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THE NAVAL SERVICE OF CANADA

Its Official History

ACTIVITIES ON SHORE DURING
THE SECOND WORLD WAR



Mid-Ocean
Convoy
by Cdr.
Harold Beament
*National Gallery
of Canada*

For Dec
1952
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THE NAVAL SERVICE *of* CANADA

Its Official History



VOLUME II
ACTIVITIES ON SHORE DURING
THE SECOND WORLD WAR

by

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*Now . . . silken dalliance in the wardrobe lies:
Now thrice the armourers . . .*

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AUTHOR'S PREFACE.

VOL. II of the Official History of the Naval Service covers the story of activities on shore during the Second World War. It deals with the steps which led up to Canada's entry into the war and the naval activities during the first few weeks that followed, the procurement of warships and men, shore bases, shipping and trade, organization, and demobilization.

Although military historians in the past have been mainly concerned with them, Operations do not by themselves constitute the war history of a fighting Service. Moreover the multitudinous activities which take place on shore for the purpose of supporting Operations have become a much more important part of the whole picture than they formerly were.

A naval engagement is usually very short; but a warship in action is the product of long years of preparation and depends upon a currently functioning organization. Warfare has always been the largest and most urgent enterprise undertaken by the State. The twentieth-century nation, moreover, has at its disposal organizing ability, scientific and technical knowledge, industrial resources, and a command of credit, which greatly exceed anything that earlier governments ever knew or could have imagined.

Also far surpassing the modest demands of the earlier State are those which, in time of war, Leviathan now makes successfully upon most of its citizens. During eighteenth-century and earlier wars, to entertain a friend who also happened to be an enemy national occasioned no criticism. The twentieth-century man, however, usually has a most vehement antipathy to the nationals of his country's enemy, and a fervently-held opinion that victory is all-important. Accordingly the typical contemporary State, possessing unprecedented physical, intellectual, and moral assets, becomes in war the nation-in-arms, and stakes its all on victory. Every avenue which may lead to success is followed or explored, and the activities so engendered become exceedingly varied and complex in character, and prodigious in scale. It will therefore be found that the activities pursued on shore in order to expand and maintain its fleet, even by Canada, a country of medium power, were notably large and varied.

Most of the source material on which this volume is based is contained in the files of the Central Registry at Naval

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Service Headquarters in Ottawa. The records of the Admiralty, of the United States Navy Department, of Canadian bases and other shore establishments, and of various headquarters directorates, as well as numerous documents from non-naval sources, have also been more or less extensively used. The types of document principally consulted comprise periodical reports which sometimes take the form of war diaries, memoranda on almost every subject imaginable, correspondence, minutes, and signals. Generally speaking the material is exceedingly raw, and its mass is mountainous. Interviews with those who possess special knowledge have also been an indispensable means of obtaining information.

Among the special difficulties of research into happenings so fresh from the mint is, asking indulgence for the platitude, that of assessing the intrinsic value of each coin. Moreover, the ubiquitous typist has made writing far too easy. For obvious reasons, secondary source material is largely lacking. The historian of modern war must acquire a very wide if very superficial technical knowledge, for of making many contraptions there is no end.

During the Second World War the practice of using the initial letters of titles and other designations flourished as never before. The policy followed is to make a frequent use of initial-letter labels especially in the footnotes, for the sake of brevity, and to supply a glossary of such abbreviations.

Unlike its predecessor this volume is a product of co-operative research. Each research worker was assigned to a limited part of the whole field. He became a specialist in his own subject, for which he did the necessary research and then produced carefully-prepared drafts of one or more chapters. The chapters in their final form are the latest of these drafts, edited or rewritten as necessary.

The work on this volume has been done almost entirely in Ottawa, and the director's part in it has chiefly consisted in assigning the special subjects, making decisions and being responsible for solving research problems, criticizing draft accounts at various stages of their development, putting the chapters into their final form, and assuming responsibility for everything that is to be printed.

The respective chapters and the research worker who was associated with each are as follows: ch. 1, Miss D. E. A. Russell; chs. 2-4, Lieut.-Cdr. (S.B.) D. G. G. Kerr, R.C.N.V.R.;

PREFACE

chs. 5-8, Lieut. (S.B.) A. L. Pidgeon, R.C.N.V.R.; chs. 9-11, Mr. David Spring; chs. 12-13, Lieut. Cdr. J. S. Guest, R.C.N.V.R.; chs. 14 and 17, Mr. D. d'E. Morin; ch. 15, Capt. (S) G. A. Youle, R.N. (ret'd.); ch. 16, Lieut. Cdr. S.B. T. R. Dale, R.C.N.V.R.

In connection with both volumes the following grateful acknowledgements are due. The maps and diagrams were drawn by Miss Marguerite Willis. Dr. Marion Smith kindly helped to read the proofs. My wife, Frances King Tucker, helped in many ways, including constructive criticism and making the indexes.

GILBERT NORMAN TUCKER

Ottawa,
July 1948.

CHAPTER I

THE BEGINNING OF WAR, 1939

THE most widespread and destructive war that mankind has yet known did not come as a thief in the night, for during the years of international tension that followed the Nazi Party's rise to power in 1933 the whole world was receiving an ever more insistent warning.

The black clouds that covered the international sky during the late summer of 1938 lifted after the Munich agreement in October of that year. But they descended more darkly than ever when on March 15, 1939, Hitler, violating the good faith on which the Munich agreement had been presumed to be based, sent his troops triumphantly into Prague. Soon afterwards the city of Memel was snatched from Lithuania, and it became evident that Poland had been marked as the next victim. The British Government awoke to the real situation, and on March 31 gave warning that it would take a firm stand. If the independence of Poland were clearly threatened that country would be given full support, and as an earnest of this promise the unprecedented step was taken of introducing peace-time conscription in Great Britain.

Events moved rapidly during the summer of 1939. In May Germany and Italy concluded a "Pact of Steel", evidently an offensive alliance. France had already undertaken to support Poland, and only the position of the Soviet Union remained uncertain. Negotiations between London, Paris, and Moscow, concerning a triple alliance dragged along indecisively until August 23, when Hitler, who had conveniently forgotten his anti-communist diatribes, sprang on the world a non-aggression pact with the Soviet Union. Britain and France were still negotiating for a peaceful settlement of the Polish difficulty; but the Moscow pact was all the Nazis needed, and Poland was invaded on September 1. Two days later, after a vain attempt to continue negotiations, Great Britain and France declared war on Germany.

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The Statute of Westminster of 1931 had established the full autonomy of each member of the British Commonwealth in respect to its own internal and external affairs, so that although the Dominions were kept informed of developments in Europe, a declaration of war by the British Government did not bind them to go to war. Great Britain's enthusiastic reception of the results of the Munich Conference had been shared by the people of Canada; but even when it became increasingly apparent during the gloomy months which followed that a European war could hardly be avoided, Canadians continued to entertain diverse opinions regarding the part that their country should play.

In May 1938 the Prime Minister had stated in Parliament that "the policy of the government in respect to participation and neutrality is that Parliament will decide what is to be done."¹ Later Mackenzie King referred several times, in a general way, to the question of participating in war, indicating that while Canada was prepared to aid Great Britain under certain conditions, he did not wish to commit himself to any specific programme until all the circumstances surrounding the event which called for it were quite clear. Moreover, while he did not believe that the Dominion would be required to despatch an expeditionary force, he reiterated his pledge that in any case there would be no conscription in Canada. In March 1939, during a discussion of external policy in the House of Commons, the Right Hon. Ernest Lapointe, Minister of Justice, argued that Canada could not practicably remain neutral. He pointed out, among other things, that:

We are bound by contract with Britain to give Britain the full use of the dry docks at Halifax and Esquimalt for British vessels . . . Of course . . . we could put an end to that contract. Would Canadians be willing to do that? And if we did not, during a war in which we claimed neutrality, British vessels and British soldiers would come to Halifax or Esquimalt and it would be the duty of Canadians there to prevent their coming and to intern them if they came. Even if some people in some part of Canada would like to do that, do you think the citizens of Halifax and Esquimalt would fight against British sailors and intern British vessels?²

The first strong evidence that the government had discarded the possibility of neutrality was given in an unusual way. On September 1, 1939, the same day that Germany invaded Poland and two days before Britain itself declared

¹ *House of Commons Debates*, 1938, III, p. 3183.

² *Ibid.*, 1939, III, pp. 2464-2471. Lapointe made essentially the same remarks during the special war session of Parliament later the same year. See *House of Commons Debates*, 1939, 2nd Session, pp. 65-69.

war, an Order in Council was passed declaring that a state of apprehended war existed in Canada and had existed since August 25.³ This step was taken under the War Measures Act of 1914, a statute so comprehensive that it authorized almost any measure which was "by reason of the existence of real or apprehended war, invasion or insurrection, deemed necessary or advisable for the security, defence, peace, order and welfare of Canada . . ."⁴ An emergency session of Parliament was called for September 7, and although a declaration of war was not specifically mentioned, the Prime Minister stated that should the United Kingdom become engaged in a war with Germany, parliamentary authority would be sought for effective co-operation by Canada at the side of Britain.

Six subcommittees of the Cabinet had been set up on August 30 in order to provide for the proper distribution of work during the emergency, with the respective subcommittees for supplies, legislation, public information, finance, and internal security, reporting to the Emergency Council whose duties were to consider general policy and to co-ordinate all operations of the government.⁵ The armed forces were placed on active service, and even before Parliament assembled several precautionary measures had been sanctioned: on September 1 the Censorship Regulations were put into force; two days later the Defence of Canada Regulations were proclaimed and the Wartime Prices and Trade Board was set up; provision was made for the internment of enemy aliens on the 4th; and on the following day trading with the enemy was prohibited.⁶ Plans for strengthening the Royal Canadian Mounted Police, including the engaging of several hundred special constables for guard duty at vulnerable points, had been authorized on September 1, and on the 3rd the Commissioner of that force was appointed Registrar General of Alien Enemies. On the maritime front, the extension of the War Risks Insurance Scheme to British ships registered in Canada was approved on the 2nd; three days later an order was passed which provided for the control of shipping; and the Exchequer Court of Canada was constituted a prize court.⁷

³ P.C. 2477, Sept. 1, 1939; *The Canada Gazette*, Sept. 9, 1939.

⁴ *Revised Statutes of Canada*, 1927, iv, ch. 206.

⁵ P.C. 2474, Aug. 30, 1939.

⁶ P.C. 2481, Sept. 1, 1939; P.C.'s 2483 and 2516, Sept. 3, 1939, P.C. 2521, Sept. 4, 1939, P.C. 2512, Sept. 5, 1939; P.C. 2586, Sept. 8, 1939.

⁷ P.C. 2484, Sept. 1, 1939; P.C. 2485, Sept. 3, 1939; P.C. 2504, Sept. 2, 1939, P.C.'s 2524 and 2489, Sept. 5, 1939. For prize court rules see P.C. 2682, Sept. 11, 1939.

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In spite of the many semi-belligerent measures which had already been ordered, the Cabinet's intentions regarding a declaration of war were not wholly clear when Parliament met on September 7. It was evident that the Prime Minister was anxious above all to preserve the unity of the country. He stated that the government's first concern was the security of Canada, pointing out that the best way in which the Dominion could help Britain was by being itself "strong, secure and united." He stressed Canada's double inheritance from Britain and France, and promised again that there would be no conscription.⁸

On September 9, in a dramatic sequel to the events of the past two days, the Prime Minister announced that if the Address in reply to the Speech from the Throne were approved, the government would take steps to issue a "formal proclamation declaring the existence of a state of war between Canada and the German Reich."⁹ The Address was approved just before the House adjourned at 10:25 p.m., and the King, in person, gave royal assent to the pronouncement on September 10. With its publication at 12:40 p.m. the same day in a special issue of *The Canada Gazette*, Canada was officially at war.¹⁰

The emergency session of Parliament lasted only two days after war was declared. In that time the War Appropriation Act was passed legalizing the expenditure, out of the Consolidated Revenue Fund, of \$100,000,000 for national defence and for other purposes made necessary by the existing conflict.¹¹ The creation of a Department of Munitions and Supply was also authorized,¹² the plans for which were based on the British Ministry of Munitions in the First World War, although the Canadian organization would have much wider control over every aspect of war production. It was not proposed to set up this Department immediately, however, and a War Supply Board, which replaced the year-old Defence Purchasing Board, was charged with the task of obtaining munitions in the interim.¹³

Canada's war programme, which was the result of close consultation with the British Government, was announced on

⁸ *House of Commons Debates*, 1939, 2nd Session, pp. 18-41.

⁹ *Ibid.*, p. 51.

¹⁰ *Canada Gazette*, Sept. 10, 1939.

¹¹ *3-4 Geo. VI*, ch. 9.

¹² *Ibid.*, ch. 3.

¹³ P.C. 2696, Sept. 15, 1939; P.C. 2921, Sept. 28, 1939; P.C. 3300, Oct. 25, 1939.

September 19. On that day also the Prime Minister reorganized his Cabinet, and the Hon. Norman Rogers, who had been the Minister of Labour, was given the arduous post of Minister of National Defence.¹⁴ It was felt that Canada could best contribute to the cause by co-ordinating her effort with that of Great Britain, and plans were made for the expansion of Canadian industry in order to meet Britain's urgent need for all kinds of war material. For a time, therefore, military activity took second place to industrial effort, although means for strengthening Canada's defences were also projected. The personnel of the Royal Canadian Navy was to be doubled, while anti-submarine and minesweeping vessels were to be built, and harbour facilities improved. Two army divisions were already being recruited for overseas service should this become necessary. Troops would also be maintained within the country for coast defence and the protection of vulnerable inland points. A handful of airmen were to proceed overseas at once, but the rest of them were to be retained for use as instructors in connection with the greatly increased air-training scheme that was envisaged.

The industrial plan, however, proved to be abortive. Canadian manufacturers encountered difficulty in procuring information from United Kingdom industrialists, and the British Government wanted to save its Canadian credits for the purchase of food and raw materials. It was only after the collapse of France, therefore, that the anticipated expansion began in earnest.

On November 4, the President of the United States signed the Neutrality Act of 1939,¹⁵ a co-operative step which not only beneficially influenced Canadian-American-British trade, but in some measure contributed to the waging of the war itself. Because it enabled Canada to obtain American supplies on a cash-and-carry basis, the Dominion was able to carry on as an effective ally when, after the fall of France, British goods were no longer available.

As far as the Naval Service of Canada was concerned, outline plans covering the actions to be taken in the event of an emergency were ready; and in August 1939, while Europe hovered on the brink of war, preparations were made to carry out these programmes. Naval Control Service offices

¹⁴ See *Gazette*, Montreal, Sept. 20, 1939; editorial, *ibid.*, Sept. 21, 1939; P.C. 2755, Sept. 19, 1939.

¹⁵ *United States Statutes at Large*, 76th Cong., 2nd Sess., ch. 2.

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were opened on both coasts on the 26th in order to provide for the safety of all Commonwealth shipping in Canadian waters, and when on September 1 a state of apprehended war was declared by the Prime Minister to have existed since August 25, the Royal Canadian Navy and its reserve forces were placed on active service.¹⁶ A few days later, however, the Order in Council calling up the naval reserves was amended to the effect that reservists were subject to being placed on active service at a date to be determined by the Chief of the Naval Staff in each individual case.¹⁷

It was soon apparent that many young Canadians were anxious to perform their war service in the navy. Even before war had been officially declared, Naval Service Headquarters received an ever-increasing number of applications both from individuals and from the many clubs and organizations throughout the Dominion which had maritime interests of one kind or another. In order to replace at Divisional headquarters the officers and men drafted for active service, each R.C.N.-V.R. Division was authorized to enrol its full peace-time complement. All trades and occupations were represented among the throng of recruits who came forward, and in only one class was it necessary to advertise for personnel, an urgent request being sent out that all eligible men trained as wireless operators should communicate with the Department.¹⁸ In general, due to the immediate lack of instructors, training establishments, and ships, it was impossible to absorb the would-be seafarers as fast as they presented themselves. No organized recruiting was undertaken at first, other than through the Divisions; and since these filled their complements in the first few weeks of the war, all that could be done for most of the applicants, except those with specialized knowledge of a sort that qualified them for immediate draft to either coast, was to keep a list of their names.

The following table¹⁹ shows the mobilized personnel in the naval forces as of September 23 and December 28, 1939. It will be seen that their numbers almost doubled in that short period, and that the increase consisted almost entirely of men who had enlisted for "hostilities only."

¹⁶ P.C.'s 2478 and 2479, Sept. 1, 1939.

¹⁷ P.C. 2595, Sept. 9, 1939.

¹⁸ C.N.S. to Chief Exec. Asst., C.B.C., Sept. 7, 1939, N.S. 113-2-1.

¹⁹ Compiled from Naval Weekly Reports, Nos. 1 and 15, N.S. 1000-5-7 (1).

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	Officers		Rating		Total	
	Sept. 23	Dec. 28	Sept. 23	Dec. 28	Sept. 23	Dec. 28
R.C.N.	191	204	1799	1846	1990	2050
R.C.N.R.	74	208	71	656	145	864
R.C.N.V.R.	132	238	496	1890	538	2128
TOTAL	397	650	2276	4392	2673	5042

* In addition there were 18 officers and 200 ratings mobilized for duty at R.C.N.A. Divisional headquarters throughout Canada.

A few days before the outbreak of hostilities the Chiefs of Staff Committee prepared a comprehensive summary of the duties of the three armed Services and the defensive steps which might be taken by them in the early stages of a major war. The navy's share of these measures was outlined as follows:

- (a) The defence of Canadian sea-borne trade
This can be effected by:
 - (i) The provision of forces placed in positions from which they can counter threatened attacks upon shipping.
 - (ii) The provision of auxiliary minesweeping and anti submarine vessels in Canadian waters.
- (b) Co-operation with the Army and Air Force in defence of the coasts.²⁰

At this time the R.C.N. had only thirteen vessels in commission, which were based as follows:

	East Coast	West Coast
Destroyers	H.M.C.S. <i>Saguenay</i> <i>Skeena</i>	H.M.C.S. <i>St. Laurent</i> <i>Fraser</i> <i>Ottawa</i> <i>Restigouche</i>
Minesweepers	<i>Gaspé</i> <i>Fundy</i>	<i>Armentière</i> <i>Comox</i> <i>Nootka</i>
Others	<i>Venture</i> (training schooner)	<i>Skidegate</i> (motor vessel)

It was apparent that if Canada should enter the war her east coast would require the greater protection, at least in the early stages. The destroyers *St. Laurent* and *Fraser* were therefore ordered to Halifax on August 31 with instructions to defend themselves if attacked, and leaving their Vancouver anchorage at once they sailed via the Panama Canal and arrived on September 15 when Canada had already been at war for five days. Both ships were immediately placed on

²⁰ C.S.C. memo. to Min., Aug. 29, 1939, C.S.C. 1010 (D.N.H.S. 1010).

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patrol and escort duty, the *St. Laurent* leaving the next day to escort the first convoy through the Halifax approaches, and the *Fraser* shepherding the first fast convoy from the same port three days later.²¹ They remained on this work during the rest of the year, although the *Fraser* was out of action for three weeks following a collision with the Canadian minesweeper *Bras d'Or* on November 14.²²

The C. in C., A. and W.I., who was in charge of all naval Operations in the North Atlantic during the early part of the war, found it necessary to station two 8-inch gun cruisers off Halifax:²³ in return, the R.C.N. ordered H.M.C.S. *Saguenay* to operate under the Senior Officer of the Caribbean Force so as to afford a measure of anti-submarine protection to convoys in and out of Jamaica.²⁴ On October 19 H.M. destroyer *Kempenfelt*, for which the Canadian Government had been negotiating for some months, was turned over to the R.C.N. and re-commissioned H.M.C.S. *Assiniboine*. This badly-needed addition to the Canadian naval force arrived in Halifax on November 17, and was on convoy duty within twenty-four hours. Three weeks later, however, she sailed for Jamaica in order to replace the *Saguenay*.²⁵ At about the same time H.M.C.S. *Skeena*, which had just been completely outfitted with anti-submarine gear and other special installations, was placed on convoy duty out of Halifax.

Meanwhile, H.M.C. ships *Ottawa* and *Restigouche* had been engaged in patrolling the west coast, and doing local escort work. Early in October both ships were taken in hand at Esquimalt for refit and docking prior to making the trip around the continent to Halifax. Sailing on November 15, they made a short stop at Kingston, Jamaica, for fuel and provisions, and arrived at Halifax on December 7 to be assigned to patrol and escort duties.

By the end of the first month of war, the minesweepers *Gaspé* and *Fundy*, assisted by the requisitioned Department of Fisheries' vessels *Arras* and *Arleux*, had been made responsible for maintaining the swept channel at Halifax. This small force was soon afterwards strengthened when the *Venosta* and *Viernoe*, two privately-owned craft, were converted to mine-

²¹ Convoys 1939, 1, HX and HXF, 1-14 (D.N.P.I. records).

²² N.W.R. No. 9, Nov. 17, 1939, N.S. 1000-5-7 (1).

²³ H.M. Ships *Berwick* and *York*.

²⁴ "Review of the Naval Requirements of Canada and the Existing Situation, Sept. 29, 1939", with C.N.S. to Min., N.S. 1017-10-34 (1).

²⁵ N.W.R. Nos. 6, 9, 12, and 13, N.S. 1000-5-7 (1).

sweepers. Two ex-R.C.M.P. vessels, *French* and *Laurier*, were doing A/S patrols in the Halifax area, while the *Ubia*, a former yacht, was employed as an examination vessel at that port. Eight other government craft were also transferred to the R.C.N. and allocated to Naval Control Service duties, harbour patrols, and other miscellaneous tasks.

The west coast too was the scene of increased activity. H.M.C. ships *Nootka* and *Comox* remained on minesweeping duty at Esquimalt, while the *Armentières* was being used temporarily as an examination vessel at York Island, and seven additional vessels were requisitioned for examination services at the principal western ports. The *Skidegate* took up harbour duties at Esquimalt, and ten Fishermen's Reserve vessels were at once assigned to patrol duties: four of them in the areas off Esquimalt, another four in the vicinity of the Queen Charlotte Islands, and two on the west coast of Vancouver Island.²⁶

The requisitioning of auxiliary craft from other Departments, as well as from private companies and individuals, was greatly facilitated by provisions which had been made in the Defence Schemes drawn up by D.N.I. and P. in May 1937. Vessels capable of carrying out minesweeping or anti-submarine duties were listed at that time, and upon receipt of a previously arranged code word from N.S.H.Q., the officers in charge on both coasts were to be authorized to requisition any of them which might be required in an emergency.²⁷ Despite the fact that when the emergency came a large number of the previously selected vessels had so deteriorated that they were incapable of carrying out the tasks laid down for them, those that could be used did memorable work in the first anxious months of the war.

The owner of any vessel requisitioned for H.M.C. service was guaranteed fair compensation by an Order in Council passed in September 1939, which authorized the setting-up of an advisory board to consider each case.²⁸ The three board members, one for the Pacific coast, another for the Great Lakes and River St. Lawrence, and the third for the Atlantic coast, reported to the Director of Marine Services in the Department of Transport. Payment was made from funds available under the War Appropriation Act, and while serving in the R.C.N.

²⁶ "Review of the Naval Requirements of Canada."

²⁷ Naval War Book: Special Message folder, pp. 30-31, Auxiliary Flotilla vol. 1, p. 10, Apps. A and B (D.N.P.I. records).

²⁸ P.C. 2815, Sept. 22, 1939.

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the craft were maintained, repaired, and fitted with special installations, at the expense of the Naval Service. It was almost a year before some of the less suitable vessels could be replaced by new construction, for although the navy had decided early in September that corvettes should be built in Canada, the first of these only became available in the fall of 1940.

During the 'thirties the Admiralty had deposited small stocks of defensive equipment in Canada, which in the event of hostilities were to be used to arm fast liners and to convert certain merchant ships of British registry. The R.C.N. immediately took charge of these outfits when war broke out, and within a few days the first ship was being converted. She was the S.S. *Letitia* which had been on her way to England with passengers on September 3. The Admiralty had ordered her to turn back at once, and had then asked the Naval Service to transform her into an armed merchant cruiser. The work was carried out at Montreal in a little less than two months, and on November 25 H.M.S. *Letitia* began escorting her first convoy.²⁹ The Admiralty had arranged at the same time for the P. and O. liner *Rajputana* to put into Esquimalt for conversion, and on December 29 she sailed for Trinidad as an A.M.C.

Meanwhile, the R.C.N. felt that it could perform a useful service by providing A.M.C.'s on its own account. An offer was accordingly made to convert the three Prince ships, of which two belonged to the Canadian National Railways, on condition that twelve of the 6-inch guns which had been set aside for Admiralty A.M.C.'s might be used. The Admiralty, having decided not to ask Canada to fit out any more merchant cruisers for them, gladly presented the required guns, and by November 26 work had begun on the *Prince Robert* and *Prince David*.

In September 1939, the task of stiffening and defensively arming merchant ships which were going to continue their peace-time function of carrying passengers and freight, came under the direction of the Mercantile Equipment Officer who was at first on the staff of D.N.I. in his capacity as head of the Division which was taking charge of "Trade" matters. Two D.E.M.S.³⁰ officers, as they were later called, were appointed, one for the Maritimes and the other for the west coast, and

²⁹ HXF-10. See Convoys 1939, HX-HXF, 1-14, 1.

³⁰ Defensively Equipped Merchant Ship.

D.E.M.S. bases had already been established at Halifax, Esquimalt, and Vancouver. This was the nucleus of an organization whose scope and numbers were to expand greatly in the years that followed. At the beginning its chief duties were to outfit merchant ships of British registry, and to instal equipment in fast liners such as the Canadian National Railways' *Lady Somers* and *Lady Nelson* which were two of the first to be taken in hand. On September 25 an Order in Council was passed authorizing the defensive arming of fifteen Canadian-registered merchant ships.³¹

Stocks of Admiralty equipment were by this time dwindling rapidly, and before the end of 1939 the situation had become so acute that merchantmen were often forced to go to sea carrying only token armaments. In addition, a shortage of trained personnel made it impossible for the navy to adhere to its policy of placing a naval gunnery rating in each vessel to take charge of the armament; and during that period merchant seamen often had to do the job as best they could. In spite of these and other difficulties, however, by the close of the year about twenty-five ships had been stiffened, and of these some had also been armed, while over two hundred inspections had been made by D.E.M.S. authorities.

Of the many achievements credited to Canada during the Second World War, none was more important than the chief contribution of the R.C.N. — the organizing and protection of convoys—for the success of beleaguered Britain depended largely upon whether or not the supply-laden merchantmen reached her shores in safety.

On the night of September 3-4, 1939, not twenty-four hours after war had been declared, the British liner S.S. *Athenia* fell prey to a German submarine operating west of Ireland. This disaster marked the beginning of unrestricted U-boat warfare in the Western Approaches, and to His Majesty's ships fell the difficult task of chaperoning the rich but comparatively helpless merchant vessels. On September 7, C. in C., A. and W.I. informed the R.C.N. that:

Admiralty intends that convoys should be started from Halifax, Kingston, and Sierra Leone as soon as possible Convoys from Halifax and Kingston will be approximately 30 ships and must be capable of making good average speed of 8 knots Senior Officer, Halifax and Caribbean

³¹ P.C. 2850, Sept. 25, 1939. This, of course, was only a preliminary step.

