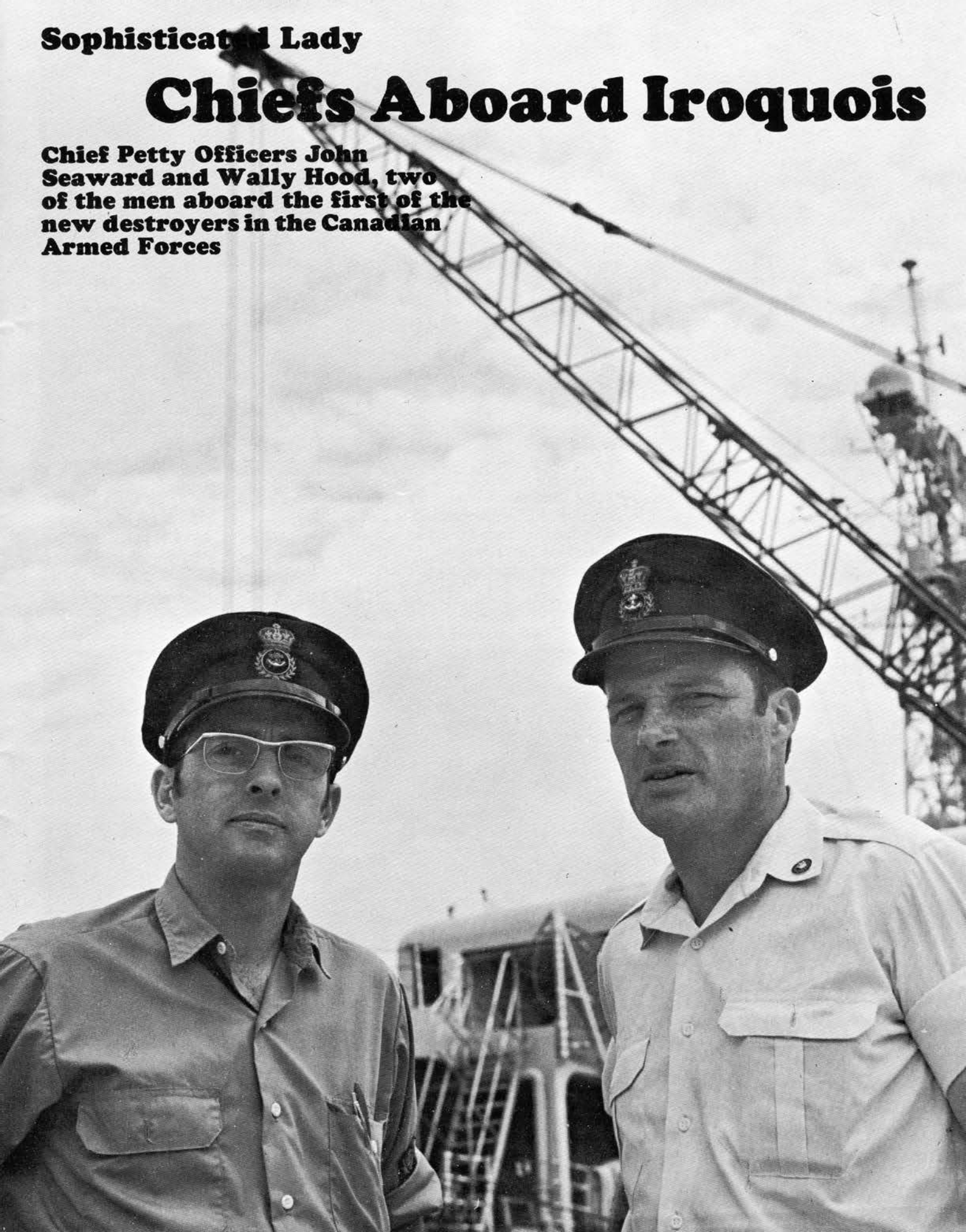
SENTINEL

OCTOBER, 1972

Sophisticated Lady

Chiefs Aboard Iroquois

Chief Petty Officers John Seaward and Wally Hood, two of the men aboard the first of the new destroyers in the Canadian Armed Forces



A confusion of materials ashore and a steady parade of workmen everywhere aboard, and lying big and clean in the narrow stream of the Richelieu River was HMCS *Iroquois,* first of four new DDH 280-class ships built for the Canadian Armed Forces by firms located in Quebec.

