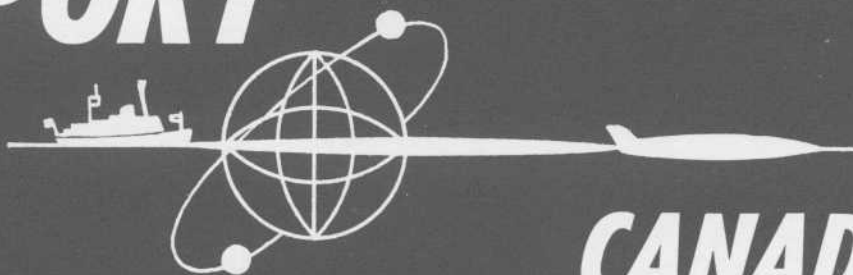


# TRANSPORT

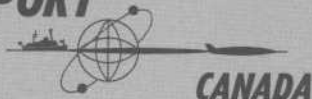
MARCH-APRIL • 1969 • MARS-AVRIL

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# CANADA



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**COVER**

The cutter CCGS *Moorhen* races into the frame of a lifting device aboard her sistership, CCGS *Racer*.

**FRONTISPICE**

Le cotre «Moorhen», navire de recherches et de sauvetage de la Garde côtière, paraît dans l'embrasure d'un levier sis sur le pont arrière du n.g.c.c. «Racer».



## Greetings

On taking up my new appointment, I should like to extend my best wishes to all members of the Department. Regrettably I have not yet had a chance to meet very many of you, but I am hoping to do this in the course of the weeks ahead. The Department of Transport has a long standing tradition in Canadian public service, and I am very proud to have an opportunity to be associated with it. Transportation has played a vital role in the development of our country and may have an even more important role to play in the future. It has also been a great force for unity within our country and this role will be as important in the future as in the past. I look forward to joining you in maintaining the high standards of performance of the Department and meeting the new challenges of the future.

## Heureux d'être avec vous

Au moment d'assumer mes nouvelles fonctions, je voudrais offrir mes meilleurs vœux à tous les membres du personnel du Ministère. Je regrette de ne pas avoir eu l'occasion de rencontrer un plus grand nombre d'entre vous, mais j'espère le faire au cours des prochaines semaines. Le Ministère des Transports a établi depuis longtemps des traditions au sein de la fonction publique canadienne et je suis très fier de l'occasion qui m'est donnée de m'y associer. Le transport a joué un rôle vital dans le développement de notre pays et il peut être appelé dans l'avenir à jouer un rôle encore plus important. Il a été aussi un facteur essentiel d'unité pour notre pays et il continuera de jouer ce rôle dans l'avenir. J'envisage avec plaisir de me joindre à vous pour maintenir les normes de rendement élevées du Ministère et faire face aux nouveaux défis que nous présente l'avenir.

*Le sous-ministre*

O. G. STONER

*Deputy Minister*

# AU REVOIR, M. BALDWIN

Plus de 300 membres du personnel des Transports se sont réunis à l'hôtel Skyline d'Ottawa, en fin de décembre, pour saluer le départ du sous-ministre John R. Baldwin qui vient d'assumer la présidence d'Air Canada après 15 ans au ministère.

Il y a eu des discours, des présentations et surtout un ressassage de vieux souvenirs. M. Baldwin lui-même en avait quelques-uns à rappeler ainsi que ceux qui lui rendaient hommage.

Une des plus amusantes anecdotes de la soirée a été racontée par le ministre Paul Hellyer.

Il paraît, d'après M. Hellyer, que M. Baldwin, voulant un jour mêler un peu le plaisir aux affaires, décide de faire une inspection du réseau de canaux du Rideau et de la Trent. A cette fin, il se choisit une petite embarcation démodée, usée, fatiguée, et même, dit-on, sur le point d'être mise à la retraite. L'embarcation n'était définitivement pas en bon état et était difficile à manoeuvrer, particulièrement à basse vitesse. Comme seul membre d'équipage, M. Baldwin avait emmené son fils.

Or, il paraît que la petite embarcation a fait une entrée plutôt boîteuse dans une écluse de la Trent, heurtant même les murs au passage. Le maître-éclusier, témoin de l'incident, n'a pas hésité à dire au «capitaine» de l'embarcation ce qu'il pensait de cette façon de manoeuvrer. Il

ne se serait pas non plus servi d'un langage des plus raffinés pour transmettre son message.

M. Baldwin aurait tenté de s'expliquer, mais il n'y avait pas moyen de faire taire le maître-éclusier qui en avait long à dire sur ce qu'il pensait du «capitaine» et de son embarcation. Finalement, d'un air piteux, le sous-ministre a dû s'excuser et promettre d'être plus prudent à l'avenir.

Et, de continuer le ministre, le maître-éclusier n'aurait peut-être jamais soupçonné qu'il avait ainsi réprimandé un sous-ministre si le jeune fils de M. Baldwin n'avait pas par la suite raconté l'incident au surintendant des Canaux, M. George Easton.

Natif de Toronto, M. Baldwin a décroché son baccalauréat ès arts de l'Université McMaster en 1933. Il est également boursier de la Fédération des anciens de l'Université de l'Ontario (1933-1934).

Il a obtenu sa maîtrise ès arts en 1934, et, la même année, il était proclamé boursier de la Fondation Rhodes. Il a ensuite séjourné à l'Université d'Oxford de 1934 à 1937. C'est là qu'il a décroché en 1936 son baccalauréat ès lettres.

En 1937, il devenait membre de la faculté d'histoire de l'Université McMaster. L'année suivante, il était nommé secrétaire de l'Institut canadien des affaires extérieures, poste qu'il a occupé jusqu'à

son entrée au ministère des Affaires extérieures, en 1941.

Muté au secrétariat du Cabinet, bureau du Conseil privé, en 1942, il a agi comme secrétaire adjoint du Comité de guerre du Cabinet, et par la suite, comme secrétaire adjoint du Cabinet, de 1943 à 1948.

Nommé président de la Commission des transports aériens en 1949, M. Baldwin est demeuré à ce poste jusqu'à sa nomination comme sous-ministre des Transports, le 1<sup>er</sup> juillet 1954.

Au nombre des organismes et groupements qui ont déjà bénéficié de ses services ou auxquels il s'intéresse encore activement, il y a le sénat de l'Université McMaster, la Fédération des oeuvres d'Ottawa, l'Orchestre philharmonique d'Ottawa, le Cercle universitaire d'Ottawa, le Club Kiwanis, l'Association canadienne des sciences politiques et l'Association canadienne d'histoire. Ses passe-temps favoris sont le ski, la navigation de plaisance et la cuisine.

Marié en 1944 (à Dorothy M. Pearson), M. Baldwin est père de trois fils, John Russel, Brian Richard et Blair Christopher. Ils étaient tous de la fête au Skyline en compagnie de M. et Mme Baldwin.

Au nom du personnel, M. D. A. McDougal, adjoint exécutif du sous-ministre, a présenté à M. Baldwin un appareil de télévision en couleur.

# FAREWELL, MR. BALDWIN

More than 300 staff members from headquarters gathered in Ottawa's Skyline Hotel recently for an affectionate farewell to John Russel Baldwin, who headed the department as "D.M." for close to 15 years before his appointment as president of Air Canada last December 15.

There were speeches, presentations and plenty of reminiscing, both by Mr. Baldwin and those who had turned out to pay tribute to him.

One of the best stories was told by Transport Minister Paul Hellyer.

It seems, recalled Mr. Hellyer, that Mr. Baldwin once decided to combine a little business with pleasure and take an inspection tour of the Rideau and Trent Canal systems. He picked up a small, little-used and unmarked vessel that barely floated and was due for retirement. It didn't run well and was almost impossible to steer at low speeds. For crew, he took along one young son.

Somewhere along the Trent system he barged his boat clumsily into a lock and bumped around a bit. A very salty lockmaster leaned over and filled him in verbally about what he thought of the vessel and its master.

Mr. Baldwin tried to explain about the steering difficulty. The air turned blue as

the lockmaster continued. Finally, with a slightly red face and promises to be more careful, the deputy minister continued his trip.

And, said Mr. Hellyer, the lockmaster probably would never have known he had chewed out a deputy minister, had not Mr. Baldwin's young son repeated the story to Canals Superintendent George Easton, as one of the funniest sights he had ever seen . . .

A native of Toronto, Mr. Baldwin earned his B.A. degree at McMaster University in Hamilton in 1933 and won the 1933-34 University of Ontario Alumni Federation Fellowship.

He earned his M.A. degree at the University of Toronto in 1934, was named Rhodes Scholar for Ontario the same year, and went on to study at Oxford University from 1934 to 1937.

A member of the faculty of history at McMaster for the next year, he was appointed national secretary of the Canadian Institute of International Affairs in 1938 and joined the Department of External Affairs in 1941.

Transferred to the Cabinet Secretariat, Privy Council Office, in 1942, he was assistant secretary of the Cabinet War

Committee and subsequently assistant secretary to the Cabinet from 1943 to 1948.

Appointed chairman of the Air Transport Board in 1949, Mr. Baldwin remained in that position until his appointment as Deputy Minister of Transport on July 1, 1954.