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Sea Force is to provide whatever escort is necessary and possible from the forces . . . ³²

Nine days later, on September 16, 1939, a heterogeneous collection of eighteen vessels, closely guarded by H.M. cruisers *Berwick* and *York* and the Canadian destroyers *St. Laurent* and *Saguenay*, set out from Halifax. The sailing of this convoy, known as HX-1, inaugurated a convoy series which was to continue unbroken for several years.³³ By the end of 1939, 410 ships in fourteen HX convoys had crossed the Atlantic with only three losses. One ship was sunk by a submarine while in convoy, and the other two were destroyed by mines after their convoys had dispersed. During this period there was also another type of convoy, known as HXF, which was made up of unarmed ships capable of travelling at a speed of at least 15 knots. By the close of the year 117 vessels had reached the United Kingdom in eleven HXF sailings: only one of these ships was lost, and that as the result of a collision due to steering-gear trouble, although another was disabled by a mine after dispersal. As arming progressed, however, the need for these fast convoys disappeared.

The organization and administration of the ocean escort forces during the early part of the war was under the command of the Rear Admiral, Third Battle Squadron, who came under the direction of C. in C., A. and W.I. His authority did not extend to the organization of the convoys themselves, however, this responsibility forming part of the duties of Commanding Officer Atlantic Coast (C.O.A.C.). The early convoys, both HX and HXF, were escorted clear of the Halifax approaches by two Canadian destroyers, and had as their ocean escort a British battleship. With convoy HX-7, which sailed on October 31, armed merchant cruisers began to undertake the protection of fast convoys.³⁴

A few days later a policy was laid down whereby unusually large or valuable convoys would be escorted by battleships, while cruisers and A.M.C.'s would shepherd the less important vessels. In addition, at least one submarine would sail with each convoy.³⁵ This arrangement persisted throughout the

³² Quoted in "History of North Atlantic Convoy Escort Organization and Canadian Participation Therein, September 1939 to April 1943", drafted by D.P.D., N.S.H.Q., May 1, 1943 (D.N.H.S. records).

³³ The last of this convoy series was HX-359 which sailed on May 23, 1945.

³⁴ A.M.C.'s on convoy duty in 1939 were H.M. Ships *Asturias*, *Ascania*, *Alaunia*, *Letitia*, and *Ausonia*.

³⁵ For complete amendments to General Escort Instructions, see Admiralty to R.A., 3rd B.S. (signal), Nov. 6, 1939, synopsis in "History of North Atlantic Convoy Escort Organization."

remainder of the year, with ships of the Third Battle Squadron, augmented for a short time by four French submarines, carrying out ocean duties, and Canadian destroyers providing local A/S protection as far to seaward as their time and numbers permitted.

When war was seen to be imminent there was an immediate need to control merchant shipping. The naval control organization was therefore one of the first components of the Naval Service to begin functioning. On August 22, when the Admiralty informed N.S.H.Q. that they intended to warn officers selected for Naval Control Service duties to be ready to proceed to their posts, it was decided that the Canadian officers should receive a similar warning. Four days later an Order in Council directed the R.C.N. to take control of Canadian-registered ships and other merchant ships in Canadian ports.³⁷

During the early stages of mobilization the shortage of available personnel made it necessary as a rule to combine the duties of Naval Officer in Charge and Naval Control Service Officer,³⁸ and on August 30 some of these officers, on the way to their stations, stopped in Ottawa to receive instructions regarding their work. There was no time for any real training. As far as possible, officers of the R.C.N.R. with experience in shipping matters were given the appointments, and the resourcefulness with which they met the many unavoidable difficulties that ensued was proof that the navy's confidence had not been misplaced. By September 10, when Canada declared war, the naval control organization had already begun operating in eastern Canada at Halifax, Sydney, Saint John, N.B., Quebec, Montreal, and at St. John's, Newfoundland. Until June 1941, control at St. John's was exercised by R.N. personnel attached to C. in C., A. and W.I., but since the port was in the Ottawa Intelligence Area³⁹ all reports were made to N.S.H.Q. as well as to the Admiralty.⁴⁰

³⁶ *Casabianca, Sfax, Achille, and Pasteur.*

³⁷ P.C. 2412, Aug. 26, 1939.

³⁸ "The N.O.I.C. of a port or anchorage is responsible for the movements and safety of shipping within the limits of that port or anchorage. The N.C.S.O. is responsible for the routing of ships away from the port or anchorage and the reporting of their movements." [Copy of C.A.F.O. 336 in N.S. 1700-127 (1)]. When there was both an N.O.I.C. and N.C.S.O. in a port, the N.C.S.O.'s work came under the nominal supervision of the N.O.I.C.

³⁹ "Ottawa was, in the general Empire organization, an Intelligence Centre in peacetime, controlling Reporting Officers in Canada and in the United States, with the exception of those at Jacksonville, New Orleans, and Galveston, which were in the Jamaica Area." [Ottawa History of Trade Division" (D.N.P.I. records)].

⁴⁰ "Historical Survey of St. John's, Newfoundland", N.S. 1110-127 (1).

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Halifax being the main assembly port for ocean convoys, the duties of the N.C.S.O. there were by far the most burdensome. Sailing schedules and orders, convoy conferences, and liaison with the many interested authorities, all came within his jurisdiction. Indeed, the inauguration of a successful convoy system as early as September 16, 1939, was due in large part to the foresight and fine organizing ability of the late Capt. R.H. Oland, O.B.E., R.C.N., who was in charge of the Naval Control Service at Halifax until his death in 1941.

Although the Pacific was virtually a non-combat area during the early days, it was necessary for all deep-sea vessels using that ocean to be provided with routes as a safety measure, and for plotting and diversion purposes. Convoys were not required on the west coast, but the possibility of commerce raiders could not be dismissed. The N.O.I.C. at Vancouver was accordingly given the additional responsibility of naval control, and the S.O. (I) on the staff of the Commanding Officer Pacific Coast (C.O.P.C.) at Esquimalt filled a similar rôle at that port.

The primary concern of the Naval Control Service Officers was the speedy passage of merchant vessels to the appropriate convoy or port of destination, in accordance with such regulations for safety and for the security of communications as were in force. This could not have been accomplished without the contribution of the reporting officers who served at the various outports. In peace-time the local customs officers had, in a semi-official capacity, supplied N.S.H.Q. with shipping information. It was therefore logical that their valuable experience should be used in time of war. In addition, several private citizens were assigned the task of reporting ship movements in their locality. That this work called for a sound sense of responsibility can be seen from the following report on procedure:

The Naval Control advised the Reporting Officer when a ship was due, on arrival the Reporting Officer sent a coded message reporting the arrival and if time did not allow an exchange of mail a route and instructions were requested. When the request for instructions was received a route was sent by coded message, or if time permitted, by registered mail. The Officer in turn delivered the instructions and when the ship sailed reported her departure by coded message.⁴¹

On October 1, 1939, the Admiralty informed N.S.H.Q. that the Ministry of Shipping had been inaugurated.⁴² The

⁴¹ "History of Naval Control Operations, Saint John, N.B.", *ibid.*

⁴² Later re-named the Ministry of War Transport.

representatives of that organization had already been installed in New York and Montreal for the purpose of ensuring the most economical use of cargo space, while avoiding all unnecessary delays. The success of their mission was, of course, largely dependent upon the assistance of the Naval Control Service organization, but N.S.H.Q. felt that giving the Ministry's representatives free access to convoy information might weaken Security. At the same time it was obvious that they would have to be provided with considerable knowledge of the ships that they were handling. By November the situation urgently called for an understanding, and as a result of a conference held in Ottawa on the 9th, a system was set up which promised the utmost co-operation while safeguarding the details of convoy sailings.⁴³

As soon as it had become apparent that war in Europe could no longer be avoided, Canada took certain steps toward the protection of her coast-lines. One of the most important of these was the controlling of navigational aids, which was the responsibility of the Department of Transport acting on the advice of the Department of National Defence. No plan had been prepared for carrying out these duties, so that when the urgency of the matter was communicated to the Minister he immediately wrote to the Minister of Transport suggesting that an inter-departmental committee be set up to consider the whole question.⁴⁴ In the course of the next few weeks the Director of Operations Division in consultation with the Department of Transport's representatives drew up a scheme for the control of navigational lights, radio beacons, and fog signals, which was submitted for comment to the Department of Transport on October 26.⁴⁵

Because it was not expected that all the lights on a coast would have to be extinguished at any one time, the coasts were divided into areas, eight on the east coast and four on the west, so that navigational lights could be extinguished in one or more of them without affecting other areas not threatened by the particular emergency. It was decided that the best method of exerting control was by broadcast, using suitable C.B.C. stations to transmit messages. These would be simplified by employing only three stereotyped instructions: (a) normal operation - to be used when there was no threat from

⁴³ This system is described in "Outline History of Trade Division."

⁴⁴ C.N.S. to Min., Aug. 31, 1939; Min., Nat. Def. to Min., Dept. of Transport, Oct. 26, 1939; N.S. 1037-27-3 (1).

⁴⁵ Associate D.Min. to D.Min., Transport, Oct. 26, 1939, *et seq.*

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the enemy; (b) extinguish navigational lights and cease operating fog signals and radio beacons until further notice—for use when an enemy raider was in the vicinity; (c) cancel (b), normal Operations—to be sent when the enemy had left the area.

This scheme was approved on November 6, except for the proposed five-minute routine broadcast every four hours, which was changed to one such broadcast daily at any one of the four-hour periods. In case of emergency the message was to be broadcast when received, and repeated during the first routine period. On the following day the Admiralty was given details of the plan, with the assurance that a similar arrangement would soon be introduced on the west coast.⁴⁶ At noon on November 12 the scheme took effect on the east coast, with C.O.A.C. responsible for issuing broadcast instructions via telephone to C.B.A. Sackville, while the Department of Transport was to ensure that all lighthouse keepers possessed radio sets and that these were kept in good repair.⁴⁷

The coast would not have complete coverage, however, without the co-operation of Newfoundland and St. Pierre; a request was therefore made to Newfoundland to conform with the Canadian plan, and St. Pierre was informed of the regulations regarding ships entering harbour after dark and the extinguishing of lights. Newfoundland was willing to co-operate, and by early in the New Year the scheme was in full operation along the east coast.⁴⁸

One of the first precautionary steps which a navy can take, even prior to the immediate threat of hostilities, is the passive defence of harbours. By the early summer of 1939, Canadian naval authorities were gravely concerned with the protection of Canadian ports and harbours in the event of a second world war. Some provision had been made in the Estimates of that year for boom defences in Canada, and a small amount of equipment was available at Halifax and Esquimalt. The Admiralty had made this phase of naval activity the subject of considerable experiment during the late 'thirties, and since the R.C.N. had no officer who was familiar with modern boom-defence practices, it was suggested that those who would

⁴⁶ C.N.S. to Sec. Admiralty, Nov. 7, 1939, *ibid.*

⁴⁷ List of Lighthouses in each area attached to N. Sec. to C.O.A.C., Nov. 8, 1939, *ibid.*

⁴⁸ Canadian Notice to Mariners No. 61, Sept. 26, 1939; Gov. of Newfoundland, to Sec. of State (Ext. Aff.), Dec. 27, 1939, N.S. 1037-27-3 (1).

primarily be concerned with that type of defence should be sent to England for a course of instruction.⁴⁹

Lieut.-Cdr. A. R. Pressey, R.C.N., accordingly sailed on August 11, armed with lists of boom-defence equipment on hand and charts of the principal Canadian harbours. The navy was anxious to acquire proper designs and specifications for Canadian booms in order to ensure the best protection possible, and also wished to have one of its officers so well versed in modern boom-defence practice that he would be able to improvise to the full extent of Canadian resources.⁵⁰ For these purposes a draughtsman was required, preferably a Canadian whose services could be retained in Canada after training in England, and Mr. J. E. Middleton, senior draughtsman in D.N.E., was appointed and sent to the United Kingdom on September 1.

The European war was one day old when Lieut.-Cdr. Pressey wrote to D.N.I. and P. informing him of his progress. After witnessing anti-submarine boom trials at Rosyth, he had gone to Portsmouth to obtain information on laying booms and organizing a depot, and had then returned to Rosyth to begin work on the designs for Canadian booms.⁵¹

By this time, however, Canada expected to be at war in the very near future, and the protection of Halifax and Esquimalt at least could not be delayed. Foundation Maritime Ltd. of Halifax, the only local organization possessing suitable tugs and other necessary facilities, were prepared to lay the boom defences at Halifax, for in 1938 they had sent a representative to the United Kingdom in order to obtain up-to-date information. On September 6, 1939, therefore, the Chairman of the Defence Purchasing Board⁵² authorized that firm to proceed with the task of laying an A/S net defence boom across Halifax harbour, according to specifications which had already been supplied by the Naval Service. So urgent was the need that a formal contract was postponed, and in the meantime an understanding was reached whereby Foundation Maritime Ltd. agreed to undertake the job on a cost-plus basis.⁵³

⁴⁹ Sec. Admiralty to C.N.S., June 20, 1939, N.S. 1053-1-1 (1).

⁵⁰ D.N.I. and P. to S.B.D. (Admiralty), July 31, 1939, *ibid.*

⁵¹ Lieut.-Cdr. Pressey to D.N.I. and P., Sept. 1, 1939, *ibid.*

⁵² D.P.B. controlled all such government expenditures exceeding \$5,000.

⁵³ In the case of materials they were permitted to charge 2½% on the cost. Also, the Company was to submit the rentals which they proposed to charge for the use of their equipment, and when these had been agreed upon by both parties a contract would be drawn up.

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The Halifax concern immediately began to place orders for the various materials required, and to allocate suitable personnel for the job. C.O.A.C. had been authorized to accept or reject any substitutes not conforming to the specifications; and it was suggested that his decisions on all questions regarding labour, materials, and plant rentals, should be final.⁵⁴ This officer, however, did not feel that his staff at that time was adequate to carry out such technical duties, and because of the difficulty of obtaining suitable experts locally, his request for additional qualified personnel was granted.

By September 30, work on the net-preparing and material-assembly grounds had been completed, and all the necessary equipment was on order.⁵⁵ The trawlers *Festubert* and *Ypres*, fitted out as gate vessels, were supplied by the Department, while the Company supplied moorings, wire rope for gate-opening and closing wires, and a pontoon to take the place of a pivot vessel. Weekly progress reports on the project began on October 6, by which date much of the material had arrived and more was on the way. Some difficulty was encountered in obtaining wire cable, due to the fact that much of it had to be imported, and delivery of this as well as of a number of small parts ran about ten days late. Nevertheless, when Lieut.-Cdr. Pressey who had recently returned from England visited the scene at the end of the month, he was well satisfied with the progress being made.

On November 18 the assembling, weaving, and placing in position of the boom was completed; and five days later a final report was made to N.S.H.Q. An Order in Council of December 14 authorized the payment of \$250,000 to cover the cost of this work; and when the formal contract was drawn up on January 3, 1940, it was agreed to pay Foundation Maritime \$243,300 for their services, in addition to whatever payments remained to be made for materials, the latter subject to the approval of the War Supply Board.⁵⁶

When the question of maintaining the boom had been brought up late in November, Foundation Maritime had expressed themselves as willing to supply the necessary equipment—chiefly a boom-working vessel and a mobile crane ashore—and to carry out the necessary maintenance. This

⁵⁴ Encl. in Chairman, D.P.B. to D.N.E., Sept. 7, 1939; Chairman, D.P.B. to D.Min., Sept. 19, 1939; N.S. 1053-4-5 (1).

⁵⁵ Foundation Maritime to C.O.A.C., Sept. 30, 1939, *ibid.*

⁵⁶ P.C. 4159; N. Supt., Halifax, to N. Sec., Nov. 23, 1939, and W.S.B. to Foundation Maritime, Jan. 3, 1940, N.S. 1053-4-5 (1). W.S.B. had replaced D.P.B.

method seemed more economical than building or acquiring such a vessel, and on January 19 it was approved that the Company should be given the contract.⁵⁷

Esquimalt had been slightly better prepared than Halifax as regards boom defence, for early in January 1939 the Captain in Charge at that base had been instructed to proceed with the building of a single-line anti-submarine net for the harbour, all sections of which were completed by March 20.⁵⁸ When war broke out in Europe, orders were given to lay the boom at once. Three scows were needed to act as gate and pivot vessels, and the Defence Purchasing Board agreed that the work should be proceeded with immediately, at a cost not to exceed \$39,000 including the purchase of the scows.

It was considered more economical to engage the Pacific Salvage Co. of Vancouver, B.C., to do the work with their equipment and trained crews, than to hire equipment and depend on the inexperienced casual labour available in the dockyard. As at Halifax there was no time in which to draw up a formal contract, but the Company, the only one in the locality capable of such an undertaking, agreed to carry out the task on terms acceptable to the Department. While the job was in progress, naval authorities on the west coast discussed the matter with representatives of the Company, and it was decided that costs should be estimated on a "time and material" basis for labour and materials, and that all equipment should be rented by the hour. In implementing this informal agreement, however, the Company patriotically lent the services of their general superintendent and their chief engineer free of charge, and their rates for labour were below normal.

The laying of the anti-submarine net across Esquimalt harbour was completed by October 25, 1939, at an approximate cost of \$44,000. This was slightly more than the amount which had been originally approved, because the scows had to be fitted with steel plates, and because more overtime was worked than had at first been anticipated. A full report was forwarded to the War Supply Board on December 18, and the entire project including the cost was approved on February 7, 1940.⁵⁹

With the steps which have been outlined in this chapter, the R.C.N. had begun the war. From this point it plunged

⁵⁷ Note on D.N.S. to C.N.S., Dec. 30, 1939, N.S. 1053-4-5 (1).

⁵⁸ Capt. in Charge, Esquimalt, to N.S.H.Q. (signal), Mar. 21, 1939, N.S. 1053-8-1 (1).

⁵⁹ N. Supt., Esquimalt, to N. Sec., Nov. 22, 1939, and A.D.Min. to Admin. Sec., W.S.B., Dec. 18, 1939, N.S. 1053-8-3 (2); P.C. 510.

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deeper and deeper into a multitude of complex activities, and grew to dimensions that no one could have foreseen. A few days after war had been declared the Cabinet had approved that the authorized personnel of the navy should be doubled; before the war was over the complement was to increase more than twenty-five-fold.

One of the earliest immediate steps preparatory to the outbreak of war had been to place the R.C.N. on active service. This phrase covers a host of transactions: the detailed allocation of the available personnel; the obtaining of more ships of various types; the recruiting of personnel to man these new ships; and the ordering of stores, munitions, and victualling supplies sufficient for all these activities, not only as they existed at the moment, but as they might be expected to develop, and to meet an expansion which was forever increasing and overtaking the current state of preparedness. As time went on the Naval Service found itself entering fields that were largely or wholly unfamiliar. It was compelled to employ specialists in many fields that were not immediately related to seamanship, weapons, or the art of war as formerly conceived. The Service came to include in its ranks, serving in their professional capacities, generally in uniform but sometimes as civil servants, not only physicists and other natural scientists, but also such specialists as psychologists and personnel experts, statisticians and business men, architects, artists, educators, and dieticians.

It is not possible, within reasonable limits of space, to describe every phase of the work that was done. In the chapters which follow, the main functions and interests of the Naval Service, apart from Operations, will be dealt with as fully as possible in the following order: the acquisition of warships, the provision and equipment of shore bases, the recruiting and training of personnel, the shipping and trade which it was the primary duty of the R.C.N. to protect, and the organization which correlated various widespread activities into a unified effort. In the course of the narrative most of the ancillary activities will be briefly described, or mentioned, in their respective contexts.

CHAPTER 2

PROCUREMENT OF SHIPS—DEFENCE OF CANADA, 1939-41

ON September 1, 1939, when the German armies entered Poland, there were thirteen ships in commission in the Royal Canadian Navy. By the end of the European war there were more than nine hundred. Many of these were local craft performing miscellaneous harbour duties, but over 375 were armed for offensive action against the enemy. Some of the larger ones had been obtained from the United Kingdom, and others were vessels converted from peace-time use; but by far the greater number were ships built in Canadian yards during the five-and-a-half years of hostilities.

The types of warship required changed with the changing character of the war. Until early in 1941, the dominant consideration was defence of Canadian coastal waters against surface raiders, submarines, and mines. Newfoundland came to be included in this responsibility during the later part of the period. The ships required then were anti-submarine and minesweeping vessels and destroyers. From the spring of 1941 to the end of 1943, the main emphasis was centred on the anti-submarine protection of trans-Atlantic shipping, and on acquiring for this purpose frigates and escort destroyers. During the final phase, which lasted until the end of the war, offensive Operations were prepared for and carried out in European waters; and as far as was consistent with current requirements, ships were obtained of types which would also be suitable for use against Japan, and for retention in peace-time. The ships brought into the Canadian navy in this period ranged from cruisers and light fleet carriers to motor torpedo and motor gun boats, and they included escort carriers (C.V.E.'s), fleet destroyers, frigates, and landing vessels.

The rôle of the Canadian navy in the event of war had been defined by the Chiefs of Staff Committee on August 29, 1939. They stated that it was "to organize auxiliary forces as rapidly as possible, in order to give protection to shipping against

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mine and submarine attacks in Canadian waters, and at the same time to assist the British forces in keeping the sea communications clear of enemy vessels.”¹ The four types of ship which the Naval Staff wanted in order to accomplish these tasks were destroyers, anti-submarine patrol vessels, motor torpedo boats, and minesweepers. The function of the minesweepers need not be elaborated. Destroyers were the most powerful ships which the Canadian navy could acquire at that time to assist British forces in the war against surface raiders. Their guns, and particularly their speed and torpedoes, made them reasonably satisfactory for the purpose. Equipped with asdic and depth charges, they were also extremely effective in dealing with submarines. Special anti-submarine patrol vessels were required as well, however, because although less efficient, they were much cheaper and easier to construct and man than destroyers, and could therefore be obtained in much larger numbers. Motor boats fitted with torpedoes, or with asdic and anti-submarine armament, would supplement the larger ships for local defence against either surface or submarine attack.

Notwithstanding previous attempts at naval expansion, Canada was deficient in all four of these types of ship when the war began. The deficiency was least in regard to destroyers. For some years it had been the policy of the Naval Staff to concentrate on the acquisition of these rather than the other vessels which, in an emergency, could be built more rapidly. Of the thirteen ships with which the navy had entered the war, six constituted a homogeneous flotilla of fairly modern destroyers.² Arrangements had also been made to purchase a seventh, the flotilla leader commissioned as H.M.C.S. *Assiniboine* a few months later. The remainder of the thirteen, apart from the two training vessels,³ were small minesweepers. One⁴ of these dated from the First World War; the other four⁵ were Basset-class trawlers which had been launched in 1938.

A much larger shipbuilding programme would have been inaugurated early in 1939 had sufficient funds been available. In January, the Chief of the Naval Staff had informed the Minister that a minimum force of 18 destroyers, 8 fast anti-submarine vessels, 16 minesweepers, and 8 M.T.B.'s, was required to protect trade in the vicinity of the Canadian sea-

¹ Chiefs of Staff Cttee. Minutes, Aug. 29, 1939.

² H.M.C. Ships *Saguenay, Skeena, Fraser, St. Laurent, Restigouche, Ottawa.*

³ H.M.C. Ships *Venture* and *Skidegate.*

⁴ H.M.C.S. *Armentières.*

⁵ H.M.C. Ships *Comox, Nootka, Gaspé, Fundy.*

board. To obtain that number of vessels he suggested laying down in Canada 2 destroyers a year for the next six years, 4 anti-submarine vessels a year for two years, and 4 minesweepers a year for three years. The sum needed to begin this programme had originally been included in the 1939 naval Estimates, but was cut out before these were presented to Parliament.⁶ In explaining the shipbuilding situation to the members of the Honorary Naval Advisory Committee a month before the outbreak of hostilities, the C.N.S. pointed out that this reduction in the 1939 Estimates "resulted in a delay of one year in the provision of suitable craft for hunting and attacking submarines in local Canadian waters," and he added, "the lack of these vessels has made the Naval Staff feel very naked in the trying state of affairs which results from the simmering cauldron in Europe."⁷

With the outbreak of war, two measures were taken to remedy this lack. On September 3, the Minister of National Defence was granted power under section 48 of the Defence of Canada Regulations to requisition any British ship registered in Canada, and on September 19 the Cabinet approved the first shipbuilding programme. These two authorizations prepared the way for a comprehensive scheme for new construction, and made possible the acquisition and conversion of local craft, and of other vessels needed to carry out patrol and minesweeping duties until the new ships were completed. In many cases the converted ships were found in practice to be so useful and difficult to replace that they were kept in service until the close of the war.

It is impracticable to give an account of the hundreds of very small craft which were acquired for duty in or near harbours and naval bases. There were in addition to these, however, a number of non-naval vessels converted into warships which played distinctive parts in the operational history of the Canadian navy, and which must be mentioned briefly. The most important were the Prince ships, but the purchase and conversion of these was such a large undertaking that it was always considered a part of the first shipbuilding programme, and it will be dealt with later in that connection. Two other general classes of ship taken up for naval service were the auxiliary anti-submarine vessels and the auxiliary minesweepers.

⁶ C.N.S. to D. Min., May 16, 1939, N.S. 1062-13 2 (7).

⁷ C.N.S. to Hon. Naval Advisory Cttee., Aug. 5, 1939, N.S. 1078 6 1 (1).

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Pre-war plans had always included provision for obtaining many vessels of these types immediately on the outbreak of war, and from time to time surveys had been made giving particulars of those likely to be available on each coast.⁸ Small stocks of guns and minesweeping gear for equipping them were kept in store at Halifax and Esquimalt. It had been intended to purchase asdic sets as well, but this had been found impossible due to lack of funds in the 1938-39 appropriations. Four sets, bought for the Bassets but not yet installed, were all that the Service had in September 1939, apart from those fitted or about to be fitted in the six Canadian destroyers.⁹

The requisitioning of vessels from the Departments of Fisheries, Mines and Resources, and Transport, and from the Royal Canadian Mounted Police, and private owners, began according to plan early in September 1939. At the same time the Fishermen's Reserve was mobilized on the west coast, the boats as well as their crews being brought into service. Enough ships were secured in these ways for oropesa sweeping and for general patrol work, but only three were found that were sufficiently seaworthy and had the speed required for hunting submarines. These, which were fitted with asdic gear in the spring of 1940, were the *Sans Peur* on the west coast, and the *Acadia* and *French* in the east. The *Sans Peur* was a large yacht that had belonged to the Duke of Sutherland; the *French* was an R.C.M.P. patrol boat, and the *Acadia* a hydrographic survey ship owned by the Department of Mines and Resources.¹⁰

By December 1939 it had become clear that new construction could not possibly be ready for almost a year, and that the number of Canadian ships satisfactory for use in the meantime would be inadequate to give anti-submarine protection to shipping after navigation in the St. Lawrence reopened in the spring. It was therefore decided to send the Director of the Operations Division to New York and Boston for the purpose of investigating, very confidentially in the guise of a civilian, the American ship-market in the hope that it might

⁸ E.g., D. Min., Fisheries, to D. Min., Nat. Def., Feb. 20, 1935, N.S. 1017-1-12 (1); D.N.I. and P. to D.N.S., Aug. 26, 1937, N.S. 1018-1-10 (1); N.S.O. Esquimalt, to D.N.I. and P., Feb. 2, 1938, N.S. 1018-1-10 (1). Among other vessels rum-runners were considered for anti-submarine work, and the particulars of those registered in Canada were listed. Very few of the larger ones were found to have speeds of over 13 k., despite reports to the contrary.

