" and "take notes", the school points out that it is a good idea for students to team up. "Students who live together and attend the same course normally get higher marks", one booklet says. "They are able to discuss mutual problems, exchange ideas and assist each other."

The school also recommends working through the easiest questions first and not wasting time on problems a student cannot solve.

It endorses the so-called *SQ3R* method, advocated in many universities.

The S stands for Survey: get a general picture of the work, for instance by reading the paragraph headings only. The Q means Questions: turn the headings into questions; ask yourself what they mean. The 3 R's stand for Read, Recite, Review. Read the material to answer your own questions about the paragraph headings, recite or test yourself by repeating the main points and finally review by quickly re-reading the material covered.

An Eye To The Future

The school produced its first graduates in 1960 and Superintendent Johnson considers the institution still in its infancy.

"I can see a fascinating future for the ASTS," he says. "The curriculum can, and probably will, be increased by many specialized courses dictated by automation, supersonic aviation and space age communications.

"Apart from the advanced operational and technical courses that will undoubtedly be needed, the school may well be called upon to branch out into the fields of administration and supervisory training, and even into languages."

WEATHER-WISE—Student weather observers take readings on roof of terminal building.

Focal point of Lakehead air terminal complex is matching but separate air traffic control tower.

The Sword and the Tomahawk
or
Adventures in Opening the Lakehead Air Terminal

Two issues ago, News on the DOT promised that the opening ceremony for the Lakehead air terminal late in 1964 would take the Rube Goldbergian cake for sheer inventiveness.

For those who have been following our accounts of the department's adventures along the terminal inauguration trail, here is the inside story of how prospects of an Indian whoop-up went up into smoke signals.

After the department had used a variety of devices, from a power saw to a chorus line, to symbolize the official opening of buildings, Winnipeg region came up with an idea for the Lakehead ceremony that promised to top all previous occasions for colorful pomp and circumstance.

Mr. Pickersgill would be made an honorary Indian Chief, and, bedecked in feather head dress, would cut a rope with a tomahawk.

This seemingly innocent deed would cause a chain of things to happen. With the help of that post-Indian miracle, electronics, the snap of the rope would make a model of a birch bark canoe rise into view, signifying the Lakehead's past, while on the other side of the lectern the model of a Vanguard aircraft would majestically swing into sight. At the same time, all because of that deceptive tomahawk, floodlights would come on to illuminate the whole spectacular scene.

Now years ago, when the department wasn't so adroit at swinging these ceremonies as everybody says it is now, someone had the bright idea of using an airplane propeller at a terminal opening. Driven by a small motor, the propeller turned slowly, barring the entrance to the new building.

At the *moment suprème* the propeller would be stopped in a vertical position so dignitaries could walk past it.

You guessed it: something went wrong and the propeller wouldn't stop turning. Ever since that day the information division, which carries out the liaison between region and deputy minister's office in these things, has been scared stiff of electronic gimmicks.

Thus it was that a timid information officer persuaded the regional director of air services in Winnipeg to make the canoe and aircraft displays stationary, so that the drop of the tomahawk would no nothing but simply cut the rope. This would still leave the epic qualities of the Indian initiation.

Then, a few weeks later, the Minister decided that Mines Minister W. M. Benidickson, whose constituency is near the Lakehead area, would perform the official act of opening the building.

A hurried pow-pow with the Indian Chief reassured us that both Mr. Benidickson and Mr. Pickersgill could be made honorary Chiefs.

It wasn't until another few weeks had passed that word came from the Lakehead like thunder from a clear sky: the whole thing was off. No Indian ceremony. None of this honorary chief stuff.

Another pow-pow ensued. What happened? Were the Indians mad at us? Had we done something wrong?

No, but the Indian tribe had just heard that we wanted to hold the ceremony indoors. Indian tradition dictated a big bonfire and they had assumed all along that it would be outdoors. The airport fire marshal wasn't thrilled by the thought of a fire in the middle of the waiting room and Chief Architect E. Daoust frowned on the idea, too, so they had decided to forget about the whole thing.

It will be to the eternal credit of the Winnipeg region's quick thinkers that another opening theme was found within hours.

Mr. Benidickson and Mr. Pickersgill would now be made honorary "Lakehead Admirals"—a title usually bestowed, as a tourist promotion stunt, on motorists completing the scenic tour around Lake Superior.

