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**COVER**

CCGS Simcoe sets up one of the floating weather towers built by Prescott marine district workshop for use in an international wave study which has great implications for Canadian lake shipping.

**Editor**

*Yvonne McWilliam*

**Rédacteur français** *Edouard Deslauriers*

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ROGER DUHAMEL F.R.S.C., QUEEN'S PRINTER AND  
CONTROLLER OF STATIONERY, OTTAWA, 1966

ROGER DUHAMEL M.S.R.C., IMPRIMEUR DE LA REINE  
ET CONTRÔLEUR DE LA PAPERIE, OTTAWA, 1966



# Wave Study May Flood Lake Shipper's Pockets

by William Dunstan



A seasonal increase of several million dollars in revenues to the Great Lakes shipping industry could be the result of an enormous international weather research project co-ordinated by D.O.T.

Shipowners are hoping that tests will prove their ships may safely be permitted to increase permissible loading draft throughout the season in the Great Lakes, the Seaway, and the Gulf of St. Lawrence.

This wide-ranging program began in 1961. Shipowners asked steamship inspection service of the marine regulations branch if regulations could be changed to permit them to take Great Lakes

carriers, as built, into the Gulf of St. Lawrence beyond inland water limits and if the Great Lakes load-line rules and seasonal limits could be altered to allow deeper loading for a longer navigational season.

They stood to gain much. Each inch of draft in a typical 700-foot upper lake vessel represents more than 100 tons of cargo. An increase of 12 inches in draft for all seasons thus would represent approximately 1,300 tons more cargo, or an increase of about \$5,000 income per trip. If this were applied over three months a year, allowing two round trips a month, it would represent an increase in earning capacity of \$30,000 for each ship.

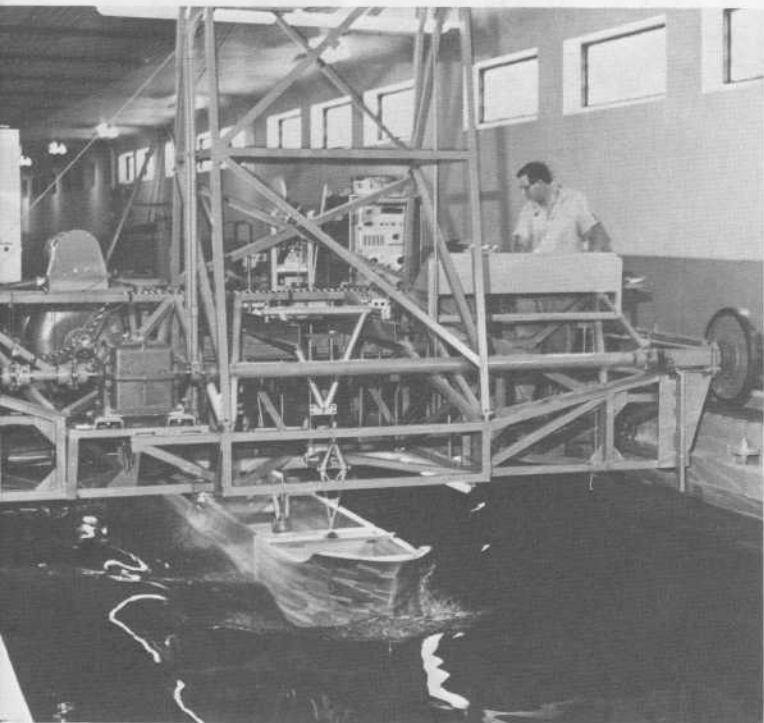
With larger loads and therefore speedier handling of mass commodities such as grain and ore, too, it is likely that the cost of transportation would be reduced appreciably.

To D.O.T. the big question was safety. To assess the hazards involved, it was necessary to know a good deal about sea conditions in the Gulf of St. Lawrence and the Great Lakes. Since no accurate data was available, a program was launched to obtain some. The Dominion Marine Association gave the federal government \$60,000 toward the project. In the United States, where the U.S. Coast Guard is responsible for the American part of the joint enterprise, the Society of Naval Architects and Marine Engineers is contributing funds and technical assistance.

Warren Bonn of steamship inspection division, marine regulations branch, is co-ordinator of the Canadian project. It involves marine regulations, marine works and marine operations and the Meteorological and Telecommunications branches of D.O.T. and the oceanographic groups of the Department of Mines and Technical Surveys.

The marine science branch of the Department of Mines and Technical Surveys first undertook a five-year hindcast study based on available meteorological data recorded on land. There was some hesitation in accepting the findings, however, since the wind-wave formulas currently available are based on ocean conditions. The "fetch" on inland waters is much shorter than on the ocean, where winds can pile up water and waves over thousands of miles. It was decided to make a practical study of wind and wave conditions in the areas concerned to check the accuracy of the formula.

Staff of the National Research Council man strain-gauge equipment installed in three ships—*Ontario Power*, *Saguenay* and *Seaway Queen*—to gauge the strain produced by waves and cargo. Free-floating wave recorders which signal their readings



Model ship is towed through test tank at National Research Council, Ottawa. Test models move at controlled speeds through measured turbulence while stresses are measured by means of instruments on the overhead towing apparatus.

back to the ships provide data on the seas producing the stresses. These recorders were developed by the Bedford Institute of Oceanography for the project.

Among special equipment developed for the project are two floating weather towers from each of which a fiberglass mast rises 58 feet above lake-level. They were designed by Dr. L. A. E. Doe of the Bedford Institute of Oceanography and built in D.O.T.'s Prescott district marine workshop. One is anchored at Superior Shoals, some 40 miles from the north shore of Lake Superior, and the other is in the upper Gulf of St. Lawrence, near Anticosti Island. A third tower, built for the institute, will be installed at sea for independent observations.

The towers have been designed to stay in position with a minimum of disturbance. Each of these open-frame metal structures is equipped with buoyancy chambers which would maintain them quite high out of the water if allowed to float free. However, each is chained to a 30,000-pound anchor and held down well below buoyancy level. The resulting upward push keeps it fairly steady vertically. A 5,000-pound wing anchor keeps the tower from twisting so that the instrument platform eight feet above the water receives little, if any, disturbance.

Instruments make hourly tape recordings of weather data, which are collected periodically. Equipment later will be modified to radio all information, including air and water temperatures, wave measurements, wind velocity and direction, to recording stations on shore.

Not all was smooth sailing for the floating towers. Clay Margison, district engineer, explained that some modifications in the original design had to be devised to cope with certain stress situations. The plans also posed problems for Jack Reilly, the shop foreman, for since the shop was making a completely new piece of equipment, numerous decisions had to be made concerning both details of design and construction techniques.

The first installation became a victim of the weather conditions it was intended to record. After performing satisfactorily for a month, the tower somehow managed to drag itself up where its buoyancy chambers were at the surface. Wave action snapped the tower in two and submerged the upper portion so that, as Warren Bonn says rather ruefully, "the anerometers began recording currents instead of winds."

Other instrumentation includes accelerometers and wave recorders moored off-shore in a number of locations. Their observations are transmitted to recording stations by means of electric cable and radio. Meteorological stations on land also provide data which is incorporated in the survey.

The summing-up of the Canadian data in this wide-ranging, international program will be made at Ottawa in a test tank operated by the National Research Council. Scale models of the types of ships concerned are cut, hinged, and fitted with strain gauges. By this means, the stresses produced in the ship by any particular sea state can be reproduced in the model.

Corrected hind-cast formulas will be derived from the recorded wind and wave information and it then will be possible to review historically from 20 to 40 years of weather data. The wind and other data so obtained will be put through a computer and processed to determine the worst sea conditions which have occurred in the Great Lakes and the Gulf of St. Lawrence. These worst conditions will be compared and reproduced to scale in the model testing tank and then made slightly worse as a safety factor. The stresses produced in the model ships under various load limits will determine what the full-size ships can stand. The Steamship Inspection Service will then know whether or not the lakers can safely increase their loads and extend their season.