⁹ R. of P., D.A S., Halifax, enclosed in C.O.A.C. to N. Sec., June 12, 1940, N.S. 1000-5-13 (1).

¹⁰ Documents in N.S. 20-1-1 (1).

offer wider opportunities than did the Canadian. The D.O.D., was favourably impressed with the prospects there, and listed a number of ships that might be worth obtaining.¹¹

As a result, early in January the Canadian Minister in Washington was instructed to ask the State Department whether it would be contrary to American neutrality legislation for "the Canadian Government . . . to purchase a privately owned yacht registered in the United States . . . to be brought to Canada in its present condition and subsequently to be outfitted for naval patrol purposes", or alternatively, for "a private individual in Canada . . . to purchase a privately owned yacht registered in the United States and bring it to Canada in its present condition. It is the intention of the Canadian purchaser ultimately to re-sell the yacht . . . to the Canadian Government, and the Government will then outfit the vessel to be used for naval patrol purposes." The State Department replied that both transactions would seem to contravene title 18, section 23, of the United States Criminal Code.¹²

This meant that considerable hazards would be involved in purchasing yachts in the United States. Any individual concerned would risk a fine of up to \$10,000 or as much as three years in prison, together with confiscation of the vessel in question. More serious still was the danger of provoking hostility on the part of American public opinion. Nevertheless, so urgent was Canada's need that the government decided to go ahead with the attempt to buy the yachts. Plans were made in the utmost secrecy. A complicated scheme was worked out, in executing which a number of highly reliable Canadian yacht owners were asked to co-operate. On their agreeing, the yachts they already possessed were requisitioned by the Department of Transport for defence purposes.¹³ Ostensibly to replace their own craft they went to the United States, bought yachts actually designated by the D.O.D., and returned with them to Canada. In due course, the Department of Transport, having apparently become aware of the fact that the yachtsmen had acquired vessels more suitable for naval service than those first requisitioned, cancelled the

¹¹ D.O.D. to D.C.N.S., C.N.S., Dec. 12, 1939, N.S. 1018-1-18 (1). For a general account of the acquisition of these American yachts see enclosure in Leslie R. Thomson to Sub-Lieut. R.W. Southam, Nov. 15, 1940 (D.N.H.S. record-).

¹² Sec. of State (Ext. Aff.) to Can. Min., Washington, Jan. 17, 1940, and reply, Jan. 26, 1940 (telegrams), N.S. 1018-1-18 (1).

¹³ Authority to requisition ships for war service had been delegated to the Department of Transport by the Naval Service at the beginning of the war. See Min., Nat. D.C. to Min., Transport, Aug. 26, 1939, N.S. 20-1-1 (1) [.

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original order, and took over the new yachts instead. By May 1940 the last of fourteen American yachts purchased in this way was successfully delivered in Canada. All were given animal names on being commissioned in the R.C.N.

The conversion of the "animals" into armed yachts was supervised by the Montreal firm of naval architects, Messrs. Lambert, German, and Milne, and was a much longer and more expensive undertaking than had been anticipated, owing to the fact that many of the vessels were in very poor condition.¹⁴ One on the west coast, the *Grizzly*, was found to be quite unsuitable for any operational work and was used as a guard ship. The others, however, were converted during the summer and fall of 1940. They were armed in most cases with one 12-pdr. gun and a few light automatic weapons, and all were equipped with asdic and depth charges. Until the summer of 1941 they bore the main responsibility for anti-submarine defence in Canadian waters. Fortunately no enemy submarine penetrated into that area before 1942.

One group of auxiliary minesweepers, the Suderoys, was acquired, like the "animal" yachts, as a result of an unusual series of circumstances. In the spring of 1940 the Naval Service was seeking a number of vessels suitable for converting into magnetic minesweepers. After trying without success to find wooden ships with engines powerful enough to tow the sweep, it was decided that the Bassets would have to be used in spite of the fact that they were still badly needed for ropesa sweeping owing to delays in the new-construction programme.¹⁵ At that very time, however, it was learned that a group of Norwegian whalecatchers had put in at Halifax. They had been operating in the Antarctic with a parent ship, and on the invasion of Norway some had worked north as far as Halifax before finding a final refuge. They were inspected and found satisfactory for magnetic sweeping. Four were accordingly requisitioned and converted, in lieu of the Bassets.¹⁶

The arrangements for taking them into the Royal Canadian Navy were complicated. Privy Council approval was given to purchase them outright;¹⁷ but this was found to be impossible, because their owners were in German hands and

¹⁴ Lambert, German, and Milne Report, Sept. 17, 1940, N.S. 29-31-1 (2).

¹⁵ Naval Staff Minutes, May 20 and 27, 1940.

¹⁶ D.G.O. to D.C.N.S., July 7, 1940, N.S. 1038-16-1 (1); Naval Staff Minutes, July 9 and 15, 1940.

¹⁷ P.C. 3436, July 25, 1940.

the Norwegian Shipping and Trade Mission in London, which represented the Norwegian Government-in-exile and acted as trustee for the owners, was unwilling to sell. Its policy was to charter the vessels to the British Ministry of War Transport; and this was done, although the exact terms of the charter were to remain in dispute until the end of the war. The Ministry of War Transport in turn released the *Suderoey II*, *Suderoey VI*, and *Star XVI*, for use in the Royal Canadian Navy.¹⁸

While these auxiliary patrol and minesweeping services were being organized, the first shipbuilding programme was being approved and set in motion. This programme, which was planned on a two-year basis, was brought before the Cabinet by the C.N.S. on September 18, 1939.¹⁹ It was a revision and enlargement of the one that the Naval Staff had tried unsuccessfully to have included in the original 1939 Estimates, when these had been under consideration nine months earlier. It made no change with regard to destroyers, proposing that they be ordered at the rate of two a year. This seemed to be the greatest number that could be manned, even in the unlikely event that building conditions would permit more to be laid down. In the interim, while additional destroyers were being gradually acquired, the staff recommended that three Canadian liners, the Prince ships, should be converted into armed merchant cruisers and used to supplement available destroyers in providing protection against surface raiders.

As far as minesweepers and anti-submarine escort vessels were concerned, the new programme called for building both in considerably larger numbers than had been contemplated before the war. With the actual outbreak of hostilities, measures for defence against mines and U-boats could be no longer postponed, and it was estimated that a minimum of 40 escorts and 28 minesweepers was required, apart from those already in commission or to be converted from non-naval uses. In addition to these basic requirements, the programme allowed for continuing to build each type at the rate of ten a year in order to have replacements available in case of loss or damage, or during time spent in dock for refitting and repairs.

¹⁸ Can. High Comm., London, to N.S.H.Q., Dec. 19, 1940; same to same, Feb. 25, 1941; M. and S. representative, London, to D.Min., Nov. 10, 1942; (telegrams) N.S. 30-30-1-1; N.S.H.Q. to C.N.M.O. (signal), Jan. 17, 1945, N.S. 7101-2 (1).

¹⁹ Cf. Chiefs of Staff Cttee. Minutes, Sept. 17, 1939; C.N.S. to A.D.Min., Feb. 16, 1940; N.S. 1017-10-22 (1).

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The number of M.T.B.'s was increased as well from 8 to 32, and provision was made for constructing another 16 a year as replacements. Finally, two large sloops of the Black Swan class, which would be useful for anti-submarine duty, were included in the programme as a gesture to the United Kingdom Government, which had sent a request that such vessels be built as part of Canada's war effort. When construction of the Black Swan was later found to be impracticable without technical assistance from Britain, this item was cancelled.

Although approved in principle by the Cabinet on September 19, it seemed for a time that financial difficulties would prevent this first shipbuilding programme from being carried out except at a very reduced rate. The funds originally provided for ship construction during the first full year of war, to August 31, 1940, amounted to only \$10,000,000. This was inadequate, and the Chief of the Naval Staff proposed, therefore, to go ahead with most of the programme anyway and "trust to Heaven the money will hold out."²⁰ When forbidden to do this and obliged to limit not only all actual expenditure but also all commitments entered into prior to September 1, 1940, to \$10,000,000, he protested vigorously that this "is simply not facing our problem and is analogous to the ostrich burying its head in the sand."²¹

By the end of October 1939 it was becoming clear to all that in industries like shipbuilding, long-range planning was necessary in order to achieve the greatest economy and efficiency. On October 28, representatives of the three Services and of the Treasury Board meeting together agreed that the army, navy, and air force, should each be asked to draw up a "three-year" programme covering its war needs for what was actually the three-and-a-half-year period to March 31, 1943.²²

The three-year naval programme was based on that drawn up in September, which had made provision for building during a two-year period 4 destroyers, 40 escort vessels, 28 mine-sweepers, 32 M.T.B.'s, and 2 Black Swan sloops, and for converting the 3 Princes. Now it was proposed to complete all of these except the sloops, which were to be omitted altogether, in the year-and-a-half before March 31, 1941. After that, in each of the last two years of the programme, two destroyers would be ordered and annual replacements for the

²⁰ C.N.S. to A/D.Min., Oct. 23, 1939, *ibid.*

²¹ C.N.S. to A/D.Min., Nov. 16, 1939, *ibid.*

²² Asst. N. Sec. to Lieut. J. Farrow, Apr. 20, 1940, *ibid.*

other classes would be built at the rate originally suggested. This meant a total for the whole programme of 8 destroyers, 60 escorts, 48 minesweepers, 64 M.T.B.'s, and the 3 Princes. Estimates were prepared showing the amounts likely to be required each year in order to carry out this project. No additional money was voted for the time being, but henceforth plans were made on the understanding that eventually, when the contracts for the ships in this programme were ready to be let, the necessary financial arrangements would be made.

Policy regarding the type of escort vessel, minesweeper, and M.T.B., to be built, had in some cases been revised since the original programme had been presented to the Cabinet on September 18. There had been no change, however, with respect to destroyers. Staff opinion had crystallized in favour of Tribal-class destroyers as early as the spring of 1939, primarily, it seems, on account of their armament. The C.N.S. emphasized this in a memorandum dated May 16, 1939:

Due to the increased efficiency of fire control and gunpower of probable enemy Armed Merchant Cruisers, it is considered necessary that new construction destroyers for service in the R.C.N., where their work corresponds to cruiser work, should be of the more powerful type known as the Tribal class adopted by the Royal Navy, mounting 8-4.7" guns and 4-21" torpedo tubes.

The same point was brought out a few months later by the D.C.N.S. who stated:

In view of the fact that our ships will be working in small numbers over a large area and not operating in flotillas . . . in any future construction, our ships should be of the Tribal type . . . This type of vessel should be capable of standing up against the usual type of Armed Merchant Cruiser and with torpedoes, two of them should stand a very good chance if necessary, to attack any type of enemy cruiser.²³

The type of anti-submarine vessel originally included in the building programme was the improved Halcyon or Bramble-class sloop. It had a displacement of about 815 tons and a speed of 17 knots, and carried two 4-inch guns as well as mine-sweeping and asdic gear. It was a dual-purpose ship, but in the Royal Navy was intended primarily for minesweeping. Until preliminary plans for the flower-class corvette arrived at N.S.H.Q. about the middle of September 1939, at the very time when the first shipbuilding programme was being prepared for Cabinet consideration, the R.C.N. had intended to use the Bramble as its main anti-submarine escort vessel.

²³ C.N.S. to D. Min., May 16, 1939, N.S. 1062-43-2 (7); D.C.N.S. to Hon. Naval Advisory Cttee., Aug. 9, 1939, N.S. 1078-6-1 (1).

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The flower-class corvette, which was to play such a large rôle in the history of the Canadian navy during the Second World War, was originally called the "patrol vessel, whaler type", and its design had in fact been based on that of a commercial whalecatcher.²⁴ Its origin may be traced back to the First World War, when submarine warfare had been inaugurated on a large scale and numerous fishing vessels had been brought into service for auxiliary anti-submarine duty. Later in that war the Admiralty had begun to build specialized ships for this work. These were small merchant or fishing vessels, and could be constructed by firms not employed on more complex or highly-skilled naval building. An anti-submarine vessel of particular interest in connection with the development of the corvette was the "Z"-class whaler built by Smith's Dock Co. of South Bank near Middlesbrough, Yorkshire. It was smaller than the corvette, but was similarly based on a whalecatcher design: indeed it had been camouflaged to look like an ordinary whalecatcher with a dummy whaling gun on the bow and a crow's nest on the mast.

Early in 1939, Mr. William Reed, O.B.E., of Smith's Dock Co., who had designed the "Z"-class whaler, was again called into consultation by the Admiralty in connection with preparations for an anti-submarine war. The Admiralty's problem, as outlined by the C.N.S. on January 2, 1939, was to find more suitable submarine chasers than either sloops, which "cost too much when we want numbers," or trawlers, which were "too slow to use as a striking force." Considerations that would have to be taken into account in addition to cost and speed were seaworthiness, manoeuvrability, acceleration, water-tight subdivision, endurance, asdic efficiency, rapidity of production in yards not likely to be engaged with other naval work, and finally, complement. The last was particularly important as the manning problem would certainly be one of the most difficult to solve in the event of war.

Mr. Reed's interview with the Director of Naval Construction at the Admiralty in February 1939, was not unlike one he had had with Lord Fisher in March 1915, when he had told of his special study of whalecatching beginning with a visit to the Antarctic whaling regions in 1912, and of how most of the improvements which he had subsequently made in his whalecatchers had also made them better for hunting submarines—

²⁴ Information on the origin of the corvette design was obtained from Mr. William Reed, O.B.E., managing director of Smith's Dock Co., Ltd., South Bank, Middlesbrough, Yorkshire.

the same rapid acceleration, manoeuvrability, and seaworthiness, being required for both purposes. The Smith's Dock whalecatcher which had interested the D.N.C. particularly in 1939, and on which Mr. Reed based the corvette design that he brought back to the Admiralty early in April, was the *Southern Pride*.

The new drawings embodied a number of changes which Mr. Reed considered necessary in order to meet war requirements. The hull and machinery still followed commercial standards, the main engine being, in fact, an exact duplicate of the reciprocating engine in the *Southern Pride*. The length of 190 feet, however, was some 30 feet greater than that of the *Southern Pride*, and there were two Scotch marine boilers in place of one of the water-tube type. Provision was also made for extensive water-tight subdivision, and for the addition of a 4-inch gun and an asdic set as well as other armament and equipment specified by the Admiralty.

The main objections raised by Admiralty officials were to the speed of the new design and its added length. The estimated speed of $15\frac{1}{2}$ to 16 knots compared very unfavourably with the nearly 20 knots reached by the latest sloops. It was suggested that by retaining the water-tube boiler an increase of one knot might have been possible. Mr. Reed explained, however, that for the sake of rapid production Scotch boilers would have to be accepted since they could be obtained in about sixteen weeks, while makers of water-tube boilers would not promise any deliveries for at least seven months in view of the existing emergency. The extra length of the vessel, Mr. Reed said, was in order to avoid the reduction in speed which would otherwise have resulted from the increased displacement caused by adding water-tight bulkheads, another boiler, and the naval armament and equipment. Under these circumstances the Smith's Dock "patrol vessel, whaler type", was approved by the Admiralty as the best anti-submarine vessel for rapid production, and the first order was placed on July 25, 1939.

The rather devious way in which information regarding this new whalecatcher or corvette design reached N.S.H.Q. exemplifies the fortuitous character of many events in those first days of war. At its annual meeting in the spring of 1939, the Canadian Manufacturers Association had decided to send a mission to the United Kingdom to study war production. The mission sailed on July 29. Among other committees into

which it was divided was one on shipbuilding, which interviewed officials at the Admiralty and the Board of Trade and visited a number of shipyards. It brought back with it at the end of August information and outline plans relating to corvettes and to a number of other types of ship.²⁵ All of these papers were left in the hands of the National Research Council, a representative of which had accompanied the mission. On September 13, after a telephone call to find out whether the navy would be interested in it, this material was forwarded to N.S.H.Q. by the Research Council.²⁶

The advantages of building corvettes rather than Bramble-class sloops were immediately obvious to the Naval Staff. The corvette was considerably easier and cheaper to build, because it was smaller and had only one instead of two main engines and propellers, and only one 4-inch gun. On the other hand, it was little less effective operationally than the Bramble, as it carried the same asdic and minesweeping equipment and had about the same speed. The corvette's endurance was not as great; but this did not appear to be the disadvantage that it was later to become, since there was no intention at that time, on the part of either the Admiralty or the Canadian Naval Staff, of using corvettes for trans-ocean escort duty. The 40 anti-submarine vessels required by the navy were to be divided into 8 groups of 5 vessels each, and assigned specifically to the task of defending coastal shipping, and ocean convoys only from the "seaboard to the open sea."²⁷

The minesweepers which it was originally intended to build were Basset-class trawlers, four of which had been constructed in Canada during 1938. They burned coal, had a cruising speed of 10 knots, and carried minesweeping gear and one 4-inch gun. Among the papers brought out by the representatives of the Canadian Manufacturers Association, however, were plans for the new Bangor-class minesweeper which the Admiralty was starting to build. This was "essentially a Halcyon cut down in size and with many fittings, etc., removed."²⁸ The improved Halcyon, or Bramble, which the Canadian navy had considered using as an anti-submarine ship, was the best minesweeper the Royal Navy had had before the war. It had seemed too large and expensive for

²⁵ Canadian Manufacturers Association Mission to the U.K., 1939—Final Report of Shipbuilding Committee, Sept. 1, 1939 (copy in possession of Messrs. German and Milne, Montreal).

²⁶ A. F. Gill, N.R.C., to D.N.E., Sept. 13, 1939, N.S. 1057-2-1 (1).

²⁷ Chiefs of Staff Cttee. Minutes, Sept. 17, 1939, N.S. 1014-1-3 (1).

²⁸ S.S.B. to E. in C., May 4, 1941, N.S. 29-25-1 (20).

wartime sweeping, however, and the smaller Bangor had been designed instead, retaining as many of the qualities of the Halcyon as possible. The Bangor was little larger than the Basset trawler, but it was a much more efficient sweeper. Burning oil instead of coal, it had many times the endurance of the Basset and several knots more speed. It had two engines and propellers instead of one, an important advantage in minesweeping for which good manoeuvrability is essential, and it could be readily fitted with asdic equipment. The Bangor could be built without difficulty in Canadian yards, and although considerably more expensive than the Basset, the added cost would probably be more than offset by the saving involved in building corvettes rather than Brambles for anti-submarine duty.

Problems with regard to actually placing the first orders for tribal destroyers, flower-class corvettes, and Bangor minesweepers, and for the acquisition and conversion of Prince ships, were worked out during the winter of 1939-40. The original intention had been to do all building in Canada,²⁹ and this was quite feasible as far as corvettes and Bangors at least were concerned. The practicability of constructing tribals was much more uncertain, although it had been recommended as an important feature of the naval expansion planned before the war began.³⁰ As late as the Cabinet meetings of September 18 and 19, the Naval Staff had had to assume that building such ships would be attempted if necessary. They realized that it would be very difficult to do under war conditions, and impossible at any time without the assistance of naval constructors and overseers from the United Kingdom.³¹ They had already made enquiries as to whether assistance of this sort could be obtained, and had also asked whether alternatively the tribals that were needed could be ordered from the United Kingdom. The Cabinet instructed the C.N.S. to pursue these investigations and to suggest as well to the Admiralty the possibility of "building Tribals in the United Kingdom for Canada, this country in exchange to concentrate on building Black Swans for the United Kingdom."³²

At first there seemed to be little likelihood that any of these proposals for tribal building could be carried out. Ship-

²⁹ Cf. Chiefs of Staff Cttee. Minutes, Sept. 17, 1939, N.S. 1011-1-3 (D).

³⁰ Memo. by C.N.S., May 16, 1939, N.S. 1052-13-2 (D); D.C.N.S. to Hon. Naval Advisory Cttee., Aug. 9, 1939, N.S. 1078-6-1 (D).

³¹ C.N.S. to Min., Sept. 15, 1939, N.S. 1017-10-23 (D).

³² C.N.S. to First Sea Lord (signal), Sept. 22, 1939, N.S. 1017-10-22 (D).

yards in the United Kingdom were fully occupied, and could not accept Canadian orders, nor could the Admiralty spare the personnel necessary for construction to be undertaken in Canada.³³ Britain's own destroyer requirements seemed to make the bartering of Black Swans for tribals unacceptable; moreover it was found that Canada could not build even Black Swans without assistance.³⁴ On October 25, however, the C.N.S. with the approval of the Cabinet brought up the barter scheme again, this time offering to build corvettes for the Admiralty. He estimated that the probable rate of exchange would work out to about five corvettes for each tribal. The Admiralty agreed in principle to this plan; but eventually, after further extended negotiations, it was decided that it was too difficult to relate costs of tribals built in the United Kingdom to costs of corvettes built in Canada, and that it would be much simpler to abandon the barter scheme and instead to let each country pay in the usual way for the ships which it obtained.³⁵ Ten corvettes were accordingly laid down in Canada for the Royal Navy early in 1940, and two tribals in Britain for the Canadian navy.³⁶ The second pair of Canadian tribals was ordered in the United Kingdom a year later on the same direct-payment terms.³⁷

Arrangements had meanwhile been under way with respect to the Prince ships, which were urgently needed as armed merchant cruisers to supplement existing Canadian destroyer forces. The *Prince David*, *Prince Henry*, and *Prince Robert*, had been built in the United Kingdom for the Canadian National Steamships Co., and had been designed for fast passenger service on the west coast. They were small luxury liners, identical in every respect, and had cost over \$2,000,000 each on their completion in 1930.³⁸ Their standard displacement was almost 6,000 tons, their length 385 feet, and their maximum speed 22 knots. They had an endurance at economical speed of about 6,000 miles. The *Prince Robert* had remained on the west coast, but the other two had seen varied and frequently unfortunate service on both the Atlantic and Pacific, and had eventually been laid up at Halifax in 1937. In 1938 the *Prince Henry* had been sold to the Clarke Steamship Co. of Montreal, renamed the *North Star*, and used again

³³ First Sea Lord to C.N.S. (signal), Sept. 30, 1939, *ibid.*

³⁴ C.N.S. to First Sea Lord (signal), Sept. 22, 1939, *ibid.*

³⁵ Material *ibid.*

³⁶ P.C. 1338, Apr. 5, 1940.

³⁷ P.C. 869, Feb. 5, 1941.

³⁸ W. R. Campbell to D. B. Carswell, Dec. 20, 1939, N.S. 1018-1-10 (1).

for the tourist trade. Whatever vicissitudes the Princes had met in commercial service, however, their speed and endurance gave them great potential value as war-time naval auxiliaries. Long before 1939 they had been listed for conversion into armed merchant cruisers, and accordingly on several occasions the Naval Service had taken steps to prevent their sale to foreign interests.³⁹

Early in September 1939, the Naval Service informed the Admiralty that the three Princes were available for war use. The Admiralty replied on the 26th that two might be requisitioned and fitted out with portions of the armed merchant cruiser equipment which the Royal Navy had been accumulating in Canada since 1937. The Admiralty considered, however, that the Princes were somewhat small for this work, and preferred that the third should not be taken up until the possibility had been investigated of equipping a more powerful vessel from the remaining stocks. It was not until January 8, 1940, that the Admiralty agreed to supply the armament and equipment needed for the third Prince.⁴⁰

Meanwhile, in October, proceedings had been begun for requisitioning the *Prince David* and *Prince Robert* from the Canadian National Steamships Co. on a charter-hire basis. When it became clear, however, during November, that substantial alterations would have to be made in these ships and that reconditioning them after the war would consequently be an expensive job, the alternative of outright purchase began to be considered. This was recommended by the Chief of the Naval Staff in a report to the Deputy Minister dated December 8, 1939, in which he proposed that they should be incorporated in the permanent navy and retained if possible after the war.⁴¹ On December 19 the Treasury Board authorized the expenditure of \$1,200,000 for buying the *Prince David* and the *Prince Robert*.⁴²

There was considerable difference of opinion as to what constituted a fair price for these ships, and negotiations dragged on for some time in spite of the fact that the sale by the government-owned Canadian National Steamships Co. involved simply a transfer of funds from one government Department to another. When the purchase of the *North Star*

³⁹ Cf. C.N.S. to Min., Sept. 4, 1942, N.S. 1057-16-11 (2).

⁴⁰ N.S.H.Q. to Admiralty (signal), Sept. 9, 1939, N.S. 157-1-1 (1); can. to same (signal), Sept. 16, 1939, N.S. 1018-1-10 (1); Admiralty to N.S.H.Q. (signal), Sept. 26, 1939, N.S. 155-1-1 (1); same to same (signal), Jan. 8, 1940, N.S. 1018-1-10 (1).

⁴¹ Correspondence in N.S. 1018-1-10 (1).

⁴² T. 190348B, Dec. 19, 1939, N.S. 156-1-1 (1).

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from the Clarke Steamship Co. also came under discussion in January 1940, a satisfactory decision became still more difficult to reach. To avoid delay it was agreed, however, that the ships should be turned over to the navy for conversion without waiting for an exact price to be determined. The *Prince Robert* was accordingly transferred to the R.C.N. at Esquimalt and the *Prince David* at Halifax on February 5. The *North Star*, named the *Prince Henry* once again, was transferred on March 11, also at Halifax. The last details with regard to purchase arrangements were not settled until the end of November 1940. The final purchase-price of the *Prince Robert* and *Prince David* was more than \$700,000 each, while the *Prince Henry* cost over \$800,000.⁴³

Plans for the conversion of these ships were drawn up by Messrs. Lambert, German, and Milne, and after tenders had been called for, contracts were awarded as follows:

Ship	Contractor	Date	Contract Delivery	Contract Price	Actual Amt. Paid
<i>Prince David</i> ...	Halifax Shipyards	9.2.40	Aug.	\$535,000	\$763,000
<i>Prince Robert</i> ..	Burrard Dry Dock	9.2.40	July	\$600,000	\$755,300
<i>Prince Henry</i> ..	Canadian Vickers	15.5.40	Sept.	\$530,000	\$815,900

Work on the *Prince Robert* was virtually completed by the end of July, but the *Prince David* and *Prince Henry* were not ready until the end of the year. They were found to be in very much worse condition than the *Prince Robert*, and much extra time and money had to be spent on the repair of their hulls and machinery.⁴⁴ The conversion itself consisted in all three cases of cutting away the two top decks and fitting a light cruiser's superstructure. The hull and decks had also to be stiffened, accommodation arrangements revised, and watertight subdivision greatly extended. The armament installed consisted of two 6-inch guns superimposed forward and two aft, two 3-inch H.A. guns amidships, some light anti-aircraft guns, and a number of depth charges in chutes at the stern.⁴⁵

The Princes were the most powerful individual units in the Canadian navy from the time of their commissioning until well after their further reconstruction in 1943, and they saw much successful service. As armed merchant cruisers, however,

⁴³ Documents in N.S. 1018-1-10 (1).