Urgent business in the House of Commons at the last moment kept Mr. Pickersgill in Ottawa, but Mr. Benidickson carried out the nautical theme with perfect aplomb. Two past presidents of the Lakehead International Highway Association, Admirals Brien O'Brien and C. W. King, initiated the Mines Minister, pointing out that he qualified on two counts, as a dedicated servant of his country and as one who did make the circle tour.

Mr. Benidickson donned a Lord Nelson hat and a sword, and with a magnificent swoop cut a hawser in front of the lectern.

Explaining that the Department of Mines and Technical Surveys operates several ships for oceanography and other research the Minister declared he was glad he could now talk on equal terms with the nautical types in his department.

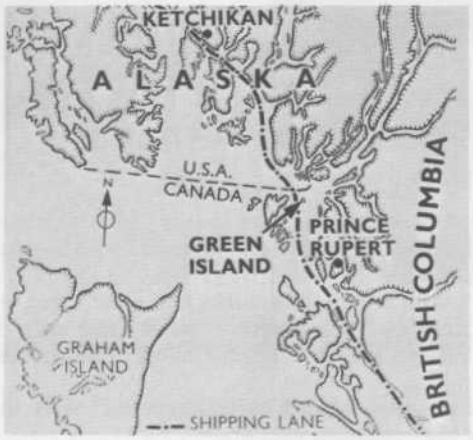
Arrangements for the successful ceremony were directed by Winnipeg RCCA Frank Hughes. Others active in the preparations included Airport Manager Walter Heikkinen; his secretary, Mrs. Horne; Jack Roebuck, who built the platform; Claude Brerton, Cliff Cearns, Bob McLeod, Lance Podd, Bill Stunden and Wilbur Wright. Chairman of the colorful event was RDAS W. E. Fenn.

JOHN DE BONDT

Lighthouse Patrol — by Bruce Young

(Reprinted from Esso "Air World")

Green Island is Canada's last manned outpost in the North Pacific. It is a small treeless islet made up of rock and muskeg which is battered almost incessantly either by south-westerly ocean gales blowing through the Hudson Bay Passage or by off-shore north-easterly winds funnelling down the Portland Inlet. The wind direction varies with the weather, which is seldom kind and gentle.



D.O.T. maintains a lighthouse on Green Island to assist vessels using a busy shipping lane which crosses the paths of the winds. It is Canada's last responsibility to mariners heading towards Alaska; a few miles to the north at the Canada/Alaska boundary, the U.S. Coast Guard takes over.

The Prince Rupert district marine agency, headed by Captain Edward Ormsby, looks after all navigational aids from northern Vancouver Island to Green Island. The network of 14 manned and 300 automatic stations serves a 300-mile stretch of coastline that is noted for its treachery. Now a Sikorsky S-62A helicopter has been brought in to help in the never-ending struggle to keep the system working smoothly as required by the heavy volume of coastal traffic. It complements the service previously provided solely by Canadian Coast Guard vessels, which handle the transportation of major supply items to the manned stations and service the automatic stations. The trouble with sea transport is that it is slow especially when there are high winds and seas to batter through.

With the exception of the helicopter, all other forms of transportation are out of the question because there are virtually no roads or rail lines running up the British Columbia coast. Conventional air transport is of limited value because there are few places on the coast flat enough for a landing strip. The northern most coastal airport is at Prince Rupert whose mile-long runway was cut out of rock and muskeg at an estimated cost of $7 million. It ranks as one of the most expensive runways in the world. By contrast the helicopter can land virtually anywhere. At many of the stations wooden pads have been built at low cost for its use.

The S-62 which is based at Prince Rupert is held ready to go into action at any time. It has two crews consisting of a pilot and mechanic so that it can be on constant alert. Because helicopter pilotage is more demanding than fixed-wing flying, particularly under the conditions existing in this area, pilots are restricted to six hours of flying daily.

From the point of view of better service and higher morale the helicopter has already proved itself to have been worth the investment of $350,000. It can carry 1,800 pounds of freight or eleven passengers. It sometimes plays the role of messenger boy with supplies and mail. It facilitates and speeds up transfers of personnel and participates in search and rescue operations. It can deliver a repairman to some remote spot when a station goes out of service.

In December the S-62 performs a very special function: Santa Claus climbs aboard and makes the rounds of the manned stations, for there are children at most of them. Never before was Christmas such an exciting event on the remote islands as it was in 1962, the first year that he was able to drop in by air. On that same trip the S-62 delivered packages ordered by mail by lighthouse families.