When the necessary knowledge is gained, the steamship inspection service will get together with colleagues in the U.S. Coast Guard to reach agreement on recommendations. These recommendations will be considered by the governments of the two countries in deciding whether the joint regulations currently in force should be modified.



Clay Margison, Prescott district engineer, and Jack Reilly, Aids to Navigation shop foreman, study blueprints of floating towers which were built for use in the international wave study.

# Lake Weather Gets Going-Over

Vacation attractions of Lake Huron took second place to duty in late July when the meteorological branch joined forces with the Great Lakes Institute for an intensified weather survey at Baie du Dore field station.

Lake weather got a through going-over from 1,000 feet to water level (and below!) when the basic resources of the field station were supplemented by the research ship CCGS Porte Dauphine and an aircraft carrying the airborne, infra-red radiation thermometer which the meteorological branch recently developed for taking lake temperatures from the air.

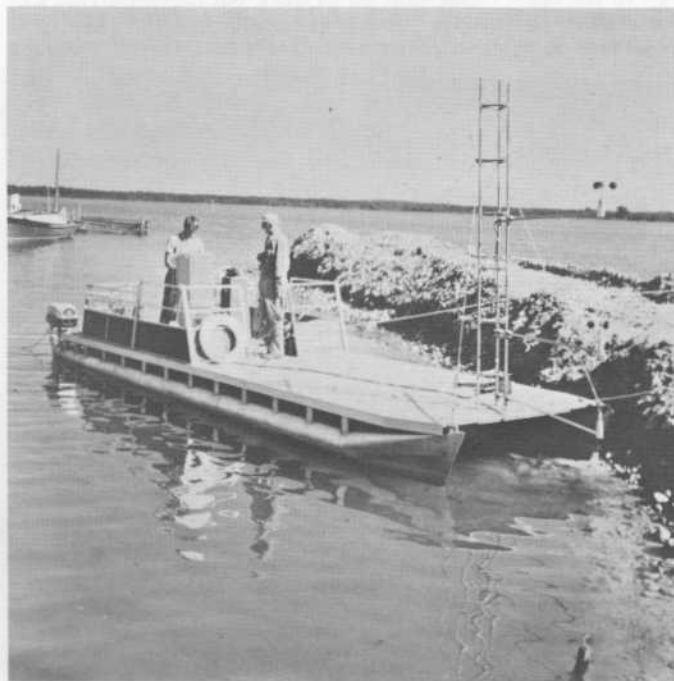
The field station has a weather tower in some 45 feet of water about two miles from shore. Rising 30 feet above the surface, it records the air temperature and wind at heights of 7½, 15 and 30 feet above lake level. A newly-instrumented, outboard-powered catamaran takes similar data from the 7½-foot level down to the water-line.

The Porte Dauphine's meteorological boom takes a micro-profile of the temperature, humidity and wind from the surface to a height of 44 feet. In addition, the ship sends up wiresonde balloons to a height of 1,000 feet, tethered by means of nylon cords, to record these factors at higher levels. Water temperatures also are taken, both by means of an immersion thermometer and special ship-board tests of the radiation thermometer.

During the survey the radiation thermometer also was used in an aircraft to take lake temperatures from higher altitudes over a greater area.

Lloyd Richards, head of the met branch lakes investigation unit, was in charge of the project. Research Assistant Don Masse was his principal aide. Other D.O.T. personnel included Meteorologist R. W. Shaw, who was in charge of operating the infra-red thermometer on board ship, and Research Assistant George Irbe, who operated it on the aircraft. Research Assistant R. G. Chapel was in charge of the wiresonde operations. Michel Moschos, instrument technician, was responsible for the lake tower and the catamaran, while Student Assistant Robert Root is the permanent staffer at the field station during the summer.

The main objective of the project, Mr. Richards explained, was to study the transfer of energy from winds to waves. Since this has been found to vary with the temperature of the water and the temperature structure of the atmosphere, an intensive study of temperatures was of special importance. The many methods of recording not only ensure provision of the necessary data but also afford an opportunity to compare the methods of collecting these data.



Lloyd Richards and Bob Root check equipment aboard the new 28-foot "Met Cat" research catamaran. The craft is instrumented to record weather data near water-level.

# An Award from NORAD

Captain George S. Burdock, of the icebreaking cable repair ship CCGS "John Cabot", received a special NORAD award in a ceremony which took place July 22 aboard the "John Cabot" in the Port of Montreal.

The award, called the "Shield of Freedom", was received from the American Air Defence Command in recognition of services rendered by Captain Burdock to the United States Government. He and his crew repaired, under extremely adverse conditions, a submarine cable in Baffin Bay in November, 1965.

Transport Minister J. W. Pickersgill was represented at the ceremony by the Hon. John Turner, minister without portfolio. The U.S. Consul General in Montreal, Richard H. Hawkins, was in attendance as well as G. W. Stead, assistant deputy minister, marine; A. H. G. Storrs, director of marine operations; and D. F. Bowie, president of the Canadian Overseas Telecommunication Corporation. Mr. Turner made the presentation.

Captain Burdock's achievement occurred when a break in a submarine cable south-west of Thule, Greenland, in Baffin Bay, had been reported and CCGS "John Cabot" was called upon to make the necessary repairs. The Canadian Coast Guard had never had to carry out such work in the Arctic so late in the year.

Upon arriving at the site in the beginning of November, the crew of the cable repair ship set to work but current-driven ice and violent winds made the job extremely difficult. They suc-

ceeded, on November 5th, in raising one end of the broken cable. The ice, however, got the upper hand and it was decided to abandon the work temporarily and to call for icebreaker assistance. "We had fixed buoys to the ends of the cable," Captain Burdock later stated, "but they were torn away by the ice".

Answering the call of the cable repair ship, Canadian Coast Guard icebreaker "d'Iberville" commanded by Captain Wilfrid Dufour of Quebec, and the American icebreaker "Westwind" headed northward.

When work could be resumed, it took the crew of the "John Cabot" only twelve hours to repair the break. CCGS "d'Iberville" and the "Westwind", using football tactics, pushed aside the floating ice masses while the work continued, most of the time by the light of projectors because the Arctic night, in winter, lasts almost 24 hours per day.

When the job was finished, the three vessels headed south without delay because ice already covered 90 per cent of the more remote passages of Baffin Bay. Twice during the return voyage, they had to cope with hurricane force winds. Captain Burdock related that they experienced gales up to 90 miles an hour in Davis Strait.

For the "John Cabot" the trip was only its second into the high Arctic. In August of the same year, its crew had repaired a broken cable in the same area.



A special NORAD award, called the "Shield of Freedom", was presented to Captain Burdock of the icebreaking cable repair ship CCGS "John Cabot". Shown here, from left to right, are D. F. Bowie, president of the Canadian Overseas Telecommunication Corporation; Hon. John Turner, minister without portfolio, acting on behalf of Minister of Transport J. W. Pickersgill; Captain Burdock; and Richard H. Hawkins, U.S. Consul General in Montreal.

La décoration, dite «Shield of Freedom», a été remise au capitaine du brise-glace câblé John Cabot. Dans cette photo, on voit, de gauche à droite, le président de la Société canadienne des télécommunications transmarines, M. D. F. Bowie; le ministre d'État, l'hon. John Turner; le capitaine Burdock; et le consul général des États-Unis à Montréal, M. Richard H. Hawkins.

# Une décoration de NORAD

Le capitaine George S. Burdock, du brise-glace câblé John Cabot de la Garde côtière canadienne, a reçu, le 22 juillet dernier, une décoration spéciale de NORAD au cours d'une cérémonie qui s'est déroulée à bord du John Cabot dans le port de Montréal.

Cette décoration, dite «Shield of Freedom», est accordée au capitaine Burdock par le Commandement de la défense aérienne de l'Aviation américaine. Elle lui a été décernée en reconnaissance des services rendus au gouvernement des États-Unis en réparant, dans des conditions absolument défavorables, un câble sous-marin dans la baie de Baffin en novembre 1965.