⁴⁴ D.S.B. to E. in C., Sept. 27, 1940, N.S. 29-26-1 (2); other material in N.S. 29-26-2.

⁴⁵ Report by Lambert, German, and Milne, Oct. 19, 1939, N.S. 29-26-1 (1).

they possessed many faults. They had a very rapid and jerky roll—a great disadvantage for gun-laying as well as from the point of view of comfort. Their armament was inadequate and obsolete, although rumours that the guns had been used in the Boer War and that barrels had been split when high-explosive shells were fired were exaggerations. The guns had been drawn from Admiralty merchant-cruiser stock collected after the First World War. The main 6-inch guns had been cast at the beginning of the twentieth century, and had originally been mounted in casemates in King Edward-class battleships or Good Hope and county-class cruisers. The 3-inch guns had come from light cruisers of 1916 to 1918 vintage. All these guns were serviceable, but they lacked the range and the superior fire-control of more modern weapons.

By December 1939, arrangements regarding the first corvette and Bangor programmes had reached the stage where orders could soon be placed; and on December 7 the Naval Service asked the newly formed War Supply Board to investigate the capacity of Canadian industry for building these two classes of ship. The board reported, after a careful survey, that corvettes and Bangors required the same facilities, and that thirty of either or both types could be constructed in Canadian yards during the calendar year 1940, and another sixty during 1941. This would be possible, however, only if the industry were properly organized and builders were assured of continuity of production throughout the whole two-year period.⁴⁶ The need for this latter proviso was confirmed when the tenders for the first group of corvettes were opened, and accordingly on February 7, 1940, the Privy Council approved a two-year corvette and Bangor programme, authorizing the construction of ninety of these vessels before the end of 1941, and the expenditure for that purpose of \$54,250,000.⁴⁷

In deciding how many of the ninety should be corvettes and how many Bangors, some confusion resulted from the still incomplete state of the destroyer negotiations. If the barter arrangement were confirmed, approximately 20 corvettes would be needed as an exchange for the 4 tribals to be ordered during this two-year period. An additional 47 would be required for the R.C.N. to maintain the rate of building and replacement laid down in the original three-year shipbuilding programme.⁴⁸

⁴⁶ Memo. by A. D. Min. on meeting between Transport and Naval Service officials, Dec. 7, 1939, N.S. 1017-10-22 (1); P.C. 438, Feb. 7, 1940.

⁴⁷ P.C. 438, Feb. 7, 1940.

⁴⁸ C.N.S. to A/D. Min., Feb. 16, 1940, N.S. 1017-10-22 (1).

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It seemed advisable to proceed with 64 of these during January and February, 1940, pending information as to the exact numbers required.⁴⁹ The result was that in March, after the decision had been reached to substitute direct payments for barter, the Canadian navy was left holding contracts for considerably more corvettes than it had intended to build. Ten could be transferred to Admiralty account, however, in accordance with a request made earlier that that number be built in Canada for the Royal Navy.⁵⁰ The remaining 54 were not greatly in excess of programme requirements, which had always been considered, moreover, as representing minimum needs.

The three-year programme had provided for building 28 Bangors by March 1941, and 10 a year as replacements thereafter. This would mean ordering some 35 during the calendar years 1940 and 1941, the period now under consideration. With 64 corvettes to be built in Canada, space would be available, if the War Supply Board figures were correct, for only 26 Bangors. It was decided, nevertheless, to try to let contracts for the initial requirements of 28, and tenders for that number were called. When they were returned in February 1940, however, it was found possible to place only 14 orders. Four more were eventually placed in April, and the last 10 not until August.⁵¹

Contracts for the first programme of sixty-four corvettes to be built in Canada were authorized by the Privy Council⁵² during January and February 1940 as follows:

Firm	No. of Vessels	Delivery before close of Navigation		Price per Vessel
		1940	1941	
Canadian Vickers, Montreal.....	8	3	5	\$530,000
Marine Industries, Sorel.....	7	3	4	\$530,000
Davie Shipbuilding, Lauzon.....	10	4	6	\$530,000
Morton Ltd., Quebec.....	4	2	2	\$530,000
Geo. T. Davie, Lauzon.....	3	1	2	\$532,000
Saint John Dry Dock.....	3	1	2	\$540,000
Port Arthur Shipbuilding Co.....	8	3	5	\$540,000
Kingston Shipbuilding Co.....	3	1	2	\$532,000
Collingwood Shipyards Ltd.....	8	3	5	\$528,000
Burrard Dry Dock, Vancouver.....	4	3	1	\$605,000
Yarrows, Esquimalt.....	3	2	1	\$606,000
Victoria Machinery.....	3	2	1	\$606,000
	64	28	36	

⁴⁹ P.C. 337, Jan. 26, 1940; P.C. 511, Feb. 7, 1940; P.C. 661, Feb. 20, 1940.

⁵⁰ Admiralty to N.S.H.Q. (signal), Oct. 26, 1939, N.S. 1017-10-22 (1); E. in C. to C.N.S., Mar. 28, 1940, N.S. 29-25-1 (5).

⁵¹ Memo. by D. B. Carswell, W.S.B., Feb. 21, 1940, N.S. 29-24-1 (1); P.C. 842, Feb. 28 1940; W.S.B. to N. Sec., Apr. 3, 1940, N.S. 29-24-1 (2); P.C. 4048, Aug. 21, 1940.

⁵² P.C. 337, Jan. 26, 1940; P.C. 511, Feb. 7, 1940; P.C. 661, Feb. 20, 1940.

Ten of the vessels being built in the St. Lawrence and scheduled for 1940 delivery were those which had been ordered by the Admiralty. The amounts specified in the contracts were not firm prices, but were subject to adjustment to meet rising costs of labour and materials. There would be an additional charge of between \$15,000 and \$27,000 on all except the ten Royal Navy ships, to allow for the Canadian specifications having been modified to include various improvements such as steam heating and more electrical equipment. The fact that west-coast prices were considerably higher than those in the east was due to higher costs of labour and transportation in that region, and was not unexpected. The permissible spread of prices in such cases in the United States was said to be fifteen per cent.⁵³

Of the twelve companies which received contracts, eleven were to continue to play major rôles in Canadian shipbuilding throughout the Second World War.⁵⁴ The exception was the Saint John Dry Dock and Shipbuilding Co., which soon became preoccupied with repair work and built only three corvettes for the navy. The repair and refit situation in general on the east coast accounts for the fact that, apart from the tribals built by Halifax Shipyards Ltd., no other steel warships were built in the Maritime Provinces during the war.

The five St. Lawrence Valley companies were to construct almost half of the corvettes and over seventy-five per cent of the frigates built in Canada, as well as numerous ships of other types. Canadian Vickers Ltd., which had been incorporated in 1911, had turned out submarines and patrol vessels in the First World War, and had done a considerable amount of building and repair work since that time. It had five covered building slips, and was one of the most completely equipped and self-sufficient yards in Canada. Marine Industries Ltd., built up by the enterprising Simard family, had manufactured the main engines for three of the four Basset trawlers built for the Royal Canadian Navy in 1938, and was rapidly expanding. It had branched out into the ordnance business as well in 1939, on licence from the great French Schneider-Creusot organization. The Davie Shipbuilding and Repairing Co., Ltd., had a history dating back to 1811, and during the First World War had built submarine chasers and other small naval vessels. It

⁵³ D.S.B. to E. in C., Jan. 16, 1940, N.S. 29-25-1 (2).

⁵⁴ Information with regard to these and other shipbuilding companies was obtained mainly by visits and interviews. Use was also made of articles in *Canadian Shipping and Marine Engineering News*, and *Shipping Register and Shipbuilder*.

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had been bought by Canada Steamship Lines in 1919, but a Davie had been retained as manager until his death in 1937. George T. Davie and Sons, Ltd., and Morton Engineering and Dry Dock Co., were two smaller yards that had done some building before the war, but had occupied themselves mainly with repair work. Both were to receive government assistance and undergo tremendous expansion during 1941 and 1942. The former, known locally as the "Little Davie" yard, had been founded in 1920 by a member of the family that had previously owned the neighbouring "Big Davie" company. Morton's had built one of the Basset trawlers, the *Gaspé*, in 1938.

The Great Lakes yards which received these contracts were affiliated with one another under a holding company, the Canadian Shipbuilding and Engineering Co., organized by Roy M. Wolvin of Montreal. A fourth unit, Midland Shipyards Ltd., was added to the group late in 1940 in time to share in the next corvette programme. When Wolvin died before the end of the war, he was succeeded by Mr. John S. Leitch who had been general manager at Collingwood since 1912, and vice-president of the larger concern. Collingwood Shipyards Ltd. and the Port Arthur Shipbuilding Co. were the two most important member firms. Both had complete facilities, and built not only hulls but also engines and boilers, the latter for other companies as well as for themselves. Collingwood had built the Basset trawler *Fundy* in 1938. Before the war the Kingston Shipbuilding Co. had been a small repair yard, and Midland Shipyards Ltd. had been defunct. The latter, being restored during war-time, was never able to get all of the equipment needed to become entirely self-sufficient, and had to operate under a considerable handicap.

The west-coast firms had a great climatic advantage over those in the St. Lawrence and Great Lakes area, but this was more than offset by increased labour and transportation costs. Burrard Dry Dock Co., Ltd., founded in 1894 by Alfred Wallace, had built steel and wooden freighters during the First World War, and the Basset trawler *Comox* in 1938. It was to expand rapidly during the Second World War under the presidency of Mr. Clarence Wallace, and to operate three major yards in which merchant shipbuilding and naval construction and conversion were undertaken on a large scale. Yarrows Ltd., Esquimalt, had been established in June 1914 by Sir Alfred Yarrow, the founder of the Glasgow firm of Yarrows and Co., Ltd. His son, Mr. Norman Yarrow, re-

mained in Canada in charge of the new business which was completely separate in other respects from the parent organization. Yarrows Ltd. was mainly occupied with repair work until the Basset trawler *Nootka*⁵⁵ was built in 1938. The Victoria Machinery Depot Co., Ltd., dated back to the 1880's, when Joseph Spratt had set up a machine shop specializing in ship repairs. It was incorporated in its present form in 1898 by his son, Charles J. V. Spratt, and when the latter died in 1941 his widow assumed the position of managing director for the remainder of the war. The machine and forge shops had retained an important place in the work of the yard even when shipbuilding increased during the First World War, and the firm continued to be highly self-sufficient.

Delivery of twenty-eight of the first programme of sixty-four corvettes had been promised before the end of 1940. Only fourteen were actually in commission by that time. This failure to adhere to schedule was due to the unprecedented expansion in shipbuilding taking place at a time when similar expansion in other fields made the task extremely difficult.

The building of naval ships and the manufacture of their equipment was a new experience for most Canadian firms; labour was difficult to get and a large proportion of it was untrained; materials rapidly became scarce. The fact that much equipment had to be imported from Britain also resulted in delays because shipments were sometimes lost in transit, and because British manufacturers, faced by even greater problems than any arising in Canada, were likewise unable to maintain delivery rates.

Twenty of the ships promised for completion in 1940 were being built in the St. Lawrence and Great Lakes region, and if not out by the close of navigation would have to wait four or five months until the ice broke up in the spring. Each autumn throughout the war this problem of hastening ships to ice-free ports was to recur, but in no case was it more urgent than in 1940 when the fall of France and the entry of Italy into the war made the invasion of the British Isles seem imminent. The first corvette completed in Canada, H.M.S. *Windflower*, was commissioned on October 26, 1940, and it was followed out of the river before the freeze-up by the other nine Royal Navy corvettes and four for the Royal Canadian Navy. By the end of December three of the R.N. corvettes had sailed for the

⁵⁵ Later re-named *Nanoose* in order that the name *Nootka* could be used for a new Canadian tribal destroyer launched in 1944.

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United Kingdom, five were in Halifax awaiting minor spare gear, and two, the *Fennel* and the *Bittersweet*, were being completed at Liverpool, N.S., after having been towed from Sorel. The only Canadian corvette in operation was the *Collingwood*, built by Collingwood Shipyards Ltd.; the other three were being completed at Halifax. On the west coast, the *Wetaskiwin* built by Burrard Dry Dock Co., Ltd., was in commission, and in February she and another Burrard corvette, the *Agassiz*, made the trip through the Panama Canal to Halifax.⁵⁶ Some others, particularly one each from Morton's and George T. Davie's, might have been ready had it not been for slow delivery of essential equipment from the United Kingdom.⁵⁷ A year later, in December 1941, when the whole programme was due for completion, initial difficulties had been overcome and only one ship was still outstanding. That was the last being built by the Saint John Dry Dock Co. and it was held up by the constant demands on that yard for repair work.⁵⁸

The twenty-eight Bangors ordered during 1940 were of two different types. The first eighteen had steam reciprocating engines, the others had diesels. The Admiralty was building vessels of both these types, and a third as well with turbine machinery, in order to take advantage of these three sources for the supply of main engines. All three types of Bangor had twin screws, and were designed to have a speed of 16½ knots and an endurance of over 3,000 miles at 10 knots. They were equipped in the same way with one 4-inch or smaller gun and oropesa minesweeping gear. What structural differences there were between steam and diesel Bangors arose out of the fact that the steam vessel had to be somewhat larger to accommodate boilers, its bulkier and heavier machinery, and the much greater quantity of oil which it required.

At first the R.C.N. had asked the Admiralty for information only with regard to the steam Bangor. Reciprocating machinery had already been manufactured in Canada for the Bassets, and could be obtained for these new vessels without difficulty. Manufacture of diesel engines of the size needed, on the other hand, appeared doubtful for the time being at least.⁵⁹ Eighteen steam Bangors were accordingly ordered in February and April 1940 as follows:⁶⁰

⁵⁶ Signals to N.S.H.Q. reporting movements, N.S. 1057-5-8 (1).

⁵⁷ E. in C. to C.N.S., Dec. 23, 1940, N.S. 29-25-1 (1).

⁵⁸ Cdr. (E) N. Bannatyne to S.S.B., Sept. 27, 1941, N.S. 29-25-1 (24).

⁵⁹ C.N.S. to First Sea Lord (signal), Sept. 22, 1939, N.S. 1017-10-22 (1).

⁶⁰ P.C. 842, Feb. 28, 1940; W.S.B. to N. Sec., Apr. 3, 1940, N.S. 29-24-1 (2).

PROCUREMENT OF SHIPS--DEFENCE OF CANADA, 1939-41

Firm	No. of Vessels	Delivery before close of Navigation		Price per Vessel
		1940	1941	
North Van Ship Repairs Ltd., Vancouver.....	6	1	5	\$620,000
Burrard Dry Dock Co., Vancouver.....	6	0	6	\$620,000
Prince Rupert Dry Dock and Ship-yards Co.....	2	1	1	\$625,000
Dufferin Shipbuilding Co., Toronto.....	4	2	2	\$568,000
	18	4	14	

Only the west-coast orders had been placed in February 1940, all other bids having had to be eliminated because of high prices or slow deliveries. Burrard Dry Dock Co. was the sole corvette builder to receive one of the first Bangor contracts as well. North Van Ship Repairs Ltd. was a yard that had been founded in 1931 as a subsidiary to the Pacific Salvage Co., Ltd., and until 1939 had handled only repair work and wooden-ship construction. It was to build Admiralty and cargo ships later, but this was the only construction that it undertook for the Canadian navy. The Prince Rupert Dry Dock and Shipyards Co. operated as a subsidiary of the Canadian National Railways. It had a well-equipped yard and floating dry dock completed in 1916, and had built a number of steel and wooden ships prior to 1939. Its only naval building during the Second World War was to be four Bangors, but it was also to construct a number of 10,000-ton cargo vessels.

The Dufferin Shipbuilding Co. received its first order for four Bangors on April 1, 1940, and was to build a large number of other minesweepers for both the British and Canadian navies before the war ended. Organized by Mr. James Franceschini, a Toronto contractor, it occupied the site of the derelict Dominion Shipbuilding Co. In October 1941, the yard was bought by the Dominion Government and renamed the Toronto Shipbuilding Co. Frequent changes of management, and too great emphasis on the mass-production of hulls without at the same time creating the necessary fitting-out facilities, resulted in many difficulties. Mr. C. R. Redfern assumed charge in August 1943, and the firm came to be known as the Redfern Construction Co., Shipbuilding Branch. A fitting out yard had been opened at Saint John in December 1942, and another established at Hamilton in July 1943, to speed the

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completion of hulls many of which had previously remained at Toronto empty for months.

None of the steam Bangors in this first programme was completed before July 1941, although four had been scheduled for delivery in 1940. Part of the delay, as in the case of the corvettes, was owing to the difficulty of expanding rapidly under war-time conditions; part resulted from changes being made in the original design in the United Kingdom, which forced the work in Canada to stop until the new details could arrive. Many of these changes arose out of the fact that the Bangor was a simplified Halcyon with many of the latter's fittings omitted.⁶¹ Even before the first Bangor was ready for service it had become clear that some of these omissions had been ill advised, and it was decided, for example, to re-install an asdic set.⁶² This led to a series of related changes: a hole had to be cut in the hull and extra stiffening added, depth charge armament had to be increased, and since the asdic set was to be of a new type, a gyro-compass was needed and with it a complete low-power electrical system. Accommodation had to be revised to make room for the new equipment and for the additional crew members to operate it. Extensive changes such as these, occurring from time to time during construction, were bound to slow down production.

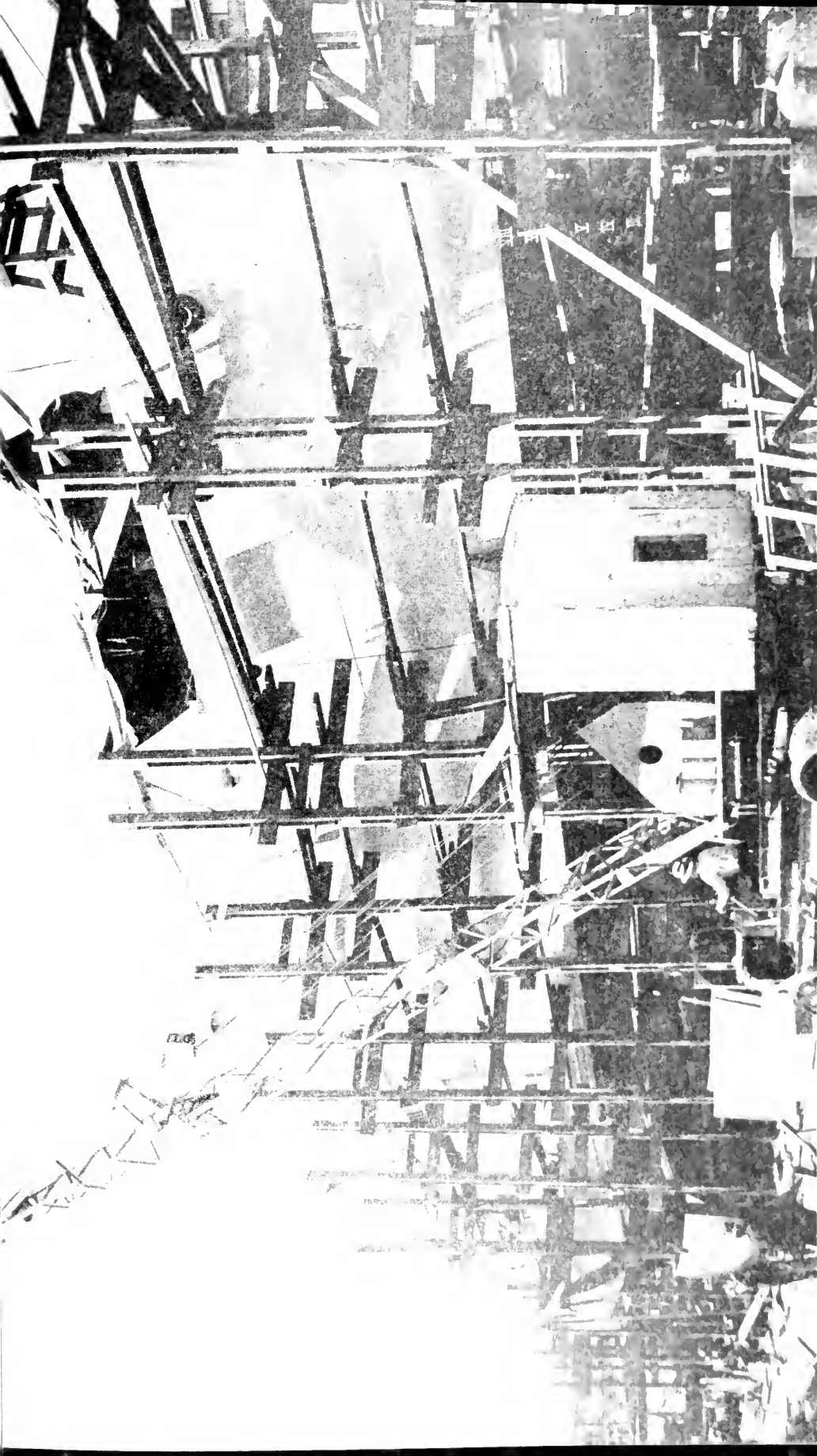
Further investigation with regard to building diesel Bangors in Canada had shown that this might be feasible after all, and by August 1940 orders had been placed with the Davie Shipbuilding Co. for six of these vessels, and with Marine Industries for four.⁶³ Difficulties occurred, as had been expected, in connection with the manufacture of the engines. The only type of engine that fulfilled all the requirements in the specifications, and that had been offered for building in Canada, was the Dominion Engineering Co.'s 1,000 b.h.p. Sulzer diesel.⁶⁴ It had seemed doubtful from the first whether the Dominion Engineering Co. would be able to deliver on schedule the twenty engines needed, and only after special consideration was it decided not to try to order some of them

⁶¹ S.S.B. to E. in C., May 4, 1941, N.S. 29-25-1 (20).

⁶² N.S.H.Q. to Admiralty, Feb. 23, 1940, and reply, Mar. 6, 1940 (signals), N.S. 29-24-1 (11).

⁶³ P.C. 4048, Aug. 21, 1940.

⁶⁴ E. in C. to C.N.S., May 7, 1940, N.S. 29-28-1 (1). This engine was designed by Sulzer Bros., Winterthur, Switzerland, from whom Dominion Engineering Co. received the drawings. One of the first delays in this programme occurred when several packets of drawings were held up temporarily by British contraband control at Gibraltar. A much more serious problem, when the drawings finally arrived, was making new ones in which metric dimensions were converted into the inch-system.



Bangor minesweeper under construction

from the United States as well.⁶⁵ The problems that actually arose were owing partly to the fact that Dominion Engineering was over-worked on a large variety of government orders, partly to shortages all along the line back to the primary producer.⁶⁶ The general result was that the diesel Bangor programme was seriously retarded. The completing of the first pair of engines, for instance, due in April 1941, was postponed until June, and later until September, and the engines were finally delivered in November—which meant that none of these ships could be ready for service during the winter of 1941 as had been intended by the navy. The last engines were not completed until April, 1942, a year and nine months after work had been started.⁶⁷

From the purely naval point of view it is questionable whether the building of larger diesel minesweepers in Canada should have been attempted at this time. Apart from all the specific difficulties that were encountered, it was uneconomical in terms of machine-shop capacity. A corvette steam-reciprocating engine of 2,700 h.p. required approximately 10,000 man-hours to build, while two Bangor diesels with a combined 2,000 h.p. took 28,000 man-hours. The corvettes needed boilers as well, but there was less congestion in the boiler shops of the country than there was in the machine shops.⁶⁸ The operational advantages were also on the side of the steam Bangor, except that the diesel vessel was the more economical with regard to fuel and could get under way more quickly in an emergency. The most important difference was in their speeds. The diesel Bangor's speed while not sweeping was 15½ knots, that of the steam Bangor 16½ knots. With single oropesa sweep streamed, their respective speeds were 10¾ knots and 12 knots; with double oropesa, 9 knots and 10¼ knots.⁶⁹ In all cases, therefore, and especially when sweeping, the diesel was inferior in speed. This meant that the steam Bangor could sweep a much greater area in a given time, could sweep a fast convoy or ship out of harbour more satisfactorily, and could make more efficient use of its cutters.

The last part of the original three-year shipbuilding programme to be taken in hand was that which provided for the

⁶⁵ N. Sec. to D. B. Carswell, May 8, 1940; Dominion Engineering Co. to D. B. Carswell, July 5, 1940; E. in C. to Min., Sept. 27, 1940; N.S. 29-28-1 (1).

⁶⁶ S.S.B. to E. in C., May 12, 1941, N.S. 29-28-1 (5).

⁶⁷ R.N.O., Montreal to N. Sec., Mar. 8, 1941, N.S. 29-28-1 (1); S.S.B. to E. in C., June 18, 1941, N.S. 29-28-1 (5); R.N.O., Montreal, to S.S.B., Nov. 4, 1941, N.S. 29-28-1 (6); R.N.O., Montreal, to Sec. N.B., May 1, 1942, N.S. 29-28-5 (6).

⁶⁸ S.S.B. to E. in C., May 12, 1941, N.S. 29-28-1 (5).

⁶⁹ Admiralty to N.S.H.Q. (signal), Nov. 27, 1940, N.S. 29-21-1 (6).

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initial construction of thirty-two M.T.B.'s and for replacements at the rate of sixteen a year for two years. In August 1939, the D.N.O.T. had explained to the Honorary Naval Advisory Committee the value of such vessels, and had given the reasons why it had not been the policy of the Naval Service to acquire any in peace-time:

With regard to Motor Torpedo Boats there are many firms equipped to produce boats of varying degrees of efficiency at the present time. These boats, as you know, have a very strong 'Bite' for small cost, when it is definitely established that the vessel to be attacked is an enemy and deserves sinking. Their effect is obtained, however, by the use of speed and a small target to place their torpedoes in the water close to the enemy. When stopped in the vicinity of any ship, exercising the right of visit and search to establish whether or not the ship is subject to sinking, the M.T.B. does not retain the authority which 4.7" guns give to a destroyer, but lies at the mercy of anyone who wishes to open fire with a machine gun. In other words M.T.B.'s are excellent weapons in offence but lose value when being used in defence as they would be used in the R.C.N. Considerable progress is being made with a lightly constructed, high speed diesel engine which would minimize the risk of fire and expense of upkeep of M.T.B.'s. For this reason the Naval Staff is not pressing for early purchase of this type of vessel. They can be procured at shorter notice than larger vessels in time of emergency and any delay will add to the efficiency when they are purchased.⁷⁰

A somewhat similar type of vessel which had been considered with interest by the R.C.N. was the motor anti-submarine boat. In 1936, the Admiralty in co-operation with Mr. Hubert Scott-Paine's British Power Boat Co., had undertaken experiments to find out whether an asdic set could be used successfully in a motor boat. The result was M.A/S.B.1, an ordinary Scott-Paine M.T.B. hull fitted with an asdic set and depth charges instead of torpedoes. Trials toward the end of 1937 indicated greater asdic efficiency than had been anticipated, and additional M.A/S.B.'s were ordered by Admiralty.⁷¹ In Canada, the building of such vessels for harbour defence had been suggested before the war. Moreover many of those who were in favour of building M.T.B.'s seem to have really had in mind vessels that were not strictly speaking M.T.B.'s, but rather were M.A/S.B.'s with the addition of some torpedo armament.