All four ships are scheduled to be completed by the spring of 1973. Construction of the *Iroquois* and *Huron* was undertaken by Marine Industries Ltd., in Sorel, and the job of building HMCS *Athabaskan* and *Algonquin* was awarded to Davie Shipbuilding Limited in Lauzon.

"Now we only want to get her for ourselves," CPO John Seaward said, nodding towards the pale-grey *Iroquois.*

"Get her for ourselves and get her doing the job at sea that she was built to do," he said.

But Seaward and the others among the 280 officers and men of HMCS *Iroquois'* compliment have more work and waiting to do before the destroyer begins her first long reach into the open sea, sometime in 1973.

When she does, she will go as a forerunner of change. Change in a sense comparable to steam replacing sail.

She is the first of her kind to use gas turbines exclusively. These allow her to get under way in less than half an hour, and she can be controlled either from the bridge or from the machinery control room.

But on this particular Wednesday, July 26, the commissioning ceremony for the *Iroquois* was three days away, and no mention was made of a date for the start of her first long journey.

On Thursday she was taken from her berth in the Richelieu and tugged a short distance around to a pier in Sorel on the broad St. Lawrence.

And there she was made ready for events on Saturday, July 29, when as HMCS *Iroquois,* with Cmdr. D. N. Macgillivray, 38, of St. John's Nfld., as her commanding officer, she officially became the first of a new line of warships.

The *Iroquois,* like her sisters in the 280-class, has been designed primarily as an anti-submarine vessel, but with a vastly improved self-defence power and capacity to support land operations.

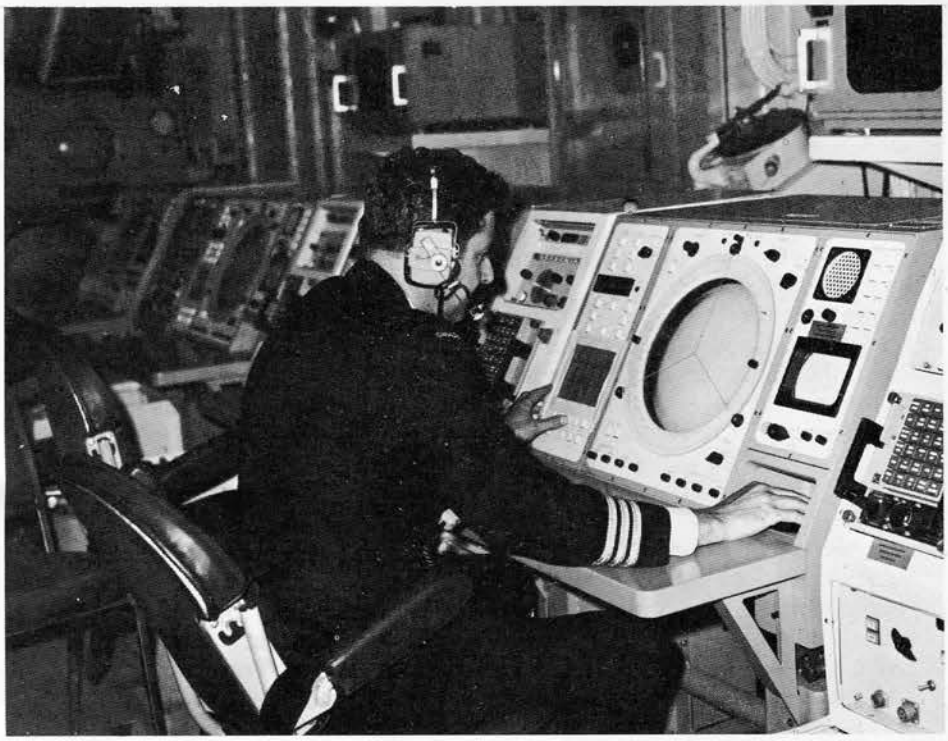
Her capabilities are adaptable to different needs, including search, convoy protection, air defence, amphibious support of troops ashore and coastal surveillance. Her weapons include Sea Sparrow anti-aircraft missiles, a five-inch automatic and dual purpose gun, anti-submarine mortars, and homing torpedoes which can be fired from either the ship or its two *Sea King* helicopters, for which she provides a large hangar and flight deck.