The helicopter has been called up to go out to rescue some of its own people. Last spring the keeper on Green Island and his assistant were out in a small boat on a beachcombing expedition. The outboard motor failed 500 feet from home. The men tried to row back but a wind suddenly blew up and quickly reached a velocity of 60 m.p.h. Two horrified wives watched helplessly as their husbands drifted away.

Keeper Milton John Woksi and Assistant Dennis Patterson sat in their 14-foot boat and prayed as 30-foot waves lashed around in pitch darkness.

Luck, however, was on the side of the two men; the boat stayed afloat and eventually beached itself a few miles from Ketchikan, Alaska. All the time crewmen in the helicopter had been trying to penetrate the heavy cloud and fog for a sign of the boat and its helpless occupants.

John Dowdwell, Green Island lightkeeper, and his family watch the arrival of the Sikorsky S-62A.

(Above) Paul Duchritski, one of the pilots of the S-62A helicopter.

(Left) Helicopter mechanic Hans Strolenberg hands over a package of supplies to the lightkeeper on Lawyer Island, near Prince Rupert.

Back at the lighthouse the two wives were certain that they had witnessed their entry into widowhood but in the best "show must go on" tradition stayed up all night to tend the light. When it was eventually known that the men were safe in Alaska the helicopter flew north to pick them up and return them to their island home.

Green Island light rates a two-man crew because of its key location and other factors.

It takes a special type of person to be a member of a lighthouse family. The loneliness of the job would drive most people crazy. To others it is a welcome escape from the hustle and bustle of city life. The chief keeper on Green Island at present is James Dowdwell. He and wife Mildred are both Nova Scotians who enjoy the rugged lonely life. They have a four-year-old daughter and a son aged 17 months.

For Dowdwell the introduction of the helicopter has been a great comfort. He knows he can get help in a hurry now if one of the children becomes sick or a member of the family is involved in an accident. It also brings in mail between the regular visits of the tender CCGS Alexander MacKenzie, a feature that will help a lot when the children reach school age and get their schooling by mail—a service of British Columbia's Department of Education. Prince Rupert is 40 miles south of Green Island. With the helicopter in service, the Dowdwell family feels that it is now living in the suburbs in comparison with the conditions that existed before the introduction of the helicopter.

In terms of mileage and weather conditions the station at Cape St. James is even tougher. This is located on the southern tip of the Queen Charlotte Islands where the notorious Hectae Straits separate the Charlottes from Vancouver Island. Winds of 120 m.p.h. are not uncommon at this installation, which consists of an automatic lighthouse and strategic weather recording station. Its distance from Prince Rupert is about 150 miles.

The helicopter, of course, cannot operate when conditions are at their worst at Cape St. James. However, it did recently stage an outstanding performance by making a brief landing in gale winds which at times reached 60 m.p.h.

Prior to the arrival of the helicopter, Cape St. James could not count on anything more than quarterly visits from the CCG tender. Now calls can be made at any time on short notice.

The S-62 helicopter is powered by a 1,050 s.h.p. (derated to 730 s.h.p.) General Electric T-58 shaft turbine engine. It is equipped with extra fuel tanks to permit long round trips to spots like Cape St. James. It also has retractable wheels and fixed pontoons and is thus fully amphibious—an important feature in the search and rescue phase of its operations.

Crews are supplied by the flight services division. The pilots flying the S-62 are Don MacLean and Paul Duchritski. Their respective mechanics are Edward Blanchet and Hans Strolenberg. All four have already seen a great deal of action in the short time they have been on the helicopter operation. It is almost certain that they will see a lot more (some tough, some thrilling, some routine) in the years ahead.

John Dowdwell waves as the helicopter departs from Green Island.

Patterson Medal Awarded to D. B. Kennedy

Left to right: Mr. J. R. Noble, Mr. Kennedy and Air Chief Marshal F. R. Miller

The Patterson Medal for distinguished service in meteorology in Canada has been awarded to D. B. (Des) Kennedy, head of the meteorology and oceanography section at Canadian Forces Headquarters. He received the medal on November 4 from Air Chief Marshal F. R. Miller at a brief ceremony at headquarters. J. R. Noble, director of the meteorological branch attended.