It was not until the spring of 1940 that sufficient information had arrived in Canada with regard to the relative merits of various types of British motor boat for arrangements to be

⁷⁰ D.C.N.S. to Hon. Naval Advisory Cttee., Aug. 9, 1939, N.S. 1078-6-1 (1).

⁷¹ C.B. 04050 40 (5); H. Scott-Paine to Min., July 21, 1942, N.S. 18020-466 (1).

made to begin building some of them in Canada.⁷² By then it had become clear that the primary need was for boats fitted with asdic sets for use as anti-submarine patrol craft in the St. Lawrence River⁷³ and possibly on the Pacific coast, and it had been learned that the Admiralty was planning to build Type "B" Fairmile motor launches for such work in British waters.⁷⁴ These were 112-foot wooden vessels with a standard displacement of 79 tons, driven by two 650 h.p. gasoline motors of the Hall-Scott "Defender" type. They had an emergency speed of 20 knots, which they could maintain, however, only for about fifteen minutes at a time. These motor launches had a maximum continuous speed of 16.5 knots, and their economical endurance was approximately 1,500 miles. They were equipped with asdic, radar, and wireless sets. The asdic sets and radar aerials were not trainable, however, a fact which diminished the effectiveness of both sorts of equipment when mounted in these vessels. They carried depth charges as their principal weapon of offence. Their light guns would be useful were a submarine forced to the surface, but Fairmile M.L.'s were not primarily intended for surface fighting as were M.T.B.'s or M.G.B.'s, which had a considerably higher speed and the necessary torpedo or gun armament for dealing with surface craft. The function of M.L.'s was quite different and less likely to be spectacular: they had the task of detecting and attacking a submerged submarine. For this their armament and speed were adequate, particularly as they normally operated not as single vessels but in flotillas of six or eight.

It was still thought that in addition to the M.L.'s there should be some torpedo-carrying motor boats on the east coast, for local defence against enemy surface raiders. An opportunity to build such vessels occurred when Mr. Scott-Paine arrived in Canada, and in May 1940 founded the Canadian Power Boat Co. at Montreal.⁷⁵ The M.T.B. which he offered to build for the Naval Service would be 70 feet in length, with a maximum emergency speed of 38 knots, a continuous speed of 35 knots, and an economical endurance of about 2,000 miles. Its main machinery would consist of 2 1,350 h.p. Packard gasoline engines, while it would be armed with 2 sets of twin .5-inch guns in power-operated gun turrets

⁷² Can. High Comm., London, for D.C.N.S., to Sec. of State (Ext. Aff.), for C.N.S. (telegram), Mar. 21, 1940, N.S. 10572-5 (1).

⁷³ E.g., Naval Staff Minutes, Mar. 18, 1940.

⁷⁴ Admiralty to N.S.H.Q. (Signal), Apr. 2, 1940, N.S. 20394 (1).

⁷⁵ Account based on information supplied by the Canadian Power Boat Co., Montreal, where not otherwise specified.

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similar to those used in aircraft, 2 18-inch torpedo tubes, and 4 depth charges in double depth-charge chutes. Asdic and wireless gear would be installed.⁷⁶ Later, after Mr. Scott-Paine's specification had been accepted with a few minor changes by the Naval Service, it was decided not to install asdic. The fitting of the asdic dome would reduce the boat's speed to about 30 knots, and the set would not operate efficiently even at a much lower speed than that. As M.L.'s were being built for anti-submarine work, it seemed preferable to consider the M.T.B.'s simply as a striking force for the defence of harbours, and for this duty they would require their full speed.⁷⁷

The programmes of 24 M.L.'s and 12 M.T.B.'s that were authorized in May and June 1940, together represented a revision of the original programme for building 32 M.T.B.'s. The contract with Mr. Scott-Paine for the 12 M.T.B.'s was finally signed on July 18, 1940.⁷⁸ One experimental hull had been brought out from England, and work was started on outfitting it as soon as the state of the Montreal plant permitted. It was completed in November, and after a hazardous trip down the St. Lawrence reached Halifax in December. Work was still continuing on the rest of the order when, in June 1941, after the fall of Crete, the Admiralty made preliminary enquiries with regard to obtaining some of the Canadian M.T.B.'s for use in the Mediterranean.⁷⁹ By that time submarine warfare had become the dominant factor in the North Atlantic area, and the need for these vessels in Canadian waters seemed to have passed. The Canadian Government, therefore, at the urgent request of the Naval Staff, suggested that all twelve M.T.B.'s should be transferred to the Admiralty. This suggestion was agreed to, and was carried out on September 19, 1941.⁸⁰

Meanwhile the initial M.L. contracts had not been entered into until almost the end of 1940. The main reason for delay had been the fact that the first Type "B" Fairmile M.L.'s were not finished in the United Kingdom until shortly before that time; consequently performance figures and a complete

⁷⁶ 70' M.T.B. specification submitted by Canadian Power Boat Co. with their tender dated June 21, 1940, N.S. 29-27-1 (2).

⁷⁷ Naval Staff Minutes, Jan. 14, 1941.

⁷⁸ Copy of contract in N.S. 29-27-1 (1).

⁷⁹ Admiralty to N.S.H.Q., June 30, 1941, and same to same, July 9, 1941 (signals), N.S. 29-27-1 (3).

⁸⁰ N.S.H.Q. to Admiralty (signal), July 15, 1941, *ibid.*; copy of transfer of contract, N.S. 29-27-1 (4).

set of drawings and specifications had not been available for transmission to Canada.⁵¹ As a result, it was September 1940 before sufficient information arrived even to permit of calling for tenders.⁵² Final orders were held back until after the first trial results were received from Britain in November. These were not altogether satisfactory. The vessel's speed was disappointing, while the asdic trials indicated that although in a sea up to about force 33 an experienced crew could obtain contact and carry out an attack with a fair degree of accuracy, searching and the classification of echoes were both very difficult due to the set having a fixed oscillator. It had been anticipated that the handicap of having an oscillator that could not be trained would be counterbalanced by the ease with which the vessel itself could be turned. The trials showed, however, that at the slow speed required for searching, M.L.'s were not highly manoeuvrable. Cancellation of the whole Canadian M.L. programme, and the investigation of some other type instead, were seriously considered in view of these results.⁵³ However, as lengthy delays were inevitable if this were done, and since there was an urgent need for more anti-submarine patrol vessels, particularly in the St. Lawrence area, the Naval Staff decided to proceed with the building of Type "B" Fairmile M.L.'s in spite of their limitations.⁵⁴

Accordingly by April 1941, contracts for 24 M.L.'s had been signed with 7 firms in Ontario, 3 in British Columbia, and 1 in Nova Scotia, at a standard price for each vessel of \$85,000 in the east and \$76,000 in British Columbia.⁵⁵ Each firm was to build two vessels, except Greavette Boats and Minett-Shields,⁵⁶ each of which received one extra. A characteristic of this and later M.L. programmes was the specially close co-operation of the builders with one another, and with the Naval Service. United effort of this sort was necessary in

⁵¹ Admiralty to N.S.H.Q. (Signal), Apr. 2, 1940, N.S. 29304 (1).

⁵² M. and S. to various shipbuilders, Sept. 9, 1940, *ibid.*

⁵³ Material *ibid.*

⁵⁴ Naval Council Minutes, Dec. 9, 1940, N.S. 10783-3 (14).

⁵⁵ P.C. 15, Jan. 3, 1941; P.C. 2112, Apr. 7, 1941. The builders of the vessels were: in Ontario: Greavette Boats, Ltd., Gravenhurst; Grew Boat Co., Ltd., Pen-tang-shen; H. J. Boats Ltd., Orillia; MacCraft Corp., Sarnia; Midland Boat Works, Midland; Minett-Shields Ltd., Bracebridge; J. J. Taylor and Sons, Toronto;—in Nova Scotia: John H. I. Bann, Weymouth;—in British Columbia: A. C. Benson Shipyard, Vancouver; Star Marine Shipyards Ltd., New Westminster; Vancouver Shipyard Ltd., Vancouver. The war was the only shipbuilding programme during the war when west coast prices were lower than those in the east.

⁵⁶ This firm operated in conjunction with the Port Carling Boat Works, Port Carling, Ont. Because it was cumbersome to use both titles most contract and correspondence referred to the Minett-Shields name only. For convenience, the latter contract was read normally to the Port Carling company.

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order to offset the disadvantages inherent in dividing a programme which lent itself to mass-production methods as this one did, among a number of small firms already established in business in various parts of the country. The Admiralty's solution had been different, for in England building had been co-ordinated and standardized under the Fairmile Marine Co. of Cobham, Surrey, which in turn was directed by the Admiralty.

The fact that most of this first large group of wooden ships ordered for the navy were built in Ontario, rather than on the east or west coasts, became a subject of controversy in the House of Commons. The explanation as far as British Columbia was concerned, lay in the desirability of building small vessels of this kind on the coast on which they would be used, if at all possible, and for the time being the Naval Service required only 6 M.L.'s on the west coast. A definite attempt was made, however, to allot as many as possible of the other 18 to Nova Scotia. That province had been a great ship-building centre in the days of the wooden ship, and the skills and facilities needed for this type of building still existed. During the war, firms there had as yet had little opportunity to get contracts for anything much larger than a pulling boat. Nevertheless, in spite of prior efforts by the Department of Munitions and Supply and the Nova Scotian Government, only three of the twelve bids received were from Nova Scotia, and in only one of these was the price comparable with those offered in Ontario.

As a result, Nova Scotian builders were accused in Parliament of lack of initiative. They were also said to be accustomed to working on a small scale, and not to have the necessary capital, particularly for a job which required the use of a large amount of expensive mahogany imported from abroad. No doubt there was some truth in these statements; but what was even more important was that the Ontario yards had had long experience in building pleasure craft of the same light construction as was employed for M.L.'s, while Nova Scotian firms were more used to building coasters and fishing vessels which required much heavier timbers and the use of entirely different methods. Later when orders were placed for wooden minesweepers, over fifty of them, some two-thirds of the total number built in Canada were turned out by Nova Scotia. They were heavily-built vessels, made of Canadian wood and well suited to Nova Scotian building methods. The M.L.

builders in Ontario, on the other hand, were not even considered for building the minesweepers until Maritime yards were fully occupied, and most of them undertook the new task with some misgiving. British Columbia yards had had considerable experience with both heavy and light types of construction, and were equally capable of building M.L.'s and wooden minesweepers.

Provision had been made in the contracts for delivery of all vessels in this programme before the end of 1941, and for some as early as May of that year. Actual delivery was months late in every case, and eleven of the twenty-four were not commissioned until the next year. There were many reasons for this delay, but the primary one was that the builders could not obtain promptly the materials and components they needed from American and British as well as Canadian sources, due to the shortages existing in all three countries.⁸⁷ In view of these difficulties, priority was given to vessels building in the Great Lakes area in the hope that they could be got out before the freeze-up, and as a result all 13 M.L.'s commissioned in 1941 were from that region. Only 9 of these, however, reached Halifax that year; the last 4 ran into winter storms and had to be laid up at Sarnia and Toronto.⁸⁸ It was ironic that of the vessels rushed to Halifax only four could be kept in commission during the winter, because of a general shortage of naval personnel, accentuated by the prior claims of corvettes and minesweepers to what crews were available.⁸⁹

The disasters in Europe in May and June 1940, which altered the whole complexion of the war, made it necessary to revise Canadian shipbuilding policy. A few months earlier, when the first corvettes and Bangors had been ordered, naval authorities had encouraged builders to purchase what they could in the United Kingdom. The primary object then being to get the ships completed and into the war as quickly as possible, it had seemed preferable to make use of known British facilities rather than take time to look for or develop others in Canada.⁹⁰ Importations from the United States, on the other hand, had been restricted because of the need to conserve American money. On June 5, the day after the

⁸⁷ Documents in N.S. 29-30-1 (5).

⁸⁸ N. Sec. to Cdr. (D), H.M.C.S. "Sambro", Halifax, Dec. 5, 1941, N.S. 29-30-1 (7); Weekly Report to the Minister, Dec. 4, 1941.

⁸⁹ N.S.H.Q. to C.O.A.C. (signal), Nov. 21, 1941, N.S. 29-30-1 (6).

⁹⁰ N. Sec. to Comm. of Customs, Nov. 2, 1940, N.S. 29-25-1 (11).

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evacuation of Dunkirk had been completed, the Naval Service was advised by the Department of Munitions and Supply that a change ought to be made, and that methods should be examined at once by which the navy could obtain all its requirements without drawing on either France or the United Kingdom.⁹¹

A preliminary study of this situation having been made, as requested by the Department of Munitions and Supply, a meeting was held on June 25 in Col. J. L. Ralston's office to discuss the entire picture. It was attended by representatives of the three Services and of the Department of Munitions and Supply. In outlining naval requirements:

Admiral Nelles stated that he considered it absolutely necessary that we prepare at once to build destroyers complete and all small craft in Canada, establishing two navy yards, one on the Atlantic and one on the Pacific; this would mean the development of everything from the hulls to the guns, accessories, etc., and it would be necessary to secure expert personnel from either Great Britain or the United States as it was important that naval architects of the greatest experience possible should be secured.⁹²

Naval requirements were examined again in greater detail on July 5, at a meeting of Munitions and Supply, Naval Service, and National Research Council officials, under the chairmanship of Mr. C. D. Howe. "It was agreed that, provided plans and skilled overseers or constructors can be secured, ships up to the size of destroyers can be built in Canada." Each item that would be needed for such building was considered, and suggestions were made as to the most likely sources of supply. High tensile steel, steam turbines and gearing, high-pressure water-tube boilers, all types of auxiliary machinery, guns and mountings, ammunition, fire-control instruments, asdics, wireless and electrical equipment, compasses, and torpedoes and mines, were only some of the articles dealt with in this way. The chairman stated that the National Research Council would help in establishing many new Canadian sources of equipment. Mr. Howe stated that:

We are organizing a company which will be Government-owned to develop and manufacture optical and scientific instruments. The Board of Directors of this Company will be made up of officers of the National Research Council and successful industrialists. We shall recommend to this concern that they investigate the production of all naval equipment of the above nature.⁹³

⁹¹ A D. Min. to C.N.S., June 5, 1940, N.S. 18200-355 (1).

⁹² Memo. re meeting held in Rm. 201, House of Commons, Ottawa, June 25, 1940, *ibid.*

⁹³ Minutes of meeting, July 5, 1940, *ibid.* Research Enterprises Ltd. was incorporated on July 20, 1940.

The British Government had likewise become fully aware of the need to draw on the resources of the North American continent to the greatest possible extent; at this time, therefore, it reorganized and enlarged the scope of the supply missions which it had already set up in Ottawa and New York. It also made arrangements to send out British technicians on the scale needed to interpret specifications and inspect output. As part of this general plan, it sent the British Admiralty Technical Mission to Ottawa in July, 1940, to work with the Department of Munitions and Supply in procuring items which were required by the Royal Navy, and which could not be produced in the United Kingdom in adequate amounts or with sufficient speed.⁹⁴

The character of Canadian shipbuilding was gradually altered as a result of these steps taken by both the British and the Canadian governments during the summer of 1940. The work of the B.A.T.M., during the remainder of the war, was to prove invaluable in helping to develop facilities in Canada for the construction of ships and the manufacture of naval equipment. The part played by the Department of Munitions and Supply also became increasingly important, especially after November when Mr. D. B. Carswell was appointed Controller of Ship Construction and Repairs in that Department, with full authority to organize and regulate all Canadian resources in these fields.⁹⁵ In the course of time hundreds of firms throughout the country, ranging from the largest engineering works to small one-man shops, became engaged in various types of naval production; and by the end of the war nearly all parts of Canadian ships and items of their equipment were being made in Canada.⁹⁶

For the time being, in spite of the altered circumstances, there was no major change in the original three-year shipbuilding programme except that it was accelerated.⁹⁷ A survey of Canadian shipyards showed that activity on the corvettes and Bangors already ordered was passing its peak in certain localities, and that some of the building that had been scheduled for 1942 and 1943 could be started immediately. In

⁹⁴ A/D. Min. to Sec. of State (Ext. Aff.), July 17, 1940, and reply, July 19, 1940, and enclosures; First Sea Lord to C.N.S. (signal), July 25, 1940; N.S. 30-1-3 (1).

⁹⁵ P.C. 6797, Nov. 27, 1940.

⁹⁶ Very important work was done by the Wartime Machine Shop Board of the Canadian Pulp and Paper Assn. in organizing a "bits and pieces" programme, making part-time use of machine shops in pulp and paper mills to produce thousands of miscellaneous articles which would otherwise have been in short supply.

⁹⁷ A/D. Min. to D.Min., M. and S., Aug. 3, 1940, N.S. 1017-10-22 (1).

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August 1940, Privy Council approval for this was obtained, and before the end of the year an additional 6 corvette and 10 Bangor contracts had been let.⁹⁸ This brought to 60 the number of corvettes ordered for the Canadian navy, and completed that part of the programme. It raised the number of Bangor orders to 38, leaving only 10 still required. Arrangements for obtaining these as well were made a few months later in February 1941.⁹⁹

The last twenty Bangors were of the steam-reciprocating type, and did not differ materially from those first ordered. The six corvettes, on the other hand, were different from the earlier ones in two important respects: they carried no mine-sweeping gear, and they had water-tube in place of cylindrical boilers. It was realized that sweeps would no longer be needed in corvettes by the time these ships were completed, because the number of auxiliary minesweepers and Bangors would by then be more than sufficient, together with the many corvettes already fitted for sweeping that would be in commission.¹⁰⁰ Water-tube boilers were superior operationally to the others, and would have been installed in the original corvettes had production difficulties not made that impossible in the very early stages of the war.¹⁰¹ They were to be used in all of the later escorts and minesweepers.

The problem connected with the destroyer part of the programme had been not only its acceleration, but also the much more important question of whether to rely entirely on the United Kingdom for the construction of that important type of ship. An attempt to invade the British Isles had seemed probable after the fall of France, and it had been decided at the conferences in June and July 1940, between the Naval Service and Munitions and Supply, that destroyer building in Canada should be attempted provided that the necessary amount of assistance could be obtained from Britain. It was expected that members of the British Admiralty Technical Mission would be of some help, but in addition a number of technicians and constructors would be needed who could give their whole attention to the destroyer project.¹⁰²

⁹⁸ Dir. Gen. of Shipbuilding to Min., M. and S., Aug. 5, 1940, *ibid.*; P.C. 3942, Aug. 15, 1940.

⁹⁹ Min. to War Cttee. of the Cabinet, Feb. 4, 1941, N.S. 29-25-1 (17).

¹⁰⁰ Naval Staff Minutes, Sept. 17, 1940. By 1942 it had become clear that mine-sweeping gear was no longer required in any corvettes, and as it interfered with their efficiency as escort vessels its removal was ordered. [See Naval Staff Minutes, Aug. 6, 1942].

¹⁰¹ E. in C. to C.N.S., Nov. 12, 1940, N.S. 29-25-1 (15).

¹⁰² Minutes of meeting, July 5, 1940; Min., M. and S. to Min., July 15, 1940, N.S. 18200-355 (1).

July 1940 was not a suitable time for getting special help of this sort from the Admiralty. On July 3 Britain seized all French warships in British ports and fought the Battle of Oran. On the 5th came the first air attack on Gibraltar, on the 8th the *Richelieu* was put out of action at Dakar, and on the 9th there was a brush with Italian naval forces in the Mediterranean. The Admiralty was too preoccupied with urgent and almost overwhelming tasks even to consider Canada's proposals with regard to building destroyers. Finally in October, after having made several efforts through the regular official channels to secure action on what seemed in Canada to be an important part of the country's accelerated war effort, the Minister cabled directly to the High Commissioner in London asking for his personal assistance in the matter. This was effective in having the Tribal-class destroyer specifications forwarded by the Admiralty, and arrangements made with Parson's and Vickers-Armstrong to supply working drawings for the engines and hulls respectively.¹⁰³ Progress remained, however, "exceedingly gradual", and no move at all was made toward the supply of expert personnel. Accordingly in November advantage was taken of a visit about to be paid to the United Kingdom by Col. Ralston, the Minister of National Defence, to make further enquiries.¹⁰⁴ At the same time, the Prime Minister addressed the following communication to the Prime Minister of Great Britain:

The vital importance of the war at sea continues to impress my colleagues and myself with the urgency of doing everything to develop ship-building facilities to the utmost.

2. In Canada we have already built, and are building, both for the Royal Navy and ourselves, the smaller types of naval vessels namely corvettes, minesweepers, motor launches and motor torpedo boats.

3. We believe that it would be entirely practicable to undertake in Canadian yards, the building of destroyers and cruisers as well; if Admiralty could assist us by providing a number of key men and constructors, either for [*sic*] their own or from private yards in the United Kingdom.

4. The chief of our Naval Staff has already communicated to the Admiralty the Canadian Government's wish to initiate the building of destroyers in Canada at the earliest possible date.

5. We trust that this proposal will commend itself to your judgment as a helpful undertaking on the part of this country in the common cause.¹⁰⁵

¹⁰³ N.S.H.Q. to Can. High Comm., London, Sept. 17, 1940; same to same, Sept. 30, 1940; Min. to High Comm., Oct. 4, 1940; High Comm. to N.S.H.Q., Oct. 18, 1940; (signals) N.S. 18200-355 (1).

¹⁰⁴ Hon. A. L. Macdonald to Hon. J. L. Ralston, Nov. 18, 1940, *ibid.*

¹⁰⁵ Prime Minister, Can., to Prime Minister, U.K. (telegram), Nov. 19, 1940, A.R.O., M.014391/41.

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Col. Ralston succeeded in arranging for a more rapid flow of drawings, but in spite of a personal interview with the First Sea Lord he was able to make little headway with the supply of key personnel.¹⁰⁶ On December 18, Mr. Churchill sent the following reply to Mackenzie King's cable:

I am very grateful for your message and we fully appreciate all the work that you are doing for us in the smaller types of ships. The rapidity with which you have produced these craft has been a great help to us, and so has the personnel which you have provided for many vessels.

With regard to building larger vessels in Canada such as destroyers and cruisers, there are two questions which must be considered.

Firstly, a considerable proportion of the special apparatus would in all probability have to come from the United Kingdom, and it is this part of the equipment which is nearly always the main difficulty here.

Secondly, the provision of a number of key men and constructors presents great difficulties. You will realize that there has necessarily been a great expansion in this country, where technical experts have had to be spared for the supervision of the large programme which we have in hand, and also for all the small private yards. In addition to this we have had to establish bases and augment repair facilities in a large number of places abroad such as Alexandria, Freetown, Gibraltar, Simonstown, Durban, Bombay and Calcutta. These commitments have used up all our key men and constructors and although we are trying to obtain more from every available source we are still short of the requisite numbers. We have regretfully concluded, therefore, that it is impracticable to carry out your proposal exactly as you suggest in your paragraph 3.

I think, however, that it might be feasible, and would certainly be of the greatest assistance to the common cause, if you could undertake to build, say a flotilla of destroyers to the latest American design, obtaining technical help from U.S.A. It would probably also be possible to obtain from the same source much of the special equipment for the ships. This is usually a bottleneck here and provision from U.S.A. would save shipping space.

I should be grateful for your views on this proposal. If you agree, would you desire to approach the American Government direct, or would you like me to make the suggestion in the first place?¹⁰⁷

The possibility of building American destroyers had already been considered by the Naval Service and rejected, but on Mr. Churchill's suggestion it was investigated much more thoroughly. A party of naval and other experts visited American yards, and studied the designs and construction of several of the latest American destroyers. Their unanimous conclusion was that British tribals would be more satisfactory to

¹⁰⁶ Can. High Comm., London, for Hon. J. L. Ralston, to N.S.H.Q., for Hon. A. L. Macdonald (signal), Dec. 12, 1940, N.S. 18200-355 (1).

¹⁰⁷ Prime Minister, U.K., to Prime Minister, Can. (telegram), Dec. 18, 1940, A.R.O., M.014391 41.

operate and would also be simpler to build in Canada if British assistance could possibly be obtained.¹⁰⁵

Meanwhile a reply had been sent to Mr. Churchill:

The predominant factor in the minds of the Canadian naval staff in endeavouring to have destroyer building undertaken here, was the feeling that since in this war our destroyers have to co-operate so closely with United Kingdom units in European waters, a common building design would be highly desirable. It was also the opinion of the naval staff that since Canada has been willing to place, and actually has placed destroyers for service in European waters, and since they estimated that destroyers could be built almost as quickly here as in the United Kingdom, nothing would be lost and something might be gained by having destroyer building undertaken in this country. In this connection it is observed that two destroyers now built in England for the Royal Canadian Navy are several months behind schedule.¹⁰⁹

These arguments were reinforced by the arrival in England, at about the same time, of Mr. C. D. Howe, the Minister of Munitions and Supply. On December 4, 1940, just before Mr. Howe left Ottawa, Mr. Angus Macdonald, the naval Minister, had conferred with him and explained exactly what help was needed from Britain. He had also indicated that such help might be secured through a private arrangement between the Canadian contractor and a British builder of this class of ship. On January 7, 1941, Mr. Howe cabled to Mr. Macdonald from London that the Admiralty now approved the construction of British-type destroyers in Canada, and would make it possible for the necessary assistance to be sent.¹¹⁰

On January 8, a conference of Naval Service, Munitions and Supply, and B.A.T.M. officials was held in Ottawa, and it was agreed that the destroyer contract should go to Halifax Shipyards Ltd.¹¹¹ At a final meeting on January 14¹¹² in the Comptroller's office at the Admiralty, attended by representatives of the Admiralty, the Department of Munitions and Supply, and a number of British builders, Vickers-Armstrong Ltd. who had built tribal hulls in the United Kingdom were asked if they would co-operate in the plan to construct that

¹⁰⁸ Naval Council Minutes, Oct. 30, 1940; C.N.S. to Can. Naval Attaché, Washington (signal), Dec. 21, 1940, and reports, N.S. 1017-10-29 1 (1).

¹⁰⁹ Prime Minister, Can., to Prime Minister, U.K. (telegram), Dec. 29, 1940, A.R.O., M.014391/41.

¹¹⁰ Min. to Can. High Comm., London (signal), Dec. 17, 1940; Can. Military H.Q., London, for Hon. C. D. Howe, to N.D.H.Q., for Hon. A. L. Macdonald (telegram), Jan. 1, 1941; N.S. 18200-355 (1). When the time came the skilled personnel required were sent to Canada.

¹¹¹ Sec. of State (Ext. Aff.), for Hon. A. L. Macdonald, to Can. High Comm., London, for Hon. C. D. Howe (telegram), Jan. 8, 1940, *ibid.*

¹¹² Minutes of meeting held in Comptroller's Room at Admiralty, Jan. 14, 1941, A.R.O., M.014391/41.