For her anti-submarine role the ship also carries both hull-mounted and variable-depth sonar of advanced design.

Variable-depth sonar for Canadian ships was originally brought into being in 1960 after more than 10 years of research and development by Defence Research Board scientists and naval specialists in Halifax.

The submersible gear for this sonar

CPO Wally Hood at the controls of a type of crane used to drop and retrieve small items of submersible and other forms of equipment while the ship is operating on the high seas.



Cmdr. D. N. Macgillivray, commanding officer of HMCS Iroquois, at the command console of the computer-controlled command and control system which is the nerve centre of the ship.

is towed behind the ship at varying depths to locate undersea craft in different thermal layers of water. This overcomes a submarine's ability to escape detection in or below these shelves of water temperatures which may impede or completely resist penetration by sonar transmissions of sound from hull-mounted sets. Indeed, some German U-boats either by accident or design made tactical use of these protective water levels during the Second World War.

The *Iroquois* can also control and co-ordinate other ships, aircraft and submarines during operational missions by using her computerized command and control system.

This computer and display complex also forms the heart of her weapons system, and most of the items in the weapons list are linked to it in some way. So the ship's gun, missiles, torpedoes and mortars could all be fired automatically and instantly by people on watch in the operations room.

Yet it is the external appearance of the display portion of the system which provides a surprise.

"People seem to expect the weird and wonderful," CPO Seaward said, explaining that most visitors to the operations room expect a lot a gadgetry and flashing lights.

There is little to be seen.

The consoles, set in ranks, house circular scopes bordered by an array of knobs and switches. And there are lights, cubed and set in blocks about the size of a large cigarette package.

These lights, except one, do not noticeably flash. The one which does also gives out a beeping sound. This particular combination of light and sound is a variant of a telephone bell and the means by which the operators in the command and control centre summon one another to conversation over the voice links in the system.

"The human, you see, is still in control," CPO Seaward said.

And under operational conditions there would be about 20 of them in this display area which, at some 50 by 16 feet, matches the size of a self-contained motel unit.

"There is one boss computer in command and control of all the tactical systems in the ship," Seaward said, "but not of the engines. This boss computer is controlled by either the commanding officer, or the principal warfare officer."

Seaward said there is in a sense a continuous but quiet electronic chatter as all the major systems in the ship — missiles, radars and communications, fire control and anti-submarine systems — feed their information into the boss, or command and control, computer.

Plainly put, he said the systems figuratively use their electronic voices in the human sense, entering a many-sided conversation with the boss computer in their versions of an "excuse me," and receiving either an acknowledging "yes", or being told to "hold on and I'll be with you in a minute."

Very basically, it is in this manner of linking human control with electronics that the people in *Iroquois'* operations room can make use of the best in modern communications and data processing equipment to control and co-ordinate a fleet of air, surface and undersea units in attack or defence.

Furthermore, Seaward said, the system can run checks on itself and comment on its ailments or well-being.

"About the only person who doesn't gain from the system is the navigator," Seaward said. "He still has to use the conventional means of navigation, although he could use the system to solve navigational problems."

Then, somewhat like a magician stunning an audience by revealing the baffling simplicity of a trick, Seaward destroys the effect of wonder.