Mr. Baldwin's voluntary activities have included service on the Senate of McMaster University, with the Ottawa Community Chest, on the board of directors of the Ottawa Philharmonic Orchestra, as a member of Le Cercle Universitaire d'Ottawa, the Ottawa Kiwanis Club, Canadian Political Science Association, and the Canadian Historical Association. His hobbies include skiing, boating and cooking.

Married in 1944 to Dorothy M. Pearson of Ottawa, Mr. Baldwin has three sons, John Russel, Jr., Brian Richard, and Blair Christopher, all of whom attended the reception for Mr. Baldwin with their mother.

The Baldwins were presented with a color television set by D. A. McDougal, executive assistant to the deputy minister, on behalf of the staff of the Department of Transport.

*Le nouveau président d'Air Canada, M. Baldwin, au centre, est photographié au moment de la réception en son honneur en compagnie du ministre Paul Hellyer et du jeune Blair Christopher, fils du héros de la fête.*

Mr. Hellyer, Mr. Baldwin and his son, Blair, at Ottawa reception honoring our "D.M." on his appointment as president of Air Canada.



CCGS ESTEVAN

# a million miles under steam\*

by Thomas E. Appleton  
Department of Transport  
Marine Historian

In the opening years of the present century, the west coast of Vancouver Island was yet a remote and lonely place. As British Columbia developed, the few ships which had hitherto sailed the western boundaries, chiefly sealing schooners and small traders, were augmented by an increasing number of larger vessels. It then became necessary to provide aids to navigation.

Prominent among these aids, a first order dioptric light was established at Estevan Point in 1910. This powerful flashing light is mounted on a concrete tower which rises 125 feet above high water mark to guide shipping approaching the entrance to Nootka Sound, cradle of Pacific coast history.

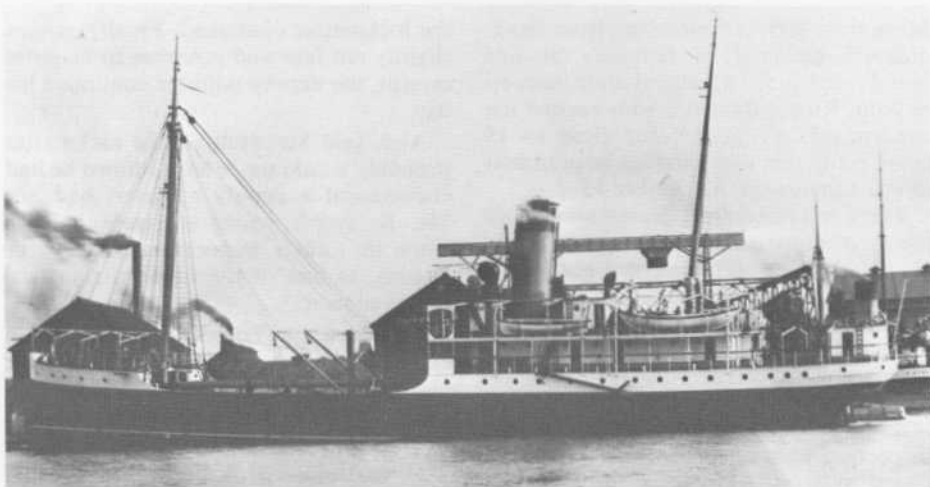
To serve this lighthouse and other aids established about the same period, it was decided to provide a powerful seagoing steamer which would work out of Victoria. At that time, although Canadian shipbuilders on both coasts had a long record of wooden construction, steel shipbuilding was relatively new and was mainly in the Great Lakes area. The new ship, ordered from the Collingwood Shipbuilding Company of Georgian Bay, was one of a number of first generation Canadian built government steamships.

The coming of the lighthouse at Estevan Point had fired the imagination of the west coast marine community, one poet being moved to write:

"The angry coast, the rocky reef,  
No more are feared by man  
And those that sail will never fail  
To praise the light of Estevan."

Appropriately enough, the new steamer, launched in the summer of 1912, was christened *Estevan*. The name commemorates a heritage stretching back much farther than the building of the light, for it honors the memory of Lieutenant Estevan Jose Martinez of the Spanish Navy, the officer who took possession of the locality on behalf of the King of Spain in 1789.

Martinez thus precipitated a period of grave tension between his country and Britain, known as the Nootka Affair,



which nearly came to war. As Captain Cook had originally discovered Nootka in 1778, the matter was extremely touchy in that age of imperial expansion.

Fortunately, and thanks largely to the friendly and diplomatic association of the men on the spot, Captains Vancouver and Quadra of the British and Spanish Navies respectively, cool heads prevailed and an amicable settlement was achieved. In continuation of this spirit, and notwithstanding that Cook had named the place Breakers Point in 1778, the Spanish name of Estevan Point was restored in the British Admiralty chart of 1849.

If it is fitting that the name of *Estevan* should be borne by a ship which is dedicated to the arts of peaceful navigation, her long and useful career has lived up to the spirit of the idea. Still in commission at the time of writing, but nearing the end of her days, the *Estevan* is a 212-foot twin screw vessel with reciprocating steam engines giving a speed of 12 knots.

Advanced for the period, the new vessel had a steel maindeck carrying heavy winches and derricks for lifting buoys in deep water, was fitted with electric light, internal telephone, and the then recently-introduced "wireless" telegraph apparatus. As to the accommodation, a report of the time states that:

*The Estevan at Collingwood in 1912, just before she sailed for Victoria by way of South America. Behind her and partially visible at right is the old Simcoe which was lost with all hands off the Magdalen Islands in 1917. The Simcoe's story is related in detail in "Usque Ad Mare," Mr. Appleton's history of the Canadian Coast Guard and Marine Services which is being published by the Department of Transport.*

(Photo courtesy Public Archives of Canada)

"Her staterooms and cabins are paneled in yellow pine, enamelled white, and all the officers' and seamen's quarters are furnished in the latest approved manner, and the vessel is classed at Lloyd's 100 A1."

After 57 years of hard service, the ship retains the dignity of the period. Wide decks provide ample room for handling buoys and heavy equipment; the dining saloon, right aft in the old-fashioned way, has transom seats and swivel chairs which, with comfortable upholstery, set off the table linen with its crystal and silverware. Still enamelled white, with mahogany doors, brass fittings and polished wood furniture, the accom-

\*We only work to the nearest million. Anyone who thinks it should be more or less is welcome to discuss it with the author. The Editors.

# Suppression of Hail in the U.S.S.R.



The *Estevan* today. After 57 years of hard service, the ship retains the dignity of the period in which she was built and the finest tradition of craftsmanship anywhere.

modation has a comfortable warmth and quietness typical of steamships.

While Collingwood was building the ship, supervision on behalf of the Department was exercised by their naval architect from Ottawa, Charles Duguid, and by Mr. Burns, chief engineer of the Marine Service ship *Quadra*, who was sent from Victoria to look after the machinery installation.

At that time, the Panama Canal was not quite ready for traffic, so the *Estevan* was routed for Victoria by the southern tip of the American continent. A crew was engaged for the voyage under the command of Captain A. A. Lindgren, a well known Pacific coast shipmaster, who specialized in long distance ship delivery and had successfully brought many of the coastal steamers to British Columbia from Britain.

Leaving Collingwood on the seventh of November 1912, the *Estevan* sailed through the Lakes and the St. Lawrence canals to take her final departure from Quebec. After coaling at Hampton Roads, Bahia and Montevideo, she arrived at the Chilean port of Punta Arenas. Here she was greatly admired by the marine authorities as being of a type highly suitable for attending to lights in Chilean waters and visiting officials expressed the intention of advising their government to build such a ship.

The next leg of the voyage lay through the desolate channels of the Magellan Straits, a tortuous stretch of pilotage which saves steamers from the longer ocean route around Cape Horn. Some 300 miles in length and twisting and turning among the high mountains by which it is surrounded, the passage is characterized by heavy squalls alternating with gloomy rain and calms.

Little used today because of the Panama Canal, the Straits were more difficult in 1913 when aids to navigation were poor and the shores were inhabited by primitive Patagonian Indians of uncertain intentions.

Only a few years previously, a famous navigator, Joshua Slocum, who sailed the sloop *Spray* singlehanded round the world, had experienced an exciting encounter

there when hordes of naked Indians boarded his little vessel in the quiet of the night and were repulsed by means of carpet tacks which the resourceful Slocum had scattered on deck. The *Estevan* was also boarded, but in a friendly way, as Capt. Lindgren stopped his ship to allow fleets of dugout canoes to come alongside for food, tobacco and clothing.

Eventually, by way of San Diego, the new lighthouse ship arrived at Victoria, on March 4, 1913, to be greeted by banner headlines in the *Colonist* newspaper—"ESTEVAN REACHES VICTORIA TODAY."

It was a proud moment for the Marine Service on the Pacific coast, the *Estevan* taking her place as the largest of a fleet of four belonging to the Department of Marine and Fisheries.

Capt. Lindgren left the ship on completion of his contract, handing over the command to Capt. Charles Barnes, lately of the *Newington*. The chief officer, also from the *Newington*, was Mr. W. Hallgren, while the chief engineer was Mr. Bell from the Grand Trunk Pacific steamship *Prince George*.