Le ministre des Transports, l'hon. J. W. Pickersgill, était représenté à la cérémonie par le ministre d'État, l'hon. John Turner. Le consul général des États-Unis à Montréal, M. Richard H. Hawkins, assistait également, ainsi que le sous-ministre adjoint pour la marine, M. G. W. Stead, le directeur des opérations de la marine au ministère, M. A. H. G. Storrs, et le président de la Société canadienne des télécommunications transmarines, M. D. F. Bowie. La présentation a été faite par M. Turner.

L'exploit du capitaine Burdock remonte à novembre 1965. On venait alors de rapporter le bris d'un câble sous-marin au sud-ouest de Thulé, au Groenland, dans la baie de Baffin. Pour réparer le bris, on fit appel aux services du John Cabot. La Garde côtière n'avait jamais eu à effectuer de tels travaux dans l'Arctique à une époque aussi tardive.

Dès son arrivée sur les lieux au début de novembre, l'équipage du câblé se mit immédiatement à la tâche. Les glaçons, emportés par le courant et les vents violents, rendaient le travail

excessivement difficile. En dépit des difficultés, on réussissait, le 5 novembre, à remonter une extrémité du câble brisé. Cependant, la glace devait prendre le dessus. On décida donc d'abandonner temporairement les travaux et de faire appel à de l'aide. «Nous avions fixé des bouées aux extrémités du câble, a déclaré plus tard le capitaine Burdock, mais elles furent arrachées par la glace.»

Répondant à l'appel du câblé, le brise-glace d'Iberville de la Garde côtière canadienne, commandé par le capitaine Wilfrid Dufour, de Québec, et le brise-glace américain Westwind firent route vers le nord.

Lorsqu'on put enfin reprendre les travaux, il ne fallut que douze heures à l'équipage du John Cabot pour réparer le bris. Le d'Iberville et le Westwind, empruntant les tactiques du football, écartaient les masses de glaces flottantes pendant que se poursuivait le travail, la majeure partie du temps à la lumière de projecteurs, car la nuit arctique, en hiver, dure presque 24 heures par jour.

Les travaux terminés, les trois navires mirent le cap sans tarder vers le sud, car déjà la glace couvrait environ 90 pour cent des passages les plus reculés de la baie de Baffin. Par deux fois durant le voyage de retour on eut à faire face à des vents d'ouragan. Le capitaine Burdock raconte qu'on essuya des coups de vent de 90 milles à l'heure dans le détroit de Davis.

Pour le John Cabot, navire de construction assez récente, c'était son deuxième voyage dans cette région. En août de la même année, son équipage avait réparé un câble rompu dans le même secteur.

## Montreal Airport Employee Wins Unusual Trophy

Strange as it may seem Real Paquette of the Montreal Airport maintenance section recently was presented with a trophy for being champion lock picker of the Quebec Master Locksmiths Association.

But it's all perfectly legal and above board. The trophy is awarded annually to the member with the best lock picking record achieved during competitions held at monthly meetings. It is donated to the association by Dominion Lock Company.

Mr. Paquette, 29, considers it part of his job with the maintenance section to be able to take any lock apart and put it back together in jig time.

### Gagnant d'un étrange trophée

Réal Paquette, des services d'entretien de l'aéroport de Montréal, vient d'être proclamé le champion des crocheurs de serrures de la province de Québec. Un trophée approprié lui a été décerné par l'Association des maîtres-serruriers du Québec.

Aussi invraisemblable que cela puisse paraître, c'est tout de même dans l'ordre et surtout légal. Le trophée est accordé annuellement au membre de l'Association qui a conservé les meilleures notes dans des épreuves mensuelles de crochetage de serrures. Le trophée est un don de la compagnie Dominion Lock.

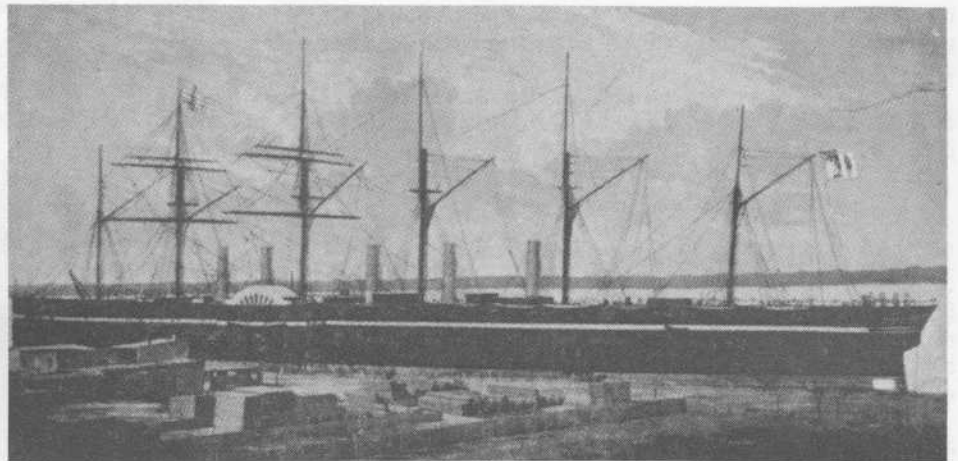
M. Paquette, 29 ans, estime qu'il est utile pour un employé des services d'entretien de pouvoir démantibuler et reconstituer une serrure en moins de rien.



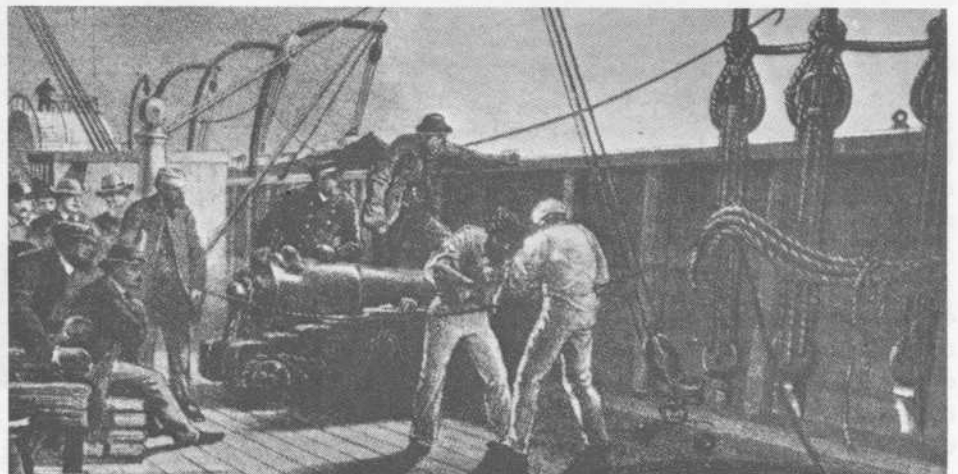
Real Paquette (left) receives the trophy from Rene Piche, newly-elected president of the Quebec Master Locksmiths Association.

On voit ici Réal Paquette, à gauche, qui reçoit son trophée de René Piché, nouveau président de l'Association des maîtres-serruriers du Québec.

# The Sad Saga of the "Great Eastern"

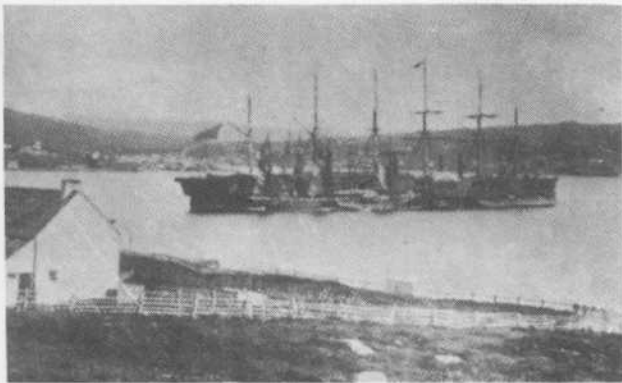


The "Great Eastern" at her pier, foot of Hammond St., New York, 1860.