The Patterson Medal honors a former director of the meteorological service of Canada and is given to any resident of Canada for a unique outstanding achievement or for sustained contributions over several years.

Mr. Kennedy, who is seconded to CFHQ from the Department of Transport, has been actively engaged in the organization of meteorological support for the Canadian Armed Forces since early in the Second World War. In the words of the citation that accompanied the award "he has distinguished himself as an interpreter between the civil and military interests in meteorological matters."

During the war years he pioneered meteorological instruction for wartime aircrew, was in charge of the intensive training program to provide meteorological officers for the British Commonwealth Air Training Plan and, later, was engaged in administration of the meteorological offices at the wartime air stations across Canada. In 1946 he was awarded the MBE in recognition of these wartime activities.

Shortly after the war he was appointed to the position of meteorological adviser at air force headquarters and subsequently served as liaison meteorologist and as meteorological adviser to the chairman, chiefs of staff. As such he has been a major contributor to the development of an efficient military meteorological organization.

New Branch Deals With Hydraulics Aspects of Great Lakes and St. Lawrence Transportation

Establishment of a new branch of D.O.T., to deal with matters relating to the provision of navigable channels for water transportation on the Great Lakes and St. Lawrence River, was announced late in November by the minister. D. M. Ripley, former chief of special projects, is director of the new branch.

Formation of the marine hydraulics branch, by bringing together two divisions that formerly were under separate direction, will enable the department to integrate more closely its work in this field. It will bring into single focus the hydraulic and engineering aspects of water transportation from the Lakehead to the sea.

The need for such integration is emphasized by the present problem of water levels in the Great Lakes which affect the whole of this important traffic artery. It is intended that if similar problems arise elsewhere they will be referred to the new branch.

The two divisions concerned are the former special projects division, now to be known as the hydraulics studies division, and the St. Lawrence Ship Channel division. The former was a part of the economic policy and research branch and the latter was in the marine works branch.

The hydraulics studies division was given its new name to clarify its role. The two divisions will continue to carry out the same programs as in the past. There will still be joint participation of the two in such projects as the St. Lawrence ship channel model studies at Montreal, which are of basic importance to the works program of the ship channel division.

The hydraulic studies division will continue to have its headquarters in Ottawa. Mr. Ripley, will also have his office at departmental headquarters in Ottawa so as to be available, not only for over-all direction of the branch, but for liaison with other government departments and agencies and the International Joint Commission.

The headquarters of the St. Lawrence Ship Channel division will continue to be in Montreal.

Appointed Planning Officer for Canadian Coast Guard College

Commodore Eric Brand, former director of marine operations, has been appointed planning officer of the Canadian Coast Guard College.

Commodore Brand, who retired from the department in 1963, returns to temporary duty in order that preparations for the college may be started without delay, pending the selection and appointment of the director and senior instructional staff.

The Coast Guard College, establishment of which was announced by Mr. Pickersgill last May 5, will be located in the former Point Edward training establishment of the Royal Canadian Navy at Sydney, N.S. Commodore Brand will begin at once to plan the broad organization of the college, including such matters as the conversion of existing buildings to the new requirements, establishing conditions of service and methods of recruiting.

It is expected the college will be in operation next Fall. It will train both deck and engine room officers for service with the Canadian Coast Guard.

Regional Superintendents of Radio Regulations *held a conference at headquarters during the week of November 23. Standing, left to right, are: B. S. Harrison, Vancouver; C. M. Williams, Moncton; V. J. R. Brister, Toronto; and T. Foucault, Montreal. Seated: W. A. Caton, controller of radio regulations; F. G. Nixon, director of telecommunications; and H. R. Newcombe, superintendent, radio authorization and enforcement.*

Suggestion Award Winners

NAME	POSITION	LOCATION	AMOUNT
James Conway	Air Traffic Controller	Winnipeg	$15.00
Robert M. Bland	Storeman	Moncton, N.B.	15.00
Basil Latham	Met. Communicator	Halifax	10.00
M. Walter Didiuk	Radio Technician	Winnipeg Aeradio	15.00
Jacob N. Bell	Met. Technician	Victoria, B.C.	15.00
J. T. Hart	Radio Operator	Sarnia, Ont.	20.00
N. Lawrence Stewart	Radio Technician	London, Ont.	25.00
William P. Power	Radio Operator	Burin, Nfld.	15.00
Dennis H. Bodkin	Electronic Technician	Abbotsford, B.C.	15.00 20.00
Steve Kutash	Radar Technician	Edmonton Int. Airport	10.00
Stewart Jackson	Airport Maintenance Foreman	Penticton Airport, B.C.	30.00
L. W. Francis	Storeman	Winnipeg Air Services	10.00
W. G. Bruyn	Electronics Technician	Quebec Airport	15.00
John P. Lumb	Radio Technician	Vancouver	20.00
F. L. Cushing	Meteorological Officer	Esquimalt, B.C.	15.00
Duane A. Entner	Radio Operator	Prince Rupert, B.C.	10.00

