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Maritime Engineering Journal

CNTHA
News Inside!

CANADA'S NAVAL TECHNICAL FORUM

Fall 1999/Winter 2000



Easing the Navy's Paper Burden with the *Halifax*-class On-line Technical Data Package

Also in this Issue:

- *Canadian MARE MS Officer Training at HMS Sultan*
- *Remembering the Victims and Lessons of the Kootenay Disaster*

Canada

Thirty years later: Remembering the victims of the 1969 *Kootenay* tragedy —



— Our story begins on page 16



Maritime Engineering Journal

FALL 1999/WINTER 2000

Vol. 18, No. 3 (Established 1982)



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Translation Services by
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**The Journal is available on the DGMEPM
website located on the DND DIN intranet
at [http://admmat.dwan.dnd.ca/dgmepm/
dgmepm/publications/](http://admmat.dwan.dnd.ca/dgmepm/dgmepm/publications/)**

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Our Cover:

The *Halifax-class* digital Shipboard Technical Information Library released on interactive CD-ROM and on the Defence Information Network (DIN) will save ships such as HMCS *Fredericton* nearly 12 tonnes in weight of paper alone. (*Canadian Forces Photo*)

The *Maritime Engineering Journal* (ISSN 0713-0058) is an unofficial publication of the Maritime Engineers of the Canadian Forces, published three times a year by the Director General Maritime Equipment Program Management. Views expressed are those of the writers and do not necessarily reflect official opinion or policy. Mail can be sent to: **The Editor, Maritime Engineering Journal, DMMS, NDHQ, MGen Pearkes Building, 101 Colonel By Drive, Ottawa, Ontario Canada K1A 0K2.** The editor reserves the right to reject or edit any editorial material. While every effort is made to return artwork and photos in good condition, the *Journal* can assume no responsibility for this. Unless otherwise stated, *Journal* articles may be reprinted with proper credit. A courtesy copy of the reprinted article would be appreciated.



Editor's Notes

Remembering the Lessons of *Kootenay*

By Captain(N) David Hurl, CD
Director of Maritime Management and Support — Editor

The 23rd of October 1999 marked 30 years since one of the more tragic events in the history of the Canadian navy — the terrible gearbox explosion and fire in the destroyer escort, HMCS *Kootenay* (see article beginning on page 16). The disaster, which claimed the lives of nine men, and injured 53 others, many suffering from dreadful burns, was a deadly reminder to our fleet of the importance of good maintenance and rigorous damage control practices.

The sailors of *Kootenay* acted bravely on that fateful day and saved their ship, which went on to serve Canada well for another 26 years. In the three decades since that sad day, the refrain, “Remember the *Kootenay* fire,” has served as a

reminder to our sailors of how quickly a critical combination of events can lead to disaster at sea. But how long will we continue to remember? When *Kootenay* paid off in December 1995, we lost not only a familiar “face” in the fleet, but also a visible reminder of an event for which we paid dearly to learn again the lessons of those who went before us. Future generations of officers and sailors entering the fleet must be reminded of, and heed this experience that was gained at such great cost.

The survivors, and the families of those who died, continue to carry their terrible memories with quiet dignity. We, in turn, should reflect often on the *Kootenay* experience so that the sacrifices of her sailors on that day in October 1969

continue to matter as we go about the daily business of keeping the navy prepared to “Float, Move, Fight.”



You can learn more about the lessons of *Kootenay* in D.K. Nicholson's, “*The Kootenay Gearbox Explosion*,” Trans I MarE, 1981, Vol. 3, Papers 10 and 11; and in Lt(N) David Sisley's Looking Back article in the February 1995 issue of the *Maritime Engineering Journal*.

Letters

Rear Admiral Davis

On behalf of my family and me, may I say how delighted we were with both the content and the presentation of the memorial tribute to my father, RAdm “Sam” Davis (*Maritime Eng. Journal/CNTHA News*, Feb. 1999). You captured both the essence and the breadth of this “renaissance man,” whose wit and wisdom we were privileged to experience on a personal and continual level.

As a professional officer myself, I have often had someone say to me in the midst of a mess conversation, “Oh, you’re Sam Davis’s daughter...” and proceed to

share an anecdote, or word of admiration for something he had done — be it a *bon mot*, or an act of kindness or professionalism. At the time of his death, we were truly overwhelmed by the wealth and intensity of the emotional response from a wide spectrum of people whose lives he had touched.

His funeral — which he had planned to the smallest detail — was not only a suitable naval evolution, but became, in the event, a magnificent tribute and a great comfort. Your presentation, in echoing that tribute, is likewise a fitting mem-

orial. We thank you for both the words and the images, and for capturing and sharing with us the memory of our father. — LCol Deborah Davis, Deputy Director of Military Staff Skills and Dean of Professional Studies, Canadian Forces College, Toronto.

(Letters continue on page 4)

The *Journal* welcomes **unclassified** submissions, in English or French. To avoid duplication of effort and to ensure suitability of subject matter, prospective contributors are strongly advised to contact **The Editor, Maritime Engineering Journal, DMMS, National Defence Headquarters, Ottawa, Ontario, K1A 0K2, Tel. (819) 997-9355**, before submitting material. Final selection of articles for publication is made by the *Journal*'s editorial committee. Letters of any length are always welcome, but only signed correspondence will be considered for publication.



Commodore's Corner

Afloat Logistics and Sealift Capability

By Commodore J.R. Sylvester, CD
Director General Maritime Equipment Program Management

Our naval fleet is just one part of Canada's overall defence capability, and rarely would it be used alone. The ability to employ the right combination of land, sea and air resources efficiently is crucial in peacetime operations, just as it is during wartime.

Whether we are involved in a full-fledged conflict, a peacekeeping mission, disaster relief, humanitarian assistance or an environmental clean-up, the timely delivery of personnel and equipment to an area of operations can make all the difference in achieving a successful outcome. It isn't much use having a mechanized brigade group trained and ready to go in Gagetown, or hundreds of tonnes of relief supplies stockpiled in a warehouse in Esquimalt, if the need for them is in Europe or Asia. At some point the resources must get to the scene.

Airlift is rapid, but limited, and so the ability to transport by sea remains an important aspect of Canada's national capability. This was clearly demonstrated during the Gulf War, again during our mission to Somalia, and most recently in

HMCS *Protecteur*'s support for forces in East Timor. Now, a proposed Afloat Logistics and Sealift Capability (ALSC) project aims to increase Canada's strategic sealift capability, as well as provide a fleet replenishment follow-on vessel to the ageing AORs. The broad support for this project from land, sea and air elements is an indication of the importance DND is placing on the future of joint operations.

The proposed ALSC project, which has been in the formative stages for years (*Maritime Engineering Journal*, June 1994), foresees a minimum of three ships, with displacement in the 30,000 tonne range, to fulfil the roles of strategic sealift, underway support to task groups, and afloat support to forces deployed ashore. Sealift capacity would be approximately 2,500 lane-metres of vehicle cargo space — five times as much as in the AORs — room enough for 300 light-support vehicles, or some combination of vehicles and aircraft. The ships would even have a measure of jetty-independence, perhaps through the use of a portable pontoon jetty system similar to the

"Mexeflotes" in service with the RN. Underway replenishment capability would be of the same type possessed by our AORs. As well, the ships would provide accommodation and facilities to support a limited joint force headquarters, and could be a "safe haven" for forces deployed ashore.

Although we don't yet have approval for ALSC, support for it has been encouraging. The combination AOR/sealift vessel that is envisioned is not readily found on the market — indeed, most existing tankers will not meet year 2005 environmental standards for double hulls, etc. And while it is too soon to say that a new shipbuilding project is in the offing, DGMEPM staff have been supporting the Director General Maritime Development and Operations (DGMDO) in examining the options.



Maritime Engineering Journal Objectives

- To promote professionalism among maritime engineers and technicians.
- To provide an open forum where topics of interest to the maritime engineering community can be presented and discussed, even if they might be controversial.
- To present practical maritime engineering articles.
- To present historical perspectives on current programs, situations and events.
- To provide announcements of programs concerning maritime engineering personnel.
- To provide personnel news not covered by official publications.

Submission Formats

As a general rule, article submissions should not exceed 12 double-spaced pages of text. The preferred format is MS Word, or WordPerfect, on 3.5" diskette, accompanied by one copy of the typescript. The author's name, title, address and telephone number should appear on

the first page. The last page should contain complete figure captions for all photographs and illustrations accompanying the article.

Photos and other artwork should not be incorporated with the typescript, but should be protected and inserted loose in the mail-

ing envelope. If at all possible, electronic photographs and drawings should be in TIFF or JPEG format. A photograph of the author would be appreciated.

Naval Divisional System

I would like to congratulate Lt(N) Keith Coffen for his excellent Forum article, "The Naval Divisional System and its Fundamental Importance to Morale in the Navy" in the June issue. The Divisional System is indeed of critical importance to the well-being of the navy, and as an officer he is on the mark in emphasizing the importance of our ships and our sailors before ourselves. Lt(N) Coffen's message needed to be said, and it needed to be said by a junior officer.

Having stated my hearty agreement with the points raised by Lt(N) Coffen, I will venture to disagree with him on one. In his concluding paragraphs, he writes, "Officers are officers not because of their education and training, so much as because of their greater commitment to duty and their ability to lead." I can read between the lines and see the point that he is making, but it would be wrong to believe that our Chiefs & POs have less commitment to duty, or ability to lead their subordinates, than officers. The Divisional System does not encompass only officers leading sailors — it also requires commitment and leadership from Chiefs & POs with respect to their duty to their subordinates. Officers are officers in the degree of responsibility entrusted to them, for which they are given education, training

and experience to enable them to be held accountable. If the Divisional System is successful, the navy has her Chiefs & POs to thank as much as her officers.