Cable Laying Across the Atlantic, Commissioned by Cyrus Field.





The "Great Eastern" in Newfoundland.

by Raymond Schuessler\*

One of the most famous ships of its day, and possibly in all sea legend, is the illfated giant Great Eastern which was also the sea's most historic failure.

Imagine a ship five times larger than had ever been built up to 1857. Her propeller weighed 36 tons, larger than even the Queen Mary of our day. She was so big—693 feet long, 22,500 tons—that, besides her 20 lifeboats, she carried a 200-foot steamer strapped her side.

No ship ever carried more power: she had two engines, 24-foot screw, five funnels, two 58-foot paddle wheels, six masts and 6,500 square yards of sail.

No existing drydock would hold her, so she was built on a soft river bank of the Thames and became the first large ship to be launched sideways.

The "great factory" was finished in 1857. The ship lay on 120 iron rollers over 160 wooden timbers on two feet of concrete and supported underneath by 2,000 piles driven 30 feet into the mud of the river.

Tugs and winches and huge hydraulic rams were recruited to pull her. A grandstand was built and admission charged to witness the grand event. Bands played and pubs stayed open all night.

Tugs strained, chains rang taut and the rams spilled steam. But after two months the ship lay only halfway to water. She floated free on January 31, 1858.

She wasn't but a day at sea when the curse that was to follow her, forever, struck. Without warning, the forward funnel blew out of the ship. Bits of the vessel fell like hail. Boiler-room fires were raging. A man who had jumped overboard was sucked into the huge paddlewheel and broken. Five explosion victims died. But the ship survived.

No ship had created more world-wide interest. This was an unbelievable mastodon among ships of that era. By June 1860 the Great Eastern was ready to sail to America where interest was intense.

As soon as the ship docked in America a carnival began to mushroom around her. Ticket booths went up and hucksters began to sell food and souvenirs, small ships were fitted out as restaurants, and circus acts heaved-to.

The directors decided to sponsor a two-day cruise. Two thousand passengers bought tickets for \$10 apiece. The cruise is one of the funniest episodes in marine history.

First, they didn't take enough food. Second, they had accommodations for only 300. Drunks roamed the decks, gambling was prevalent everywhere. Men fought for the staterooms.

Waiters sold mattresses for 50 cents apiece and later stole them to sell again. It rained during the night on 1700 souls who slept on deck and the grime from the funnel turned them all into mud balls. Worse of all, the ship got lost during the night—100 miles off course.

In its third trip to America it encountered a tremendous storm. Up to now the Great Eastern had proved its safety in a crisis. But now she was being pummeled by a gale that showed no mercy.

Both paddle wheels were torn off. Every life boat was lost or had to be cut loose. The rudder post of 10-inch iron was broken. The screw had to be stopped. Sails that were hoisted ripped and hung like shredded clotheslines. For three days the storm raged. Eight hundred and thirty-two passengers strapped themselves to their bunks and prepared to die.

By a clever bit of engineering the rudder was made secure with heavy chain and tackle so the crew could operate and the Great Eastern limped back to Ireland. This sensational on-the-spot engineering feat was the talk of the times and diagrams of it were printed in newspapers and scientific magazines.

Nothing but misfortune had attended the ship. She was to damage or sink ten ships in her short lifetime.

Fitted out with new gear she sailed again. On her way back from America she grossed \$225,000. Perhaps she was on the way to becoming solvent.

On her return to America with a great list of 820 passengers, she ripped her bottom near Long Island. The hole was as large as many ships—83 feet long and nine feet wide. The rock that ripped her was christened ever after with the name of its victim—Great Eastern Rock.

No one could conceive how such a tremendous hole could be repaired. Two men, the Renwick brothers, walked into the ship's office and offered to repair the ship—which they did with a 100-foot cofferdam.

She was now bankrupt to a tune of \$5,000,000. No one ever thought to use her for what she would have been most profitable—long-distance voyages to the Orient.

In 1865 the Great Eastern was commissioned to lay a cable across the Atlantic. Cyrus Field, the American industrialist who lost \$2,250,000 on two previous attempts, thought surely the huge ship could succeed where others had failed. The Great Eastern would receive nothing if the venture failed, but a fortune in stock if the cable was laid.

The cable laying went smoothly, with only a few backups for damaged wire in 1186 miles. But suddenly the cable snapped and disappeared sickeningly over the side in water three miles deep. They grappled for the line for seven days, but every time they hooked the huge cable their line broke.

Again the Great Eastern had failed. The ship returned to England again, but only to get more cable and more money. This time on July 27, 1866 they succeeded in laying the cable.

Her cable-laying days were over when the telegraph companies decided to build their own special cable ships.

In 1885 the ship was offered at auction. Bought as a coal tender for Gibraltar, she was rented out for a year to a department store which used her as a traveling billboard. She finally ended up as a museum for a shilling a look.

She was sold for \$80,000 and sadly limped to the scrap pile. This was the only time the ship was to pay off. An auction was held for the ship parts. It brought in \$290,000. Besides the giant machinery parts and metal which brought in the greatest price, all its furnishings from bells to dishes sold like wildfire and probably now adorn thousands of homes in Britain.

In 1890 the ship finally gave up to ghost. The greatest ship of the sea had gone to Valhalla, perhaps with a bit of a bowed head for her ungracefulness. But ungracefully as she had reigned, she was indeed a Queen.

\*A freelance writer from Buffalo, N. Y.

Reprinted from *Seaports and the Transport World*.



View of hydraulic model showing luminous floats used on model to determine current velocities in the area of Ile Ste-Helene. The technician, shown at right, records current velocity with the help of a chronometer.

## In the St. Lawrence Ship Channel

# *More than 100 Years of Digging*

by Edouard Deslauriers

For 100 years and more the St. Lawrence Ship Channel has been swept, dredged, deepened and widened by all possible methods. Such work has gone on uninterrupted since 1844 and, in recent years, has been intensified by the development of the St. Lawrence Seaway and the increased use of the St. Lawrence River Ports by larger vessels.

In 1844 the Ship Channel—the section of river stretching approximately 300 miles from Les Escoumins to Montreal—had a depth of only 10½ feet in several places and an average width of 150 feet. Today, all along its course, the channel has a minimum depth of 35 feet and an average width of 800 feet, except in Lac Saint-Pierre and in the stretch from Vercheres to Montreal, which is now being widened. All this has been done at a cost of some \$150 million over the century.

Has the channel now reached its maximum depth? The answer is no, quite the contrary! Department of Transport engineers, at their Montreal and Ottawa office and at their laboratory in Ville LaSalle, are currently studying further improvements.

According to John Sylvester, the man in charge of the engineering field investigations section of the Ship Channel, the purpose of the studies is to find a way to attain the 39 foot level and to maintain it most of the time, allowing for a 35 foot minimum depth during periods of low water. "Such a situation," he says, "would enable us to meet today's navigation needs."

### History of the Ship Channel

For three centuries after Jacques Cartier discovered that the flats at the upper end of Lac Saint Pierre were too shallow to allow ocean vessels to proceed westward, nothing was done to improve navigation between Quebec City and Montreal.

Records show that in 1824, only 55 of the 613 vessels using the St. Lawrence River ventured as far inland as Montreal. Larger vessels had to stop at Quebec City. Goods destined for Montreal and points west were transferred to lighter vessels

for the remainder of the journey. For some this was, of course, a profitable enterprise and they opposed any plans to deepen the channel. Quebec was the official Canadian port of entry and it controlled the Port of Montreal.

In 1805 provincial legislation proposed the improvement of the navigable channel between Quebec City and Montreal, but such improvements were, it seems, limited to the installation of a few lighthouses here and there on the river.

