



News

CANADIAN NAVAL TECHNICAL HISTORY ASSOCIATION

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Nautical Research Alive and Well in Canada

The Canadian Nautical Research Society held its Conference & Annual General Meeting at HMCS *Carleton* in Ottawa, June 8-10, 2000. The theme of "Maritime Moments of the Millennium" was purposely all-embracing, and the range of papers reflected that intent. Two of the eight sessions were devoted to the Royal Canadian Navy, with others covering the gamut from "The Age of Exploration" to "Life and Faith on the Bounding Main."



Although there were no papers specifically devoted to technical subjects, it was not for lack of interest in those areas. The final session, "Into the New Millennium," included two papers of interest to the CNTHA: Walter Lewis, "*The Emerging Role of the Internet and the Digital Library as a Tool for Researchers of Canada's Maritime History*," and Daniel LaRoche, "*Commemoration of Ships and Shipwrecks in Canada: An Uncertain Research Approach*." The latter included discussion of the many former Canadian naval vessels sunk in recent years as artificial reefs.

Many CNTHA members were in attendance, but there is room in the Society for many more. The CNRS was established to foster the multi-disciplinary study of maritime subjects in and about Canada. Annual membership (individuals, \$45) includes subscription to the Society's quarterly publications. Our journal, *The Northern Mariner / Le Marin du nord*, contains a wide variety of articles and research notes, and reviews more than 300 new books each year. The newsletter, *Argonauta*, provides additional articles, news and information about maritime history worldwide. The CNRS is affiliated with the International Commission of Maritime History (ICMH).

Keep posted for details of next year's conference, which will be held at the Maritime Museum of the Great Lakes in Kingston, Ontario. For more information, visit our Website at <http://www.mun.ca/mhp/cnrs.html> – or contact me at 49 South Park Drive, Blackburn Hamlet, ON, K1B 3B8, e-mail: richmag@infonet.ca.

— LCdr Richard Gimblett
Secretary, CNRS



NC-1 Plot Table Fire

I joined HMCS *Haida* as Electrical Officer in December 1959 just as the ship was completing a fairly extensive refit. The overhaul saw major changes made to the Operations Room equipment in conjunction with an update to the gun fire-control systems. One piece of equipment new to the Ops Room was the transistorized NC-1 plot table, which was used for plotting target track information.

To visualize the mechanical operation of the plot table, it can best be thought of as an upside-down gantry crane, consisting of two parallel rails on which a carriage rolled back and forth. On the carriage was a light projector that indicated the ship's own position on the overhead plotting surface, and a device called the Target Plot Attachment (TPA) that was used to project the position of two targets (sonar/radar) relative to your own ship.

Unfortunately, not enough thought was given to the layout of the flexible wiring to this projector and its associ-

ated TPA. One day during operation of the plot table, the combination of carriage and projector movements conspired to catch the wiring around the edge of a rail and pull it tight enough to bare the wires. The resulting short-circuit caused a fire which burned most of the wiring inside the plot table. Fortunately, the ship carried similar spare wiring and one of my petty officer electricians was able to repair the damage, a job that occupied him for a considerable number of hours.

Subsequent to my submission of an Unsatisfactory Condition Report, two CANAVMOD (Canadian Naval Modification) instructions were issued. One dealt with an improvement to the flexible wiring layout and the other inserted fuse protection in the flexible wiring circuit. — **Pat Barnhouse, DSTM 3, Ottawa.**



About the CNTHA

The Canadian Naval Technical History Association is a volunteer organization working in support of the Directorate of History and Heritage (DHH) effort to preserve our country's naval technical history. Interested persons may become members of the CNTHA by contacting DHH.

A prime purpose of the CNTHA is to make its information available to researchers and casual readers alike. So how can you get to read some of it? For the moment there is only one copy of the Collection, situated at the Directorate of History and Heritage located at 2429 Holly Lane (near the intersection of Heron and Walkley Roads) in Ottawa. DHH is open to the public every Tuesday and Wednesday 8:30-4:30. Staff is on hand to retrieve the information you request and to help in any way. Photocopy facilities are available on a self-serve basis. Access to the building requires a visitor's pass, easily obtained from the commissionaire at the front door. Copies of the index to the Collection may be obtained by writing to DHH.



The First RCN Transistors

In 1956 a subcontract was in place for Target Plot Attachments to operate with the NC-1 plotting tables then under production. The TPA used a magnetic servo-amplifier that was rugged and had no moving parts, but it had a drawback in that it was sensitive to temperature change and tended to lose linearity as the temperature varied even to a minor degree.

The prime contractor suggested using transistor servo-amplifiers, but they had no history of adherence to shock and vibration requirements. LCdr Carl Ross was in charge of the weapons section at Naval Service Headquarters, and after some head scratching considered that the reward was worth the risk — and so transistors entered service in the Royal Canadian Navy. They were as linear as vacuum tubes, were an immediate success, and paved the way for the use of modern electronic technology in the fleet. — **Phil Munro, Executive Director, CNTHA.**





How Stable were the Steamers?