These comments are not intended to detract from the overall message that Lt(N) Coffen put forward in his Forum article, and I again congratulate him on his excellent work. — **Cdr Don Fleming, DIMSD 2, Ottawa.**

TSRVs

The article in your June edition regarding the conversion of the Torpedo and Ship Ranging Vessels caught the eye of several of your avid readers on NATO's northwest flank at the Canadian Forces Maritime Experimental and Test Ranges at Nanoose, B.C.

With their parting shot about alternative uses for CFAVs *Sikanni* and *Stikine*, authors Ed Chan and Lt(N) Gaston Lamontagne succeeded in putting the ever-eager crew of *Stikine* on alert. It must be made perfectly clear that both vessels are performing all of their duties, for which they were purposely designed, in a superb manner.

Rather than give up their two great vessels, the QHM Detachment, Nanoose, is actually contemplating crewing an additional vessel! Perhaps other agencies,

maybe even MCDVs, could benefit from this "contracting-in" activity. — **Cdr Gord Buckingham, CO CFMETR.**

Too Stealthy

The article "Ship Signature Reduction in the Canadian Navy" in the June 1999 edition of the *Journal* unfortunately did not recognize the valuable contribution made by my colleagues Jim Costain (acoustics) and Mike Edwards (range maintenance). Stealthy though the theme may have been, the assistance of all involved should not be hidden. — **Mike Belcher, DMSS 2-5-2.**

Errata

A computer glitch in our June issue was responsible for a couple of unintentional changes to units of measurement in the Ship Signature Reduction article.

In the sidebar on p. 26 the units were micrometers, not millimeters, and should have read, "...the IR signature in the 8-14 μm wavelength...." Similarly, the text on p. 27 should have read, "...a DREV IR imaging spectrometer operating in the 2-5 μm waveband...."

The "E5M" in Fig. 1 should have read "ESM" for Electronic Support Measures.

The *Journal* apologizes for the errors.



Forum

Life after the Navy — Is the grass greener on the other side?

LCdr (ret.) Xavier Guyot

The fact that I was retiring did not really hit me until the last day of Staff College. As everyone else prepared to take up their respective postings, I realized I was embarking on a totally new and somewhat uncertain course. It has now been three years since I took my leave from the navy in August 1996, and in that time I have experienced a much different life from the one I was used to in the military.

After being accepted for the Canadian Forces Reduction Program in February 1996, I immediately initiated a renewal of

the various professional and personal contacts I had made over the years. Three young children and a mortgage much higher than one would like provided a great incentive to secure employment quickly. This initial marketing effort resulted in my first job interview in April 1996, which was soon followed by an unofficial offer of employment. This first experience did not work out, but I did learn one extremely important lesson: *If it is not in writing in the letter of employment, it does not exist.* The corollary to this advice is not to trust anyone. I de-

cided to resign from this first job in December 1996.

In early January 1997 I found myself on a plane to Fremont, California to join LCdr (ret.) Bob Dunlop as a project management consultant. This short-term contract consisted of assisting a company in managing a fairly sizeable expansion project. The company in question had decided the previous July to quadruple its manufacturing capacity by building a new 190,000-square-foot manufacturing facility. By the time I joined the project the first production line was already operat-

ing at one end of the building, even though the roof was not yet completed at the other end. It was evident from this experience that business does not necessarily do it better. They do, however, seem to have a lot more freedom in decision-making and a much greater incentive to “get the job done.” Their approval process is much less bureaucratic — basically, if it makes sense, do it — but the down side is that accountability is much greater and you might find yourself involuntarily seeking greener pastures.

Finally, in March 1997, I met with Dr. George Xistris to discuss potential employment at the Naval Engineering Test Establishment (NETE) near Montreal. George made me an offer which, despite some grumbling on the home front about spending more time away from home than when I was in the navy, I accepted...and I have been at NETE ever since.

The first thing that hit me squarely was the fact that in civilian life you come in to a job as a totally unknown quantity. You are just the new guy in the office and you very quickly have to establish your credibility. In the military, whether it is deserved or not, your reputation and professional credibility precede you wherever you go. The interesting corollary to this is that the guy who looks like a slob is not necessarily the lowest guy on the totem pole! The lack of nametags and visible ranks makes it a real challenge determining who is who.

One fundamental difference between a military and civilian lifestyle is that the navy is truly a way of life. Your professional life and your family's life revolve around people who basically have the same values and share similar experiences and frustrations. Chances are, even if you are posted to a totally new area you will meet up with someone you and your family already know. Getting reacquainted is part of the adventure. In cases where you don't know anybody, your co-workers and their families will jump in to help you settle into the new community. This type of environment does not exist on the outside. Work is a place where you spend the day, and apart from occasional events such as a Christmas party or golf tournament there is very little social interaction with your co-workers either inside or outside of the workplace. Most of these people have moved only once or twice in their lives, and are usually already well settled in their communities.

On the positive side, I discovered that the navy provided me with an extremely varied and useful set of skills for my new career. Primary among them is the great amount and variety of training I obtained after graduating from university. The typical civilian engineer starts work after graduation, and may attend one or two technical seminar courses a year. The MARE, on the other hand, has to complete a significant amount of on-the-job training before becoming class-qualified and thus employable. While a lot has been said about this training, the one undeniable fact is that a typical MARE is exposed to a far greater variety of engineering disciplines than is the average civilian engineer. In my particular case, this very extensive and sound technical training was complemented by the opportunity to manage military and civilian personnel at a very early stage in my career, and to subsequently develop leadership skills. The ultimate year of my naval career, the one spent at Staff College, also provided me with a unique opportunity to develop a completely new set of skills.

In many ways, my Canadian Forces experience continues to give me a significant advantage over my civilian counterparts. Throughout my naval career I gained some intangible skills which proved to be easily transferable assets to me in my civilian employment. The main skill that I picked up was the application of leadership, which naval officers take somewhat for granted. But this was taught to us from basic training onward. On the civilian side, however, it's a different story. The more traditional manufacturing and resource based industries are only now coming to the realization that good engineers do not necessarily make good managers, and that leadership skills must be taught to potential and existing managers.

This leadership factor became apparent to me when our company, which is aggressively addressing this issue, implemented a performance management system for its employees. The new system was briefed to all the managers by the president of the company and by the human resources manager. Part of this new system is a requirement for managers to review employee performance on a regular basis and to ensure that the employee is fully cognizant of any weaknesses long before the annual evaluation is completed. As I was listening to the briefing I was somewhat surprised that we were be-

ing briefed on what, to me, seemed like a very basic and necessary concept. However, listening to the comments from some of the managers, I realized that in some cases the performance evaluation process consisted of giving the employee a copy of his evaluation report and telling him to sign it. In these days of hearing the eternal refrain of “business is doing it better,” this is definitely one area where the military is way ahead of industry. I should add that this opinion is generally shared by a number of ex-MAREs with whom I have regular contact.

There are a number of other skills that I picked up as a MARE over the years. The ability to take charge of a situation, the ability to plan work to achieve an objective, or to present ideas verbally and in writing clearly and logically — skills such as these are very useful, and their value should not be underestimated. I was never really aware of having learned them, but seeing evidence of them in my fellow officers, I just took it for granted that most people possessed them.

Is life better after the navy? In my particular case, the circumstances allowed me to make a decision with which I have been happy. Each of you is faced with unique circumstances and will have to make your own decisions. Do I have any regrets? I would say “regrets” is too a strong word, but maybe a touch of nostalgia (particularly for those Friday afternoons mentioned by Serge Lamirande in an earlier *Forum* article — *Life After the Forces*, Feb. 1999). Over the years I have met some incredible people and had the privilege to call a few my friends. I hope I will retain this privilege in the future.

Navy life has no parallel in civilian life, and once left behind cannot be replaced. I do not mean by this that part of my professional life ended after I left the navy. Rather, I look at my present employment as a natural progression of my career. The grass is not greener on the other side of the fence — it's just a different shade of green. So remember Xavier's simple law of gardening: Whatever shade of green it is, it always needs a certain amount of fertilizer to grow.



Halifax-class On-line Technical Data Package: Easing the Navy's Paper Burden

Article by Hugh Simpson

When the Canadian Patrol Frigate Project rolled out its on-line versions of the *Halifax*-class in-service technical data package in 1997/98, the navy took a giant step forward in reducing the fleet's paper burden. The digital Shipboard Technical Information Library which was released to *Halifax*-class ships on interactive CD-ROM and posted on the class home page on the Defence Information Network (DIN) replaced nearly three-quarters of a million pages of documentation — equivalent to an incredible 10 to 12 tonnes of paper per ship.

The CPF technical data package amounts to approximately 50 gigabytes of raw binary data, excluding vendor equipment drawings and software documentation. Getting the TDP to the raw digital stage was interesting, but the really challenging aspect of the process was keeping up with the constantly shifting information technology (IT) of the 1990s. Today, using state-of-the-art IT, the 50 gigabytes of raw data have now been compressed to 13 GB for shipboard use, and punched down to five gigabytes for the DGMEPM website. The volume does not mean that the ships have a lot more data; rather, it is a function of the user software which even now is evolving to enable greater reduction in file sizes for shipboard application.

Apart from the main advantage of reducing potentially massive paper holdings of technical publications, having the *Halifax*-class technical library available on-line offers significant savings in the time

it takes technical administrators to upload revisions. Where in the 1970s and 1980s it took 18 to 24 months to release a revised version of a document, updates today to the on-line technical library are released annually.

Technical document administration is processed by the *Halifax* class desk through the class design agent. Essentially, a change to an element of the in-

task. The Windows "point and click" desktop functionality also makes it particularly easy for fleet school trainers and others to cut and paste material (in both official languages) for use in lesson plans, training aids and correspondence. Certainly the best feature of the current web arrangement is that it is available without restriction to any person having access to the DIN intranet. The library is simply structured and presents little problem to

anyone familiar with naval systems. User help documentation is available on-line.