It was not until 1844 that serious, concrete measures were finally adopted. A start was made on opening a channel, 14 feet deep, in a straight line across the shoals in Lac Saint Pierre. The project was abandoned three years later, however, when it was decided for reasons of economy to deepen and widen the existing channel which zigzagged through Lac Saint-Pierre.

## D.O.T.'s Ship Channel Division

St. Lawrence River traffic grows heavier year by year. In order to cope with the increasing traffic on the river, a special service of the federal Department of Transport has been given the task of keeping the channel open to traffic and to ensure the safe passage of vessels.

For several winters now, the department's icebreaking operations east of Montreal—carried out to minimize flood danger—have enabled ocean vessels to come into the Port of Montreal during the mid-winter months. Last year, for instance, more than a hundred vessels sailed in the channel during January, February and March.

Chief engineer of the ship channel operations is Herbert L. Land. He is assisted by Maurice Boudreau, in charge of operations and maintenance, and John Sylvester, heading the engineering field investigations section.

The ship channel division has four special vessels at its disposal—the Detector, the Frontenac (which is to be replaced by a new vessel, the Nicolet, next year), the Beauport and the Ville-Marie. Five landing craft are also in use. When required, the icebreaker CCGS Ernest Lapointe is put into service for ship channel work.

All these vessels are equipped with the most up-to-date equipment for detecting obstructions to navigation in the ship channel. The instruments, which are able to take a complete sounding of the river bed, determine the quality of the soil and the exact position and height of any obstruction found at the bottom of the channel.

One of the most difficult tasks facing D.O.T. engineers is to provide a channel big enough for large vessels without a resulting lowering of the level of the water in the port of Montreal. Dredging to deepen the river bed in one place causes a lowering of the water level elsewhere. One possible solution now being studied by the engineers is the construction of dams and locks.

One of the main tools of the department in its engineering investigation work on the behaviour of the river is the hydraulic model located at Ville LaSalle. The model, a reproduction to scale of the St. Lawrence River, encompasses the course lying between Montreal and Becancour, a distance of 88 miles.

Constructed a few years ago at a cost of nearly one million dollars, the model is 800 feet long. The equipment which it comprises makes possible the reproduction, to scale, of all situations existing in the ship channel itself. The model studies

are the responsibility of the hydraulic studies division under R. H. Smith. C. J. Lawrie is the supervisor of hydraulic laboratory activities.

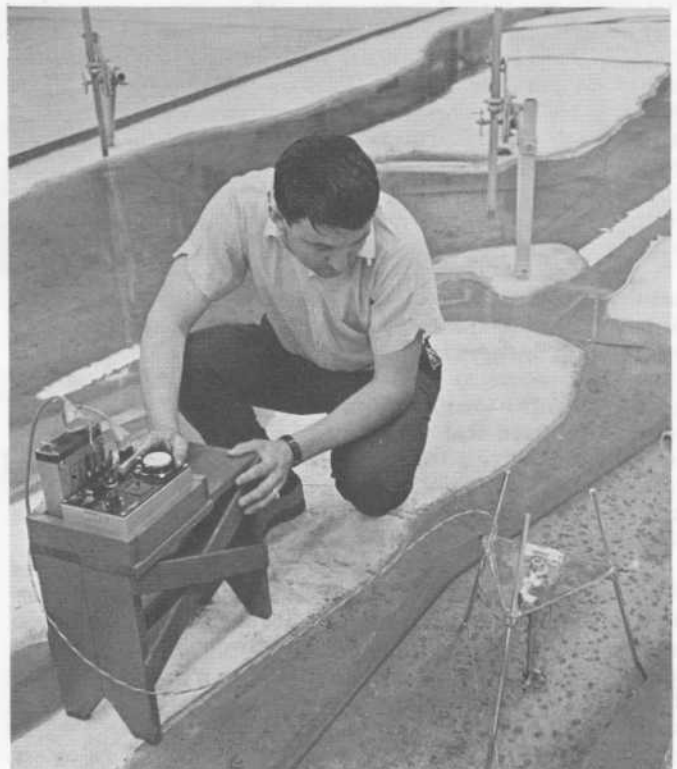
Engineers worked for two years prior to the construction of the model collecting data on the form and depth of the river bed, the exact position of islands, constructions along the course, as well as soundings, detail on water and the velocity of the current. All of this data has been built into the model making it possible to study the behaviour of the river from all aspects and under all conditions.

The model has been used in studies related to the initial development of the grounds for EXPO '67; for the Boucherville tunnel; and on the effects of closing various channels.

Other model studies have concentrated on possible control dams, which, along with other regulating structures in the river could probably raise by  $2\frac{1}{2}$  or 3 feet the level of low waters in the Port of Montreal.

Still with the help of the model, the possibility of widening the channel to 800 feet from Vercheres to the Canada Cement Wharf at Montreal was studied. While such studies showed the widening would result in lower water levels in the Port of Montreal, it was realized, that unloading fill in certain strategic locations would re-establish the level in the port and could even raise it to a higher level.

So, even though work in the St. Lawrence River Ship Channel has been going on for more than 100 years, it would appear that present and future progress in navigation will require a continuing development program for, perhaps, another 100 years.



A laboratory technician gathers data on current velocity with the help of a recording directional current meter.

# Double Ceremony-

## *Launching and Christening For New CCG Weatherships*

by K. M. Parks,

Monday, July 4, was an important day for the Canadian Coast Guard. As the sun was setting, hundreds of people thronged the shipyard of Burrard Dry Dock Company Limited in North Vancouver. They were there to see the first of two new weather-oceanographic vessels, CCGS "Vancouver", officially being accepted for Canadian Coast Guard service, and a sister ship, CCGS "Quadra", being launched.

Gordon W. Stead, assistant deputy minister, marine, accepted "Vancouver" on behalf of the Department of Transport while Mrs. J. R. Nicholson, wife of the Minister of Labour, was sponsor of "Quadra".

The scene was an impressive one. The gleaming new "Vancouver", ship-shape and already undergoing trials, lay quietly in her berth beside the ways down which "Quadra" slid smoothly into the harbor after Mrs. Nicholson broke the traditional bottle of champagne against her towering bow.

The ceremony had an international flavor unique in the department's shipbuilding annals. Senor Carmelo Matesanz, representing His Excellency Javier Conde, Spanish ambassador to Canada, was present in recognition of the naming of the new ship after the Spanish navigator who, along with the English Captain Vancouver, explored the Canadian west coast in the eighteenth century. In an address at the launching, Labour Minister Nicholson referred to "Vancouver" and "Quadra" as ships of international importance, designed for none but peaceful purposes for the benefit of many nations. They are equipped, he said, with the most advanced scientific equipment for the purposes of meteorology and oceanography of any such ships now afloat.

In his remarks during the acceptance ceremony and speaking briefly at the reception which followed the launching, Mr. Stead referred to the far-reaching contribution the two ships would make in the field of research.

He paid tribute to the work that had been done over the years by the old weather ships, "St. Catharines" and "Stonetown". He noted that the two new ships had been designed, not only for peak efficiency in work, but with a degree of comfort and spaciousness of living accommodation that would be appreciated by crews who had to man the rough ocean station for weeks at a time.

J. W. Hudson, executive vice-president of the shipbuilding firm, was master of ceremonies at the launching. Rev. Father Simpson and Rev. Canon Stanley Smith, chaplain to the Mission to Seaman, Vancouver, blessed the new ship. Hon. Clarence Wallace, president of the Burrard Company, spoke briefly and expressed his firm's pride at carrying out the construction of the new vessels.

Mr. Wallace announced that the Department of Transport was presenting a model of the new weather ship to the Intergovernmental Maritime Consultative Organization headquarters in London, England, because the ships were leaders of their

type in the world and their work would have such international significance. He thanked the Spanish government, through Mr. Matesanz, for the gift of a commemorative plaque that would be placed aboard CCGS "Quadra" at a later date.