Depending on how long you've been around, you might recall hearing claims that the *St. Laurent*-class and follow-on destroyer escorts built during the 1950s and sixties could survive a 360-degree roll without sinking. You probably dismissed the stories as so much folklore, but you might be surprised to learn that the information was pretty much spot-on.

How stable were the Cadillacs? In August 1955 Canadian Vickers Ltd. in Montreal ran trials to answer this very question. Engineers placed a 1.63 m Plexiglas model of HMCS *St. Laurent* in a water tank and simulated a variety of flooded conditions up to the point of sinking the ship. Their test rig allowed them to take direct readings of the overturning moment on the model, from which they constructed accurate stability curves for the ship.

According to the report written by Shipwright Lt.-Cdr C.T. Haynes, RN, the trial revealed some very interesting stability characteristics. For instance it was noted that the righting levers on the model increased markedly with larger angles of inclination. From this "...it may safely be concluded that the vessel does not lose transverse stability and is almost impossible to capsize, even under extreme conditions of flooding."

To establish this fact beyond question, the model was inclined to the point where upperdeck openings began sub-

merging. In certain cases this allowed water to escape from already flooded compartments! At one point engineers actually rotated the model by hand to obtain a rough estimate of the angle of vanishing stability. "These observations alone, indicate that in all cases the stability of the ship remains positive even at an angle of heel exceeding 90 degrees," Haynes wrote.

Perhaps the most astounding statement in the report is the note at the end which reads: "The model was used without taking into account the reserve of buoyancy contained in the superstructure of the ship if maintained in a watertight condition. Thus these results are considered to be slightly pessimistic."

Predictably, the flooding trials were demonstrated to the captain and officers of HMCS *St. Laurent*. In those days before sophisticated computer modelling, a physical demonstration of a ship's stability certainly offered a measure of reassurance.

Of course, not all of us had the benefit of a first-hand demonstration. But then, we knew all along how good these ships were anyway...

...didn't we?

— Brian McCullough



Acknowledgement

The documents and photos associated with the *St. Laurent* stability model trials were submitted to the Canadian Naval Technical History Association by former DGMEPM Stability Officer **LCdr Garry Pettipas**.

Help us preserve Canada's naval technical heritage. If you have inactive files of naval technical documents you think might be better archived than trashed, you are encouraged to have them released to: **Michael Whitby, Chief of the Naval Team, Directorate of History and Heritage, NDHQ Ottawa, K1A 0K2.**

If you are unsure as to whether or not a file would be worth submitting to the CNTHA archives, please contact Michael Whitby at (613) 998-7045.



NATO Exhibit at Canadian War Museum



DND photo 71244

Mystery Solved!

In the Spring issue we ran a photo showing a mock-up of a *St. Laurent* hull compartment. There were three shipwrights in the photo, but there was one we couldn't identify. Fortunately, PO1 Mike Begallie, a hull technician in the Hull Standards section of Fleet School Esquimalt, has come up with a name:

“You asked, ‘Can anyone identify the man at the deadlight?’ Well, in conjunction with CPO2 Joe St. Louis, we have identified this individual as **PO2 Peter Bossom** from a picture on the Hull Tech (Shipwright) Wall of Fame in Canadian Forces Fleet School Esquimalt.”

Mystery solved, thank you, and another piece of our technical history has been “shored up.”



Canadian War Museum Photos by Bill Kent

One of the important legacies of Dr. J.L. Granatstein's tenure as Director and Chief Executive Officer of the Canadian War Museum is the permanent exhibit, “NATO: A Pledge for Peace and Progress.” The exhibit opened on the third floor of 330 Sussex Drive in Ottawa in September 1999 to commemorate the fiftieth anniversary of the NATO alliance.

Dr. Granatstein's ambition was to bring a stronger historical storyline to the museum's exhibits, to reflect the latest historical scholarship. The existing displays on the post-Second World War era gave excellent coverage of peacekeeping, but did not sufficiently place this role in the context of the Cold War. The key point was to show that peacekeeping was just one task carried out by forces that had been raised and trained to a high professional pitch because of the foremost need for collective security.

The maritime forces component is located near the middle of the new 150-square-metre gallery to symbolize their central place in NATO — protecting the ocean frontiers of both Europe and North America, as well as safeguarding the sea communications between the two continents. Dr. Dean Oliver, senior historian at the war museum and the lead historian on the NATO project, drew on the work of the naval team at the Directorate of History and Heritage, including material gathered by the Canadian Naval Technical History Association in developing this part of the exhibit.

Although it was impossible to include large pieces of naval equipment in the display, a video kiosk has been set up that features clips on such Canadian naval technical achievements as variable depth sonar and the Beartrap helicopter landing system. — **Roger Sarty, Head of Historical Research and Exhibit Development, Canadian War Museum**