Evolution of a Concept

The roots of the *Halifax*-class e-library go back to the mid-seventies when the CPF Project specified microform as the optimum medium for storing technical data for shipboard application. This was later modified to "a form and format that would keep pace with naval

strategic information policies," but at the time, the microform initiative addressed only the 200,000 to 300,000 engineering drawings and associated lists that formed part of the technical data package. There still remained nearly 500,000 pages of technical support documentation for the operation and maintenance of hardware systems, approximately 15,000 pages of software user's manuals, as well as documentation for the supply and administrative systems.

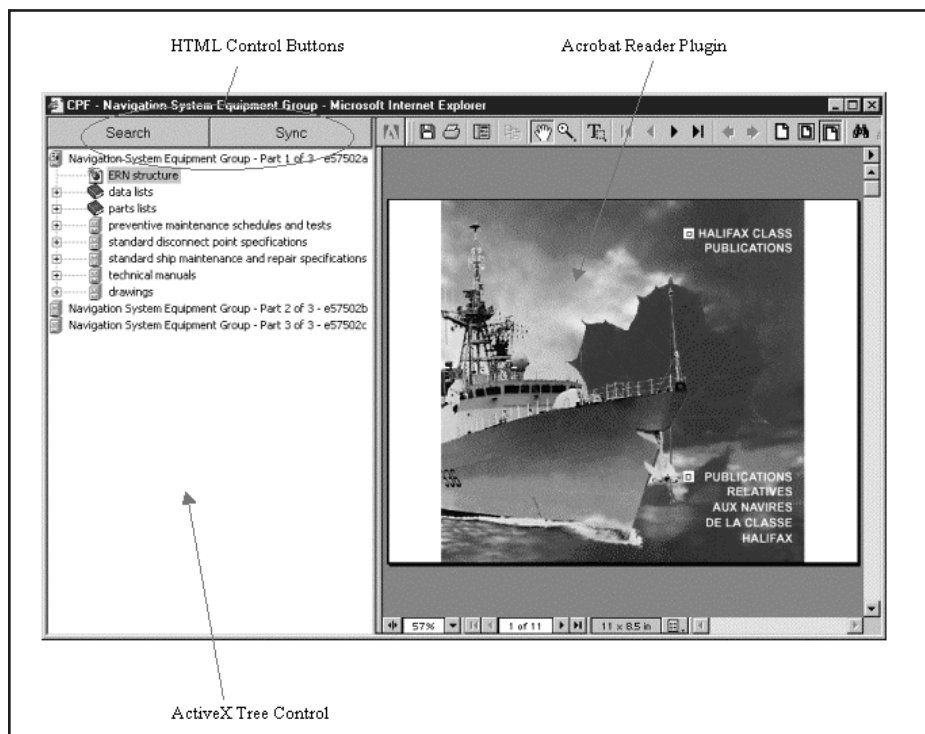
As were other navies of the day, the Canadian navy was very much interested in exploring the possibilities of a "paperless ship." Although a 1992 study concluded that resources were not avail-



CPF on-line technology will replace nearly 12 tonnes of paper in each ship.

service technical data package is initiated by the life-cycle material manager (LCMM). The change is then processed through an original equipment manufacturer or design agent, and fed into the Class Document Management System where it is collated, translated and integrated into the publishing data set. Interim revisions for safety bulletins and urgent technical updates are issued as required in hard copy or Y2K-compliant soft copy pending inclusion in the next annual CD-ROM and web release of the e-library.

Users will appreciate the reduced time it takes to locate and download the technical information they need to perform a



able to establish a project to *eliminate* paper in the *Halifax* class, it was evident that “electronification” (as former DGMEM Cmdre Bill Broughton put it) could reduce the amount of paper required to be handled by the ships and their LCMs. Increased computer literacy among crew, and strict control over the type and amount of paper documentation used on board were seen as essential elements in this process.

With this aim in mind the CPF Project looked at a number of document mark-up systems such as computer-aided logistic support (CALS) and SGML, but found them to be too immature to allow efficient search functions on CD-ROM. Fortunately, the CPF document publishing and translation software in use at the time (*Interleaf*) had a series of Windows-based complimentary utilities that supported CD pressing and portable document format (PDF) for publishing on the web. This was good news. A lot of time and money were already being spent on translation, and with a little more effort it would be possible to take this data and massage it into an interactive document system for sailors and support staff. An effort was therefore initiated to establish an electronic technical documentation management system as a natural offshoot of the CPF documentation translation process.

Getting the documentation into e-form was now in hand (current technology includes HTML, ActiveX and free Adobe software), but making sure it was user-friendly was another matter. In the end, the solution was to base the entire system

logic on something that technicians and life-cycle material managers were familiar with — the Naval Equipment Index.

All in all, it has been an extremely worthwhile exercise. Sailors on board ship now have the data they need on interactive CD-ROM, while the remaining support environment has easy access to it in web format on the Defence Information Network. Apart from a few isolated cases of new crewmembers not receiving adequate turnover briefings on the capabilities and workings of the on-line technical library system, feedback has been extremely positive.

Way Ahead

Physical space and weight savings on board the ships need to be capitalized on as soon as is practical. With Update '99 of the electronic CPF technical library now in use by ships and support agencies,

information technology planners are looking ahead to even wider application of non-tactical ADP in the fleet. A new engineering change to ICEMaN, the core of the non-tactical ADP system in *Halifax*-class ships, would allow individual onboard web servers to be established to take advantage of so-called “push/pull” technology for accessing real-time, on-line data objects through the Defence Information Network. This would ensure the currency of technical e-data at all levels. It's no wonder that engineering changes to standardize shipboard computer workstation hardware and to install jettyside hook-ups to the dockyard DIN are eagerly anticipated by the fleet.

DGMEMP has taken a bold step in establishing a complete technical e-data system for the *Halifax*-class frigates. The technology has been embedded within the system to facilitate long-term document maintenance and delivery to end users. Over time, confidence in this system will grow, and as it does, the long-term benefits (including the cost-effectiveness) of eliminating other document maintenance processes will become obvious. All effort now needs to be directed toward achieving this.



Hugh Simpson is the Canadian Patrol Frigate Project Management Systems Manager. He joined the CPF Project in 1979.

All *Iroquois*-class in-service drawings and associated part lists have been repatriated from the Directorate of Cataloguing and Initial Provisioning (DCIP), and from our previous class design agent, in order to transition these to the new “*Halifax/Iroquois* Class Design Agent and Technical Data Agency” (Siemens Westinghouse Technical Services) for care and custody.

Customer service requirements for DGMEMP will be provided (on an interim basis only) by DMCM/IRO 3-2, Bill Murdock (819) 997-0684. Information on the permanent method and process of customer service support shall be forthcoming on completion of the transition and data verification of all *Halifax*- and *Iroquois*-class data.

The only exception to this is the equipment (vendor) data, which shall remain within the DCIP 5 repository on the first floor of the Louis St. Laurent Building in Hull, Québec. DCIP 5 shall therefore provide customer service for vendor data permanently. — **Bill Murdock, DMCM/IRO 3-2.**

Bosnia: Greetings from the Front!

Article by LCdr Rob Mack

Dobra dan gospodina. Pozdravi iz Bosne.

Some five years after my first U.N. mission I found myself doing another somewhat unusual CSE tasking — commanding the Civil Military Co-operation (CIMIC) team in Bosnia. This group, also called G5 by the army, acts as the interface between the military, civilians and the various non-governmental organizations during peacekeeping and reconstruction operations. For the six months of the tour (June through December 1998) we developed and managed reconstruction projects for housing, bridges, schools, water and power, and got involved with virtually anything else that would promote the gradual withdrawal of NATO stabilization forces from Bosnia.

Canada has taken on some sort of civil/military co-operation role in each of its U.N. missions around the world. Generally, this has taken the form of low-cost community assistance programs at the company and platoon level in local



A destroyed apartment block. Note the numerous small-calibre bullet holes, and the holes from larger-calibre rounds on the side and front walls. This building is salvagable. (All photos courtesy of the author)

villages — repairing schools, clinics, playgrounds and such — much as HMCS *Preserver* did while supporting operations in Somalia. This time, things were significantly different. We would be operating under a recently developed Canadian CIMIC doctrine for the first time, and our team, which was now comprised of dedicated CIMIC personnel, would enjoy much greater liaison with local people and non-governmental agencies. We

would also have direct involvement in developing and managing multimillion-dollar reconstruction projects.

Canadian civilian-military co-operation evolved out of the concepts of the U.S. Army Civil Affairs Battalion, which covered all of Bosnia-Herzegovina until December 1997. The previous Canadian rotation had been distributed throughout a number of multinational units, but my rotation saw national units being used

within their own battle group areas of responsibility.

Following the end of the civil war in Bosnia, the emphasis was on returning an estimated 600,000 to one million persons displaced by the war to their original places of residence. This was no easy task. In many areas ethnic cleansing had radically shifted the pre-war demographics, and now local authorities were relocating displaced persons of their own ethnicity into the abandoned houses. These people would have to be evicted in order to give the houses back to the legal owners.

Compounding the housing problem was that many areas had been reduced to virtual moonscapes, and rebuilding efforts were often hampered by obstruction from local authorities, political ill-will and the everpresent danger of unexploded landmines. (Anti-personnel mines are everywhere in Bosnia and pose a real threat during building cleanup operations.

The hazards of road travel in Bosnia. During recovery operations, the front half of this bus ended up as an artificial reef in the lake 200 metres below!



Rubble and more rubble. Kozarac may have been a showcase village for reconstruction, but the debris was often mined.

Mines were often deliberately placed in blown up houses to deter people from returning. After a couple of explosions people became understandably reluctant to wander about.)

Although most nations based their units within the NATO stabilization force camps, we operated from a number of “CIMIC houses” in the primarily Muslim area of western Bosnia. Each day our unit would meet with local people, either by arrangement through local agencies, or through random encounters in the villages. These meetings, combined with targeted area assessments, would form the basis of a CIMIC plan to develop housing starts, rebuild infrastructure, restart businesses and promote refugee returns. Additional input came from non-government agencies as well as from the repair and reconstruction task forces.