Some permanent places were filled from those who had come out from Collingwood, notably by Mr. Saul, the second mate, and Mr. Sutherland, the second engineer. Mr. Sutherland, who was promoted to chief engineer shortly afterwards, served in the *Estevan* for 22 years except for a period of war service in Mesopotamia as an officer with the Royal Engineers inland water transport.

After a refit at the Wallace Shipyard in North Vancouver, the *Estevan* sailed on her first supply trip, to Triangle Island lighthouse, on May 15, 1913.

Since then, in fair weather and foul, from the Strait of Georgia to the Gulf of Alaska, the *Estevan* has steamed nearly a million miles.

In early years, when aviation was unknown and communications of all kinds were limited, she would often be diverted to some remote settlement to embark a hospital patient or to deal with flood or fire.

In the endless round of lighthouse supply, while the *Estevan* lay offshore rolling in the Pacific swell, her boats would land food and fuel on many an exposed beach; in many places there is no beach

# a million miles under steam

and the boats would creep in to the cliff face, timing their approach carefully in the breakers, to sling the stores on the lighthouse derrick where the keeper would manhandle them up by winch.

For many families the *Estevan* was the only link with the outside world although the marine radio network, which was introduced when the *Estevan* was built, did much to break the utter loneliness. At Christmas, when the hearth and home of closely-knit lighthouse communities takes on a special meaning, the *Estevan* never failed to bring the mail and the seasonal supplies which, carefully ordered months before, had been assembling at Victoria as time wore on. Despite the weather, which could hold up operations for days or weeks, the families were always supplied in good order and it is claimed that the only item ever lost, a mail order piano which somehow came adrift in the boatwork, is not really lost for the boat's crew know where it is.

There have been many changes in the ship since building in 1912 but not all are apparent. The original marine boilers were replaced by the water tube type in 1935, they were fitted to burn oil instead of coal in 1958—the *Estevan* was one of the last coal burners on the Pacific coast—but the outward appearance is much the same and the feel of the broad deck planking recalls the vessels of another era.

Perhaps change is more apparent in conditions of service which, after two wars and the depression, are vastly different from those of 1913. Wages were then low, the master of the *Estevan* would get no more than \$130 a month, the crew about \$35 to \$40, but the dollar would buy much more.

However, for the crews of government ships in those days, there was no continuity of employment, no leave with pay and no pensions on retirement.

In the nineteen-thirties, when Canada lay inert under a blanket of depression, the wages of all on board were arbitrarily cut by 10 per cent. Petty reductions in complement were made by discharging the galley boy and the engineroom store-keeper and it was difficult to keep the ship in her usual state of upkeep due to this and the scarcity of consumable stores.

Looking back from today, such things seem remote or even trivial but they were

then the hard realities of life to many Canadians.

In the this climate of scarcity, rumors would fly about from time to time that the *Estevan* was doomed. A letter of 1933 to Ottawa anxiously enquires whether it is true that the *Estevan* is to be scrapped and replaced by a chartered steamer.

But times improved and, as they did, along came the Second War. When enemy submarines were sighted in the Pacific, the *Estevan* was fitted with a defensive gun aft but it was never used in anger.

In the postwar years, the *Estevan* took on a new lease of life and, when the former Canadian Marine Service was designated the Canadian Coast Guard in 1962, the black hull, white upperworks and buff funnel were repainted in the present red and white color scheme.

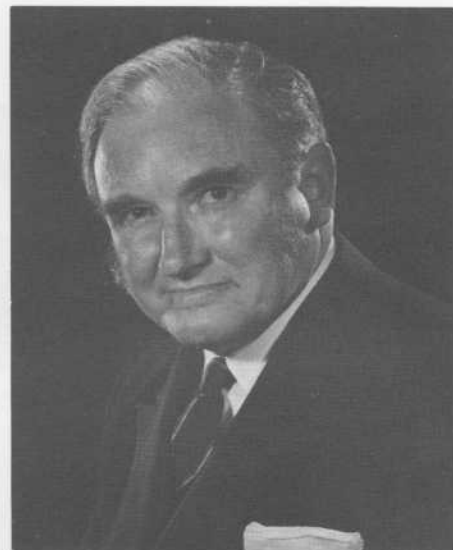
In personnel, of course, there have been many changes. Captain Barnes retired in 1922 to be succeeded by Captain H. R. Bilton. Since then, the vessel has been commanded in turn by Captains Hughes, Ormiston, Peterson, Davidson and the present master, Capt. R. D. Engelson.

In the engineroom, where Mr. Sutherland had been chief for 22 years, his successor was T. E. Morrison who, after long service in the Marine Service ships on the Pacific coast, eventually became the marine agent of the Department at Victoria.

As for the ship herself, it is easy to evoke a sentimental attachment. However, it would be ridiculous to suppose that no improvements in ship design and construction have taken place since 1912, and lighthouse tenders today, with their shipborne helicopters, radically different machinery and greatly-increased accommodation, are very unlike the steamers of old, both in appearance and in the feel of life on board.

Nevertheless, humans, and particularly sailors, have a way of baffling the planners of this life and in the crew's accommodation under the foredeck of the *Estevan*, much different from the efficient living quarters in more modern vessels, there is the much-loved comfort of an old shoe.

It will be long before memories of comradeship and service at sea will no longer be recalled by the name *Estevan*.



## ABOUT THE AUTHOR

Thomas E. Appleton, marine historian with the Department of Transport, has had long experience in the world of ships and shipping.

Since joining the Department in 1960 he has travelled widely on a variety of assignments, his most important being the writing, editing and publishing of his book "Usque Ad Mare", a history of the Canadian Coast Guard and Marine Services which is being published by the Department.

A lifelong student of marine history, the author started his career on deck as an apprentice in the merchant service.

He is a professional engineer and a member of the Engineering Institute of Canada.

Born in Scotland, Mr. Appleton was attracted early to small boat sailing and now owns an International Dragon Class yacht in Ottawa where, from 1965 to 1967, he was Commodore of the Britannia Yacht Club.

He spent the war years as an RNVR officer, in command of minesweepers and escort ships, and later served for six years on the active list of the Royal Canadian Naval Reserve.



# Suppression of Hail in the U.S.S.R.

by J. D. Holland,  
A/Supervisor,  
Physical Research Unit,  
Meteorological Branch.

*Mr. Holland spent two weeks in the U.S.S.R. during the past summer, studying Soviet hail research and hail suppression activities at the invitation of the Soviet Government.*



*A 100 millimeter gun used for firing silver iodide shells into hail clouds.*

Hail is a serious problem in many parts of Canada, particularly Alberta, where a hail research project has been in operation since 1956.

Sponsored by the federal and provincial governments with the Meteorological Branch playing a leading role, the project's aim is to acquire enough information about the nature of hailstorms to be able to reduce or suppress completely the damage they cause.

Reports from the Soviet Union over the past few years indicated that the Russians have already solved the hail problem, so it was that I found myself in the U.S.S.R. in July, 1968, along with Dr. W. Hitschfeld of McGill University, to discover just what was being done in the way of hail suppression there and whether the techniques being used might be applicable to Canada.

We were very well received in the Soviet Union where we were taken to five of the main hail suppression areas in the country, given the opportunity to talk to the scientists and other workers conducting their hail suppression program, to see their equipment and mode of operation, and be told of the results of their hail suppression work.

We were also permitted to take pictures, all our questions were answered and we were taken to talk to the farmers on whose

behalf the hail suppression work is being carried out, in order to learn their evaluation of the program.

In the five areas we visited, all in the vicinity of the Caucasus mountains, 1,940,000 hectares of farm land are being protected against hail. Since one hectare equals approximately 2½ acres, this figure is close to five million acres or 7,800 square miles.

In most of their work, the Russians are using artillery to fire silver iodide shells into hail clouds, but in some areas, rockets are being used instead of guns.

Sixteen hail suppression centres employing about 800 people and covering between 100,000 and 200,000 hectares each, were involved in the areas we visited.

Briefly, the hail suppression technique used in the U.S.S.R. operates in the following manner: Hail is presumed to grow in an "accumulation zone" in the cloud where the liquid water content is very high. The high liquid water content arises because of the vertical air currents reaching a maximum at the level of the accumulation zone and then falling off above that level.

The level of the accumulation zone with respect to the freezing level is very critical, since if it is too warm there will be no hail and if it is too cold there will likewise be no hail.

But if the accumulation zone is in the 0 to -20 degrees C level, hail can grow very rapidly. Zones of high liquid water content are identifiable on radar, and the U.S.S.R. technique uses this property.

In a highly refined technique, using radars at two wavelengths (3.2 cm and 10cm) they claim that by comparing the signal returned from the accumulation zone by the two radars they are able to make accurate positive identification of the presence of hail.

In actual practice, however, they are finding it more economical to identify the potential hail zone by means of 10 cm radar only. The identification of hail is less positive with only one radar, but the two-radar system is much more costly.

When potential hail has been identified by radar in the 0 to -20°C level in a cloud, the coordinates of the hail centre and its elevation are passed by radio or telephone to the gun or guns within range of the hail centre and they fire silver iodide shells to burst in the hail centre of the cloud between -6 and -10 degrees C. One hundred grams of silver iodide are contained in each shell, which, on bursting, provides 1015 crystals in the atmosphere per cubic kilometre to serve as potential hail nuclei. The addition of artificial hail nuclei to the cloud means that many hailstones compete for the liquid water pre-

sent in the cloud instead of the few hailstones naturally formed. The result is that the hailstones formed are much smaller and melt before reaching the ground.