Retirements

Thomas Gordon Slinn, (above) a senior radio inspector, at Toronto, retired on October 30 after 38 years with the department.

Born at Ottawa, Mr. Slinn joined the department of marine and fisheries in October, 1926. He began as a junior radio electrician in the newly-formed radio interference section and was assigned to the radio test room in Ottawa. In July, 1927 he left Halifax on the CGS "Stanley" as a member of the Hudson Strait Expedition under Major N. B. McLean and assisted in the establishment of radio stations at Nottingham Island, Wakem Bay and Port Burwell. Early in 1929 he installed the first marine automatic radio beacon at Cove Island on the Great Lakes.

Mr. Slinn was transferred to Toronto radio regulations office in 1931 and was responsible for all marine radio aids on the Great Lakes. In 1955 he was transferred to air radio aids when marine and air radio aids were combined. In 1956 he transferred back to radio regulations and remained there as senior inspector until retirement.

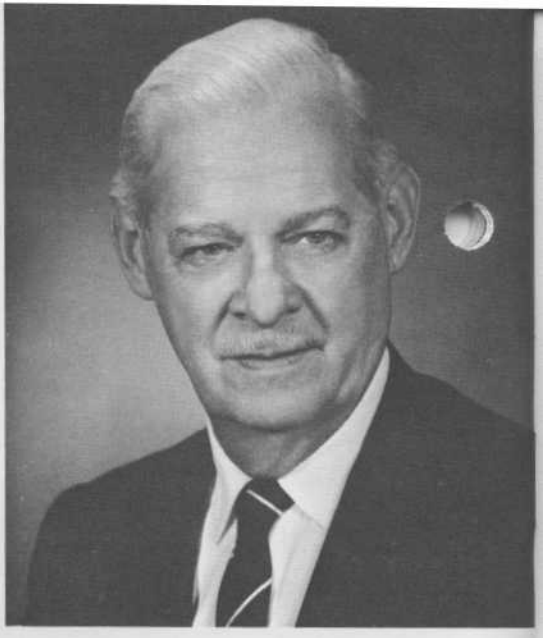
His colleagues honored him at a well-attended luncheon at which the presentation of a wallet and an automatic coffee percolator was made.

George C. Ventura, (left) a veteran of 29 years of government service, retired in October. He had been an accountant with the radio regulations division since 1946.

Born in Ottawa just before the turn of the century, Mr. Ventura attended both French and English schools in the city. He went on to business college and, as well, took a course in accounting. In October, 1915, he joined the Canadian Army and saw action in England and France (including the Battles of Somme and Vimy Ridge.)

Mr. Ventura was employed by the Grand Trunk and Canadian National railways from 1921 until the mid 30's. In 1935 he joined the former Department of Mines and Geology and after four years transferred to the Post Office Department. In August, 1942, because of his many years experience with the railroad, he was asked to transfer to the Department of Transport's lease land division. After the war he joined the radio regulations division and remained there until his retirement.

Days of retirement will be active ones for Mr. Ventura, who has four married sons and daughter and 12 grandchildren.



Robert J. Wooley, (above) assistant manager at Toronto Regional Real Estate office, retired early in December.

Mr. Wooley, who joined the Toronto office as an agent in 1954, was involved in the acquisition of lands for the expansion of airports at Toronto-Malton, Windsor and Winnipeg, as well as the appraisal of properties on Ontario harbors and on the Rideau Canal.

Before joining the department, Mr. Wooley was in real estate in the Toronto area. He is a fully qualified member of the American Institute of Real Estate Appraisers and an accredited member of the Appraisal Institute of Canada and has served for several years as a committee chairman. As well, he is now a member of the Institute's Governing Council.