Initially I was located with the battle group, but later worked out of the British H.Q. G5 in the Republika Serbska capital of Banja Luka. While there I acted as the divisional liaison officer to the non-governmental agencies in town and as a project review officer, visiting proposed project sites and working up funding pro-

posals for submission to the various donor agencies. Two officers from our headquarters would visit a site and meet with the local G5 officers (from Canada, the United Kingdom, the Netherlands, Belarus and Czechoslovakia) and the people proposing the project. The intent was to verify the requirements, clarify any weak areas in the proposal and confirm the engineering aspects of the proposal. This was necessary as few of the people assigned to the project offices had any training in civ/mil co-operation, project management, or engineering. Once a project was approved by H.Q. it would be proposed to a non-governmental organization for funding. The battle group G5 personnel would then become, essentially, project managers, with the headquarters

acting as the overseeing authority on behalf of the funder.

The work could be complicated. Each of the three ethnic groups had its own peculiarities, and our interviews were generally conducted through a translator. To make matters worse, telecommunications (when they worked at all) were poor and corruption was endemic. In the more rural villages where the local headman makes all the decisions, the atmosphere was downright medieval. In some areas the presence of Mujahadeen and Hamas personnel added yet another variable to an already confused situation.

It didn't help either that Bosnia is struggling through a transition from a Communist economy to a free market



The destroyed bridge at Blatna (inset) was rebuilt as a combined Canadian-British project to allow Serbs to return to Avanska. For two weeks while the nearby Otaka bridge was being rebuilt, this single-lane track was a major route to Croatia.



Heavy trucks crossed this small bridge over the Ribnik River daily. The bridge was later reconstructed.

system. Basic business concepts are unknown outside of major urban areas, and 40-percent interest rates on bank loans have put funds beyond the reach of most people. Interestingly, while the movement of goods across ethnic lines was difficult, all three ethnic groups bought, sold and traded with complete abandon at the border markets on the main roads straddling the zones of separation.

Just getting to an inspection site was generally an adventure. With average

road speeds of 40-60 k/hr, distances were measured in hours rather than kilometres. Not only was the road system in very poor repair, but venturing off the well-travelled routes was all but suicidal due to the mine threat. The driving itself can only be described as a giant experiment in selective genetic engineering given the driving habits of the local population.

Other adrenaline producing highlights of my tour included the September 1998 elections (complete with daily bombings

and assassinations), and in October there was the added tension of NATO's threat to bomb Serbia. Some of the G5 personnel were also called on to witness the exhumations of mass graves — one of the less pleasant ways to spend a day.

Progress in reconstructing the economy and infrastructure in Bosnia is being made slowly. Seeing as Yugoslavia did not have a western European or North American standard of living prior to the war, the international community intends to provide just enough basic services to allow the country to get back on its feet.

Despite the challenges, working in a multinational headquarters has been a great experience. Juggling national sensitivities, managing sizable budgets, travelling in a war zone, learning how to blow up buildings — not to mention trying to figure out how the army operates — has all been very challenging. It's going to be a change coming back to the navy, without my 9-mm gun and not being called "Major" any longer.



Epilogue

Sadly, the author will never see this article in print. LCdr Rob Mack died in Halifax on June 14. He was 42 years old.

Rob joined the navy in 1984, and was serving in the Maritime Forces Atlantic N3 branch when he died. A combat systems engineer, he saw service at sea in HMC ships *Qu'Appelle*, *Kootenay* and *Protecteur*, and ashore in Halifax, Esquimalt, and NanOOSE, B.C. He also completed tours with the U.N. missions overseas in Bosnia and Cambodia.

Fortunately for us, Rob found the time and energy to write about some of his experiences along the way. His refreshingly candid account of service with the U.N. Transitional Authority in Cambodia was featured in the February 1995 issue of the *Journal* under the title, "The CSE as a Military Engineer" (one half of a two-part special on "Cambodia — The Forgotten

Mission"). He also co-authored two articles inspired by HMCS *Protecteur's* role in the 1992 relief operations in Florida and the Bahamas in the wake of Hurricane Andrew (see "Looking Back: 1992 Hurricane Relief Operations," and "Forum: Relief Operations — A Non-traditional Role for the Fleet," *Maritime Engineering Journal*, October 1995).

Although "Greetings from the Front" will be Rob Mack's last article for the *Journal*, and I will miss working with him again, perhaps his example will serve to inspire others in the naval technical community to share the



experience of their own professional challenges through the pages of this journal. — **Brian McCullough, Production Editor, *Maritime Engineering Journal*.**

HMS *Sultan*: Canadian MARE MS Officer Training for the 21st Century

Article by LCdr Gary J. Lahnsteiner

“**S**ystems and Engineering Management Course — Royal Naval Marine and Air Engineering School, HMS *Sultan*, Portsmouth, U.K.”

Sound familiar? If this address doesn't ring a bell, try this one: “Canadian Forces Marine Engineering Application Course, Royal Naval Engineering College *Manadon*, Plymouth.”

Most MARE MS officers who joined the fleet prior to 1996 recognize the name of *Manadon*, the former military college and naval engineering school, but only the newer officers will realize that *Manadon* has been replaced by HMS *Sultan* in Portsmouth. RNEC *Manadon* closed its doors for good in 1995, with a civilian university now producing the degree portion of marine engineering training. *Sultan* is responsible for the application side of training for all air and marine engineering mechanics, artificers and officers in the Royal Navy.

HMS *Sultan* is now the largest training base in Western Europe, with approximately 5,000 personnel coming to work every day. It continues to grow, with the newest addition being all nuclear training for the submarine fleet. The training of officers, including Canadians, is the responsibility of the Officer Training Group. The staff remains a mixture of post- and pre-HOD (head of department) officers, with a Canadian and an Australian officer filling exchange billets.

The consolidation of officer training into *Sultan* (formerly an NCO training facility only) has been very successful. The Royal Navy has managed to reduce its overhead costs by putting all of its training under one roof, and officer training has benefitted from the excellent facilities used to train their ratings. Officers who remember the training hangers at *Manadon* and the old steamplant and turbo-alternators may feel nostalgic for the smell of steam, but *Sultan* is a state-of-the-art training facility. Gone are the days of classroom teaching aids such as overhead projections and hand-written teaching notes. Today the Officer Training Group facilities revolve around com-



HMS *Sultan* from the air. Located across the harbour from HMS *Nelson* Dockyard, Portsmouth, *Sultan* trains all naval and air engineers (officers and ratings). [G0.7 D-1.5 Crown copyright HMS *Sultan*-SL97-271-16.]

puters, *Power Point*[™] screen displays in every class, computer resource centres, and a CAD suite that rivals anything you would find in outside industry.

What does the Canadian officer get?

Courses range from auxiliary steam (yes, even the RN still has *some* steam in its ships), diesels, gas turbines, transmissions and hydraulics, to real-time computers and machinery controls. Course material is constantly being upgraded and instructors are encouraged to attend seminars and workshops, both within the Ministry of Defence and in the civilian sector, to ensure they remain current.

It is worthwhile noting that Canada has purchased the RN training package and as such does not get a tailor-made, Cana-

dian-specific course. Is this a worry? Not at all. The instruction focuses on system training as well as specific RN equipment, the philosophy being to train all officers on systems and general principles so that they can function in any ship in the fleet. So, although Canadians learn about the Olympus gas turbine rather than the LM2500, the theory is exactly the same and the bits and pieces are very similar.

The academics are supported by practical experience gained on equipment. One of the benefits of moving officer training to *Sultan* has been the ability to tap into the abundance of operational equipment used to train RN ratings. A quick walk around the buildings tells the story: MCR simulators, printed circuit board and control labs, gas turbines, countless diesel en-

gines, hydraulic test beds, refrigeration test beds...the list goes on. The idea is to give an officer the basic theory of equipment and systems in the classroom, placing the engineering officer's spin on things, then consolidate that officer's knowledge through practical exercises taught by experienced senior ratings.

Academic and practical training culminates in a duty watch serial that requires the student officers to take *Sultan* "to sea." The officers are split into watches that are required to conduct a complete equipment flash-up as per the instructions contained in the MSEO Night Order Book. As the scenarios become increasingly complex as the training progresses, the officers learn that flash-ups consist not only of bringing machinery on-line, but of meeting Notice for Power deadlines as well. To ensure the watches get a feel for what it's really like to work to a deadline, an OTG staff officer plays the role of a combined CO/MSEO. (Some students quickly learn that an uneducated answer to a machinery fault, or delay in reaching Immediate Notice for Power only leads to an extremely annoyed CO.) When all is said and done, the scenario is a command and control exercise coupled with the technical aspects of a flash-up.

Design Engineering Project

Canadian officers are still required to complete a design engineering project. In the mid-1980s it was the Torpedo Recovery Vessel project that was designed over and over again, but times have changed. Those of you who remember the days when projects revolved around building a better mousetrap — when you sketched out a solution on the back of a cigarette pack, then produced the paperwork to support it — wouldn't even recognize the modern design engineering project. Design engineering projects today are based on real-life issues, and require students to research actual *Halifax*-class, *Iroquois*-class, *Protecteur*-class and submarine systems, discuss issues with project sponsors, and investigate engineering problems with ship's staff.