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type of ship in Canada. Vickers' representative replied in the affirmative, and stated that his company could send out the key personnel required without interfering with new construction in the United Kingdom. It was the opinion of the meeting that the turbine engines, and gearing and shafting, could probably not be manufactured in Canada; but when an investigation was carried out later by Munitions and Supply it was found that John Inglis Co., Ltd. of Toronto, was willing to undertake the task and foresaw no particular difficulty with it.¹¹³

By June 1941, when Privy Council approval was finally given for the construction of two tribal destroyers by Halifax Shipyards Ltd., and the manufacture of their machinery by John Inglis,¹¹⁴ the war situation was very different from what it had been in June 1940, when the decision to produce destroyers and all other naval requirements in Canada had first been made. Britain had held out successfully during the winter following the collapse of France, and had even won important victories against the Italians in North Africa. United States aid had become available with the signing of the Lease-Lend Act on March 11, 1941, and the Canadian manufacture of all equipment and supplies no longer seemed quite so vital. On the other hand, sinkings especially by submarines had increased enormously during the year, emphasizing the vital need for additional escorts and cargo vessels. There seemed to be many reasons why Canada should abandon or postpone destroyer construction and concentrate on more urgent requirements, especially as these were of a type better suited for building in the Dominion.

Such a course was favoured by a number of the leading technical officers of the navy. The Engineer in Chief wrote on February 5, 1941, a few days before he was transferred to a new post on the Pacific coast:

I have given this question of Destroyer construction a great deal of consideration during the past several years and am still of the considered opinion that we should not attempt to build Destroyers without further shipbuilding experience.¹¹⁵

He suggested building "Black Swans" or some other intermediate type as a first step toward getting such experience. His successor was also reluctant to proceed with the project.

¹¹³ Dir. Gen. of Shipbuilding to Min., M. and S., Feb. 18, 1941, N.S. 18200-355 (1).

¹¹⁴ P.C. 70/4015, June 5, 1941.

¹¹⁵ E. in C. to C.N.S., Feb. 5, 1941, N.S. 1017-10-29/1 (1).

At a Naval Council meeting in April, he pointed out that it was possible to argue that destroyers could be built more quickly in the United Kingdom, and that Canada should concentrate on cargo vessels. Again in May he drew attention to the fact that the frigates, which it was now proposed to build, were approximately the size of small destroyers, and suggested that consideration should be given to using their construction as a natural stepping stone in the building programme prior to the construction of destroyers.¹¹⁶

The attitude of the Minister and of the Chief of the Naval Staff was different. The C.N.S. believed that if destroyers could be built in Canada time should not be wasted on anything smaller as "stepping stones." The Minister agreed, and stressed the desirability of building destroyers in Canada if at all possible, "more especially from the long-term viewpoint."¹¹⁷ The reason for deciding to go ahead with destroyer building in Canada in spite of the new circumstances existing in 1941, was therefore primarily the "long-term" one of trying to set up adequate Canadian facilities for building and repairing warships of that class or larger. From this point of view Halifax was the obvious place for the undertaking, and after all considerations had been weighed it was decided to build the destroyers there.

As to whether the Tribal or some other type of destroyer should be built in Halifax, there was again a considerable difference of opinion. Those who had visited the United States yards were convinced that the Tribal was a more satisfactory ship for the Canadian navy than any building there. However, after unofficial conversation with a member of the British Admiralty Technical Mission, the Director of Shipbuilding proposed that a newer class of British destroyer be considered instead:

I understand that the Admiralty have come to the conclusion that the Tribals are not the most successful type of destroyers which could be devised and are concentrating on the construction of what they call the Intermediate type. I understand that the Intermediate type ships are smaller, can be built more rapidly and more cheaply, and if the Admiralty have decided as a result of war experience that the Intermediate type vessel is a more satisfactory product, then I feel we should be most ill advised in proceeding with the construction of Tribal class Destroyers.¹¹⁸

¹¹⁶ Naval Council Minutes, Apr. 9, 1941; E. in C. to C.N.S., May 4, 1941, N.S. 29-25-1 (21).

¹¹⁷ Note by C.N.S., June 5, 1941, on E. in C. to C.N.S., May 4, 1941, *ibid.*: Naval Council Minutes, Apr. 9, 1941.

¹¹⁸ S.S.B. to E. in C., May 4, 1941, N.S. 29-25-1 (20).

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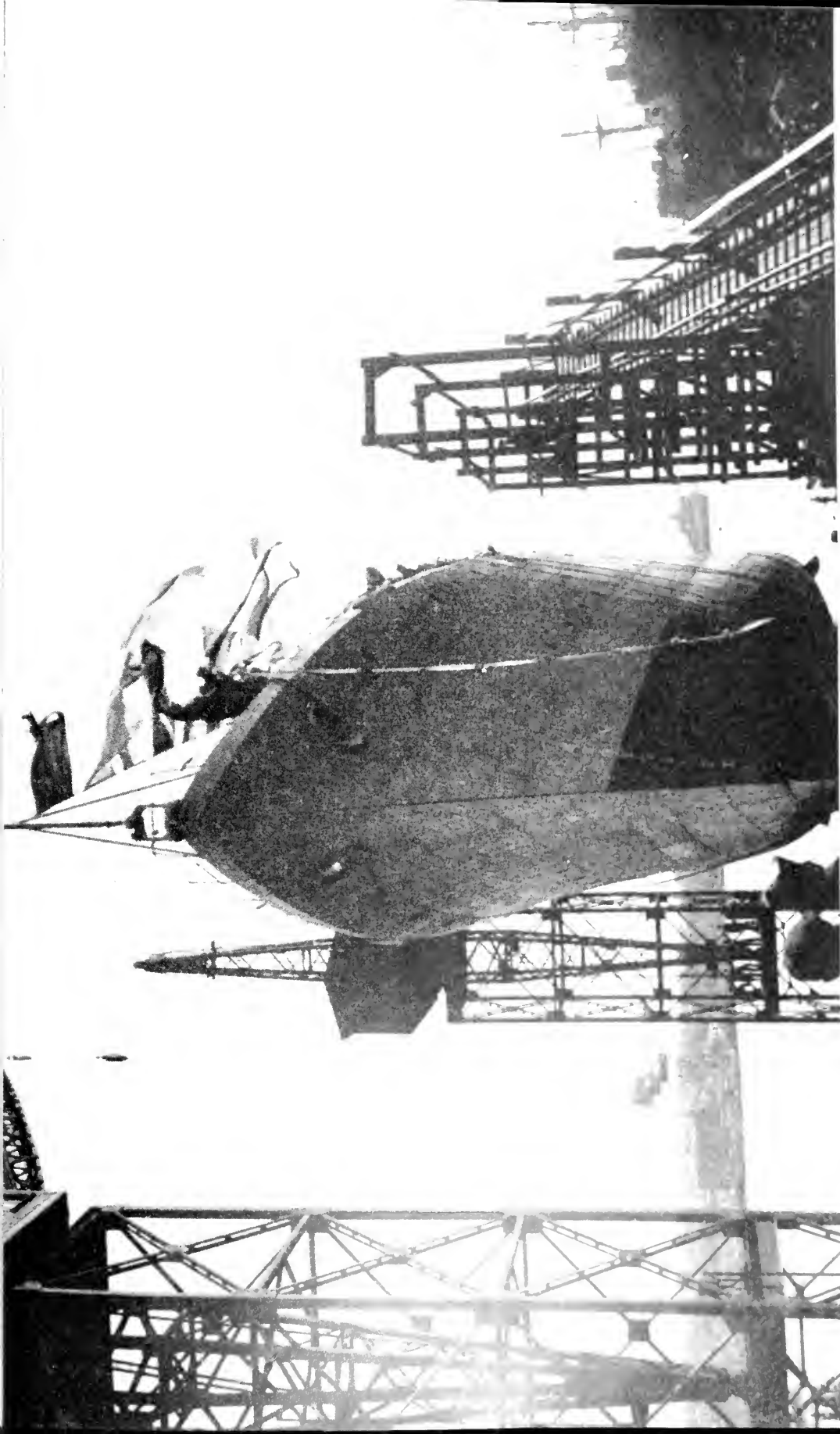
The Engineer in Chief immediately forwarded this report to the C.N.S. together with his own comments. In his opinion the question was one of policy. It depended on whether an "all-purpose" destroyer was required or whether the smaller type, apparently developed to meet the existing situation, would do as well. The C.N.S. unhesitatingly reaffirmed the decision in favour of the tribal. His view had been before the war, and still was, that Canadian destroyers should be of the largest possible size, and have the maximum armament and the greatest radius of action.¹¹⁹

Decision as to whether a second pair of tribals should be built in Canada had to be made before construction of the first two could get properly under way. The question was raised in September 1941 by the John Inglis Co., the main machinery contractor. If two vessels were all that were likely to be ordered, Inglis explained, they would prefer to obtain the auxiliaries and parts from the United Kingdom, except for the few which could be built by Canadian firms already possessing licenses. On the other hand, if further orders were to be placed Inglis would try to encourage the manufacture of most of their requirements in Canada. No answer could be given until early in 1942 when the whole 1942-43 shipbuilding programme was considered. It was then decided to order a third and fourth tribal from Halifax Shipyards and John Inglis because, quite apart from the question of manufacturing efficiency, it had been an accepted policy of the Naval Service since the beginning of the war to provide for the construction of two tribals a year.¹²⁰ The fact that none of these four Canadian-built tribals was completed until after the war was over was primarily due to the need for giving priority in the supply of labour and materials to repair work and other more urgently required new construction.

In the early fall of 1940, almost simultaneously with the arrangements being made for the earlier completion of most of the original three-year programme, some additions were made to it in order to help provide for the defence of Newfoundland and adjacent waters. This was a matter which had assumed great importance after the collapse of France, and Canada had undertaken certain commitments with regard to it. These included basing up to ten or twelve Canadian corvettes at

¹¹⁹ Note by C.N.S., June 5, 1941, on E. in C. to C.N.S., May 4, 1941, N.S. 29-25-1 (21).

¹²⁰ S.S.B. to E. in C., Sept. 5, 1941, N.S. 29-45-1/1 (1); John Inglis Co. to M. and S., Jan. 6, 1942; A.D.Min. to Min., Jan. 24, 1942; A/D. Min. to D. Min., M. and S., Feb. 6, 1942; N.S. 18200-355 (1).



Launching of tribal-class destroyer, U.S.S. *Ababaskan*, at Halifax

St. John's, and the establishing by the R.C.N. of local anti-submarine patrols at St. John's and Botwood, and at Red Bay on the Strait of Belle Isle. To fulfil these tasks the Naval Staff decided that ten additional corvettes and twelve M.L.'s should be built.¹²¹

The corvettes in this new programme were ordered early in 1941,¹²² and were the first of the revised class to be built in Canada. Even before 1940 Mr. William Reed, the designer of the original vessel, had expressed concern at its bow-heaviness caused by greater weight forward than he had anticipated. The Admiralty had been anxious at that time to avoid any change which might delay production; but when it became necessary the following winter to use corvettes for ocean convoy work, and bitter complaints came in regarding their behaviour in North Atlantic seas, Mr. Reed's revisions were accepted. The two most important of these were an increase in the sheer and flare of the hull forward in order to give greater buoyancy there, and a lengthening of the forecastle, partly for the same purpose and partly to give more adequate accommodation for the crew, which had been greatly augmented.¹²³ Plans incorporating these changes arrived in Canada in April, 1941, too late for any but the last ten ships to be altered. All of this group were built in eastern Canada, because of the exceptionally high tender prices offered by west-coast firms on this occasion. A few were completed by the end of 1941; the rest by the spring or early summer of 1942. Contracts for the twelve M.L.'s had not been let until about the middle of July, 1941,¹²⁴ because of delays in connection with the first M.L. order, and for the same reason commissioning did not take place until May and June 1942.

In the fall of 1940 the Royal Canadian Navy obtained eight destroyers which did not form part of any naval programme. One was the river-class destroyer H.M.C.S. *Margaree*, purchased from the Admiralty to replace the *Fraser* which had been lost in June.¹²⁵ This vessel, formerly H.M.S. *Diana*, had been built in the early 1930's and was almost identical with *Fraser*. The *Margaree* was commissioned on September 6 under the command of Cdr. J. W. R. Roy, R.C.N., and after refitting in the midst of very heavy air attacks in the

¹²¹ Minutes of meeting at Govt. House, Newfoundland, Aug. 20, 1940, N.S. 1033 2 (11); Naval Staff Minutes, Sept. 30, 1940.

¹²² P.C. 1525, Mar. 3, 1941.

¹²³ Information obtained from Mr. William Reed, O.B.E.

¹²⁴ P.C. 5428, July 22, 1941.

¹²⁵ P.C. 3943, Aug. 15, 1940.

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Albert Dock, London, sailed on her maiden crossing from Londonderry on October 20. Two days later she was sunk in collision with the S.S. *Port Fairy*. Payments to the British Government for the *Margaree* continued for some time, but the final total of £195,407 showed a reduction of £93 for stores not supplied on the first voyage.¹²⁶

The seven other destroyers acquired at that time constituted a windfall for the R.C.N. After negotiations beginning as early as June, when invasion of the British Isles had seemed imminent, the British and American governments had finally agreed by September 1, 1940, on a plan to exchange fifty over-age American destroyers for certain base sites in British possessions in the Western Hemisphere. The problem of manning this number of vessels, on top of all other commitments, had forced the Admiralty to appeal to the Canadian navy to take over as many of them as possible. The latter agreed at once to take six, and a few months later a seventh as well. These vessels were known after their transfer from the United States Navy as "town-class" destroyers, due to the fact that those commissioned into the Royal Navy were named for towns common to the United States and the United Kingdom. The Canadian "towns" were given the names of rivers which flowed across the boundary between Canada and the United States, except in the case of the last vessel which had already been named H.M.S. *Hamilton* before it was transferred from the R.N. to the R.C.N. The town-class destroyers were sent to the United Kingdom as soon as possible after their acquisition, to help in case of a German invasion.¹²⁷

It was characteristic of the new sense of war-time values, acquired after the fall of France, that these seven vessels were transferred to the R.C.N. and became the property of the Canadian Government free of charge. This was made clear in a letter from the First Sea Lord to the Canadian High Commissioner in London a year later, in September 1941, in which he stated that:

Having regard to the circumstances in which the destroyers were handed over by the U.S. and especially . . . that there was to be no endeavour to place a monetary or commercial value upon the many tangible and intangible rights and properties involved, it is thought appropriate that the transfer of these seven vessels to Canada should not be regarded as a commercial transaction, but as an arrangement between the Govts.

¹²⁶ Information in Canada House file, A 168 40.

¹²⁷ Material in N.S. 18020-354 (1).

of the U.K. and Canada for the disposal of the vessels in a manner best fitted to help the common cause.¹²⁸

Disposal of vessels in this manner amongst members of the United Nations became the customary practice as the war progressed.

Regulations with regard to war expenditure within Canada itself were also being altered in the autumn of 1940, in the interest of greater efficiency. The new procedure was promulgated in Order in Council, P.C. 6695, of November 19, 1940. It recognized the impossibility of determining war programmes long in advance, since the future course of the conflict could not be accurately predicted. Exact estimates of expenditure would be even more difficult to prepare, because costs in war-time depended on so many uncertain and varying factors. Accordingly, instead of prescribing rigid adherence to annual programmes drawn up before the beginning of each fiscal year, and likely to be rendered either unnecessary or insufficient by the course of events, the Order in Council sought to provide means for authorizing individual programmes without delay and whenever the need might arise. It accomplished this by directing that any war programme should first be approved by the Privy Council or the War Committee of the Cabinet, and then passed to the Treasury Board along with detailed estimates of expenditure. On the Treasury Board's concurring in the proposed financial arrangements the programme would be regarded as fully authorized, and funds needed from time to time for carrying it into effect would be made available. The much greater flexibility of this system made it possible to avoid from then on difficulties such as those that had arisen in connection with the early planning of the first shipbuilding programme.

¹²⁸ First Sea Lord to Can. High Comm., London, Sept. 9, 1941, A.R.O., M.09601-41.

PROCUREMENT OF SHIPS — BATTLE OF
THE ATLANTIC, 1941-43

THE most distinctive activity of the Canadian navy during the Second World War was the rôle it played in the Battle of the Atlantic. The opening of this phase of the war was foreshadowed late in 1940, when U-boat attacks on North Atlantic shipping became increasingly menacing. These attacks, with occasional lulls, remained the dominant feature of the war at sea from the spring of 1941 to the end of 1943, and the main naval strength of the Dominion was concentrated on helping to resist them. This period was distinguished from the earlier part of the war by another development as well—the much closer integration of the whole war effort against the Axis Powers. Signs of a movement in this direction had appeared after the fall of France, among them being the destroyer-bases deal; but it was not until after the signing of the Lease-Lend Act by President Roosevelt on March 11, 1941, and the beginning of economic participation in the war by the United States, that a scheme for much closer co-operation was gradually worked out. By the end of 1943, the combined planning and execution of military and economic policy had reached the stage needed for winning the war.

The submarine campaign of these years differed in three ways from that which had previously been conducted by the German navy: many more U-boats were at sea; they were employed for the first time in “packs”, instead of as individual units; and in place of confining themselves to the vicinity of the British Isles, they spread out over the Atlantic and even penetrated into the other oceans as well. Although U-boats remained a threat, and even resumed the offensive in the last stages of the war, this main submarine campaign was defeated in 1943. The achievement, however, required a tremendous expenditure of effort, which included the use of a large proportion of the shipbuilding resources of the United Nations for the construction of escort vessels, and of new merchant ships to

replace those being lost so rapidly. The organization of these shipbuilding resources on an international scale was an important factor in increasing their effectiveness, and constituted a vital element in the whole scheme of allied co-operation.

The linking of Canadian with other allied shipbuilding programmes, and the crystallizing of the war at sea into a widely-fought U-boat campaign, were two new factors superimposed on a situation which in 1940 had been governed mainly by the need for greater self-sufficiency on the part of Canada, and less dependence on overseas sources of supply. All three tended to make 1941 primarily a year of reorganizing and preparing rather than one of accomplishment in shipbuilding, despite the fact that it saw the completion of no less than fifty-nine of the corvettes and twenty-seven of the Bangors previously ordered by Britain and Canada. Shipyard facilities were expanded; factories and foundries were built or enlarged, and began to produce the multifarious articles required for constructing and fitting out ships; labour was sought and trained. Meanwhile the Naval Service, the Department of Munitions and Supply, the British Admiralty Technical Mission, and other government agencies, carried on long and not always harmonious negotiations concerning the best employment of this industrial capacity as it became available.

The programme which the Canadian navy would have preferred to undertake in 1941 did not include further building of either corvettes or Bangors. Both these types had served admirably as stop-gaps, but had proved deficient in many ways for the unexpected tasks that they had been called on to perform. The corvette had been designed for anti-submarine patrol work in coast waters only, and even in its revised form it was not well suited for the ocean convoy duty required of it when the U-boats had been forced farther out from land. The Bangor also lacked the endurance and the seaworthiness desirable when mines began to be laid in deeper waters and the area of the sweep had to be greatly extended. Both were too small to contain satisfactorily the many new articles of equipment and the additional crew members now required.¹ The Admiralty was therefore planning to build escort vessels of an improved type, later to be known as frigates, and new Algerine-class minesweepers.

Discussions concerning a new type of ocean escort vessel had begun in the United Kingdom in November 1940, at the

¹ S.S.B. to E. in C., May 4, 1941, N.S. 20-25 I (20).

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same time as plans were being made for a makeshift revision of the corvette. Mr. Reed of Smith's Dock Co., who was again consulted, proposed a twin-screw vessel with two corvette engines and two water-tube boilers. He suggested that its length should be 320 ft. so that it would ride more smoothly in the long Atlantic waves. His recommendations were approved, except that the length was reduced to 301 ft., over-all, to allow for the limited size of the building slips in certain yards. The first twin-screw corvettes, soon afterwards renamed frigates,² were ordered in the United Kingdom in February 1941.³

Word of the frigate design reached Ottawa in December 1940; and by the following April, shortly after the first order had been placed in the United Kingdom, enough information was available for the Naval Service to begin investigating the practicability of building frigates instead of corvettes in Canada.⁴ Many difficulties would arise in making such a change. Output would be retarded, partly because the frigate, being a larger vessel and containing more elaborate fittings, would take a longer time to build. The greater expense of the frigate and the increased personnel needed to man it raised still other problems. The most serious objection, however, was that the vessel would be too long to pass through the St. Lawrence canals, and consequently could not be built in Great Lakes yards.⁵ The extent to which this would restrict building may be judged from the fact that a third of the corvettes and Bangors already built or on order at that time were from yards in that region. In spite of these impediments, the advantages of the frigate were so great as to be decisive. She had a speed of 19 knots as compared with the corvette's 16 knots, and an endurance of 7,200 miles at 12 knots—about twice that of the smaller vessel. She also had better accommodation for the crew, and improved armament and equipment. By May 1941, therefore, the Naval Staff had decided that while the existing corvette programme should be completed, all future orders should be for frigates.⁶

² This type-name was suggested by the C.N.S., and accepted by the Admiralty. In the days of sail, frigates were vessels of the class next in size and equipment to ships of the line; but the name as applied to any contemporary type of vessel had gone out of use.

³ Information obtained from Mr. William Reed, O.B.E.

⁴ Admiralty to C.N.S. (signal), Dec. 30, 1940, N.S. 1057-2-3 (1); Naval Staff Minutes, Apr. 25, 1941.

⁵ The extreme length of the frigate was 301' 6"; that of the shortest canal lock only 270'. Corvettes were a little over 200' long.

⁶ Naval Council Minutes, Apr. 29 and June 30, 1941; E. in C. to C.N.S., May 21, 1941, N.S. 29-25-1 (21). This decision had later to be revised.

The Algerine minesweeper, like its predecessor the Bangor, carried both asdic and minesweeping gear. It was 45 ft. longer, however, and had over 1,500 miles greater endurance at 12 knots, thus overcoming the greatest defects of the Bangor which were lack of space for men and equipment, and short range. Building Algerines in Canada, either within the Great Lakes region or elsewhere, would be almost as easy as building Bangors, and the problems involved in the change-over from one to the other would be minimized by the fact that the main engines and many of the fittings in both classes were identical. In October 1941 the Naval Service decided that thenceforth Algerines should be ordered rather than Bangors.⁷

By the same month the building of thirty frigates and ten Algerines had been approved. The letting of the contracts, however, proved extremely difficult. Wartime Merchant Shipping Ltd. had recently undertaken a large cargo-vessel programme; and the British Admiralty Technical Mission had ordered 10 frigates, 15 Algerines, 15 revised corvettes, and 16 Western Isles trawler minesweepers.⁸ Both of these programmes were very important, and could not be lightly set aside in favour of the apparently prior claims of the Naval Service to Canadian shipbuilding capacity.

New cargo vessels were urgently needed as quickly and in as large numbers as possible, to make up for losses which had been much higher during the winter of 1940-41 than in the first year of the war, and which had reached a peak in the spring. The argument of the naval authorities that there was little use in producing cargo vessels at the expense of the escorts needed to prevent them from being speedily sunk,⁹ was only true to a degree—there was a limit beyond which cargo shipbuilding could not be sacrificed if tonnage at sea were to remain at all adequate. To determine this limit, and effectively apportion available slips between cargo and naval vessels, was most difficult and urgent.

Nor could the British Admiralty Technical Mission programme be given an unconditional second place. B.A.T.M. programmes in general, while they absorbed so considerable a proportion of Canada's shipbuilding facilities that they sometimes delayed work for the R.C.N., themselves helped to

⁷ Naval Council Minutes, Oct. 8, 1941.

⁸ Naval Council Minutes, June 30 and Oct. 8, 1941; Controller of Ship Construction and Repairs, M. and S., to C.N.S., May 6, 1941, N.S. 20-44-1 (1); B.A.T.M. to N. Sec., July 29, 1941, *ibid.*

⁹ Naval Council Minutes, Oct. 8, 1941.

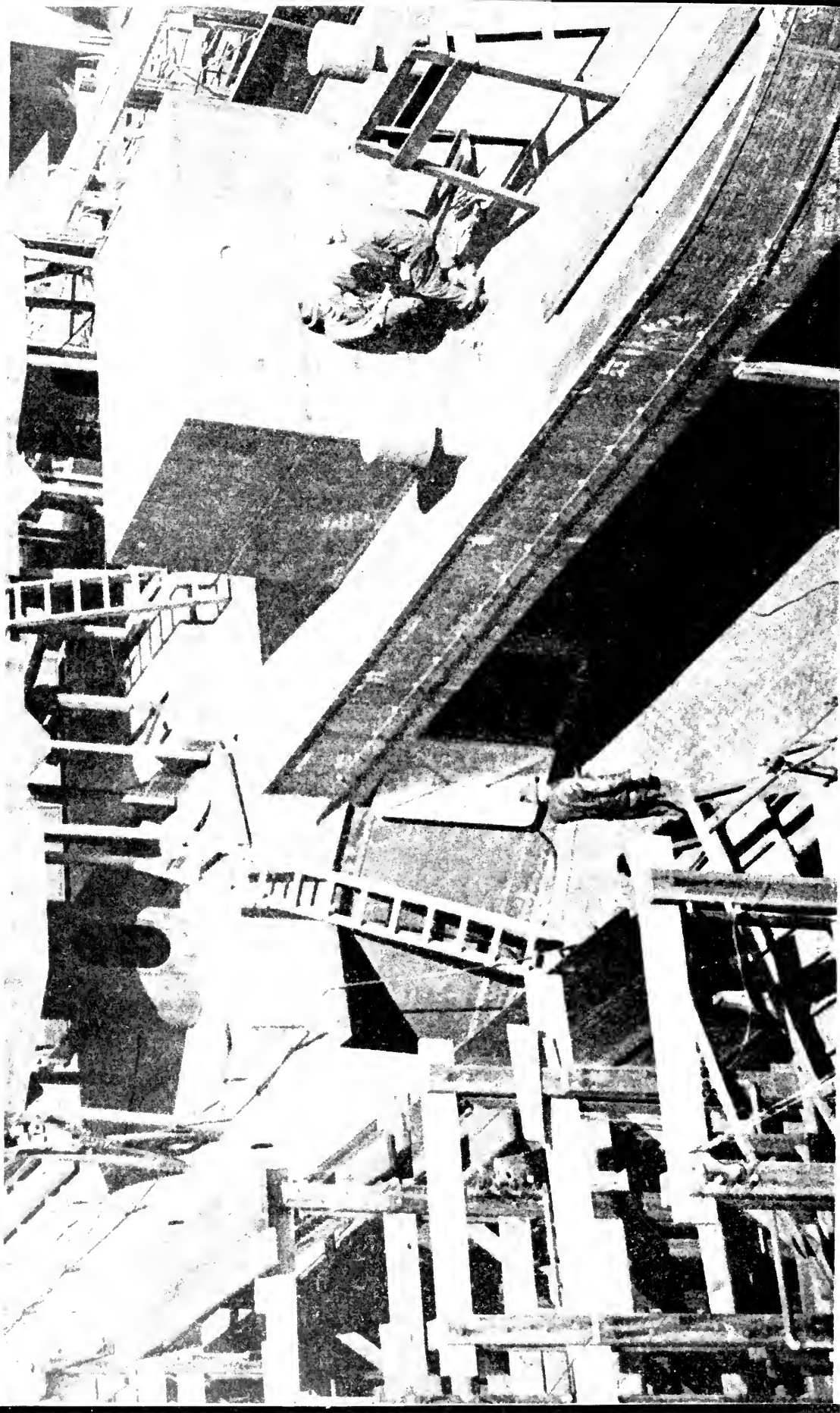
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develop manufacturing and shipyard capacity which the Canadian navy could subsequently use. Moreover B.A.T.M. experts were valuable advisers and consultants with regard to the building of Canadian as well as of British ships. These advantages far outweighed the drawbacks, and there can be no doubt that the Admiralty programmes were mutually beneficial to both parts of the Commonwealth. In the case of this particular B.A.T.M. programme, there was a special advantage to Canada in the method by which it was being financed.