As many as thirty silver iodide shells may be fired into an individual storm over a period of one or two hours or it may be necessary to fire only one. It is claimed that the effect of firing the silver iodide shell into the cloud is usually noticeable on radar within a few minutes.

Individual storm studies were presented showing how hailstorms approaching the protected area ceased hailing upon being seeded and resumed hailing again after seeding had been stopped.

Other studies showed storms which were broken up by a single shell and never resumed the production of hail.

Statistics were also presented showing the damage caused by hail in the protected area as compared with an unprotected control area both in years before protection began and in the years since. The statistical evidence indicates a decrease in hail damage under protection by 80 to 100 per cent.

Many arguments have been raised against the Soviet theory of hail formation, particularly the development of the accumulation zone, and the statistical analysis does not contain all the features which are desirable in such an evaluation. However, the results shown were very impressive and the scientific community seemed to be thoroughly convinced of the success of the technique.

We also had the opportunity to talk to representatives of the agricultural community in several areas, and found that officials of the Agricultural Administration ranging from Deputy Ministers to local administrators and managers of State Farms were all thoroughly committed to the method and completely convinced of its value and success.

The normal set-up in applying this technique to actual hail suppression is a central station equipped with two radars, which is the control station. The weather situation is monitored continuously, and when hail is forecast, the radars are turned on and watched continually for the development of hail echoes.

Each control centre covers a radius of approximately 40 km and is surrounded by 5 to 7 guns. Each gun covers a radius of 10 km, with the gun capable of firing a shell to a height of 4.5 km and to a distance of about 13 km.

The shells are set to explode by a timing device on the shell which explodes them at the appropriate spot in the cloud. A specially designed frangible casing ensures that residual particles will be too small to do any damage on reaching the ground.

In addition to our observation of the Soviet hail suppression activities, Dr.



A 100 millimeter gun and silver iodide shell used for hail suppression in the U.S.S.R.

Hitschfeld and I had an opportunity to observe many facets of Soviet life and had many interesting experiences.

We were met at the Moscow international airport by a receptionist and interpreter from the Hydrometeorological Service, who accompanied us during most of our time in Moscow. Here we met Dr. Kiziria, Head of the Weather Modification Department and Mr. Mazlov, Chief of the Foreign Division of the Hydrometeorological Service, who briefed us on the proposed itinerary for our visit and offered to make any special arrangements which we required.

We were also taken for a visit to the famed Moscow Circus, which both of us had missed on its North American tour.

After a short stay in Moscow, we flew by Aeroflot to Mineral'nye Vody, about 1300 km to the Southsoutheast, where we were met by a large delegation from the High Mountain Geophysical Institute including two interpreters and led by the Director of the Institute, Professor G. K. Sulakvelidze, the number one hail expert in the U.S.S.R.

The interpreters were particularly necessary, since neither Dr. Hitschfeld nor I spoke Russian, and very few of our hosts possessed any great facility in English.

As a result, all our talks were conducted through the interpreters, which made communication difficult and greatly lengthened the time required to give and receive ideas. However, the two young ladies who acted as our interpreters were very good in both languages and worked

long and hard to ensure the success of our visit.

From Mineral'nye Vody we were flown in a ten-passenger helicopter to Labinsk, one of the main centres of hail suppression in the North Caucasus. Here we spent four days at a field station situated on a hill some 10 or 12 miles from the agricultural town of Labinsk.

A cluster of small buildings consisting of dormitories, cook-house, weather office, briefing room, etc., plus several radars in trailers and three guns sitting on the hill constituted the nerve centre for hail suppression activities in the area.

At Labinsk, we were given briefings on all aspects of the hail suppression work: the theory of hail formation, the theory of suppression, hail forecasting, seeding technique, results of the hail suppression activities to date, experimental work in progress.

We were also shown the radars, briefed on the method of identification of hail in clouds by radar, shown the guns and shells and were given a demonstration of the firing of a silver iodide shell (into clear air).

Since the season of major hail activity in the Caucasus region is in May and June, we were unable to witness an actual hailstorm. However, one cold front did cross the area while we were there and hail was identified by radar about 80 km away, outside the protected area. The hail protection system went into operation, but the cold front passed over the protected areas causing only widely scattered light showers.



Radars used in detecting hail in the U.S.S.R.'s hail suppression program.

During the period of our stay at the Labinsk field station, we were also taken to visit two other hail suppression centres nearby, some of the outlying gunsites, and to visit the Labinsk Agricultural Administration and a nearby State Farm. Most of these excursions were accomplished by travelling in two three-passenger helicopters.

After leaving Labinsk, we travelled by bus to the High Mountain Observatory at Terskol where many studies of snow and ice are conducted on the slopes of Mount Elbrus, at 18,468 ft. the highest point in the Caucasus. This is also being developed as a resort area—skiing, hiking, camping, etc., and we rode a ski-lift to the top of Mount Cheget for a breathtaking view of Mount Elbrus. Many vacationers thronged the area, some having arrived by private motor car, but most having been brought in excursion buses.

Another highlight of our trip was our journey by bus through the Caucasus mountains over the Georgian Military Road, an outstanding engineering achievement connecting the North Caucasus with Trans-Caucasus area including the Georgian and Armenian Soviet Socialist Republics.

This road winds through the mountains along sheer cliff faces, across raging torrents of water, through tunnels, and served as an important military artery during the Second World War. All road signs, of course, were in Russian, but we were pleasantly surprised to be met by one in English at the border of Georgia which read "The Gates of Georgia are Open to Our Guests of Good Will".

At Tbilisi, the capital of Georgia, and again in Yerevan, the capital of Armenia, we were overwhelmed by the hospitality extended to us and came away with warm feelings of gratitude.

In Georgia, for example, as is apparently the custom, we were escorted to the city limits by our hosts on our departure. There we all dismounted and said our farewells before proceeding on our way.

And when we reached Armenia we were met 75 kilometres outside the capital by the Director of the Hydrometeorological Service and the Deputy Minister of Agriculture of Armenia on the shores of Lake Sevan and were entertained at dinner and taken for a boat cruise on the lake before being escorted into the capital.

Yerevan is a very ancient and very proud city, having just celebrated its two thousand seven hundred and fiftieth anniversary. The event has been commemorated by a fountain with 2750 jets. Here we were very close to the border of Turkey and could see the Mount Ararat of biblical fame from our hotel windows.

On Sunday we were taken to visit an old monastery of the Armenian Orthodox Church and found that a church service was being conducted with a goodly number of old and young people in attendance.

Hail suppression activities in Georgia and Armenia are conducted mainly for the protection of grapes, small fruits, tobacco and vegetables, crops with a high economic value. In the North Caucasus region, however, with higher per acre production of grain, the protection is also extended to grain crops. One of the special problems in Armenia was the forecasting

of hailstorms which sometimes develop during the night in the Ararat mountains of Turkey and move unexpectedly into Armenia in the early hours of the morning.

We found that there were many similarities between life in the U.S.S.R. and life in Canada, but also many differences. The population of the U.S.S.R. is composed of many ethnic groups, each with its own individual characteristics, just as in Canada. People on the streets in Moscow and other cities are dressed in Western style dress and the appearance of street crowds is thus much the same as in Canada. Bright colours and even some mini-skirts were in evidence. There were many private automobiles on the city streets, as well as taxis and trucks but between cities the highway traffic was composed mostly of trucks.

We were interested to discover that Soviet citizens as well as the foreigner required passports to travel from one part of the country to another. These had to be produced upon making airline reservations and upon checking into a new hotel, but were not required on other occasions.

The weather in Moscow appeared to follow a pattern similar to that experienced in many Canadian cities. It was fine and warm when we arrived there but travelling disturbances produced cool rainy weather during most of the remainder of our stay.

In the Caucasus regions, however, the weather was sunny and warm, getting hotter the farther south we went, till in Armenia daily maximum temperatures were in the 90's all the time we were there. We were advised that except for the occasional shower, this pattern continued throughout the summer.

The taking of photographs from moving vehicles is prohibited in the U.S.S.R., but we were permitted, even encouraged, to take pictures elsewhere, and brought back a number of coloured slides of the hail suppression equipment and installations and the people operating them, as well as shots of spectacular scenery in the Caucasus mountains.

Two of our hosts in the U.S.S.R., Dr. Kiziria and Professor Sulakvelidze, paid us a return visit in August to study hail and weather modification research in Canada and we were very pleased to have the opportunity to show them what we are doing here, also in some measure to return their hospitality to us while in the U.S.S.R. and to show them some of the beauties of Canada.



Cadet Denys Poulin of East Angus, Que., awaits the signal from Captain Gerard Brie, director of the Canadian Coast Guard College, that started the Cabot Trail Medley Relay Marathon.

Les élèves-officiers du collège de la Garde côtière canadienne ont réussi, en fin d'année 1968, un exploit qui a suscité l'intérêt de toute la population de la région de Sydney. Ils ont en effet complété, dans le cadre de leur programme d'éducation physique, une course à relais de quelque 200 milles le long de la Cabot Trail, et cela, en mi-novembre, par un temps maussade et pluvieux. Dans cette photo, on voit l'élève-officier Denys Poulin, d'East Angus (Québec), attendant le signal de départ de la course donné par le directeur du collège, le capitaine Gérard Brie.