The design engineering project ensures that Canadian officers gain experience with problem areas specific to Canadian ships. This training becomes invaluable when they eventually join the fleet for their Phase VI training. Moreover, the design project requires officers to formulate a statement of requirements which must be approved by their sponsor (be it a fleet maintenance facility technical authority, or an equipment desk in Ottawa). Students must also come up with integrated logistic support plans, risk assess-

ments, detailed cost analyses and implementation plans that fit ships' schedules, and must consider the many other aspects of project work. Prospective project sponsors should note that, in return for agreeing to identify an engineering problem and dedicate a small amount of their time, they will receive a final, detailed report that can be used as they see fit. There is no charge to the sponsor. Here are a few examples of recent design engineering projects:

- Investigate the problem of reducing microbiological growth in *Iroquois*-class water-compensated fuel systems.
- Provide solutions to *Halifax*-class HVAC problems.
- Replace Chemox breathing apparatus with a shipwide bottled air system.
- Solve corrosion problems associated with *Halifax*-class gas turbine intakes.
- Recommend a best option for a *Halifax*-class electrical system mid-life refit.

While at *Sultan*, Canadian officers have an opportunity to visit U.K. industries and see how the theory they've been taught at *Sultan* is being applied in the commercial world. Recent visits have included Rolls Royce (both their gas turbine WR21 project and their advanced diesel research centre), the shipyard at Barrow-in-Furness where the *Victoria*-class submarines are being readied for Canadian acceptance, and the shipyard where the RN is building an 80-metre operational trimaran hull to assess the feasibility of this hull form for their Type 22 replacement project.

The Future of *Sultan* Officer Training

The Royal Navy continues to look for better and more cost-effective ways of training its officers. A reorganization of the Officer Training Group is now taking place, the idea being to have senior ratings teach officers the mechanical aspects of equipment and systems, with post-charge-qualified officers teaching the "engineering officer" perspective to students. This training philosophy is currently being used to train RN combat officers (PWOs) at HMS *Dryad*, but still represents a major change in the way the RN and CF train their engineering officers. As such, it must be handled carefully to ensure the end product remains at least as good as it is at present. The days of "we've always done it this way" are fast slipping by the wayside and going the way of the steamers.

The move from RNEC *Manadon* to HMS *Sultan* has been very positive. The academic aspects continue to be upgraded as new technology enters the Royal Navy.

The design engineering project provides excellent training in Canadian-specific shipboard problems, and in how to prepare and present major projects to senior officers. The continued success of this project requires a commitment from everyone in our fleet and fleet support units: we are always hunting for project sponsors.

One of the intangible benefits of training with officers from the RN, as well as with those from New Zealand, Kuwait, Brunei, Pakistan, Singapore and Ireland, is that our Canadian officers get a chance to learn about the capabilities of other navies and how they operate. In light of our navy's ongoing involvement with multinational task groups, such cross-navy experience at *Sultan* will pay dividends when these officers eventually become MSEOs of their own ships.

Finally, now that the *Victoria*-class submarine training is in full swing at nearby HMS *Collingwood*, a mere five minutes from *Sultan*, I suspect that many more MAREs will be visiting this area from Canada. I openly invite anyone visiting the submariners to contact me at *Sultan* for a tour and a pint of bitter. Cheers.



LCdr Lahnsteiner is currently on exchange at HMS Sultan, where he is responsible for Marine Engineering instruction in transmission, steering and stabilizer systems, and ILS. Prior to arriving at Sultan he was MSEO on board HMCS Toronto.

Greenspace: Maritime Environmental Protection

Expert Workshop: Oily Waste Water and Oil Content Monitoring

Article by LCdr Mark Tinney



Workshop participants get a close look at the navy's new Hydromem™ Oily Water Separator in operation at Conor Pacific Environmental Technologies Inc.

In mid-September, DGMEPM/DMSS 4 hosted a NATO Special Working Group 12 sanctioned workshop in Hamilton, Ontario, to discuss a variety of issues concerning shipboard oily wastewater treatment and control. The discussions included the design, testing, certification, operation and monitoring of oily wastewater treatment systems, as well as existing and anticipated regulations. The meeting provided a unique opportunity for engineers and scientists to assemble in one room and compare notes.

A number of countries have developed or are in the process of developing new systems to separate and monitor the water phase from bilge fluids. The workshop allowed representatives from the United States, United Kingdom, Netherlands,

Norway and Germany to exchange information on the latest developments. The Canadian contingent included representatives from the Marine Auxiliary section of the Directorate of Maritime Ship Support (DMSS 4), the Naval Engineering Test Establishment (NETE), Defence Research Establishment Atlantic (DREA) and the University of Ottawa.

Separating chemicals, hydrocarbons and solids from the water phase of bilge fluids is not a simple matter, due mainly to the widely fluctuating makeup of the bilge fluid itself. Nor is it an easy matter to accurately monitor the effluent being discharged to ensure that the oil content is within legal limits. The workshop, therefore, provided a perfect opportunity to exchange information on these issues as they related to high-level process design,

test and trial data, and in-service performance results.

Most nations are pursuing membrane ultra-filtration as the process to meet the effluent quality regulations of MARPOL 73/78. The technology is fairly new in its implementation (for this purpose) and so discussions on this subject were of great interest to everyone. One problem with using membrane filtration is that the small pore sizes make the membranes very susceptible to fouling. In an effort to prevent this from occurring, it is necessary to use pretreatment systems upstream of the membranes to remove the majority of the suspended solids, oil, fuel, detergent, degreasers, grease, aqueous film forming foam, glycol, synthetic lubricants, etc. In this way the membranes only have to filter the suspended particles and emulsions which cannot be removed by pretreatment. Highly effective pretreatment can significantly improve membrane performance, but as with most things this is easier said than done. A variety of methods do exist for protecting membranes from contamination, albeit with varying degrees of success.

One of the greatest challenges in the entire bilgewater separation process is the accurate and reliable measurement of oil content in the effluent. A number of different technologies are currently in use for monitoring oil discharge, but each has its limitations. Oil content monitors work best on a fairly consistent influent, which is not the case with navy ships. The introduction of anything new into the bilge can seriously affect an OCM's accuracy. There was general agreement that a simpler way of monitoring the effluent must be found. Great interest was therefore shown when DREA presented a prototype system that can accurately measure oil content quickly, easily and inexpensively. It was also interesting to compare actual in-service performance results of OCMs operating in the harsh environment of shipboard machinery spaces. Findings were also compared between countries that have already done evaluations of the various OCM technologies.

Designing an effective membrane-based system means first conducting a detailed analysis of the bilge fluid to be processed. One such study conducted by NETE in 1996 showed that the makeup of bilge fluids varies widely from ship to ship and from day to day. Thus a system must be designed to handle the worst case scenario, and membranes must be optimized for the task.

Crew education is also crucial when it comes to introducing membrane-based technology to a ship. The intricacies of the system demand that operators have a high level of understanding of what is going on in the system so that they can analyze and rectify the inevitable problems correctly and quickly. Crews need to be educated to the fact that "bilge strip-

ping" can be eased considerably by employing every possible measure to avoid putting fluids in the bilge in the first place.

The workshop included tours of Conor Pacific Environmental Technologies Incorporated (designer and installer of the new membrane-based Hydromem™ Oily Water Separator system being used in Canada's warships), and Zenon Environmental Systems Incorporated (developer of the Aerated Membrane Treatment System being developed for the USN).

Overall, the participants were extremely impressed by the level of the discussions, which ultimately led to the drafting of some very useful conclusions and recommendations. If actioned, they will have a significant beneficial impact on the design, testing, certification, op-

eration and monitoring of oily wastewater treatment and monitoring systems. It is intended to list these findings in the *Journal* after they have been presented to a full meeting of NATO Special Working Group 12.



LCdr Tinney is the project manager of the navy's Maritime Environmental Protection Project.

Department receives U.S. Environmental Protection Agency award

The Department of National Defence has received the 1999 U.S. Environmental Protection Agency's Stratospheric Ozone Protection Award for its progress in the recovery, reclamation and reuse of halons.

Halons are effective fire extinguishing agents because they are electrically non-conductive, leave no solid or liquid residue, are non-corrosive, and are considered non-toxic at recommended concentrations. However, halons contribute to the depletion of the stratospheric ozone layer. Under the direction of the C.F. Fire Marshal, the department has reduced its halon requirements by 65 percent so far. DND has also implemented procedures to remove halons and find alternatives.

The department uses two types of halon. Halon 1211 is used almost exclusively in hand-held fire extinguishers and, to a limited extent, in larger-capacity wheeled units. Halon 1301 is used primarily in total-flooding systems. These systems are designed to provide a concentration of extinguishant in such areas as computer rooms, telecommunication facilities, control rooms, shipboard machinery spaces, aircraft engine areas and cargo bays.

DND's Halon Removal and Replacement Program is managed by Defence Construction Canada, a Crown corporation responsible for contracting and su-

pervising major military construction and maintenance projects. The program has resulted in 97 percent halon removal and replacement in buildings on Canadian Forces bases across Canada, with 100 percent removal expected by the end of 2000. All halon systems in the North Warning System have been removed.

Halon systems are also being removed from navy vessels. Shipboard spaces that require fitted firefighting equipment are being outfitted with fine-water mist spray systems like that already installed in the 850-kW diesel engine enclosure of HMCS *Charlottetown* (see photo).

So far, the department has recovered, recycled (to maintain existing systems where alternatives to halon have not yet been found), and safely stored over 190,000 pounds of halon.



A fine-water spray halon replacement system installed in HMCS *Charlottetown's* 850-kW DG enclosure protects the space against fire. Six 5-litre/min nozzles use LP air to atomize water into 100-micron droplets. The stainless steel fittings of one nozzle assembly are visible at centre. Water is supplied down to the nozzle through the segment of piping with the 180° bend in it, while LP air arrives via the stainless steel segment angling down from the left. (DND photo)

(Canadian Forces News Service with files from LCdr Tom Shirriff)



Looking Back

They Were as One: Remembering the Victims of *Kootenay*

Article by Lt(N) Pat Jessup

Photographs by MCpl S. McNeil, CFB Halifax Photo, except where noted

Jacqueline (Stringer) McCracken was five years old when the navy padre and an officer from HMCS *Stadacona* arrived at her front door. Excited because her injured dad, Petty Officer First Class Lewis Stringer, was expected home in just a few days, she let the hapless visitors into the living-room. Her mother, Christine, about to leave for the hairdresser so she would look her best when her husband arrived home on board *Bonaventure*, guessed instantly that the officers were bearing the worst news a wife can receive. The blow came especially hard as PO1 Stringer's condition had first been reported as satisfactory. Jacqueline will forever remember her mother's reaction as Mrs. Stringer tried to send the officers away before they could complete their sad mission.