Mr. Matesanz, in a brief speech, made particular reference to the historic relationship of his country with Canada's Pacific coast and said he felt quite at home on the coast with its many traditional Spanish place names.

During the reception Mrs. Nicholson was presented with an inscribed silver tray as a memento of the launching.

An interesting sidelight was the presentation by Mrs. Arthur Laing, wife of the Minister of Northern Affairs and National Resources, of a picture of Captain George Vancouver to Capt. Lingard, master of CCGS "Vancouver". Mrs. Laing was sponsor of that ship when it was named.

CCGS "Vancouver" and CCGS "Quadra" are identical ships and are the longest vessels in the Canadian Coast Guard fleet. They measure 404 feet, three inches in length, are 50 feet wide, have a depth of 30 feet, six inches from the upper deck and draw 17 feet, six inches of water. Each has a load displacement of 5,530 tons and is powered by turbo-electric engines with oil fired boilers, developing 7,500 shaft horsepower. They have a maximum speed of 18 knots and range of 8,400 nautical miles at 14 knots.

They were designed by G. T. R. Campbell and Company, naval architects, of Montreal, to the requirements of the department's shipbuilding, meteorological and telecommunications and electronics branches as well as those of the Department of Mines and Technical Surveys and the Pacific Oceanographic Group at Nanaimo, B.C.

The hull and superstructure forms were achieved following extensive model testing at the National Research Council laboratories, to ensure the smooth operation needed in ships housing a great deal of delicate scientific equipment. Their speed will enable them to reach Ocean Station "Papa" with a minimum of delay and will also be of importance in instances when they are involved in search and rescue work. Each has a bow water jet reaction steering system for low-speed manoeuvring, as well as Flumetype anti-rolling tanks to make them steadier in heavy seas.

Both ships will have recreation and hospital facilities and will be fully airconditioned. Each will have four radio-equipped lifeboats, an oceanographic launch and workboat. Total complement of each will be around 96 persons, including 15 technical officers such as meteorologists, oceanographers and electronics technicians.

CCGS "Vancouver" will be undergoing equipment trials of various types until some time in October, when she will replace one of the present weather ships. CCGS "Quadra" is expected to be completed in the spring of 1967. The two ships were built at a total cost in excess of \$20,000,000.



## First Moving Sidewalk Installed At Montreal International Airport

The first of four speedwalk passenger conveyors for Montreal International Airport was operating early in August. It is located at the incoming section of the international tunnel.

The 450-foot moving sidewalk helps passengers arriving from overseas to move quickly from the aeroquay to the immigration, health and customs facilities in the main terminal building. It travels 120 feet a minute, or one-and-one half miles an hour, about half the average walking speed, so that a passenger walking on the belt takes little more than a minute to pass through the 500-foot tunnel.

The three other speedwalks in the \$800,000 contract are expected to be completed this fall. They include one in the departures section of the international tunnel and two 475-foot units in the domestic tunnel. These latter will be the longest moving sidewalks in any airport in the world.

The conveyor belt of the first installation is 43 inches wide, with a grooved carrying surface of neoprene rubber. It is steel-reinforced to ensure lateral rigidity and is carried on closely-spaced rollers under the edges.

# Retirements

*Herbert L. Elliott*, senior steamship inspector at Victoria, retired early last summer after 18 years with the department.

For many years Mr. Elliott was an engineer on the China Coast. During the Second War he had a distinguished career with the Royal Canadian Navy and, while serving as engineer commander on H.M.C.S. Uganda, he received the O.B.E.

In 1948 Mr. Elliott joined the steamship inspection service in Vancouver, transferring three years later to Victoria. In November 1962, he became senior steamship inspector.

Mr. Elliott was honored at a luncheon by local marine business associates and was presented with a wrist watch. As well, on behalf of his friends and co-workers in Victoria and Vancouver, R. G. Boomer, divisional supervisor, presented him with a gift.

*Joseph L. Doucette*, engineer on the CCGS "Thomas Carleton", retired recently after 47 years of government marine service.

Mr. Doucette joined the CGS "Aberdeen" as a seaman in 1920. Four years later he transferred to the "CGS Dollard" as a fireman and oiler. In 1954 he was oiler aboard the CCGS "Walter E. Foster", and transferred to the Carleton as engineer in 1960. The Order of the British Empire was conferred on him after the Second War.

"Following the sea is a good life", says Mr. Doucette.

A handy man with tools, Mr. Doucette is well-known for his wood carving, in particular the birds he makes. He plans to devote a lot of his new found leisure time to carving and boat building and also to fishing.

*M. Joseph L. Doucette*, mécanicien à bord du n.g.c.c. «Thomas Carleton», a



J. L. Doucette photographed shortly before retirement.



R. G. Boomer, divisional supervisor, Vancouver with Mr. and Mrs. H. L. Elliott.

pris sa retraite récemment. Il a passé 47 ans de sa vie dans les services de la marine du gouvernement canadien.

Il a commencé sa carrière comme marin, en 1920, à bord du navire canadien «Aberdeen». Quatre ans plus tard, on le retrouvait à bord du «Dollard» où il remplissait les fonctions de graisseur et assumait d'autres responsabilités relevant du domaine de la mécanique. En 1954, il est transféré au «Walter E. Foster». Enfin, en 1960, il est promu mécanicien à bord du «Carleton».

«Il n'y a rien de plus agréable que la vie en mer», soutient M. Doucette, qui conseille aux jeunes de joindre les rangs de la Garde côtière canadienne.

Un passe-temps favori de M. Doucette est la sculpture sur bois. Il se propose maintenant d'y consacrer plusieurs heures de ses loisirs.

*J. T. Vallières*, at a gathering held in his honor, Mr. Vallières received gifts and best wishes from his co-workers. Chief Commissioner of the board, Mr. Rod Kerr, Q.C., and Mr. C. W. Rump, Secre-

tary of the board, both paid tribute to Mr. Vallières' efficiency, loyalty and the esteem in which he was held by his colleagues.

*M. J. T. Vallières*, employé de la Commission des transports du Canada, a pris sa retraite récemment après 46 ans de service.

M. Vallières est entré à l'emploi de la Commission comme messenger en 1920. Il a gravi les échelons pour en arriver à assumer la direction de la gestion des dossiers de la Commission, poste qu'il occupait au moment de sa retraite.

A l'occasion d'une fête en son honneur, on lui a remis quelques cadeaux-souvenir accompagnés des meilleurs vœux de ses compagnons de travail. Les présentations ont été faites par le commissaire en chef, M<sup>r</sup> Rod Kerr, c.r., qui a rappelé les loyaux services rendus à la Commission par M. Vallières au cours de sa longue carrière. Le secrétaire de la Commission, M. C. W. Rump, a aussi pris la parole.



Left to right: Mr. C. W. Rump, Mrs. Vallières, Mr. Vallières and Mr. Rod Kerr, Q.C.

# CCGS "Nicolet" Joins the Fleet



"Another new ship for the Canadian Coast Guard", read the newspaper headlines on Saturday, August 20, when the new sounding vessel CCGS "Nicolet" slid down the ways at Collingwood Shipyards, rocked wildly in a small tidal wave of her own making, and then settled down to await the finishing touches.

"Nicolet", which will be a replacement for the veteran CCGS "Frontenac" in the St. Lawrence Ship Channel service, was sponsored by Mrs. D. M. Ripley, wife of the department's director of marine hydraulics. Mr. Ripley, along with Mr. Gilles Sicotte, assistant deputy minister, general, and several senior marine services officials from headquarters, were present for the ceremony. From Montreal came Mr. Maurice G. Boudreau, deputy to the chief engineer, St. Lawrence Ship Channel, accompanied by District Marine Agent Noel Paquette of the Sorel Agency.

The launching took place at noon, with the vessel being blessed by Rev. Philip Downer, rector of All Saints Anglican Church. Guests attended a reception in the shipbuilding firm's headquarters building, followed by a dinner.