Cadet David Kempling of Sarnia, Ont., passes the baton to Cadet Andy Tait of Abercorn, Que, as the relay progresses along the shores of the Bras d'Or Lakes.

L'élève-officier David Kempling, de Sarnia (Ontario), passe le bâton à Andy Tait, d'Abercorn (Québec), au moment de leur rencontre sur la rive des lacs Bras d'Or.

# The "Iron Men"

—reprinted from the *Cape Breton Highlander*

If you think the days of wooden ships and iron men are long gone, you're only half right. Most of the wooden ships are on the block or on the bottom, but the iron men are still being turned out by the Canadian Coast Guard College at Point Edward.

The hardiness of the college enrolment was evidenced last year when the cadets took to the road for a leisurely run from Port Hawkesbury to Sydney.

So what do you do for an encore after a rugged relay over 100 miles of hills and dales? Why, double the distance of course and choose the most gruelling race course available.

The cadets chose the Cabot Trail, two and a half times as long as the Sydney-Port Hawkesbury route and gruelling enough to scare off timorous drivers let alone runners. To toughen things up a little more, they set the run for Nov. 9 and put their first relay man on the road in the face of a 40-mile-an-hour wind with a forecast of rain, sleet and snow.

In the best tradition of the sea, the log of the race records the fact that the stiff winds provided rough going for the first 14 miles but after that it was at their backs and the going was fast, wet and cold. Kelly's Mountain was covered in no time flat as Cadet Bujold flew down the south side to the tune of six miles in 35 minutes.

From there to Margaree Forks, things went smoothly as a succession of well-garbed runners churned up 50 miles with a following wind. But after that, it was back into the teeth of the gale again.

A few of the hardier runners tried it in shorts and sweatshirts, but as the log records, they soon became "blue babies." Most ran in full sweatsuits, caps and gloves and Cadet Janvier wowed the crowd with two sweaters, two pairs of pants, a muffler and ear muffs.

Once into the mountains, the wind lost some of its sting, but nature had other surprises in store. Cadet Mullins, for instance, running 20 feet ahead of the official car, realized suddenly that he was being shadowed by a large lynx in the darkness. The cat eventually lost interest in the race and the log records that "Bob Cat Mullins doesn't scare easily."

# ' of The Coast Guard College

The run through 60 miles of mountainous terrain took seven hours including a slip-and-skid encounter with an icy North Mountain which posed more of a problem to the official cars than to the runners.

Here's how the log describes the loneliness of these long distance runners as they raced through the darkness and cold:

"At night you have a circle of light with a black background and it is always the same. Try as hard as you can, you cannot reach the darkness to see what's behind it. It is forever the same so that sometimes you think you are in another world. If you know the road it doesn't matter, but most of the runners had never been on that road and had never run like this before.

"The scenery was beautiful, there was a bit of a haze, the trees were fully covered with fresh snow. Everything was white. All that broke the silence were the runners, slipping and sliding as they made their way forward in an endless series of switchbacks, cutbacks, hills and mountains.

"As the night wore on and everything seemed to be endless, the Buchanan Memorial Hospital at Neil's Harbour suddenly appeared on the right side. What a welcome sight! The worst was behind us! Smokey was the only peak left to cross where ice might hold us up, but somehow, nobody cared. We knew that, Smokey or no Smokey, we were going to make it and we were going home."

Back on the Trans-Canada at St. Ann's with 35 miles to go, the isolation came to an end as relayers ran through heavy traffic as well-wishers came out to meet them on the homestretch. Cadet Gerard raced into the college grounds on the last lap just 32 hours after the starting gun.

What to do next year? The cadets aren't sure yet, but you can be sure it will have to be a real acid test to upstage what is becoming known as "the Cabot Trail Caper."

The runners are proud of their accomplishments but they don't forget to give full marks to the support group of teachers who were there all the way. And a major bouquet goes to the college's physical education staff who trained the runners to the peak of conditioning necessary for completion of what must have been the most gruelling marathon ever undertaken in Cape Breton.

Farewell to the wooden ships and hail to the iron men!

—Photos courtesy B. W. Bachynsky,  
Canadian Coast Guard College.



Cadet Tait approaches the Seal Island Bridge on the way back to the Canadian Coast Guard College.

L'élève-officier Tait arrive au pont de l'île Seal sur le chemin du retour au Collège de la Garde côtière.



Cadet Michael Gerard of Windsor, Ont., nears the finish line of the Cabot Trail Medley Relay Marathon as fellow officer cadets, teachers and Captain Brie cheer him on.

L'élève-officier Michael Gerard, de Windsor (Ontario), dernier membre de l'équipe, arrive enfin au collège aux applaudissements de ses confrères, du personnel et du capitaine Brie.

Une gloire nationale

# La Garde côtière, service indispensable



Le *Racer* en opération sur les côtes de l'Ouest canadien.

La Garde côtière canadienne a joué un rôle de première importance dans l'expansion maritime, économique et industrielle du Canada, depuis l'avènement de la Confédération.

La Garde ne porte son nom que depuis le 26 janvier 1962, époque où furent intégrés en un seul service, divers organismes de l'Etat. C'est à ce moment que fut formée la flotte qui plus tard devait relever du ministère des Transports.

Elle possède une longue et glorieuse histoire au service du transport maritime du Canada.

La Garde côtière comprend actuellement quelque 140 navires de tous genres, dont près de 60 de dimensions qui exigent le service de quart. Les navires de la flotte parcourent les eaux canadiennes, des Grands lacs aux chenaux les plus au

PHOTO-REPORTAGE DE  
L'OFFICE NATIONAL DU FILM

*Photos de Ted Grant*

Le *Labrador* exerçant sa puissance dans les eaux du St-Laurent.



Un officier, John A. McDonald.

nord des îles de l'Arctique. La Garde côtière avec sa flotte d'une vingtaine de brise-glace est considérée comme la deuxième en importance au monde quant au nombre d'unités.

Elle compte en outre des baliseurs, des navires météorologiques, des navires affectés à des tâches spéciales comme les opérations de recherches et de sauvetage, les recherches en sciences marines, la pose et la réparation des câbles et les opérations en eaux peu profondes dans le réseau du fleuve MacKenzie et dans l'Arctique.

Deux mille officiers et hommes d'équipage forment la Garde côtière canadienne dont s'enorgueillit à juste titre le Canada. Les nouveaux officiers sont formés au collège inauguré à Sydney, en Nouvelle-Ecosse, en septembre 1965.

*Gaston Lapointe*



Louis Duquet, officier en chef du Labrador.

Le *John A. Macdonald* bravant les éléments de l'Arctique.



# ON DUTY

by Bryan Goodyer

Information Services Division

Streaking through the sky 30,000 feet above the Pacific Ocean and far above a floor of sun-swept cloud, a jetliner heads for Japan.

A crewmember works with quiet concentration and notes with satisfaction that the aircraft is right on course according to data received from Ocean Station "Papa," 860 nautical miles west of Vancouver.

The "station," a storm-ravaged 10 square miles of ocean, presents a picture quite different from that in the jet's serene crew compartment.

One of the Canadian Coast Guard's new weatherships — it could be either CCGS *Vancouver* or CCGS *Quadra* — is slowly bucking a howling gale, trying to maintain the position from which it serves as a navigational checkpoint for other shipping and for trans-Pacific aviation.

Aboard the ship, scientists and technicians, all well-schooled to working in what is regarded as one of the world's worst weather areas, are going about their tasks as though they were snugly ashore, sending out an almost endless flow of weather, navigational and oceanographic data.

Built at a total cost of nearly \$24 million, the two weatherships operate from the Department of Transport's district marine base at Victoria, B.C.

Built and maintained under the supervision of the Shipbuilding Branch (now a part of the new Department of Supply and Services), the Meteorological Branch and the Telecommunications and Electronics Branch, the ships were completed at the yard of Burrard Dry Dock Co. Ltd., North Vancouver.

The *Vancouver* entered service in April 1967, the *Quadra* in October of the same year, replacing the old Canadian Coast Guard weatherships, two ex-frigates, CCGS *St. Catharines* and CCGS *Stonetown* and the old standby ship, *St. Stephen*.

CCGS *Vancouver* and CCGS *Quadra* are the largest ships in the Canadian Coast Guard fleet, each measuring 404 feet, three inches long over all and 50 feet in breadth.

Each has a loaded displacement of 5,605 tons, a range at 14 knots of 8,400 nautical miles plus 2,000 miles reserve and a top speed of 18 knots. This last-





# AT OCEAN STATION 'PAPA'

mentioned statistic becomes important when the ships are called upon, as are all Canadian Coast Guard vessels, to take part in search and rescue operations.

Each vessel is at sea for a period of seven weeks, comprised of one week sailing to and from station and six weeks on station.

Each ship normally has a maximum complement of 100 men, including a meteorological staff of six under a chief meteorological officer, a telecommunications staff of 11 under a chief telecommunications officer and two to five oceanographers depending on the availability of personnel under a chief oceanographer.

Practically all crewmembers have single accommodation that includes a desk, a table, table lamp and berth.