Thirty years later, on the anniversary of the tragic Oct. 23, 1969 engine-room gearbox explosion and fire on board HMCS *Kootenay* that killed her dad and eight of his shipmates, Jacqueline McCracken stood quietly in the *Stadacona* chapel as the Canadian navy paid honour to the memory of the victims of this country's worst naval casualty incident since the Second World War. The incident had far-reaching effects as it precipitated major improvements to firefighting and damage control practices throughout the fleet, and led to changes in national procedures for repatriating remains and funeral arrangements for overseas Canadian Forces casualties.

For the children who had lost fathers in the disaster, the observance helped bring a special kind of closure. There had never been a Canadian ceremony to remember the *Kootenay* victims, and over the years that absence was perhaps felt most strongly by the children. Back in 1969, the eighteen mostly primary-school-aged children left fatherless by the tragedy had remained at home while their mothers and grandparents travelled to the U.K. for the funerals. Although the Stringer daughters, Jacqueline, Louise and Susan were young at the time, they at least were able to attend the funeral of

their father, the only *Kootenay* victim to be interred in Canada. Regulations that prevented repatriation of the remains of the eight others did not apply to PO1 Stringer who died at sea in *Bonaventure*'s sick bay two days after the accident. He was buried in Fairview Cemetery in Halifax.

The 1999 remembrance was first proposed by MARCOM Chief, CPO1 Terry Meloche, and came together under the direction of Maritime Forces Atlantic staff. As the Halifax event took shape it grew. Plans for a simple observance were overtaken as the *Kootenay* cross-country "network" came into play. Information, artifacts and interest poured in. Within six weeks all of the families of the lost sailors had been located and a mailing list of 230 names had been compiled. Departmental approval was gained to bring next-of-kin, significant crew and medal winners to Halifax for the ceremony.

Betty Galloway lost her only son, Nelson, in the accident. Overcome by smoke in *Kootenay*'s cafeteria, the 19-year-old seaman died in the arms of Supply Technician PO Stringer (who was posthumously awarded the Cross of Valour for his actions in seeing his shipmates to safety from the cafeteria on that awful day). Betty was recovering from a broken back, but nothing could keep her from coming to Halifax for the planned ceremonies.



Jacqueline and Susan Stringer at their father's funeral in Halifax in 1969. P1 Lewis Stringer was the only *Kootenay* victim to be interred in Canada. (Photo the *Mail-Star, Halifax*) Thirty years later (right), the navy conducted a remembrance ceremony at his gravesite in Fairview Cemetery, with Mrs. Christine Stringer and daughters Jackie, Susan and Louise (with Padre Brian Wentzel).

Esther Boudreau had been talking to her husband, CPO Bill Boudreau, just before *Kootenay* left Portsmouth on Oct. 21st, two days before the explosion. He had been complaining of a sore throat, so when the *Stadacona* officers showed up at her Spryfield house and said that Bill "wasn't coming home," she only thought it very strange that a sore throat would prevent him from sailing with the ship.

Looking Back

**Four buried at Surrey and four in the Sea,
The ninth was returned, to rest in the Lee,
Of a hillside grave, in sight of the Sea,
Where he loved to be.**

(From “*The Kootenay Disaster*,” written by the late Fred J. Lovett, brother-in-law of PO1 Lewis Stringer, posthumous recipient of the Cross of Valour)



Esther barely remembers anything that occurred in the next six months.

CPO1 Bill Greenlaw, ERA, was in the crew that brought the damaged *Kootenay* home to Halifax for repairs. The first thing that he would see every time he climbed down the engine-room ladder was his friend, Bill Boudreau's toolbox. He never found the heart to move it.

The Thursday service flight on Oct. 21, 1999 delivered the first of the out-of-area families and crew. By Friday evening, more than 350 people had gathered for the *Kootenay* remembrance Meet and Greet hosted by the Atlantic Chiefs & POs. The event was lively and enthusiastic, with most people commenting on how everyone else had aged over the thirty years! The wife

of *Kootenay* Commanding Officer Cdr Neil Norton even joked about the young man in civilian clothes who had introduced himself to her as an admiral! (Imagine her surprise later to see RAdm Dusty Miller, the Commander of Maritime Forces Atlantic, in uniform, and still looking youthful!)

Despite early predictions of clear and sunny skies, the next day dawned overcast and threatening. By 0700 Halifax was deluged by torrential rain. When HMCS *Anticosti* slipped for the waters off Point Pleasant Park with *Kootenay* families embarked for the first of the commemoration ceremonies, a sombre mood matching the weather prevailed.

Seventeen children were aboard *Anticosti* that morning, as were seven of the eight widows, several brothers and sisters and two parents. Also sailing was Nancy Cheesman, whose husband LS Ashley Cheesman suffered severe smoke inhalation in the tragedy and was hospitalized for several months after the accident. He died six years later. Others who joined *Anticosti* that day were *Kootenay*'s CO, Cdr Neil Norton; officer of the watch Capt(N) John Keenlside; engineering officer and bravery citation recipient, LCdr Al Kennedy; chief shipwright and

Looking Back



OS Nelson Galloway



PO Eric Harman

Medal of Bravery recipient, CPO Bob George, and *Saguenay* crewmember and bravery citation recipient, PO Grant Lynch.

Petty Officer George, who was 33 at the time of the accident, received the Medal of Bravery for organizing and directing damage control and firefighting parties after the explosion. When intense heat, flame and smoke spread to adjacent passageways and the boiler-room, he sprayed one of the ammunition magazine areas and then flooded it to prevent possible explosion. He led the attempt to fight the fire in the engine-room through the forward hatch, at one point getting as far as the foot of the ladder before being forced back.

While Padre Brian Wentzel led the afloat ceremony, other *Kootenay* crew-

members gathered for a private service at the nearby *Bonaventure* memorial ashore. For a brief moment the weather let up, and as *Anticosti's* light signaled the group on land, the two groups observed one minute of silence together at 0821. From *Anticosti*, Cdr Norton laid a wreath, and in a poignant moment, P1 Eric Harman's five children cast yellow roses into the waters off Point

Pleasant Park. At the shore service, the crew placed one hundred white carnations at the *Bonaventure* memorial where *Kootenay's* victims are named.

At *Stadacona*, St. Brendan's Chapel filled to a bagpipe lament. *Kootenay's* kisby ring stood among bouquets of red roses at the front of the church and LS Pierre Bourret's cap rested on the altar. Padre Wentzel led a moving service from *Kootenay's* Bible, and reflected on the *Kootenay* memorial window at the right of the chapel. Jacqueline McCracken, her voice steady until the end, read a poem eulogizing the tragedy.

A wreath-laying ceremony followed at the gravesite of PO1 Stringer, the only *Kootenay* victim to be buried in Halifax. Of the others, OS Nelson Galloway, LS

Pete Bourret, CPO Vaino Partanen and OS Michael Hardy were laid to rest in Brockwood Cemetery in Surrey England, while LS Gary Hutton, CPO Bill Boudreau, PO Eric Harman and LS Tom Crabbe were buried at sea off Plymouth. P2 Harry Bryan, who played the Last Post at the funerals in England, played again at the wreath-laying in Halifax.

The formalities over, everyone returned to the *Stadacona* Wardroom for the unveiling of the *Kootenay* exhibit, and brunch. (Plans are underway for the *Kootenay* commemorative exhibit to travel to NDHQ, NAVRESHQ, the Calgary Naval Museum, MARPAC, the Canadian Forces Command and Staff College, and the Canadian War Museum during 2000. Actual timings will be promulgated in the *Maple Leaf*.)

Capt(N) Keenlside relayed messages from crew who could not attend, including Star of Courage recipient LCdr Clément Bussi res, the petty officer in charge of the boiler-room at the time of the explosion. As the boiler-room filled with smoke, P2 Bussi res ordered his men to lie flat on the deckplates and breathe through damp rags. He saw that there was steam pressure for firefighting, and later put on diver's breathing equipment in order to stay at his post long enough to shut down the boilers properly. He then joined the damage-control team which was trying to cope with the situation in the engine-room.

The man who gave his own breathing apparatus to P2 Bussi res was the navigator, SLt Clark Reiffenstein, who won the Star of Courage for his repeated efforts to rescue crew members following the explosion. Donning aqualung equipment not designed for use in firefighting, he proceeded to the smoke- and heat-filled deck immediately above the scene of the explosion and fire in the engine-room and led or dragged men to safety from the area of the cafeteria. He then made his way to the boiler-room to see that it was cleared and eventually turned his aqualung over to P2 Bussi res. SLt Reiffenstein survived the disaster aboard *Kootenay*, but died several months later.

The bravery awards did not come immediately. In 1972 the Canadian honours system was expanded to include decorations for bravery. The first six bravery awards went to *Kootenay* sailors. Other medal winners included Chief ERA Vaino Partanen who was posthumously awarded



Victims' families and ex-*Kootenay* crew disembark the minesweeping auxiliary HMCS *Anticosti* after remembrance ceremonies off Point Pleasant Park in Halifax. In a poignant moment, PO Harman's five children cast yellow roses into the sea.