This programme came within the terms of both the Lease-Lend Act signed by President Roosevelt on March 11, 1941, and the Hyde Park declaration issued by the President and the Canadian Prime Minister a month later. Canada did not participate in lease-lend; but in the Hyde Park Declaration had reached an agreement with the United States to the effect that "each country should provide the other with the defence articles which it is best able to produce, and above all, produce quickly." The main obstacle to such mutual assistance had been one of monetary exchange. Since the beginning of the war Canada had tended to buy more from the United States than she had been able to sell in return, and had therefore been obliged to restrict purchases even at the expense of real economy. To remove this difficulty by providing the Dominion with additional American funds, it was agreed at Hyde Park that the United States would obtain from \$200,000,000 to \$300,000,000 worth of its defence requirements in Canada within the next twelve months. Among the items needed by the United States which Canada could supply, ships were particularly important, and the use made of Canadian shipyards thenceforth became part of a wider strategy based on economic as well as military considerations.

The B.A.T.M. vessels were the first-fruit of this agreement, and were given a special priority because of the American funds which Canada would obtain on their completion.¹⁰ They were purchased initially by the Canadian crown company, War Supplies Ltd., which had been set up after the Hyde Park Declaration to negotiate with and receive orders from Departments of the United States Government for war supplies to be manufactured in Canada. They were sold by it to the United States Government, which was then to transfer

¹⁰ Cf. E. P. Taylor, War Supplies Ltd., to Vice-Admiral Evans, B.A.T.M., June 18, 1941, N.S. 29-25-1 (22).



Frigate under construction

them to Britain on lease-lend terms. Actually the United States decided to keep 2 of the 10 frigates and 8 of the 15 corvettes, and these became part of the American navy.¹¹ The rest were commissioned as R.N. ships, and to complete this account of triangular co-operation it should be added that 8 of the 16 Western Isles trawlers were afterwards lent to the Canadian navy for some years.

In the last months of 1941, accordingly, the problem of allocating shipyard space for building the vessels required by the Naval Service, the British Admiralty Technical Mission, and Wartime Merchant Shipping Ltd., was very complex, and the only satisfactory solution was a compromise. The cargo vessels, like the frigates, were too long to pass through the St. Lawrence canals, and had to be built outside the Great Lakes. These were the two classes of ship most urgently required, and it took some months of negotiation to reach an agreement as to how the restricted space available should be divided between them. The Naval Service had insisted at first that all its 30 frigates, together with the 10 for the British Admiralty Technical Mission, should be completed by November 1943. Eventually it had to be content with a promise that 15 would be delivered in 1943, 19 in 1944, and the remaining 6 not until 1945.¹² This was a "distressing situation" intensified for the Canadian navy by the fact that the 10 frigates for Britain and the United States would be among the first 15 built.¹³ This would leave 5 as the maximum number the Canadian navy could hope to obtain by the end of 1943, three full years after word of the new design had reached N.S.H.Q., and two-and-a-half years after the first orders had been approved in principle by the Naval Staff. In the event deliveries were much better than had been anticipated, 26 vessels being completed in 1943 and the rest in 1944, along with many others from later programmes.

It seemed at first that it would be comparatively easy to find building space for the other classes of ship, for all the

¹¹ In Oct. 1942, at about the same time as the American crews were arriving in Montreal to man the two frigates built by Canadian Vickers, several experts came from the U.S. Maritime Commission and from the Kaiser Shipyards to study plans and bills of material. They took the frigate design, altered it extensively for prefabrication and assembly-line building, and produced as a result the American destroyer escort. (Information obtained from Mr. J. G. Moore, Naval Architect, Canadian Vickers, Ltd.)

¹² Naval Council Minutes, Nov. 3, 1941, and Feb. 2, 1942; M. and S. to N. Sec., Jan. 6, 1942, N.S. 29-44-1 (2).

¹³ The B.A.T.M. order had been placed first, and the policy was always to give its contracts equal priority with those for the R.C.N. Two additional reasons for hastening delivery of these ships were the urgency of the Admiralty's need and the importance of the American exchange which their sale would provide for Canada.

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facilities in the Great Lakes were available as well as some small slips outside. In fact on several occasions in 1941 the Department of Munitions and Supply had warned that unless further orders were received some of the lake yards would not be able to remain in continuous operation.¹⁴ By the end of the year, however, there was no prospect of any capacity being left idle. Contracts had been let for the Canadian Algerines, and for the B.A.T.M. Algerines, corvettes, and Western Isles trawlers, a total of 56 ships in all, 45 of which were to be built in the lake yards. This more than filled those yards, and as a result the delivery of the Canadian Algerines scheduled at first was so slow that a protest was made by the Naval Service. The final promise of six Algerines in 1943 and the remainder in 1944 was a slight improvement, and had to be accepted.¹⁵

The entry of the United States and Japan into the war on December 7, 1941, necessarily resulted in some changes in Canadian shipbuilding policy, but none as radical as might have been expected. The Battle of the Atlantic remained Canada's principal naval commitment. The influence of the machinery rapidly set up by Britain and the United States for the joint planning and conduct of the war was felt increasingly; but it usually seemed to reinforce policies already determined in Canada rather than to divert them into different channels. A noteworthy feature of the situation, however, in the months immediately following Pearl Harbor, was the fact that the war seemed suddenly to have moved closer to both shores of Canada. Japanese activity was momentarily expected on the west coast. In the Atlantic, U-boats had begun to operate for the first time in American coastal waters, and they were thought likely to turn northward in the spring and attack shipping along the Canadian seaboard and in the St. Lawrence. Steps that had been taken earlier for the protection of these regions against submarines and mines had therefore to be reconsidered, while at the same time plans were being made for a more effective anti-submarine defence of mid-ocean convoy routes. This dual task meant that throughout 1942 Canadian naval policy had to be based on the principle that "*every shipbuilding yard should be worked to capacity until we see light ahead.*"¹⁶

The ships built primarily for coastal service after Pearl Harbor, were corvettes, Algerines, Fairmile M.L.'s, and

¹⁴ E.g., Dir. Gen. of Shipbuilding, M. and S., to A. D. Min., May 10, 1941, N.S. 29-25-1(21).

¹⁵ Dir. Gen. of Shipbuilding, M. and S. to N. Sec., Nov. 8, 1941, N.S. 29-50-1 (1).

¹⁶ C.N.S. to Min., June 23, 1942, N.S. 1017-10-22 (2).

small wooden minesweepers. Corvettes, while no longer considered entirely adequate to meet ocean escort requirements,¹⁷ were well suited for duties closer inshore where a lower standard of sea-keeping was acceptable, and where lack of speed was less important because air patrols would tend to keep U-boats submerged.¹⁸ Moreover in spite of their deficiencies corvettes were still being used for ocean escort work as well, and there seemed to be little or no prospect of their being released from that duty for some time to come. Revised corvettes (increased endurance) were accordingly ordered during the first half of 1942, whenever space not suitable for building frigates became available. The Naval Staff approved contracts for 8 in February, 8 more in April, and finally 22 at the end of June.¹⁹ Only a few days after that last large order had been placed, the importance of strengthening coastal forces was emphasized when the first casualties occurred in the St. Lawrence. On July 6 three ships were torpedoed in rapid succession off Cap Chat.

Eighteen Fairmile M.L.'s had also been ordered in February 1942,²⁰ to supplement the corvettes for anti-submarine patrol work off the coast of the Maritimes and in the St. Lawrence. Contracts for another eight were let in the late fall, after S.S. *Caribou* had been sunk in Cabot Strait and it had been decided that still more of these small craft were needed to provide additional escorts for east-coast ferries. An additional purpose of this order was to ensure employment for the yards throughout the winter, so as to keep them open and available for any future need.²¹

Minesweeping requirements were taken care of by ordering six additional Algerines²² and a number of small wooden minesweepers. The latter were for use against magnetic mines. The only existing ships in the R.C.N. fitted with "L.L." sweeps were the Suderoys and a few of the Bangors. All these had steel hulls, and it was not easy to degauss them sufficiently to render completely safe their passage over the mines that their sweeps would later explode. Wooden vessels also had to be

¹⁷ Minutes of meeting of representatives of the Naval Board and Naval Staff, Oct. 9, 1942, N.S., M.S. 1017-10-22 (I).

¹⁸ D. of P. to V.C.N.S., Oct. 9, 1942, *ibid.*

¹⁹ Naval Board Minutes, Feb. 16, Apr. 13, and June 29, 1942.

²⁰ *Ibid.*, Feb. 16, 1942.

²¹ Naval Staff Minutes, Nov. 5, 1942; correspondence in N.S. 29-30 (1) (15).

²² Min. to War Ctee. of the Cabinet, July 11, 1942, N.S., M.S. 1017-10-22 (13). Another twelve Algerines were ordered later in the year, but primarily as emergency escort vessels, not as minesweepers.

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degaussed because their machinery and equipment created a magnetic field; but the process was simpler and more effective. The Admiralty had therefore designed for magnetic sweeping small wooden minesweepers, 105 feet long, and with a displacement of 228 tons. The Naval Service ordered two such sweepers in the spring of 1941 for service along with other "LL" minesweepers on the east coast. Both were built on the Island of Orleans by Chantier Maritime de St. Laurent.²³ All suitable firms in the Maritime Provinces were already fully occupied on similar orders for the Admiralty.²⁴ Early in 1942 the building of eight more of these sweepers in British Columbia was approved by the Naval Staff, as part of its programme for improving west-coast defences in face of the immediate Japanese threat.²⁵

Although coastal-defence forces were strengthened in these ways during 1942, the main Canadian shipbuilding effort remained concentrated, throughout the year, on providing adequate ocean escort vessels and additional merchant tonnage; and it became more and more closely integrated, as the year went on, with similar efforts being made by Britain and the United States. After Pearl Harbor new links had been rapidly forged between the now United Nations. In this connection, two visits paid to Washington by Mr. Churchill, one in December 1941 and the other in June 1942, had been particularly important. After the first, the Anglo-American Combined Chiefs of Staff organization had been set up, together with Munitions Assignment Boards to work under its direction. The former would "ensure complete co-ordination of the war effort" of the two Powers; the latter would act on the principle that "the entire munitions resources of Great Britain and the United States [will] be deemed to be in a common pool," and it would make assignments from that pool in accord with general strategic requirements.²⁶ During Mr. Churchill's second visit "shipbuilding and the use of ships" was stated to have been a major topic of discussion.²⁷ Summaries were prepared showing that the number of sea-going escort vessels available to the United Nations in all areas, as of July 1, 1942, would be about 565, while the number needed

²³ P.C. 4040, June 6, 1941.

²⁴ B.A.T.M. to N. Sec., Apr. 5, 1941, N.S. 29-37-2 (1). Sixteen wooden minesweepers were ordered in 1941 by B.A.T.M., and another sixteen in 1942. All were built in the Maritimes.

²⁵ Naval Board Minutes, Apr. 30, 1942.

²⁶ Announcement made jointly by Pres. Roosevelt and Mr. Churchill, Jan. 27, 1942.

²⁷ Press release by Stephen Early, June 23, 1942.

was estimated to be over 1,750. Proposals for reducing this deficiency were made, and what seemed still more important, especially from the point of view of the Canadian navy, it was decided that all escort construction should be pooled, and that ships, like other war material, should be allocated on completion to whatever nation or theatre of war was most in need of them.²⁸

Canada's position in the field of Anglo-American relations was that of a smaller partner whose contribution to the common cause was not unimportant, but whose voice at the council table might easily and often inadvertently be ignored. The Naval Service on this occasion viewed with alarm "the possibility of Canadian built, Canadian owned, and Canadian needed Frigates, Corvettes, and Minesweepers being placed in a pool for the United Nations and allotted other than to Canada."²⁹ A satisfactory reassurance was immediately offered by the Admiralty, which promised that whenever a division of new construction was made between the United States and the British Commonwealth, Dominion building to Dominion account would remain the first charge on assignments made to the Commonwealth. The Admiralty added that it could foresee no change in the normal allocation of such building, and that none would be considered without having first consulted the Dominion concerned.³⁰ In fact, Canadian ships were never to be transferred except on temporary loan and with Canadian crews to other than Canadian theatres of Operations, and then only with the full approval and authority of the Canadian Government and the Naval Service.

The Dominion shared with Britain and the United States the task of trying to make up the deficiency of escort vessels revealed at the second Washington Conference in June 1942. By the end of that month, as has been noted above, the Naval Service had approved orders for 38 revised corvettes. These ships, although intended primarily for escorting coastal convoys, could be and actually were used for mid-ocean work as well. During the month 7 frigate contracts were also approved, following a Department of Munitions and Supply report that it now seemed possible for that number to be completed before the end of 1944, in addition to the 40 that the R.C.N. and the B.A.T.M. had ordered the previous year.³¹

²⁸ Memo. by Combined Staff Planners, Washington, June 20, 1942, N.S. 1278-35 (1).

²⁹ C.N.S. to Min., June 23, 1942, N.S. 1017-10-22 (2); Naval Board Minutes, June 29, 1942.

³⁰ Admiralty to N.S.H.Q. (signal), Aug. 3, 1942, N.S., M.S. 1017-10-22 (1).

³¹ Naval Board Minutes, June 29, 1942; Dir. Gen. of Shipbuilding, M. and S. to C.N.S., June 18, 1942, N.S. 1017-10-22 (2).

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The most important attempt to accelerate ship construction in Canada, however, was an exhaustive survey undertaken by the Department of Munitions and Supply during the summer of 1942.³² This resulted, in September, in the forwarding of another statement to the Naval Service, this time estimating that a further 26 frigates, 38 Algerines, and 18 revised corvettes, could be built during 1943 and 1944. This sudden and very large upward revision of estimated building capacity rested on two assumptions: that priorities of materials and equipment could be so arranged that shipyard work would be able to proceed smoothly and continuously; and that a central outfitting yard would be set up at Quebec to help finish hulls built by the two smaller shipyards of that city, Morton's and the George T. Davie Co.³³

Establishing special outfitting yards of this sort was one of the most successful methods by which the Department of Munitions and Supply was able to increase ship production during 1942 and 1943. It was the outfitting of warships rather than the construction of their hulls that delayed their completion. The hull of a minesweeper or of an escort vessel could be built comparatively quickly; cramming into it the complicated pattern of wires and pipes, the myriad diverse gadgets and machines, and the guns and other armament, was a lengthier process—especially in the case of frigates and Algerines which carried so much more equipment than had the earlier corvettes and the Bangors. The frigate outfitting yard at Quebec was opened in the fall of 1942 by the Anglo-Canadian Pulp and Paper Co., Ltd. At about the same time one for Algerines was set up at Saint John, N.B., under the management of a firm of electrical engineers, the Canadian Comstock Co., Ltd., which acted as sub-contractor for the Toronto Shipbuilding Co. where the hulls were being built. A second outfitting yard for Toronto-built Algerines was established at Hamilton in July 1943, the sub-contractor in this case being Carter-Halls-Aldinger, a construction company.³⁴

The opportunity, in September 1942, of ordering such a large number of ships made it necessary for the Naval Service to reconsider its operational requirements very carefully, and to draw up a comprehensive programme to cover the two-year period ending in December 1944. In a joint memorandum

³² C.N.E.C. to V.C.N.S., July 8, 1942, N.S., M.S. 1017-10-22 (1).

³³ Dir. Gen. of Shipbuilding, M. and S. to Min., Sept. 15, 1942, N.S. 1017-10-22 (2).

³⁴ Interviews at Toronto Shipbuilding Co.

dated September 19, 1942, the Director of Operations Division and the Director of Plans laid the foundation for discussing such a programme. They estimated that to meet existing Canadian commitments, additional ships to the number of 14 destroyers and 102 other escort vessels would be needed. As many of the latter as possible should be frigates; the remainder revised corvettes. No more minesweepers would be required for the time being.³⁵

The urgency was greatest with regard to frigates. In its forecast, the Department of Munitions and Supply had stated that 26 of these could be built before the end of 1944, but it later raised the estimate to 31.³⁶ This was still only a small part of the total number needed, and the Director General of Shipbuilding, Department of Munitions and Supply, had therefore suggested that the lake yards might be used for building an escort vessel similar to the frigate, but short enough to pass through the St. Lawrence canals.³⁷ Enquiries were made by the Naval Service to find out if this could be done; but it was learned that neither the Admiralty nor the United States Navy could provide plans for such a vessel. The Admiralty added in its reply that to design an escort vessel only some 255 feet long which would have the speed, endurance, and armament of a frigate, seemed impossible.³⁸ The alternative of building ordinary frigates on the lakes and bringing them out through the Chicago Drainage Canal and the Mississippi River was then considered. On investigation it was found that while there would be no difficulty with the length or breadth of the vessels in this case, problems would arise in connection with their draught and vertical height. pontoons would have to be used to float them over shoals at the junction of the Illinois and the Mississippi, and some bridges would have to be elevated. For a while it was thought that the necessary arrangements might be made, but eventually this scheme also had to be abandoned.³⁹

In October 1942, when it had seemed probable that some type of frigate could be built in lake yards, Cabinet approval had been requested for a programme which included 74 such

³⁵ D.O.D., D. of P., to V.C.N.S., C.N.S., Min., Sept. 19, 1942, N.S. 1017-10-22 (2).

³⁶ Memo.: "Naval Construction Programme", Shipbuilding Branch, M. and S., Sept. 18, 1942, *ibid.*; W. H. Milne, Technical Adviser, Dir. Gen. of Shipbuilding, to Sec. N.B., Nov. 1, 1942, N.S. 29-49-1 (3).

³⁷ Dir. Gen. of Shipbuilding, M. and S. to Min., Sept. 15, 1942, N.S. 1017-10-22 (2).

³⁸ N.M.C.S., Washington, to N.S.H.Q. (signal), Oct. 7, 1942, N.S., M.S. 1017-10-22 (1), Admiralty to N.S.H.Q. (signal), Sept. 25, 1942; D.N.C. to Staff, Nov. 1, 1942, N.S. 29-55-1 (3).

³⁹ Signals in N.S. 29-55-1 (3) and 1017-10-22 (1 and 2).

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vessels.⁴⁰ On learning that frigate building would have to be confined to outside yards, the Naval Staff assumed at first that only 31 could be ordered and that either Algerines or revised corvettes would have to be built on the lakes to make up the difference.⁴¹ The Minister declined to accept this solution, however, being "of the opinion that obsolete⁴² vessels should not be constructed." He was in favour of building a few Algerines or corvettes, so as to maintain continuity of work in lake yards and acquire some badly needed though inferior escorts as quickly as possible; but apart from these he wanted production concentrated entirely on frigates. The Naval Staff was more than willing to welcome such a policy, provided that it was practicable.⁴³ The Department of Munitions and Supply was accordingly asked to find out immediately how many frigates could be delivered by existing naval yards before June 1945, and what additional space would have to be taken over from the cargo-vessel programme to bring the number up to sixty-eight.⁴⁴

The Department of Munitions and Supply replied that by extending the time limit from December 1944 to June 1945, and by expediting materials and work at the yards already used for frigate building, 42 instead of 31 vessels could be completed. An additional 8 hulls could also be built at Canadian Vickers and towed to the new outfitting yard at Quebec. More than the required 68 could then be built, if the Davie Shipbuilding and Repairing Co. were diverted from merchant to naval building.⁴⁵ Meanwhile the Naval Service had decided to reduce its frigate requirements from 68 to 64, and on the basis of the new arrangements proposed by the Department of Munitions and Supply, it presented to the Cabinet on November 11 a revised programme calling for the building of only 64 frigates and 12 Algerines, in place of the other 10 in the programme of 74 frigates originally approved.⁴⁶ This revised programme was authorized, and by February 1943 all the ships in it had been ordered.

⁴⁰ Min. to War Cttee. of the Cabinet, Oct. 28, 1942, N.S. 1017-10-22 (2). Action was deferred on this pending complete estimates for the following fiscal year from all three Services.

⁴¹ Naval Staff Minutes, Nov. 2, 1942; D.O.D. to C.N.S., Nov. 4, 1942, *ibid.*

⁴² Algerines were not obsolete as minesweepers; but in this case they were being considered along with revised corvettes for escort work, and for this they were not adequate to meet the latest Staff requirements.

⁴³ Naval Staff Minutes, Nov. 5, 1942.

⁴⁴ Cf. C.N.E.C. to C.N.S., Nov. 8, 1942, N.S. 1017-10-22 (2). The corvettes or Algerines that were to be built would replace six of the original seventy-four frigates.

⁴⁵ W. H. Milne, M. and S. to Sec. N.B., Nov. 7, 1942, N.S. 29-44-1 (13).

⁴⁶ Min. to War Cttee. of the Cabinet, Nov. 9, 1942, N.S. 1017-10-22 (2).

These twelve Algerines were the last steel warships ordered for the Canadian navy from Great Lakes yards, all further offers of space for building Algerines or revised corvettes being rejected.⁴⁷ They were built primarily for escort work rather than for minesweeping, and were chosen instead of revised corvettes because they could be completed more rapidly, not because of any intrinsic superiority. Before making the decision, the Naval Staff had thoroughly investigated the relative merits of those two classes of ship, and had come to the conclusion that while one was probably little better than the other in coastal waters and under good weather conditions, the Algerines were definitely less satisfactory for ocean escort duty. Their lines, and particularly their shallow draught, resulted in less efficient asdic performance and made them less comfortable in a seaway.⁴⁸ Normally an Algerine, with its two engines to the corvette's one, would also have taken longer to complete; but in this case the slips that were becoming vacant were ones that had been used for Algerine construction at Port Arthur and Toronto. The builders there could complete a few repeat orders for Algerines more quickly than they could change to and complete corvettes. As neither type was fully satisfactory as compared with frigates, and since the main purpose was to get whatever ships were built into commission as rapidly as possible, Algerines were considered preferable.⁴⁹

This order brought to twenty-eight the total number of Algerines building for the Canadian navy; and early in 1943, in view of the fact that the submarine rather than the mine seemed the primary danger in Canadian areas of responsibility, the Naval Staff decided that the earlier ones as well as those last ordered should be used entirely as escorts and not for minesweeping.⁵⁰ Since Algerines were first-rate minesweepers but only makeshift escort vessels, this seemed to the Admiralty to be an excellent opportunity for applying in practice the principle agreed on in Washington, that total requirements of minesweepers and escorts should be met by integrating all United Nations' building programmes. Canada could evidently build more minesweepers than she herself required, and fewer escort vessels. The Admiralty therefore

⁴⁷ Sec. N.B. to Dir. Gen. of Shipbuilding, M. and S., Dec. 5, 1942, N.S. 29-59-1 (7).

⁴⁸ N.S.H.Q. to Admiralty (signal), Nov. 2, 1942, N.S. 1017-10-22 (2), and reply (signal), Nov. 14, 1942, N.S., M.S. 1017-10-22 (1).

⁴⁹ Naval Staff Minutes, Nov. 5, 1942; Min. to War Cttee. of the Cabinet, Nov. 9, 1942, N.S. 1017-10-22 (2).

⁵⁰ Weekly Report to the Minister, Feb. 5 and 26, 1943.

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proposed that some or all of the capacity devoted to Algerine construction in the United Kingdom should be used to produce modern corvettes for the Canadian navy, and that in return Canada should supply the Algerine minesweepers needed by the Admiralty. After some negotiations the Naval Service accepted this proposal, and sixteen of the Canadian Algerines were exchanged for the same number of British-built corvettes.⁵¹ Four of the latter were revised (increased endurance) corvettes, similar to the newest type being built in Canada; the other twelve belonged to the still more recent castle class.⁵²

The castle-class vessels were far superior to any corvettes previously built, particularly with regard to their sea-keeping qualities, though inferior to frigates in speed and equipment. They were 45 feet longer and slightly broader than the original corvettes, and had much more satisfactory accommodation for the crew, some 3,000 miles greater endurance at 12 knots, and considerably better speed. They could be built in Canada in the lake yards, and in March 1943 thirty-six were ordered by the B.A.T.M. Later in the year the revised corvette programme for the R.C.N. was found to be so far behind schedule that no extra delay seemed to be involved in changing the plans for the last seven of that group and building them as castles instead. This was decided upon;⁵³ but before it could be carried out, and indeed before any castle-class corvettes could be laid down in Canada, the course of the war had altered and these programmes were cancelled. The twelve British-built castles acquired from the Admiralty were therefore the only ones to become part of the Canadian navy.

Destroyer requirements had been set at 14 by the Director of Operations and the Director of Plans in their memorandum of September 19, 1942. At that time there were only 12 destroyers in commission in the R.C.N. Five belonged to the river class with which Canada had entered the war, their number having been reduced a few days earlier by the loss of the *Ottawa*. The other 7 were the town-class destroyers acquired from the U.S.N. These had been found "extremely unsatisfactory" for ocean escort work, and their replacement

⁵¹ Naval Staff Minutes, Mar. 11, 1943; Admiralty to N.S.H.Q. (signal), Apr. 3, 1943, N.S. 29-49-1 (6); Naval Board Minutes, Apr. 5, 1943.

⁵² A report by D.N.C. to Naval Staff, Nov. 4, 1942, N.S. 29-55-1 (3), dealing with the possibility of building a ship similar to a frigate, but short enough to pass through the St. Lawrence canals, contains the first reference in the Naval Service files to the castle-class corvette. It would be short enough for the canals, but its speed would not be nearly as great as that of the frigate.

⁵³ Naval Board Minutes, Oct. 25, 1943.

as soon as possible by more modern destroyers or frigates was believed to be essential.⁵⁴ In addition to these 12, there were the 8 tribals building or on order—4 within a year of completion in the United Kingdom and 4 recently ordered in Canada. Previously it had been assumed that the tribal programme would be continued, and in preliminary tabulations of additional destroyer requirements 4 more tribals had been shown, raising the total for that class to 12. No further acquisition of rivers or towns had been contemplated.⁵⁵

The careful study of Canadian commitments and of the number and types of vessels required to meet them made by the D.O.D. and the D. of P., showed a serious shortage of destroyers in Canadian escort groups of both the Mid-ocean and the Western Local Escort Forces. The two Directors were of the opinion that about 14 additional destroyers were needed. Seven of these were required immediately, one to replace the *Ottawa*, the others for Western Local groups. Of the remaining 7, which were less urgently needed, 3 were required so as to form an extra group in the Western Local, and 4 to allow for wastage. The problem of wastage, however, could not be safely postponed much longer. Most of the destroyers on escort duty were over-age, and all were over-worked. Of the 12 Canadian and 17 British destroyers in Canadian groups in the North Atlantic, 24 were of First World War vintage, and the other 5 were more than ten years old. The 8 tribals would not remedy this situation when they were commissioned. They were too powerful and too urgently needed elsewhere to warrant their use for escorting convoys, and in any case they were over-large and had too wide a turning circle to be ideal for anti-submarine work, a task requiring considerable agility on the part of the attacker. It was therefore suggested that they should be regarded as the "overseas effort" of the Royal Canadian Navy, and that in return for their services in United Kingdom waters, the Admiralty should be asked to release 8 older fleet destroyers for Operations with Canadian escort groups. The other 6 destroyers required would probably have to be purchased from the Admiralty.⁵⁶

On September 24, 1942, when the whole 1943-44 ship-building programme was first studied by the Naval Staff, the C.N.S. was absent. As the proposals concerning destroyers

⁵⁴ D.O.D., D. of P., to V.C.N.S., C.N.S., Min., June 19, 1942, N.S. 1017-10 22 (2).