The ships are equipped with officer's and petty officer's lounges, a recreational room, a cinema and a hobby shop. Recreation and hobbies consist of movies twice a week, woodworking, leatherwork, the weaving of rugs, ship modelling and other crafts.

Some of the men paint, others study and the Victoria Public Library supplies a large number of books. Many a thesis has been written on the weatherships by budding oceanographic students.

## Unusual Appearance

Most notable feature of the ships to the casual observer is the great radar dome towering high above each. The dome houses a new type of balloon-tracking radar capable of automatically tracking meteorological balloons up to a height of 100,000 feet, of detecting storms as far away as 200 nautical miles and of keeping track of aircraft within a radius of 70 miles.

For many years, meteorological information has been collected on a volunteer basis by merchant ships travelling the world's sea lanes and reported to meteorological stations ashore for use in preparing forecasts.

Events of the Second World War and the rapid development of international aviation routes after the war made it apparent that a more precise source of such information was needed. Aircraft particularly need upper air data for high altitude operations.

As a member of the International Civil Aviation Organization (ICAO), Canada committed itself to operate jointly with the United States one station on the Atlantic Ocean and one station on the Pacific Ocean.

Between 1947 and 1950, Canada operated one vessel on an alternating basis with the United States on Station "Baker" in the North Atlantic. This operation was not satisfactory economically, however, so Canada took over the complete operation of Station "Papa" on the North Pacific.

The weatherships *Stonetown* and *St. Catharines* (both ex-Royal Canadian Navy frigates) were put into service on Station "Papa" commencing Dec. 1, 1950. These ships continued to man the station, located at 50 degrees North Latitude, 145 degrees West Longitude, until they were replaced by CCGS *Vancouver* and CCGS *Quadra*.

## Surface Weather Program

Both ships are fully-manned and equipped to handle the surface meteorological observations and upper air soundings which must be made each day.

In addition to three anemometers for measuring surface wind, the ships are equipped with pressure instruments that include two precision aneroid barometers, a marine mercury barometer, a three-day marine barograph, and four Stevenson screens.

Each ship is also equipped with the British National Institute of Oceanography's Muirhead wave recorder which has taken much of the guesswork out of determining wave heights and periods.

There can still be a bit of occasional guessing, however, as the crew of the *Quadra* found out during a hurricane on Dec. 1, 1967. The needle on the wind velocity was forced beyond the highest marked limit of 100 miles per hour, and the wave recorder indicator went past its highest marked limit of 60 feet during the storm.

Since Station "Papa" has been manned by Canadian ocean weatherships, with the exception of a few short periods, continuously since 1950, some valuable statistics on various aspects of the weather at this point in the northeastern Pacific have been compiled.

The warmest month seems to be August with a mean temperature of 55.8 degrees Fahrenheit, followed by September with a mean temperature of 55.6 degrees. The coolest month appears to be March (40.5 degrees), followed by February (41.2), January and April (each 41.5). Temperatures rarely exceed 60 degrees (only .3 per cent of all observations), or fall below 32 degrees (0.2 per cent of all observations).

Wind speeds average 20 knots or more from October through March, with November having the highest average wind speed of 25 knots.

The highest sustained wind speed on record was the 100 mph reading already mentioned.

Although a month-by-month analysis of wave heights has not yet been worked out, high waves, in excess of 20 feet, are infrequent, occurring on the average of only 3.4 per cent of the observations in the course of a year.

Low visibilities of less than two nautical miles seem to occur most frequently in August (about 28 per cent of the observations) and least frequently in October (about two per cent of the observations).

## Upper Air Program

A balloon inflation shelter has been designed to accommodate aerological balloons which are capable of reaching an altitude of 100,000 feet or higher. When inflated with helium, these balloons measure eight feet in horizontal diameter and 12 feet in height. Each ship carries about 200 cylinders (57,000 cubic feet) of helium.

Four upper air or rawinsonde ascents are made daily at regular six-hour intervals. The balloon carries aloft a radiosonde instrument which measures the temperature, pressure and relative humidity of the air and transmits this information by radio transmitter to a ground receiver.

The balloon also carries aloft a special target which is followed by a stabilized radar system to obtain speed and direction of the winds at any desired altitudes.

The balloon rises until it bursts, usually at a height of about 100,000 feet, thus terminating the upper air soundings.

## Special Radar Unit

The balloon-tracking radar on these new ships is perhaps the most advanced equipment of this type in the world. It was designed and engineered by the Sperry Gyroscope Co. of New York and is designated as "Wind Finding Radar SP6504." The antennae itself is housed in a spherical plastic shelter comprising the highest component of the ship.

The radar is capable of automatically tracking the balloon and computing the wind directions and speeds every six seconds with a print-out of time, slant range, azimuth, elevation, target height, wind direction and wind speed.

## Oceanographic Studies

In the realm of oceanography, the weather-oceanographic vessels are making an increasingly important contribution, the most extensive series of observations to date having been made at Station "Papa."

The physical oceanographic studies are concerned with the variability of properties in the ocean, its thermal structure, internal wave action, large scale air-sea inter-action and related subjects. It has been found that, far from being a scientifically uninteresting area, the northeast Pacific undergoes physical processes upon which science has just begun to touch.

Biological oceanographic studies have been under way since 1956, including studies governing the living resources of the Northeastern Pacific. Research concerning the relationship between the ocean's production of drifting microscopic plants (phytoplankton) and its production of fish are of major importance to the salmon fishery of the North American West Coast, and to British Columbia in particular.

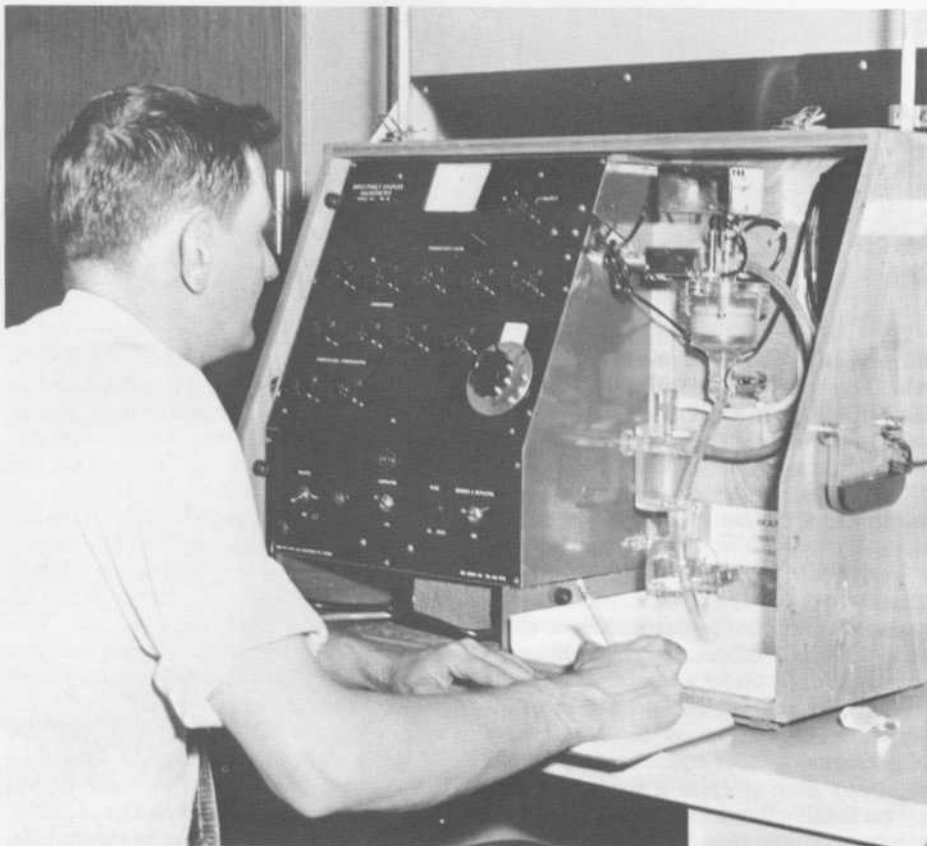
Investigators from the Pacific Oceanographic Group have been the biggest users of the data, but many scientists from other countries, in particular the United States, Japan and Russia, have examined it intensively. An important user in the United States has been the United States Naval Post-Graduate School at Monterey, California.

Information compiled aboard the weather-oceanographic vessels is being utilized in the classrooms of many universities offering courses in oceanography in Canada, the U.S. and Japan.

It has also been used as a basis by some international bodies to determine whether certain proposed studies should or should not be pursued, the experience gained at Station "Papa" having provided a yardstick by which the possible magnitude of other such undertakings can be measured.

## Aids to Navigation

Although the vessels are commonly referred to as "weatherships," one of their most important functions is that of



*An oceanographer electronically measures the salinity of ocean water samples aboard CCGS Quadra.*

navigational aid to ships and aircraft, a duty for which they are fitted with Long Range Aid to Navigation (LORAN) equipment to establish their own positions accurately at all times.

A 400-watt radio beacon transmits constantly on medium frequency, a four-letter group indicating the station and its position, based on the grid system of two-letter co-ordinates.

This facility enables any ship or aircraft fitted with direction-finding equipment to obtain a line of position with fairly high accuracy at ranges of several hundred miles.

Ships and aircraft at closer range (14 miles for surface ships, 200 miles for aircraft) can on request be given their precise position by means of radar.