Shelborne (Shad) A. Shatford, radio inspector at Edmonton, retired on November 1 with a record of service dating back to 1923.

Mr. Shatford had been in ill health fo several months prior to his retirement so attendance at the gathering held to mark his retirement was limited. A few members of the regional radio regulations staff, along with G. E. McDowell, acting regional director of air services, extended best wishes and the gift of a portable typewriter from his friends and fellow employees.

A native of British Columbia, Mr. Shatford was first employed as a radio operator on the lighthouse tender "Newington" in 1923. He subsequently served at radio stations at Prince Rupert, Digby Island, Gonzales Hill, Alert Bay and Point Grey. While at Digby Island he had the distinction of making the first high frequency contact with Sydney, Australia.

In 1937 Mr. Shatford transferred to the air services branch of the then year-ol Department of Transport and served a Penhold and Calgary radio ranges. He became a radio inspector in 1949 and served as such at Edmonton until his retirement.

Cross-Canada Photo Coverage

St. Jovite, Quebec—R. W. Goodwin, director of civil aviation, received the COPA Award for 1964 at the October annual convention of the Canadian Owners and Pilots Association held at Gray Rocks Inn.

Every year COPA presents this award to the person who, in their opinion, contributed most to private and general aviation in Canada during the year.

Mr. Goodwin was considered deserving of this award for his efforts to provide fair regulations for the aviation personnel licensing field. Presentation was made by Max Karant (left), vice-president of the Aircraft Owners and Pilots Association of Washington.

Winnipeg—Robert Murray Smith, 18 months, was a bit too young to be impressed by his nearness to "Beatle" John Lennon. When the aircraft carrying the famed "Beatles" stopped over at Winnipeg last August 18 Robert's grandfather, Airport Manager Jack Smith, held Robert up for John Lennon to pass judgement on the little boy's first haircut. It would appear that John thought the little fellow got sheared.

Toronto—The 25th anniversary of the formation of the Canadian Branch of the Royal Meteorological Society was observed by the some 180 Toronto members and guests on November 5. The speaker for the occasion was J. R. N. Noble, director of the meteorological branch, who spoke about "Meteorology in Canada—A Look at the Past and Some Thoughts about the Future."

The Canadian Branch of the Society was formed in August, 1939, with 34 members. Today the membership is about 385, with Centres in Toronto, Montreal and Winnipeg.

The future of meteorology in Canada was presented by Mr. Noble as being one of great expansion in all areas, not only in the government service but also in the schools and universities and, in fact, in all walks of Canadian life.

Head table guests at the anniversary dinner were, left to right: Alec MacVicar, Mrs. D. Holland, Dr. A. Thomson, Mrs. Knox and John Knox, Mr. Noble, Mrs. Noble, Douglas Holland, Mrs. MacVicar and Louis Shenfield.

Lake Superior, Ont.—When the CCGS *Alexander Henry* plowed through a fierce 60 knot November gale during flume stabilizer tests George Burgess, a technical officer with the shipbuilding division at headquarters, was there to record it photographically.

D.O.T. PILOT FATALLY INJURED

WILMORE E. HANSEN, a helicopter pilot at Ottawa Airport, was killed on November 18 when the Bell-J GXZ he was flying crashed a few miles from Ottawa.

On a local training flight, Mr. Hansen was alone in the helicopter at the time of the accident. The cause of the crash is now being studied by the aircraft accident investigation division.

Mr. Hansen, age 43, was born at Red Deer, Alberta. He served with the RCAF in Britain from 1942-1945 and again from 1951-1959. In July, 1961, he joined the Department of Transport as a helicopter pilot. He is survived by his widow Mrs. Dorothy Hansen, and three children.

Canadian Coast Guard ALBUM

CCGS LABRADOR

CCGS Labrador—This Canadian Coast Guard ice-breaker, completed at the yard of Marine Industries Limited, Sorel, Que. in 1953, was acquired from the Royal Canadian Navy in 1958. She is a veteran of service in the Canadian Arctic and of winter operations in the Gulf of St. Lawrence and Newfoundland waters.

LENGTH: 269 feet

BREADTH: 63 feet, six inches

DRAFT: 29 feet, one inch

POWER: Diesel electric; six 10 cylinder diesel engines with a total of 12,000 brake horsepower, driving two propulsion motors, each developing 5,000 shaft horsepower; twin screw

GROSS TONNAGE: 3,823