"The system is composed of nothing more than general purpose digital equipment, but with a highly sophisticated programming system," he said. "Anyone can buy the equipment. The program is the key that makes it work."

And since the program is the conception of the human mind, and since the human controls it, nothing has really changed, according to Seaward.

"All you've done is lock the human mind into a computer over which, remember, the human still has control.

"An example.

"In the past the captain told or asked some other officer or man to do something during operations, and it was done. Now the boss computer, under the captain's control, tells some other part of the system, in someone else's control, what it wants done or what it wants to know.

"The only great change is the speed of the reaction. Things are accomplished instantaneously. And, as always, the captain has the last word."

But naturally, it is a little more complicated that that.

Witness the fact that CPO Seaward

CPO John Seaward in the equipment room next to the ship's command and control centre. He was three years mastering the system.

spent from February 1969 to May 1972 training on and working with the command and control systems aboard HMCS *Iroquois.*

"There were times when it left me mentally beaten and battered," he said. "But I enjoyed it."

CPO John Seaward, of Kirkland Lake, Ont., is a radar plotter by trade but is known as a combat systems technician in the ship.

The *Iroquois* is the eighth ship he has served in during his 18 years in the navy, most of that time spent at sea. The roster of ships he has been in include the aircraft carriers *Magnificent* and *Bonaventure,* the minesweeper *Chaleur,* and the destroyers *St. Croix, Algonquin, Saguenay* and *Nipigon.*

Another man who was looking forward to service in HMCS *Iroquois* was CPO Wally Hood of Willowdale, Ont.

Hood, whose trade concerns underwater weapons, went to Sorel in November 1969 to begin overseeing weapons installation in the ship. This work was concerned with mortars and torpedoes and the variable-depth sonar gear.

A lot of the shipboard equipment was unchanged, he said. "However, the sonar is completely different and the mortar and torpedo systems are pretty impressive."

CPO Hood has been in the navy for 20 years, and his future for a second time is involved with a ship named HMCS *Iroquois.* He was aboard the destroyer *Iroquois* of Second-World-War fame during the last of her three tours in the Pacific during the war in Korea in the early 1950s. In 14 years at sea he has also served in the cruiser *Quebec,* the minesweeper *Ungava* and the destroyers *Fraser, Skeena, Terra Nova, Algonquin, Crescent* and *Qu'Appelle.*

"The *Iroquois* should be a good ship," he said. "The spirit and the morale are already high."

Some evidence of that reflected from the name the crew has given to the port flat, or ship's corridor, which is largely officer territory.

The starboard flat in Canadian destroyers has, over the years, been called the Burma Road by the non-commissioned seamen who traffic it, but no name seems to have been applied to the port flat. The *Iroquois* crew, however, now call it Sesame Street, and it looks as though the name will stick.

But names aside, the flats and spaces in the *Iroquois* are sources of other delight. A tall person is able to walk through the flats without looking as though imitating an ambulatory letter C, which is usually the case in other Canadian warships, and everywhere else in the ship one gets the sense of roominess.

As both CPOs Hood and Seaward said, "The big thing is the space — the absence of crowding."

Even so, it was obvious that they were anxious to be done with crowding of a different type.

Most of the men with the *Iroquois* in Sorel were impatient for the official fussing to end so that they could have their ship to themselves to coax into total being, and then take her to sea.

"A lot of us bitch about the time we spend at sea, away from our families," CPO Hood said. "But it's just as bad to be in a ship that's alongside for any length of time. You get anxious to get her out where she belongs."

This was the overall impression created by the men in the *Iroquois.*

They were eager to try their new ship and her new systems at sea.

She is close to it now.

On Tuesday, Aug. 15, HMCS *Iroquois* arrived in Halifax, a doorstep away from a future afloat on the world's oceans.

Cmdr. Macgillivray on the bridge. At his left is the helmsman's position. The selection and control of engines and propeller pitch can be made from the bridge, or engine room.