On an average "on station" patrol, more than 500 aircraft are furnished not only with their position, but also their true course and speed and weather conditions at their altitude.

The ships also serve as important communications relays between other vessels with less powerful radio equipment and shore radio stations.

Each vessel is equipped with facsimile radio receiving equipment, by means of which weather maps can be received from the mainland.

Each has a radio room and a communications and electronic equipment centre with additional automatic transmitters for air-ground and ship-to-ship communication.

High frequency direction-finding equipment is provided and is particularly useful in search and rescue work.

There are three sets of portable emergency communications equipment for use in lifeboats, as well as portable VHF-FN radio telephone units for use in workboats or otherwise as needed.

An amateur radio "Ham" room is also provided on each vessel for the use of radio hobbyists among the crew and is equipped with a one-kilowatt single side-band transmitter.

Fishing equipment also provides a mixture of research and off-hours pleasure.

On bringing in a catch, the seagoing "sportsmen" record the species, its stomach content and other information that is passed on to fisheries research experts.

The ships also keep a log of sightings of sea birds and marine animals such as whales, seals and dolphins, which are forwarded on to appropriate government departments to add to man's knowledge of the world around him.



## cruising the western arctic

— reprinted from the Victoria Marine Agency NEWSLETTER

*Do the travel advertisements at this time of year leave you longing for faraway places and adventure? Maybe, as certain Coast Guardsmen will tell you and as the following article suggests, it's all in the way you choose your words.*

From the exotic shores of the Aleutian Islands to the sunny slopes of the Boothia Peninsula, the luxurious ship CCGS *Camsell* wends its way each year, through the serene blue waters of the Chukchi Sea, Beaufort Sea, Amundsen Gulf, Victoria Straits and finally through the magnificent Rae Straits to the unequalled splendor of that great international port, Spence Bay.

The voyage takes the ship through all the splendors of this great panoramic untouched splendor of the last frontier. The flora, fauna and the unquestionable friendliness of the natives are yours to enjoy on this fun-filled three-month sojourn along the routes travelled by such great frontiersmen and adventurers as Amundsen, Lennie, Halkett, Conibear, Ali, Candow, McKeown, Hill, Caton, Hurry, Patton, Stevenson, Roberts, Duncan, Scura, Chung, Simpson, Statham and many, many more, too numerous to mention.

The cuisine is without a doubt the

greatest in the world with all manner of exotic and unusual dishes such as snorkers, stew, tripe, etc. The accommodations are spacious and luxurious. From each of the well-appointed cabins is seen a magnificent view of serene surroundings. Each day is filled with excitement — fishing, boating, outdoor activities beyond compare.

Evenings are packed with electrifying happenings such as shows (sometimes triple horror), nightly gaming in the well-appointed lounges, light snacks in the ship's dining salon and dancing on the after deck amid the Northern Lights and strolls in the moonlight for those interested in the more romantic aspects of life in the Land of the Midnight Sun.

For further information on this delightful summer cruise, guaranteed to take you away from the boredom of everyday life, see your congenial cruise director, Mr. G. Booth. For bookings during the 1969 season, contact our local travel agent, Mr. J. R. Coates.

## Après 50 ans de loyaux services, une retraite bien méritée



M. Mercier

Joseph Paul Henri Mercier n'avait que 15 ans lorsque, le 28 octobre 1918, il s'est présenté à l'Agence de la marine du ministère des Transports, à Québec, pour occuper son premier emploi comme apprenti plombier. Maintenant contre-maître des plombiers à la même Agence, M. Mercier prendra officiellement sa retraite, le 27 mai prochain, après 50 ans et six mois de service, soit un record dans les annales du ministère des Transports.

Natif de Québec et issu d'une famille assez nombreuse, Henri s'est vu très jeune obligé d'abandonner l'école afin d'aider au gagne-pain de la famille. Son père, Honoré Mercier, était alors chef électricien à l'Agence de Québec. Il aurait sans doute aimé voir son fils devenir électricien, mais Henri a préféré plutôt s'initier à la plomberie.

Lors de son cinquantième anniversaire de service, en octobre dernier, M. Mercier a été le héros d'une fête organisée en son honneur par ses collègues à l'Agence de Québec. Le sous-ministre de l'époque, M. John R. Baldwin, lui a adressé en cette occasion un message personnel de félicitations.

«J'ai été agréablement surpris d'apprendre que vous avez, en date du 28 octobre 1968, complété cinquante années de service avec le ministère à l'Agence de Québec, précisait le sous-ministre, et je profite de l'occasion pour vous féliciter

chaleureusement. Votre long et excellent travail est certainement très louable. J'espère sincèrement que vos derniers mois à l'emploi du ministère vous seront agréables, et que vous continuerez à jouir d'un bon état de santé pour plusieurs années à venir après votre retraite.»

Au cours de sa longue carrière, M. Mercier a servi sous six agents maritimes régionaux, dont les plus récents sont M. Walter Manning, aujourd'hui directeur des travaux maritimes du ministère à Ottawa, le capitaine Georges-Edouard Gaudreau, à sa retraite depuis l'an dernier, et l'agent maritime actuel, M. Jean-Paul Godin.

Il a fort bien connu également feu le capitaine Joseph E. Bernier, valeureux commandant de l'Arctic, qui s'est illustré, au tournant du siècle, au cours de nombreux voyages d'exploration dans les eaux les plus septentrionales de l'archipel Arctique. C'est au cours d'une de ses expéditions dans le Grand Nord que le capitaine Bernier, le 1<sup>er</sup> juillet 1909, a dévoilé une plaque sur l'île Melville marquant l'annexion au Canada de tout l'archipel Arctique.

M. Mercier, qui a eu l'occasion à maintes reprises de voyager à bord de l'Arctic, premier navire à vapeur de l'État spécialement conçu pour la navigation dans les glaces, conserve un pré-

cieux souvenir des heures passées en compagnie du capitaine Bernier. «C'était un homme affable, dit-il, particulièrement estimé de tous ceux qui l'entouraient. Son navire était son royaume et il veillait sur le bien-être de l'équipage comme un père dans son foyer.» Le capitaine Bernier fut d'ailleurs le seul commandant de l'Arctic, soit depuis son entrée en service en 1906 jusqu'à ce que le vieux navire soit mis à sa retraite en 1926.

Marié, M. Mercier demeure à Ville Montmorency, près de Québec, avec son épouse et deux filles encore à la maison. Le couple a eu neuf enfants, dont sept vivent encore. C'est auprès de ses enfants demeurant ici et là au Québec que M. Mercier se propose de passer les années de sa retraite.

«J'ai beaucoup voyagé durant mon emploi au ministère, dit-il. J'y ai pris goût. Maintenant, mes voyages me conduiront auprès de mes enfants que je n'ai pas eu l'occasion jusqu'à ce jour de visiter aussi souvent que je le voulais.»

Les deux filles encore à la maison sont Mlles Lyse et Jocelyne. Les autres enfants sont Mme Willie Lajoie, née Pauline, de Giffard; M. Henri-Paul Mercier, de St-Agapit; M. Gaétan Mercier, en Abitibi; Mme Henri-Georges Tremblay, née Denise, de St-Justin; et Mme Angus McLalen, née Françoise, de Val Cartier.

# appointments

## Minister Names

### Peter M. Bonardelli As Executive Assistant

Transport Minister Hellyer has announced that Peter M. Bonardelli, 44, a native of Ottawa, has assumed his duties as executive assistant to the minister.

Mr. Bonardelli succeeds R. A. "Sandy" Morrison, who has left the government service to take up a position in private industry.

A former consultant with Desroches, Jasmin and Associates, Montreal, Mr. Bonardelli has had wide experience in journalism and international relations that includes service with Canadian Petrofina Ltd., Stevenson and Kellogg Ltd., and the Canadian Inter-American Association.

A graduate of the University of Montreal where he received his Master's degree in history, Mr. Bonardelli is fluent in English, French, Italian and Spanish. He is married to the former Victoria Fernandez Concha and they have two sons, aged 12 and 13.



Peter M. Bonardelli

### D.O.T.'s New Director of Road and Vehicle Safety

Gordon D. Campbell, 40, of Ottawa, has been appointed director of the Road and Motor Vehicle Traffic Safety Office newly organized by the Department of Transport.

Dr. Campbell was formerly director of technical services with the Canadian Good Roads Association.

In assuming responsibility for coordinating the federal Government's role in motor vehicle safety, Dr. Campbell will investigate the need for safety, inspection and quality control standards, and promote co-operation among voluntary and governmental agencies engaged in traffic safety.



Gordon D. Campbell

# nominations

### Peter Bonardelli succède à «Sandy» Morrison

M. Peter Bonardelli, âgé de 44 ans et natif d'Ottawa, succède à M. R. A. «Sandy» Morrison comme chef de cabinet du ministre des Transports. M. Morrison a quitté la fonction publique pour accepter un poste dans l'entreprise privée.

Ci-devant conseiller auprès de la maison Desroches, Jasmin et Associés, de Montréal, M. Bonardelli a acquis une vaste expérience du journalisme et des relations internationales. Il a été au service des compagnies Canadian Petrofina Ltd, et Stevenson and Kellogg Ltd et de la Canadian Inter-American Association.