Looking Back



Following the remembrance ceremonies for the *Kootenay* victims, including a wreath-laying at the *Bonaventure* memorial in Point Pleasant Park (above), participants unveiled a special *Kootenay* display (below) that is scheduled to travel across Canada in 2000.



the Cross of Valour. In full knowledge that he was in mortal danger, he remained behind in the engine-room to report the situation by telephone to the officer of watch on the bridge. He died moments after attempting to make his effort. Petty Officer Gerald Gillingham won the Medal of Bravery for his leadership during the emergency. Off duty at the time of the explosion, he rushed to the mortar well where a party was being organized to fight the fire and rescue men. He put on a breathing apparatus and made his way

into a devastated area immediately above the engine-room to shut off the "main stops" at the emergency position. Later, he exposed himself to heat and flame to operate one of the fire hoses being used near the engine-room.

The crew's remarkable firefighting and damage control saved the ship from a much worse fate. Later, *Kootenay's* captain, Cdr Neil Norton would write that "a less professional crew could easily have finished the day in liferafts."

Shortly after the remembrance ceremonies in Halifax, Al Kennedy wrote to say thank you. "The appreciation of the family members present was so very obvious and heartfelt, as was that of those of us who had been there thirty years ago. Please know that the many, many hours put into the event made this a remarkable occasion. I can't ever remember feeling so proud of having been in the navy as I did seeing today's young men and women in uniform in Halifax over the past few days."

Capt(N) John Montague, who was a sub-lieutenant on board *Kootenay* and donned an aqualung to assist in the effort to save the ship, recalled that "everyone that day was a hero." After the remembrance ceremonies he wrote: "This past weekend's anniversary reunion was....one of the most memorable events of my life....It helped to bring closure to this tragic event of 30 years ago...."

Vice-Admiral Greg Maddison, Chief of the Maritime Staff, voiced the feelings of many when he said, "The navy will always remember those who have made the ultimate sacrifice...."

Perhaps the last word should be left to Jacqueline (Stringer) McCracken who, in a letter to RAdm Miller, remarked that, "The commemorative services were truly a moving experience for me and my family. These events enabled my family to learn more about our father, through the eyes of his shipmates. It comforts us to know, we are not alone in our loss. We cannot adequately express our family's appreciation of everyone's efforts...."



Lt(N) Jessup is the Community Relations Officer for Maritime Forces Atlantic in Halifax.

[The editorial staff wishes to acknowledge the contribution of CPO2 Doug McLeod in the *Journal's* coverage of the *Kootenay* remembrance. CPO McLeod, who was *Kootenay's* last Chief ERA when the ship paid off 1995, has done much to publicize the events of that tragic day in 1969. He provided us with a great deal of background material and impetus, and for that we are grateful. — Editor]

News Briefs

Victoria-class FC system

With the help of partners such as Lockheed Martin Canada, Lockheed Martin Undersea Systems and Northstar Technical Inc. (located in St. John's, Nfld.), components from the *Oberon* Submarine Fire Control System will be installed in the four *Victoria*-class submarines.

Experts at Lockheed Martin will transfer the equipment from the *Oberons* to the *Victoria*-class submarines in Halifax. New fire-control consoles will be built and tested by Northstar Technical, which will also provide computer displays, computer chassis and computer circuit boards. The overall work is scheduled for completion in 2001 at a cost of \$17 million.

The fire-control system allows a submarine to track, acquire and engage a target. Compared to buying a new system for the *Victoria* class, modifying and installing the familiar *Oberon* system will reduce costs and crew training time. — (CF News Release)

New naval training facility

The Hon. Art Eggleton, Minister of National Defence, officially opened a new training-support facility at Canadian Forces Base Esquimalt in November. The Commander E.A.E. Nixon Building is the newest addition to the Naval Officer Training Centre, also known as *Venture*, where junior officers train for careers at sea.

"This marvellous new facility will help support the development of future generations of Canadian naval officers," said Minister Eggleton. "This project demonstrates the department's commitment to

providing effective training facilities for our people."

The new facility is situated at CFB Esquimalt's Work Point property on a site that looks over Victoria Harbour. The 2,200-square-metre building includes space for administration offices and instructional areas, such as a drill deck, change rooms and fitness facilities, a conference room and a student lounge.

The Commander E.A.E. Nixon Building was named to honour Commander Edward Atcherley Eckersall Nixon of the Royal Canadian Navy. Cdr Nixon was widely acknowledged as the "heart and soul" of the Royal Naval College of Canada during World War I. His son, Naval Captain C.P. Nixon, the commanding officer of HMCS *Chaudière* in 1944 and credited with destroying three U-boats, was the guest of honour at the ceremony.

The building was designed by CJP Architects of New Westminster and constructed by Knappett Construction Limited of Victoria. The Nixon building is part of the Naval Officer Training Centre Facilities Upgrade Project. The cost of this project phase totalled \$4.5 million. — (CF News Release)

Naval Engineering Manual Update and Revision Project

Our time-honoured Naval Engineering Manual is in for an overhaul. Spawned from the old BRCN 5521 Engineering Manual for the Royal Canadian Navy of the 1950s, the modern-day Naval Engineering Manual (NEM) provides the fundamental ship engineering policy from which other engineering and support

policy is derived. The two-volume manual was last amended in 1995-96.

The NEM defines our first-level responsibilities and governs the means by which we practise engineering in the operation of ship systems. Given the substantial changes brought about by the fleet modernization and reorganization of recent years, both Vol. 1 (Marine Systems Engineering) and Vol. 2 (Combat Systems Engineering) were felt to be in need of major revision if they were to offer clear and relevant engineering policy reflective of our evolving navy.

DGMEPM is therefore in the process of launching the NEM Update and Revision Project. The project aims to capture the relevant aspects of the current edition of the Naval Engineering Manual, while refocusing on the needs of today's fleet. Working closely with CMS staff, the MEPM project team will solicit input from the broader naval community. Although specific organizations will be targeted for input, all will be invited to contribute to both the process and the content of the update. The project is expected to deliver a revised NEM in November 2000.

For further information, visit the DMSS 4 DWAN website at <http://dgmepm.d-ndhq.dnd.ca/dgmepm/dmss4/dmss49>, or contact the project manager, LCdr Rick Perks, DMSS 4-9 at (819) 997-9610, internal e-mail (PERKS.LCDR.RL@DMSS@NDHQ) or Internet e-mail (LCdr.R.Perks@dnd.can).



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Ashurst Lodge, Ashurst
Southampton, SO40 7AA, UK

www.wessex.ac.uk/conferences/

Coastal Environment 2000 (Sept. 18-20) and Oil Spill 2000 (Sept. 20-22)

LEADING INTERNATIONAL CONFERENCES on Environmental Problems in Coastal Regions, Oil & Hydrocarbon Spills, Modelling, Analysis & Control in Las Palmas de Gran Canaria, Spain.

Coastal Environment 2000 will address the subject of computer modelling of seas and coastal areas under normal and extreme conditions, with particular attention to practical applications currently carried out around the world.

Oil Spill 2000 will deal with advanced theoretical and practical aspects of oil spills in land and water environments, and will help to close the gap between theoretical developments and practical applications.



News

CANADIAN NAVAL TECHNICAL HISTORY ASSOCIATION

Obituary: Hal Smith a Moving Force in the CNTHA

Hal W. Smith, DSc MIT, F.C.A.E., Professor Emeritus Faculty of Applied Science and Engineering U of T, Commander, RCN (retired), left us on November 16 when he was in full stride in his fourth career. After twenty years in the RCN, he became a professor of engineering at the University of Toronto. He soon rose to head the Faculty of Engineering, and then to the most senior administrative posts in the university. His training as a divisional officer, he claimed half seriously, prepared him for the worst that academic politics could throw at him.

Hal's retirement did not last long. In the early 1990s, Captain Rolfe Monteith (retired) and Rear Admiral S.M. Davis (retired) drew him into a group studying the history of the hydrofoil project. In the 1960s, Hal had headed sonar development for the hydrofoil under the leadership of these distinguished officers. I met Hal about seven years ago when he approached the Directorate of History where I was working as the naval team leader. He was seeking guidance in the techniques of historical research and writing, but there wasn't a great deal I could teach him. He and the rest of the hydrofoil history team were already, through their old service connections, pulling invaluable documents out of the woodwork and producing groundbreaking drafts.

Our meetings soon turned into seminars in which Hal educated DHist staff about how the history of the navy's technical achievements could and should be done. Before long, Hal himself was spearheading the effort, undertaking a series of studies for DHist on sonar development in the RCN. In many respects it was a work of autobiography, for Hal had been a player in so many aspects of the story. Ever the professional skeptic, however, he never trusted his memory, and travelled from his home in Victoria, BC to Ottawa and Halifax and the U.K. for many weeks of concentrated research each year.

The magnificent studies he produced, like those for the hydrofoil project, set a new standard for military technical history in this country. Moreover, his enthusiasm and brilliant work provided inspiration to the naval community, not least to DHist, at a time of deep cutbacks. In particular, it was Hal's commitment and industry that did much to bring about the establishment of the Canadian Naval Technical History project, and he was a moving force until a few short weeks before his death. Only about 18 months ago did I learn, and then only by a chance remark, that Hal had been driving himself at this pace in the face of grave medical problems.

Over dinner one bleak winter evening in Ottawa, I asked Hal what the key to leadership was in times of diminishing budgets and layoffs. He answered that a leader always has the same role: "part coach, part cheerleader." This, I think, was Hal's view of himself. He was too modest to add that he was always in the trenches slogging with the troops.

— Roger Sarty
Director Historical Research
Canadian War Museum



Canada

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CNTHA News is the unofficial newsletter of the Canadian Naval Technical History Association. Please address all correspondence to the publisher, attention Michael Whitby, Chief of the Naval Team, Directorate of History and Heritage, NDHQ Ottawa, K1A 0K2. Tel. (613) 998-7045, fax 990-8579. Views expressed are those of the writers and do not necessarily reflect official DND opinion or policy. The editor reserves the right to edit or reject any editorial material.

Messdeck Lighting in HMCS *Haida*

Article by P.D.C. Barnhouse



“Cabinet” Approval

The Directorate of History and Heritage has gained a veritable windfall of information from the offices of the Director General Maritime Equipment Program Management in Hull. The information, contained in 44 filing cabinets of technical files no longer required on site by DGMEPM, will be of great help to DHH historians in their research into Canada’s post-war navy.