Alec Webster, general manager of the shipyard, was chairman for the ceremony. He presented a handsome hand-carved cigarette box, on which will be mounted the cork from the champagne bottle used in the launching, to Mrs. Ripley along with an engraved silver tray, to commemorate the occasion.

After Mrs. Ripley had expressed her thanks to the builders, Mr. Ripley spoke briefly recalling the historic background of the pioneer French explorer Nicolet, for whom the ship was named. The vessel, he pointed out, was aptly named for it would be "exploring" the channel of the St. Lawrence in the interests of safe movement of shipping.

Rev. W. A. Downer, M.L.A., Reeve L. McKeen, acting on behalf of the municipality, and Herbert E. Smith, Q.C., M.P., also addressed the gathering, paying tribute to the work done by the Canadian Coast Guard and the Transport Department's marine services in general.

Constructed at a cost of \$2,323,962, the "Nicolet" is a twin

propeller diesel engine vessel similar to CCGS "Beauport" which has been in service with the ship channel division since 1961.

It measures 166 feet, 6 inches in length and is of all-welded steel construction, strengthened for navigation in ice.

### Principal Particulars

Length, overall.....	166' 6"
Breadth.....	35' 0"
Draft, loaded.....	9' 6"
Speed, Maximum.....	13 knots
Shaft Horsepower.....	1,350
Displacement, loaded.....	850 tons
Crew.....	32 persons

The Nicolet has a "plotting station" as well as special depth recording apparatus, for the specific purpose of recording and plotting soundings in the St. Lawrence Ship Channel and adjacent waters. This recording is done by a remotely controlled electro-hydraulic winch allied with the traditional sounding boom, which continuously transmits soundings through an electro-mechanical linkage to the automatic recording apparatus in the "plotting station".

The propulsion system consists of two diesel engines, each of 812 brake horsepower continuous rating, driving twin reversible controllable pitch propellers through reduction gears and hydraulic couplings, to provide a total of 1,350 shaft horsepower at the propellers.

This vessel has an interesting feature: The main engines, propellers and steering can be remote controlled from consoles situated in the wheelhouse, plotting station and bridge wings. The latest electronic and telecommunication equipment will be fitted, including special shallow shaft draft echo sounding apparatus.

The accommodation provides single cabins for officers and engineering staff and double cabins for crew. Excellent messing, catering and recreational facilities are provided.

# *Canadian Coast Guard Reports Growing*



Canadian Coast Guard ship rescuing Survivors of French ship DOUALA which sank in Atlantic storm.



# List of Search and Rescue Incidents

- "Assisted in extinguishing fire aboard fishing vessel.
- "removed sick lightkeeper from lighthouse.
- "searched for victims of collision at sea".

So ran the long and growing list of marine search and rescue incidents handled by the Canadian Coast Guard as boating activity, both commercial and pleasure, reached its summer peak across Canada.

The Coast Guard provides the principal marine element in Canada's air-sea rescue operations, in support of the over-all responsibility of the Royal Canadian Air Force. Its 60-odd red and white ships, from the largest icebreakers down to small rescue launches, have been active in rescue undertakings during the past year. Between July 1, 1965 and July 1, 1966 they have taken part in more than 500 such incidents.

On the Atlantic and Pacific coasts and in the Gulf of St. Lawrence the ships are called on to aid stricken vessels or carry out other mercy missions the year round. In the Great Lakes, the rush of activity comes during the months of navigation. On the West Coast and in the Great Lakes, where there is a great density of pleasure boating, the Coast Guard ships have to cope mainly with mishaps involving yachts and small pleasure craft. The activities of the D.O.T. fleet, where search and rescue undertakings are concerned, are directed by three rescue officers stationed at search and rescue centres maintained by the RCAF at Halifax, N.S., Trenton, Ont., and Vancouver, B.C.

During the year the ships responded to 97 distress calls in Atlantic and Gulf waters involving sea searches, fire-fighting, provision of emergency medical aid, evacuation of accident victims, assistance with emergency mechanical repairs and towing helpless craft to safety.

In most cases, the Coast Guard ships acted in co-operation with search and rescue aircraft of the RCAF, which usually are sent out upon receipt of a distress signal to locate the victims and direct Coast Guard or other nearby ships to the scene. All ships in the vicinity of a marine accident are required by law to lend assistance as needed. When a number participate, the senior master of the participating Coast Guard vessels acts as searchmaster at the scene.

Among notable incidents in eastern waters was the rescue in late June of three boys adrift at sea in a rowboat with broken oar-locks. They were located by the RCAF and picked up by CCGC "Rapid". CCGC "Rally" took part in the search for victims of the disastrous collision in mid-June between the foreign flag motor ship "Bordapian" and the Nova Scotia fishing boat "Reliance", in which most of the fishing boat's crew lost their lives.

In July the icebreaking cable repair ship CCGS "John Cabot" went to the aid of an oil drilling vessel with crippled engines 150 miles south of Newfoundland. The cable ship stood by while temporary repairs were made and a commercial salvage ship could reach the scene. On a number of occasions, accident victims have been removed from fishing vessels at sea and taken to hospital in the nearest port. Helicopters carried aboard the larger Coast Guard ships have proved of great importance in these operations. Greatest single source of distress calls was from fishing vessels with engine failure.

On the Pacific Coast, booming summer pleasure boat activity is added to the heavy coastal transportation and fishery traffic. In British Columbia waters the Coast Guard took part in 346 marine search and rescue operations in the year. Of that number, 50 per cent involved pleasure craft, 28 per cent involved fishing vessels and 22 per cent were concerned with other ships.

The small inshore rescue launches, "Moorhen" and "Mallard", responded to 166 calls, almost all involving pleasure boaters in trouble; the two 95-foot cutters, CCGC "Ready" and CCGC "Racer", answered 112 alerts; the lifeboats at Bamfield and Tofino took part in 58 rescue undertakings and other Coast Guard ships participated in 10 operations.

The West Coast operations included the location and rescue of persons adrift in helpless craft, assistance to large deepsea vessels in distress, upsets and other mishaps involving small craft and the transfer of marine accident victims from ships to hospital care ashore. The Bamfield and Tofino lifeboats are shore-based and their crews put out to sea most of the time in the face of conditions such as only the stormy north Pacific can produce on Vancouver Island's outer shores.

The Search and Rescue Centre at Trenton, Ont., recorded 77 marine search and rescue incidents between July 1, 1965, and May 31, 1966, in most of which the ships of the Canadian Coast Guard played a part.

The cutter "Relay" was on hand, along with a commercial vessel, to assist the pulpwood carrier "Prince Quebec" when an explosion ripped the ship in mid-lake Ontario. The crew was rescued and the ship, kept afloat by her cargo of pulpwood, was towed to Rochester, N.Y.

CCGC "Spray", one of three 70-foot cutters serving on the Great Lakes, assisted a Toronto harbour fireboat in fighting a serious fire aboard the freighter "Orient Trader". "Spray" was also on the job when a large yacht was rendered helpless after her propeller became fouled and a scuba diver, member of "Spray's" crew, was able to free the blades.

"Relay" rescued the owner of a yacht that exploded while en route from Youngstown, Ohio, to Toronto. He was found, badly injured, adrift on a life raft and taken to hospital in Toronto. Most of the incidents in Great Lakes waters involved private pleasure craft.

There were a number of incidents, other than those in which the Coast Guard participated, in areas such as Toronto and Hamilton harbours and other waters where local rescue squads responded to calls.

# 25 D.O.T.'ers Receive Blood Donor Certificates

The Red Cross Blood Donor service has issued merit scrolls to 25 headquarters employees, for each having given 20 or more donations to help save lives.

For many years these people have supported blood clinics by sharing their good health with others less fortunate. Some of these donors have passed the 40 mark, while one casual employee, Mrs. C. R. Plouffe of marine services' pilotage division, was

singled out for special attention by the Red Cross for having given more than 50 donations. She is to receive a special certificate at the annual regional meeting of the Red Cross.