Diplômé de l'Université de Montréal, où il a reçu une maîtrise en histoire, M. Bonardelli parle couramment l'anglais, le français, l'italien et l'espagnol. Il a épousé Victoria Fernandez Concha qui lui a donné deux fils âgés respectivement de 12 et 13 ans.

### Directeur nommé à la sécurité routière

M. Gordon D. Campbell, ancien directeur des services techniques de l'Association canadienne des bonnes routes, vient d'assumer ses nouvelles fonctions au ministère comme directeur du Bureau de la sécurité routière et automobile.

M. Campbell, natif de Winnipeg, est chargé de coordonner le rôle du gouvernement dans le domaine de la sécurité automobile. Il étudiera particulièrement le besoin de nouvelles normes de sécurité, d'inspection et de contrôle de la qualité et sera chargé de promouvoir la coopération entre les organismes gouvernementaux et volontaires qui s'occupent de la sécurité.

M. Campbell est membre de l'Institut des ingénieurs du Canada, de l'American Society of Civil Engineers et du Conseil de recherche sur les routes. Il est ingénieur professionnel enregistré en Ontario.

# TRANS-CANADA

## Terrace-Kitimat Terminal Opened

Terrace, B.C.—The Department of Transport's new air terminal building at this Skeena River community, about 30 miles north of Kitimat, has been officially opened by the Honourable Arthur Laing, Minister of Public Works.

The air terminal was built by Nor-Pine Construction Limited of Terrace at a cost of \$308,035.

Designed by architects of the Department, the building is a single storey structure that includes all facilities necessary for passenger services and cargo handling.

The main accommodation of the 138-foot by 64-foot terminal consists of a large waiting room, an airline ticketing area for CP Air, a baggage claim service with mechanical conveyor and various concession areas for restaurant, news stand, car rental booths and related passenger conveniences.

Telecommunications and meteorological services are also provided.

## National Revenue Employee Wins D.O.T. Award

Ottawa—Ideas are where you find them is apparently the watchword of an employee of the Department of National Revenue who has just demonstrated that suggestors are not restricted to their own departments.

In the highest award ever approved by the Department of Transport for a suggestion received from an employee of another department, Frederick A. Thomson of New Westminster, B.C., was awarded \$200 for a suggestion designed to improve operations within the Department of Transport.

Mr. Thomson, assistant registrar of shipping with the customs and excise division of the Department of National Revenue, suggested a revision to the annual report of vessels on registry that will benefit about 75 registrars in the field and "save considerable time and trouble" for the Department of Transport.



**CARRYING THE TORCH FOR SYDNEY**—The Honourable Allan MacEachen, Minister of Manpower and Immigration, uses a welding torch to cut a steel bar in a ceremony marking the formal opening of the new Department of Transport air terminal at Sydney, Nova Scotia, on Nov. 29, 1968. Mr. MacEachen wore a full suit of welder's togs to do the job under the supervision of Sydney steelworker Thomas Robertson. Present at the ceremony were the Honourable Victor Oland, Lieutenant Governor of Nova Scotia, and a number of provincial and municipal officials. H. M. Hutchon, regional director of air services, Moncton, was chairman. Airport Manager J. R. MacIntyre was in charge of the program arrangements. (See also photo on back cover.)

**AÉROGARE INAUGURÉE À SYDNEY**—Le ministre de la Main-d'oeuvre et de l'Immigration, l'honorable Allan MacEachen, se sert d'un chalumeau pour couper une barre d'acier à l'occasion d'une cérémonie marquant l'ouverture officielle de la nouvelle aérogare de Sydney, en Nouvelle-Écosse. Vêtu en soudeur, le ministre s'adonne à sa tâche sous l'oeil approbateur de M. Thomas Robertson, employé d'une aciérie de Sydney. Le lieutenant-gouverneur de la Nouvelle-Écosse, l'honorable Victor Oland, ainsi que des représentants des autorités provinciales et municipales étaient au nombre des invités à la cérémonie qui a eu lieu le 29 novembre dernier. Le directeur régional des Services de l'Air, M. H. M. Hutchon, présidait alors que le directeur de l'aéroport, M. J. R. MacIntyre, voyait à la bonne marche du programme. (Voir autre photo en couverture arrière.)

## D.O.T. Employee and Son Cited In Rescue of Four

Ottawa—A D.O.T. staff member and his son have been presented with awards from the Royal Canadian Humane Association for their part in saving the lives of three men including an employee of the Trent Canal system who nearly drowned in a boating accident.

Lloyd C. Cope, a member of the personnel staff at headquarters, and his son, Christopher, were among four persons who each received a Parchment for Bravery from the association for their actions in a rescue Nov. 12, 1967 at Ashby Lake in the Land-o-Lakes region north of Kaladar, Ont.

The two other rescuers who each received the association's parchment were Gerald O. Patry, a City of Ottawa fireman, and H. E. Anderson, a member of the Canadian Forces base at Trenton, Ont.

The three men rescued were J. B. Howard of Peterborough, a lockmaster on the Trent Canal system, and Elmer and Earle Rogers of the Kingston area, all members of a hunting party that got into difficulty when its boat capsized in the rough waters of Ashby Lake about 9.30 p.m.

The trio were returning to their camp across the lake when winds gusting to 40 miles per hour capsized the boat, throwing them into the near-freezing water.

Hearing cries for help, the four rescuers, including Mr. Cope and his son, set out in their boats and converged on the accident scene from two different directions, pulled the three men to safety and took them ashore.

## Suggestion award

Mrs. Genevieve Burns, of Aylmer, Que., a stenographer in the office of the financial officer, Air Services, at Ottawa headquarters, has won a \$40 suggestion award for a proposal involving billing operations that was found to be an improvement in work procedure.

## Books

*"The Pathless Way" is Recommended by B.C. Civil Aviation Inspector*

Vancouver—A just-published book on flying in British Columbia by a young pilot who died about six months ago of a rare disease has won the recommendation of a B.C. civil aviation inspector.

"Although this book will be of interest to any and all persons within our flying fraternity," writes G. B. Tobiason, "many people with the department who formerly lived on the B.C. Coast may have known the author and it is mainly with this in mind that this information is forwarded"

Mr. Tobiason writes that, during the past year, a 42-year-old pilot named Justin de Goutiere, dying of a rare affliction called Motor Neuron disease, determined to leave behind a record of his experiences while flying in this, perhaps one of the most rugged flying areas in the world.

A pilot with B.C. Airlines from 1960 to 1966, de Goutiere became well known on the B.C. Coast from Vancouver to Prince Rupert and into Alaska.

He died in August, 1968, leaving his wife Anna and five sons.

## "Don't Scrap The Estevan"

—from the Victoria Marine Agency NEWSLETTER

Captain Bob Engelson, his officers and crew, have been discussing the possibility of preserving CCGS *Estevan* as a museum.

*Estevan* has been sailing on the West Coast for 56 years and the hundreds of men who have sailed with her feel she is part of the country's history and should not be scrapped.

The cost of maintaining a ship in the water is prohibitive to the idea of docking the ship near the Maritime Museum, but perhaps a portion of the ship could be preserved.

The stern contains a bench with the original upholstery running around three of the four bulkheads and swivel chairs bolted to the floor around the dining table. There is a certain style and elegance in the old ships that is no longer seen in the new models.

Colonel J. W. D. Symons, curator of the Maritime Museum, has stated that he'd be very interested in any sort of preservation and has suggested incorporation of a part of the ship as a wing of the museum or as a separate display for the Department of Transport.

## Well Known D.O.T. Architect Dies in Ottawa



Ray Wood

Ray Wood, chief of the International Terminals Division of the Construction Engineering and Architectural Branch, Air Services, died in Ottawa recently. He was 47.

Born in Belfast, Northern Ireland, Mr. Wood was educated at the Belfast Royal Academy. In 1942, he was named an associate of the Royal Institute of British Architects and a member of the Royal Institute of Architects of Ireland.

After practising in Belfast for a number of years, he brought his family to

Canada in 1957 where he joined the staff of the Department of Transport.

As chief of the International Terminals Division, Mr. Wood was responsible for the design of many of Canada's air terminal buildings and played a large part in the transformation of those early wooden wartime structures into the modern buildings of today.

Mr. Wood is survived by his wife Dorothy and two daughters, Hilary and Karen.

# Transport ALBUM des Transports



## Sydney Airport

The Department of Transport's new \$1,300,000 air terminal building at Sydney, N.S., was officially opened on Nov. 29, 1968 by the Honourable Allan J. MacEachen, Minister of Manpower and Immigration. The main building, which measures 270 feet by 80 feet, is a two-storey structure, surmounted by an air traffic control tower. There is a single-storey wing accommodating a restaurant, customs, immigration, health inspection and baggage handling. A five-storey section houses the air traffic control installations and office space.

## Aéroport de Sydney

La nouvelle aéroport du ministère des Transports à Sydney, en Nouvelle-Écosse, a été officiellement inaugurée, le 29 novembre 1968, par l'honorable Allan J. MacEachen, ministre de la Main-d'œuvre et de l'Immigration. Construit au coût de \$1,300,000, le nouvel édifice mesure 270 pieds par 80. Outre la tour de contrôle, il renferme les divers services administratifs ainsi qu'un restaurant, les services de l'immigration, de la santé et les installations nécessaires à la manutention des bagages.