The files cover a wide scope of technical material, from details on the workings of individual pieces of kit to the layout of full engineering systems. The daunting task of assessing the contents of the files was made easier thanks to the expert assistance of life-cycle material manager Fred Glover (DMSS 7-4-4) who volunteered to do this work on behalf of all DGMEPM LCMMs. It couldn’t have been a better experience.

DHH was alerted to the availability of the files through the close co-operation of DGMEPM and the Canadian Naval Technical History Association. It is a fine example of how everything can go right when people work together to preserve the record of Canada’s naval technical history.

The files will be transferred to DHH’s Holly Lane facility in Gloucester sometime early in the new year. Once the information has been catalogued, the public will be given access to the unclassified portion of the collection.

Michael Whitby
Chief of the Naval History Team
Directorate of History and Heritage



Sometime during my tenure as Electrical Officer in HMCS *Haida* (December 1959 to June 1961), the messdeck lighting was changed from DC-supplied incandescent bulbs to AC-supplied fluorescent lights. I believe this was done in just the four main messdecks — forward and after, upper and lower (although it could have been extended to some of the others). This was not an authorized A&A (i.e. alteration & addition, the forerunner of the shipalt) for the Tribals. Rather it was a “unique” fit in *Haida* only. Impetus for the lighting change stemmed from two factors — a shortage of jetty DC shore power in Halifax, and oddly enough a fleet-wide ship cleanup campaign being pushed by the CANCOMFLT of the time, Cmdre James Plomer.

The shortage of DC power on the jetties was sorely felt by *Haida*. As junior ship in the squadron (a function of the captain’s seniority vis-à-vis that of the other captains in the squadron), we always occupied the outboard position in the trot, which meant having to run our diesel generator to provide sufficient power for domestics. This also meant we required the services of a stoker as a diesel watchkeeper. At the same time, all of the jetties were now amply supplied with AC power to support the *St. Laurent* and follow-on classes that were just coming into service. *Haida*, along with the other Tribals, had two large AC systems (usually driven by DC primary power) to supply mainly the 3-inch-50 gun and associated fire-control system. Fortunately, the Tribals had also been supplied with an AC shore connection, no doubt to allow system testing while alongside.

At some point in the proceedings I was put in charge of freshening-up the ship’s interior in keeping with the fleet cleanup campaign. Naturally, I involved the electrical department in this endeavour, and it was my chief electrician who suggested that we kill two birds with one stone. By taking advantage of the readily available AC shore power and rewiring the messdecks for fluorescent lighting, we could brighten up the messdecks and at the same time reduce our dependency on the limited DC shore supply. I gave the chief permission to get on with it, which he did by acquiring the required bits and pieces from naval stores, including light fixtures and a considerable amount of cabbire (rubber-covered) wire cable. He subsequently carried out the complete installation.

We eventually did get caught in this unauthorized A&A when Cmdre Plomer came on board with his staff to evaluate our progress in the cleanup program. As the captain proudly showed off our bright, new fluorescent lighting to the commodore, the Staff Officer (Electrical), Cdr Bev Miles, inquired of me the number of the A&A for this fit. I mumbled something about it being a “*Haida* special,” and even though he did not seem satisfied with this response he said nothing further.

I never heard another thing about it.



Pat Barnhouse is a staff officer in the Directorate of Science and Technology Maritime in Ottawa.

Book Review: Salty Dips Vol. 5 — “Up Spirits!”

Reviewed by Pat Barnhouse

Published by the Ottawa Branch, Naval Officers Association of Canada, P.O. Box 505, Station B, Ottawa Ontario, K1P 5P6, 1998. ISBN 9691342-5-8. www.naval.ca/saltydips

The idea for *Salty Dips* came from the late Hal Lawrence, author of *A Bloody War* and *Tales of the North Atlantic*. Hal was dedicated to the conviction that the personal recollections of Canadian participants in the wars at sea and in naval operations between the wars were valuable to an understanding of Canadian history. As the years pass, however, we lose more and more of those very people and their interesting memories.

Thus, in 1979, the Ottawa Branch of the Naval Officers Association of Canada (NOAC) decided to support Hal Lawrence's cause by regularly gathering small groups of naval veterans in the HMCS Bytown officers mess to tape-record the reminiscences of a principal narrator. The recordings were to be made available to the Directorate of History (now DHH).

Participants with considerable service experience expressed amazement at the range and scope of the incidents that were recounted. Because of the interest shown by those in attendance, transcripts of the recordings were typed up and circulated. Before long, the idea came to publish, starting with Volume 1 in 1983 and continuing through to the recently issued Volume 6 (I can hardly keep up). It should be noted that Volume 4 is a bit of an oddity in that it is a special edition featuring the World War II newsletters of the shore-based U.K. establishment, HMCS Niobe. Also, unlike the earlier volumes, Volume 5 draws from manuscripts as much as



Carrier operations in the 1950s (RCN photo)

from transcribed interviews. In addition, the contribution base is wider now, with material being provided by other branches of the NOAC.

Leading off the articles in Vol. 5 is an interview with RAdm Dick Leir, recounting his years as a POW of the Japanese during the Second World War. The ongoing publicity concerning Hong Kong veterans and their quest for compensation takes on new light when one reads of the horrendous conditions and abuse faced by those who fell into Japanese hands during the war.

Closing out the narratives is one that covers the complete naval career of Capt Alex Fox, a pioneer in Canadian naval aviation. All things considered, one gets the feeling he must have been as lucky as he was competent to be able to survive to tell the tale. Canadian competence with fixed-wing naval aviation was hard-won in the face of scarce resources, and lives were lost. (Canada's experience with

The Collection: 396 Items to date

The principal addition to our collection of naval technical information is a group of unrelated but relevant articles from the *Crowsnest* magazine. These have come to us through a diligent effort by the late Hal Smith who reviewed the complete set (Nov. 1948 to June 1965). Not content with this, he also reviewed *Sentinel* magazine and produced some additional items.

More data is stowed in boxes waiting to be sorted and itemized. Much of this material came from the estate of Sam Davis who was known to be a meticulous record-keeper. More about this in a future report.

We are continually on the lookout for new material. If you have something you think we can use, send it along even if you think someone else *must* have already sent it in. It's better that we receive something twice than not at all.

You can contact me by mail at: 673 Farmington Ave., Ottawa, Ont., K1V 7H4, or by fax at (613) 738-3894, and by e-mail at: phil@ncf.ca.

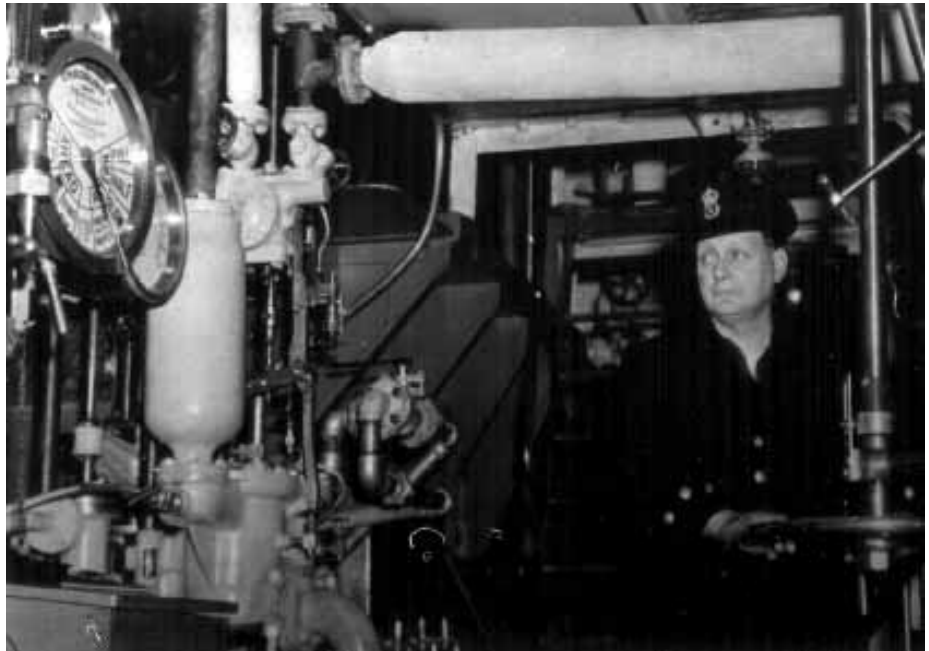
Phil Munro
Executive Director
CNTHA



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. 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 engine-room of the minesweeper HMCS *Fundy* in 1938.

fixed-wing naval aircraft came to an abrupt end in 1970 with the decommissioning of the carrier HMCS *Bonaventure*. It is worth noting, however, that prior to Unification naval pilots were naval officers first. Consequently many of them went on to command surface ships and reach high rank in non-aviation positions.)

In between these "book-end" articles there is much more for the naval enthusiast, including an account of the wartime experiences of a WRCN, stories of naval personnel finding themselves in exotic locales with strange taskings, and reminis-

cences of the tedium and terror of convoy escort duty. Volume 5 rounds out with tales of the early days of the RCN, and a recounting of the story of HMCS *Haida*'s last trip on passage to her retirement berth in Toronto harbour.

Because of the short length of the articles, this is a book that one should be able to pick up and read at odd intervals. Once begun, though, I found it almost impossible to put down.



"Sailors, with their built-in sense of order, service and discipline, should be running the world."

— W.S. Churchill

We'd love to hear from you...

If you have information, documents or questions you'd like to pass along to the Canadian Naval Technical History Association, please contact the Directorate of History and Heritage, NDHQ, MGen George R. Pearkes Bldg., Ottawa, Canada K1A 0K2 Tel.: (613) 998-7045/Fax: (613) 990-8579