The other certificates were presented late in August on five separate occasions by the assistant deputy ministers of marine and air services and by the directors of administration, personnel and transportation policy and research.

## Recipients were:

K. O. Angus,	marine regulations
Capt. F. J. Bullock	marine operations
A. G. Tuttle	marine works
J. W. T. McLusky*	Coast Guard College, Sydney, N.S.
H. C. McCauly	Construction, engineering and architectural
L. R. Saunders	Construction, engineering and architectural
W. P. Wetherall	Construction, engineering and architectural
C. A. Sager	Telecommunications and electronics
G. Wintermeyer	Telecommunications and electronics
A. Tilley,	airport & field operations
L. P. Emmell	civil aviation
D. A. Murdock	civil aviation
J. E. Walsh	civil aviation

## Recipients were:

R. G. Armstrong	records
Miss A. Zinkham	records
L. Jackson	purchasing
G. Duncan	Stores
J. W. M. Gazeley	Personnel
Miss A. Raskob	Personnel
P. A. Carter	staff relations
F. H. Edwards	training and development
E. W. Howe	training and development
D. H. Marko	Transportation policy and research
G. G. McLeod	Transportation policy and research

In addition to the above, two members of the staff of the aviation statistics bureau (now part of the Dominion Bureau of Statistics) received similar certificate. They are Mrs. Velma Rust and J. Bekody.

\*presented at Sydney, N.S.

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## Vacation Daze

by

Don McKinnon

Radio Engineering  
Telecommunications Branch

"Down to the sea in ships" is a refrain that runs through my head and is, I believe, part of a line from a well known poem for mariners. One August day while basking in the sun on the sand at St. Georges Bay, Cape Breton, I watched a helicopter leap up from the sea from a ship and would that I could utter the thoughts that arise in me—that's from another poem, Bud!

For some years now my family and I have relaxed away our vacations at Seaside, Cape Breton Island. This hamlet boasts of having the best and safest beach on Cape Breton and for more than 15 years I have taken up my position on this lovely, uncluttered stretch of sand and washed away my aches and pains in the warm waters of St. Georges Bay.

This particular day I speak of, relaxed and supine in the hot sun, I was lazily watching a large vessel cruising through the sea across my range of vision when out of her bowels leaped this crazy bird—a helicopter. No doubt doing her duty, this bird

skimmed here and there with such ease that I began to take some interest in her activities. After darting from ship to shore back and forth across the water, to everyone's surprise she came and gently settled to earth near the canteen adjacent to the beach. Two mighty men from another world leapt out and ducking under the whirling blades disappeared inside the canteen.

The bird was almost instantly surrounded by every man, woman and child in the area wanting to inspect and photograph this wonder of wonders from outer space. Proudly we viewed the bright, clean Canadian flag painted on her side above the words "Canadian Coast Guard". All too soon the men returned and climbed into their wonderful bird and, while we all waved, with a mighty roar straight up she went and swiftly returned to her home on the sea.

We poor land-bound souls, clutching our cameras, slowly returned to our relaxed positions on the beach to ponder the wonders of travel by air and by sea.

# Two Receive \$75 Suggestion Awards

In recent months two D.O.T.'ers have received \$75. cash awards for worthwhile suggestions submitted to the Public Service Suggestion Award Plan.

Miss Evelyn Smirle, a secretary in air services branch, headquarters, advanced the suggestion that Hansard, the House of Commons debates, carry a separate contents page with nothing else printed on the back. She pointed out that for various rea-

sons government offices have occasion to separate issues of Hansard for circulation to various employees and it was not possible to do so if material appeared on both sides of certain pages.

Her suggestion was adopted by the legislative services section of the House of Commons and she subsequently received a cheque and certificate of achievement.

An administrative officer at meteorological branch headquarters, J. R. F. Judd recommended that double-walled corrugated cartons be used for shipments instead of wire-bound cartons or wooden boxes. His idea was tried out and is now being used wherever practical since it results in considerable savings. Mr. Judd, too, received a cheque and certificate.

Other recent winners include:

Name	Position	Location	Amount
J. L. Des Biens	radio operator	Beaumont, P.Q.	\$10.00
J. R. Ferguson	technician, electronics	Montague, P.E.I.	10.00
H. J. Karl	technician, meteorological	Vancouver, B.C.	10.00
K. L. Leek	technician, meteorological	Winnipeg, Man.	15.00
F. P. Luetzger	air traffic controller	Abbotsford, B.C.	10.00
J. B. MacPherson	technician, meteorological	Halifax, N.S.	10.00
W. B. Mitchell	airport manager	Terrace, B.C.	25.00
E. D. Smiley	technical officer	Ottawa, Ont.	20.00
W. G. Williams	airport mechanic	Yarmouth, N.S.	20.00
J. O. Wood	communicator	Montreal, P.Q.	10.00

## Economy Ice Cube for Giant Cocktail Parties

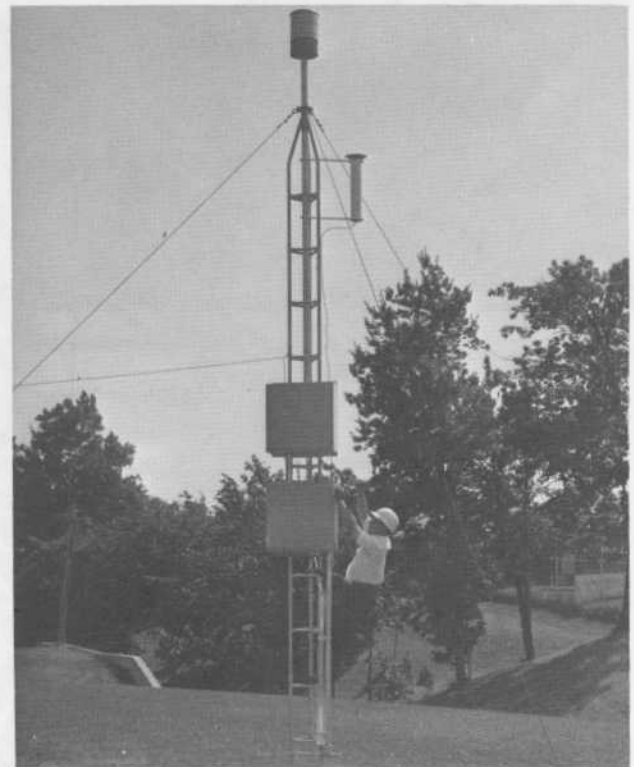
Léo Fréchette, ship's clerk aboard the CCGS "C. D. Howe", tells of sighting an iceberg in Davis Strait on August 9.

Mr. Fréchette has been going North on Arctic resupply trips every summer for the past 12 years, so he is familiar with icebergs, but the one seen that day surpassed any he had seen before.

The berg appeared to be perfectly square, like an ice cube. When measured with a sextant it proved to be 1,080 feet long with 200 feet showing above sea level. Since approximately only one tenth of an iceberg appears above the surface, the total height of this one must have been about 2,000 feet. Mr. Fréchette estimated its weight to be about 9,000,000 tons.

He contends a cube that big would cool a lot of drinks!

## Novel Weather Tower



Meteorologist Dave Colwell, project engineer with the net branch research and development section, Toronto, inspects a novel weather tower designed by the section for use in the Columbia river basin, British Columbia. The tower, which will be installed this fall, will record precipitation, temperature, and snow depth. This information will be sent to a receiving station by means of radio.

## Canadian Coast Guard ALBUM



CCGS "Wolfe" is a fully strengthened icebreaker, operating out of the Department of Transport Marine Agency at Charlottetown, P.E.I. She serves in Arctic waters during summer resupply operations and in winter assists shipping in the Gulf of St. Lawrence.

### CCGS "WOLFE"

LENGTH: 220 feet

BREADTH: 48 feet

DRAFT: 16 feet, four inches

POWER: Steam; two Skinner-Unaflo engines, each developing 2,000 rated horsepower.

GROSS TONNAGE: 2,022