⁵⁵ F g., Sec. N.B. to N.M.C.S., Aug. 15, 1942, *ibid.*

⁵⁶ D.O.D., D. of P., to V.C.N.S., C.N.S., Min., Sept. 19, 1942, memo. by D. of P. on meeting of representatives of Naval Board and Staff, Oct. 9, 1942: *ibid.*

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were so important they were held over until his return. On October 1, when the discussions were resumed, the C.N.S. stated that it seemed very unlikely that the Admiralty would be willing to release fleet destroyers not already allocated to escort duty, and the Staff accordingly decided to ask instead that two "improved Tribals" be laid down for Canada in the United Kingdom. Later the same day the Naval Board approved this decision tentatively, but on the understanding that it would be reviewed at the next meeting.

When the Board met on October 5 there was a prolonged debate, and a very different conclusion was reached. It was agreed in principle that "emphasis should be placed on the acquisition of destroyers for anti-submarine escort duties rather than for fleet operations", and that accordingly an attempt should be made, by whatever reciprocal arrangement with the Admiralty might be possible, to secure the assignment of additional escort destroyers to the R.C.N. On October 12 when the 1943-44 programme was approved for submission to the Cabinet, the Naval Board included in it the fourteen escort destroyers that the D.O.D. and D. of P. had said were necessary. They would be "for manning only," as it was hoped to acquire them from the Admiralty without charge. On December 2 the War Committee of the Cabinet approved a request to the government of the United Kingdom for the release of these vessels to the Royal Canadian Navy.⁵⁷

This request was supported by an exchange of personal messages between Mackenzie King and Mr. Churchill, and between the C.N.S. and the First Sea Lord.⁵⁸ The final outcome was that in view of Canada's willingness to use the 4 new tribals being completed in Britain for fleet Operations with the Royal Navy, the Admiralty agreed to transfer to the Canadian navy at once 4 destroyers that had become obsolescent for such work and were being converted for escort duty. Two of these would complete their refits in March 1943, and the other 2 in May. Two additional vessels of the same class would probably be available before the end of the year. This was a more satisfactory arrangement than had been generally believed probable, and was gratefully accepted by the Naval Service.⁵⁹ By the middle of 1943 the first 4 of these

⁵⁷ Naval Staff Minutes, Sept. 24 and Oct. 1, 1942; Naval Board Minutes, Oct. 1, 5, and 12, 1942; C.N.S. to Undersec. of State (Ext. Aff.), Dec. 4, 1942, N.S. 18020-353 (1).

⁵⁸ Telegrams and signal, Dec. 5 and 9, 1942, and Feb. 23, 1943, N.S., M.S. 1017-10-22 (1), and N.S. 18020-353 (1).

⁵⁹ Naval Board Minutes, Feb. 25, 1943.

destroyers had been re-commissioned into the R.C.N., and the other 2 followed a few months later. All were similar to but newer than the river-class destroyers which Canada already possessed. The oldest was the *Kootenay* (ex-H.M.S. *Decoy*), completed in 1933; another, the *Gatineau* (ex-H.M.S. *Express*), dated from 1934; the *Saskatchewan* (ex-H.M.S. *Fortune*), and *Qu'Appelle* (ex-H.M.S. *Foxhound*), from 1935; and the *Ottawa* (ex-H.M.S. *Griffin*), and *Chaudière* (ex-H.M.S. *Hero*), from 1936.⁶⁰

The last war-time shipbuilding programme of the R.C.N. was undertaken as a result of an enemy minelaying Operation off Halifax about May 31, 1943. This was the first time during the Second World War that mines had been laid in Canadian waters, and there were indications that a 1,600-ton U-boat had been used. Germany was believed to have six of these large submarines, as well as several smaller ones built or building for this type of work. It was estimated that one large submarine laying up to sixty-six mines represented the maximum scale of attack that could be expected on the east coast at any one time. These sixty-six mines might, however, be used to attack as many as three ports simultaneously, the most likely being Halifax, Sydney, and St. John's, Newfoundland. The mines laid had been of the moored-magnetic type, rather than the ground mines that the Germans had scattered so extensively earlier in the war. Moored mines of this sort could be destroyed either by "LL" or oropesa sweeping, but the latter gave more certain results. These latest German mines had an increased magnetic sensitivity that made them very dangerous to steel-hulled sweepers, which were not easy to degauss adequately. Wooden minesweepers of the 105-ft. type, of which a few had already been ordered for the R.C.N., were rather small for operating in the deeper waters where moored mines were laid, and a larger 126-ft. wooden vessel being built by the Admiralty seemed "the ideal ship."⁶¹

Accordingly in August 1943, a programme of 12 126-ft. wooden minesweepers for the east coast, and 4 for the west, was approved by the Naval Staff and Board, and in December, 14 of the orders were placed.⁶² There was no difficulty about this in British Columbia, where most of the firms that had

⁶⁰ These destroyers were transferred as a gift from the U.K. Government. [See Sec. of State for Dom. Aff. to Sec. of State (Ext. Aff.), Apr. 29, 1943, N.S. 18020-353 (D)]. This *Ottawa* was the second destroyer of that name in the R.C.N.

⁶¹ D.P.D. memo., Aug. 18, 1943, N.S., M.S. 1017-10-22 (D).

⁶² Naval Board Minutes, Aug. 19, 1943; correspondence in N.S., M.S. 1017-10-22 (D), and N.S. 29-69-1 (1 and 3); P.C. 1165, Feb. 23, 1944.

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been building the 105-ft. vessels were prepared to take on new contracts.⁶³ In the east, however, the B.A.T.M. had recently ordered twenty-four of these ships, absorbing the whole capacity of the three large builders of wooden minesweepers in the Maritimes. The only alternative seemed to be the Ontario M.L. yards, and five of these were given contracts for two vessels each.⁶⁴ This was an entirely new type of building for most of these yards which were accustomed to lighter craft, and they took some time in getting under way. Meanwhile the last two vessels for the east coast still remained to be ordered, and this was not done until June 1944, when space became available in one of the Nova Scotian yards which was completing its Admiralty contract.⁶⁵ By August, however, the slow progress being made on this programme, combined with the rapid march of events in Europe, made it seem likely that some at least of these ships would be completed only in time to assist in post-war mine clearing. It was accordingly decided to cancel seven of the contracts in eastern Canada—the two with the Nova Scotian firm and the second with each of the five in Ontario. Some of these vessels were later completed for the Russian Government.⁶⁶ Those which the R.C.N. continued to build were all transferred to the U.S.S.R. on completion.

Apart from this group of 126-ft. wooden minesweepers, the emphasis in naval shipbuilding remained on escort vessels during the first half of 1943; and various attempts were made, on an international as well as a national scale, to accelerate their production.⁶⁷ As the year went on, however, certain new trends became more clearly marked. One was the growing interest in modernizing and keeping in repair the escorts already built—the stage having been reached when efficiency could be considered at least as important as mere numbers; another was revealed by the increasing attention being paid to plans for invading Europe, for a more active participation in the Pacific war, and for the acquisition of ships suited to the needs of a post-war fleet. These developments, and the suc-

⁶³ The exception was the A. C. Benson Shipyards, Vancouver.

⁶⁴ A.C.N.S. to C.N.E.C., Apr. 10, 1944, N.S. 8200-449 (1), and reply, Apr. 15, 1944, N.S. 29-69-1 (3); D. Min.'s Advisory Cttee. Minutes, May 15, 1944. The Ontario companies were: Grew Boats Ltd., MacCraft Corp., Midland Boat Works, J. J. Taylor and Sons, and Port Carling Boat Works.

⁶⁵ The Clare Shipbuilding Co., Ltd., Meteghan, N.S.

⁶⁶ D.N.C. to Naval Staff, Aug. 29, 1944, N.S. 8200-449 (1); Naval Board Minutes, Sept. 18, 1944; Monthly Summary, June 7, 1945.

⁶⁷ E.g., Combined Chiefs of Staff, Washington, to Combined Production and Resources Board, Jan. 2, 1943, and reply, Jan. 7, 1943, N.S., T.S. 11278-1 (1); N.M.C.J.S. to C.N.S., Mar. 12, 1943, N.S., M.S. 1057-6-21 (1); D. Min., M. and S., to D. Min., June 14, 1943, N.S. 1017-10-22 (3).

cesses scored against the U-boats in the winter and spring of 1942-43, made the building of new escorts seem much less urgent. By the fall the situation had altered to such an extent that widespread cancellations could be made in escort programmes already adopted.

The relative importance of escort vessels as compared with ships of other types required for the invasion of Europe, or the war in the Pacific, had been discussed first at the Quebec Conference in August 1943. Except for a few months in the spring, losses in the North Atlantic had declined steadily from the peak of 200,000 tons which they had reached during one week in May 1942. During the Conference itself, not a single ship was sunk in that area. The United States authorities were believed to be considering a plan for increasing their output of landing craft at the expense of merchant vessels, and if necessary of escorts as well. The British First Sea Lord was still of the opinion that escort vessels should be given the highest priority in British building for at least another year.⁶⁸ The official position adopted in a joint statement by Mr. Churchill and President Roosevelt during the Conference was that there must be no relaxation of the efforts being made against the U-boats. In accord with this policy, the Director of Plans recommended in a review of Canadian naval requirements in September 1943, that the existing escort programme should be continued, but that close touch should be maintained with the Combined Chiefs of Staff, the Admiralty, and the United States Navy Department, in order that any decision to stop laying down escort vessels could be given immediate effect in Canada as well. As far as building for 1944-45 was concerned, he was of the opinion that no more escort vessels were required. These views were endorsed by the Naval Board.⁶⁹

The British decision to reduce escort building was finally made in October. Canada was informed that the Admiralty would ask for no further assignments of escorts from American production, and that in the United Kingdom itself and in Canada no R.N. vessels to be completed later than October 1944 would be laid down. The Admiralty believed that by then enough ships would be available to meet all requirements. The Canadian attitude was at first unfavourable. Even the fact that the U.S.N. was also cancelling a large part of its

⁶⁸ D. of P., Admiralty, to D. of P., Aug. 15, 1943, N.S., M.S., 14300-9 (1).

⁶⁹ D. of P. to A.C.N.S., Aug. 18, 1943, N.S., M.S. 1017-10-22 (1); Naval Board Minutes, Aug. 30, 1943.

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programme did not convince the Naval Staff that Canadian commitments could be properly met by the reduced number of vessels envisaged in the new British plan. The Staff put Canada's requirements at 354 as compared with the Admiralty's estimate of 259. In view of this very large discrepancy it was decided to send the A.C.N.S. to London to confer with Admiralty officials concerning the whole future policy of the Canadian navy in this and other matters.⁷⁰

The agreement which the A.C.N.S. reached with the Admiralty, and which was approved by the Naval Staff and Board, brought Canadian policy into line with that of Britain and the United States, and resulted in the cancellation of the last 41 frigates and 11 revised and castle-class corvettes on order for the R.C.N.⁷¹ It was based on acceptance by Canada of the British estimate as to the number of vessels required by the R.C.N.; but it included the provision by the Admiralty of safeguards designed to enable the Canadian navy to fulfil its obligations even in the event of another major U-boat campaign. It also included an understanding that shipyard space made available by the cancelling of Canadian and B.A.T.M. frigates and corvettes should be used to build landing craft or other vessels urgently required for the Royal Navy. The agreement also allowed for the fact that the cancellations would probably leave the R.C.N. with a surplus of manpower, by providing that Canada would undertake to man other types of ship.⁷² With this decision to accept a "cut-back" in escort building and to acquire other ships instead, the Canadian navy entered a new stage of its development.

⁷⁰ Signals in N.S., M.S. 1017-10-22 (1).

⁷¹ Report by Capt. W. B. Creery, R.C.N., Dec. 12, 1943, N.S., M.S. 1017-10-22 (1); Naval Board Minutes, Dec. 7, 1943; D. Min. to D. Min., M. and S., Dec. 7, 1943, N.S. 29-59 1 (27)

⁷² Admiralty to N.S.H.Q. (signal), Dec. 9, 1943, N.S., M.S. 1017 10-22 1)

PROCUREMENT OF SHIPS — LAST PHASE, 1943-45

THE final phase of the war, as far as ship-procurement for the Canadian navy was concerned, began in the autumn of 1943, at about the time of the first Quebec Conference. Between then and VJ-day Canada acquired or arranged to acquire, mainly from the Admiralty, many types of ship ranging from cruisers and light fleet carriers to motor torpedo boats, and including as well: fleet destroyers, frigates, landing vessels, and escort carriers of the class known as C.V.E.'s. This extensive transfer of ships to the Canadian navy was, from the point of view of the Admiralty, an expedient for solving the latter's greatest problem, an extreme shortage of men. From the Canadian point of view it was an opportunity, which the Naval Staff at least was most eager to seize, to remodel the R.C.N. A navy which was almost entirely an escort force would be modified in the direction of a diversified and well-balanced fleet, able to participate effectively in the invasion of Europe and in the Pacific war, and at the same time likely to meet the needs of the post-war period.

Preliminary steps toward obtaining some of these ships had been taken much earlier; in fact, the arrangements concerning the motor torpedo boats were completed late in July 1943, just before the Quebec Conference began. As early as May 1942, the possibility had been suggested of forming Canadian flotillas of these coastal craft for use in United Kingdom waters. At that time no action had been taken because the Canadian navy lacked the necessary vessels.¹ A year later it had been learned that the Admiralty's manpower problem was such that an offer by Canada to man one or more coastal-force flotillas would be most welcome. An agreement was reached whereby the Royal Navy would supply the boats and remain responsible for their operational control and maintenance, while the Canadian navy would provide their

¹ Naval Board Minutes, May 28, 1942.

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crews and commission them as H.M.C. ships.² Two flotillas of eight boats each were commissioned early in 1944. One consisted of motor gun boats, "D" type; the other of Fairmile "D" motor torpedo boats. The former were a more up-to-date version of those built earlier by the Canadian Power Boat Co. in Montreal; the latter were over 40 feet longer, and while not as fast had a very much heavier torpedo and gun armament.

The acquisition of major landing craft had also been considered by the Naval Service before the Quebec Conference, and a large number of Canadian naval personnel had actually been lent to the Royal Navy for service in smaller combined-Operations vessels. This latter policy had originated as far back as the fall of 1941, when the Naval Staff had agreed to an Admiralty request for the loan of some 50 officers and 300 men for combined-Operations duty, with the understanding that they would be kept together as far as possible in distinctively Canadian units.³ They had begun to arrive in Britain early in 1942, and some of them had taken part in the Dieppe raid. Eventually they had been organized into six flotillas of minor craft, mainly landing craft assault (L.C.A.'s), and landing craft mechanized of the type called L.C.M. (3)'s. Three flotillas consisting of from 6 to 12 craft each had taken part in numerous Atlantic and Mediterranean Operations, including the "Torch" landings in North Africa.⁴

At about the time when the first Canadian combined-Operations groups were arriving in the United Kingdom, it had been suggested that similar forces should be made available in British Columbia in preparation for the recapture of any isolated footholds that the Japanese might secure along the coast.⁵ This suggestion coincided with another made informally by General McNaughton during a visit to Canada early in 1942 to the Department of Munitions and Supply, to the effect that the Dominion should build and man a thousand landing craft for transporting the Canadian army in the event of an offensive Operation against Europe.⁶ These would be built of wood because of the existing shortage of steel. It was decided that the building of such vessels should be attempted,

² C.C.C.S. to Sec. N.B., May 29, 1943, N.S. 1017-10-23 (1); Sec. N.B. to C.C.C.S., July 30, 1943, *ibid.*

³ Naval Council Minutes, Aug. 5 and Oct. 8, 1941; N.S.H.Q. to Admiralty, Oct. 10, and reply, Oct. 16, 1941, N.S. 1037-34-5 (1).

⁴ S.O. (C.O.) to C.C.C.S., Jan. 18, 1943, C.S. 33-1; memo., "Canadian Naval Participation in Combined Operations" by A/S.O. (C.O.), Aug. 28, 1943, N.S. 1037-34-5 (1).

⁵ C.O., H.M.C.S. "Royal Roads" to C.O.P.C., Mar. 3, 1942, N.S. 1037-34-4 (1).

⁶ Chiefs of Staff Cttee. Minutes, Mar. 24, 1942.

and a design was prepared by the Director of Naval Construction in association with Mr. E. F. Cribb of the West Coast Shipbuilding and Salvaging Co., Vancouver. Three models were built, and an order was then placed for a hundred wooden landing craft,⁷ a scarcity of engines at that time making it impossible to produce more. The army paid for their construction, and after some hesitation the R.C.N. agreed to man the craft with Fishermen's Reserve personnel.⁸ This design of powered lighter was afterwards used in a modified form by the British Ministry of War Transport for ramped cargo lighters of which several hundred were built in Canada.

In 1943 these two separate lines of development in Canadian combined-Operations policy had been brought together. On the west coast, as the danger of Japanese invasion had passed, the landing craft had become useful primarily for training army and navy personnel who would later be sent overseas. In Europe and the Mediterranean, on the other hand, where the importance of amphibious warfare was increasing, the need for landing craft was more urgent than ever. Experience had also shown the need for much larger landing vessels for use along with the minor craft originally employed. The Naval Service had therefore decided to reduce its commitments in British Columbia, leaving almost the whole responsibility for combined Operations there to the army, and instead to take a greater share in the manning of vessels that would be used for the invasion of Europe.⁹

The first step in this direction had been the decision to convert two of the Prince ships into landing ships, infantry (medium).¹⁰ It had been finally admitted in 1942 that the Princes with their existing armament would no longer serve as armed merchant cruisers. It was decided to re-arm the *Prince Robert* as an auxiliary anti-aircraft cruiser, and to convert the other two into L.S.I.(M)'s.¹¹ This was approved early in 1943, and the work was done at Burrard Dry Dock.¹² *Prince Robert's* new armament consisted of 10 4-inch guns on twin

⁷ L.C.M. (W).

⁸ Chiefs of Staff Cttee. Minutes, Apr. 10, 1942; Naval Board Minutes, Apr. 20, June 6, June 22, and July 8, 1942; Naval Staff Minutes, June 1, 1942. These landing craft were not the ones afterwards manned by R.C.N. personnel in European waters.

⁹ Memo., "Canadian Naval Participation in Combined Operations" cited above; Naval Board Minutes, June 7, 1943.

¹⁰ L.S.I. (M).

¹¹ C.N.S. to Min., Sept. 4, 1942, N.S. 1057-16-11 (2); Naval Board Minutes, Sept. 10, 1942

¹² Naval Board Minutes, Jan. 21, 1943. The *Prince Robert* was recommissioned as an A.M.C. on June 7, 1943. The *Prince David* and *Prince Henry* were recommissioned as L.S.I. (M)'s on Dec. 20, 1943, and Jan. 6, 1944, respectively.

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HA/LA mountings, 2 2-pdr. quadruple pom-poms, and 12 oerlikons; which constituted her one of the most powerful anti-aircraft ships of her size afloat. *Prince Henry* and *Prince David* each carried 4 4-inch guns on twin HA/LA mountings, 2 single Bofors, and 10 oerlikons. Each also carried 8 minor landing craft, could accommodate about 550 army personnel, and had a naval complement of 31 officers and 322 men.

It had been proposed by the Senior Canadian Naval Officer (London) in July 1943, that in addition to these two L.S.I.(M)'s the Canadian navy acquire and man three flotillas of landing craft infantry (large).¹³ This could be done as far as crews were concerned by transferring Canadians from the Royal Navy's minor craft flotillas, a method which would greatly simplify the problems of personnel and administration. The scheme would also give the R.C.N. an opportunity to perform a more distinctive and important service in the invasion of Europe. Apart from a few specialists who might be supplied by the Royal Navy, and reinforcements at the rate of 190 annually from the training establishment in British Columbia, no officers or ratings additional to those already serving in combined Operations would be required, either for the L.C.I.(L)'s or for the L.C.A.'s that the Prince ships would carry.¹⁴ This suggestion by S.C.N.O. (L) reached N.S.H.Q. just before the first Quebec Conference began.

The possibility of acquiring cruisers and aircraft carriers was likewise a matter in which the Naval Service had been interested for some time before the Conference. Cruisers had always seemed very desirable. Considerably larger and more powerful than the destroyers that had for many years been the major warships of the R.C.N., cruisers were among the largest warships to which it seemed practicable for Canada to aspire, and they were among the most versatile that any navy could have. They were suitable either for fleet work along with battleships or aircraft carriers, or for operating independently to attack or protect trade. The special qualities of cruisers were their endurance, fire-power, and speed. They could operate over great distances, had an armament heavy enough for very destructive attacks on shipping or shore installations, and were fast and manoeuvrable in battle, as well as in pursuit or in escaping from a more powerful adversary. Cruisers had taken part in some of the most daring and momentous of

¹³ L.C.I. (L).

¹⁴ S.C.N.O. (L) to Sec. N.B., July 20, 1943, N.S. 1037-34-1 (1).

modern naval engagements, including for example the Battle of the River Plate in December 1939, where the *Admiral Graf Spee* was defeated by three such vessels, one of which was manned by New Zealanders. As early as November 1940 the Canadian Naval Staff had suggested, in a memorandum dealing with post-war plans, that the R.C.N. might take over four cruisers from the R.N. either by purchase or on loan.¹⁵ The more immediate task of anti-submarine warfare had prevented any action from being taken along these lines, but the intention was not forgotten.

Aircraft carriers seemed in some ways more necessary to the R.C.N. than were cruisers; but their acquisition would introduce more complicated problems. Cruisers, while larger and more intricate in their equipment than tribal destroyers, belonged to the same general class of surface-combat ships, and would create no unusual difficulties of maintenance or training. Carriers would make wholly new demands in the fields of equipment and personnel: in fact they would raise the large question of establishing a fleet air arm, with all that that implied in the way of organization, bases, and training. On the other hand, experience gained with convoys in the North Atlantic during 1942 had made it clear that air escort was essential. U-boats were shadowing convoys for days at a time, and then making concerted attacks at their convenience. The most successful counter-measure that had been found was the use of aircraft to patrol well beyond the screen of surface escorts, keeping U-boats submerged during the day and so forcing them to fall behind and lose contact.

Shore-based planes were of limited value for such work, and by the spring of 1943 the American and British navies were bringing into service auxiliary aircraft carriers (C.V.E.'s) converted from fast merchant ships, each carrying from 12 to 18 planes. It seemed obvious that if the R.C.N. were to remain properly equipped for its chief rôle in the war at sea—the defence of North Atlantic convoys—it too would have to obtain C.V.E.'s. From the long-range point of view as well, an air arm seemed vital: a modern naval force operating against other surface ships or within reach of shore-based aircraft, might absolutely require the support of ship-based air power. It had therefore been decided early in 1943 to send a senior officer, Capt. H. N. Lay, R.C.N., to the United Kingdom to investigate the air organization of the Royal

¹⁵ Naval Staff memo., Nov. 11, 1940, N.S. 1017-1034 (1).

Navy, and report on the possibility of creating a similar Canadian establishment.¹⁶

In a Plans Division memorandum written a few weeks before the Conference began at Quebec, general ship requirements for the war against Japan and for the post-war navy had been outlined.¹⁷ The stage had been reached when such considerations, along with preparation for "Overlord,"¹⁸ were becoming more important, on the planning side at least, than was the Battle of the Atlantic. The question of the post-war navy had come to be particularly influential by the summer of 1943 in determining staff policy. The vessels specifically required for the invasion of Europe were landing craft and motor boats, which would probably not be useful elsewhere to the Canadian navy, but would be turned back to the Admiralty when their job was done. The temporary nature of this commitment tended to make it less significant than projects of longer range. As far as the Pacific war was concerned, allied strategy had not yet been worked out in its final form, and until it had been, and Canada's share more clearly defined, it was impossible to decide exactly what ships would be needed. Policy concerning the number and types of ships that Canada should acquire, therefore, had generally to be based on their estimated post-war usefulness, whenever this criterion did not conflict with the probable needs of the Pacific theatre, or with the manning requirements of "Overlord." The D. of P. had accordingly recommended that for use in the Pacific, and retention in peace-time, the R.C.N. should begin acquiring cruisers, fleet destroyers, and possibly aircraft carriers.

The opinion of the Naval Staff on this point was frankly expressed by the C.N.S. during discussions with the First Sea Lord and other Admiralty officials on August 11, 1943, the opening day of the Quebec Conference. He said that from the Service point of view, and without committing the Canadian Cabinet, his problem was "to see that the R.C.N. did not finish the war as a small-ship navy entirely." He hoped that the post-war Canadian navy would consist of 5 cruisers, 2 light fleet carriers, and 3 destroyer flotillas. There was a temporary surplus of Canadian crews due to delays in the frigate-building

¹⁶ Cf. D.O.D., D. of P. to V.C.N.S., Apr. 6, 1943, N.S. 1700-913 (1); Naval Board Minutes, Apr. 12, 1943.

¹⁷ D. of P. to A.C.N.S., July 29, 1943, N.S. 1655-2 (1).

¹⁸ "Operation Overlord" was the Normandy invasion, and "Neptune" was its naval constituent.

programme, and two of the destroyers could be manned by December. The transfer of the other vessels would be a question of long-term policy, and he admitted that the best way of getting more Canadians afloat immediately would seem to be by manning a number of landing craft for the invasion of Europe.¹⁹

The First Sea Lord was most anxious that Canada should help as fully as possible with the supply of crews for landing craft. He agreed that manning cruisers and additional destroyers would have many advantages for Canada; but he was more doubtful about carriers, emphasizing that much effort might be wasted because of the large overhead of personnel involved in setting up a fleet air arm. When the Chief of the Naval Staff argued in reply that even a small navy should be able to provide itself with the air cover that war experience had shown to be necessary, it was decided to postpone a decision on this point pending a report from Capt. Lay, who was expected back from Great Britain very shortly.²⁰

Meanwhile a tentative understanding was reached as to the other classes of ship. It provided that Canada should lend additional personnel to the Royal Navy for combined Operations, including crews for three flotillas of major landing craft, and also gradually man one or two cruisers and two fleet destroyers. All these would be additional to the two flotillas of motor boats the transfer of which had previously been approved. It was decided that the best way of formally concluding this agreement between the two governments concerned would be for Mr. Churchill to present it to Mackenzie King as a request from the First Sea Lord for assistance with the Admiralty's manpower problem, and this was done toward the end of the Conference.²¹

The British request was considered by the Cabinet War Committee on September 8, at a meeting at which the C.N.S. was present. He and the Minister explained the project in detail, and added that it was desirable for Canada to obtain two aircraft carriers as well. The Prime Minister, however, emphasized that Canada had already reached the limit of her capacity in the war effort, and that no new commitments involving a further drain on her resources, either human or

¹⁹ Minutes of meeting held in Château Frontenac, Aug. 11, 1943, N.S., F.S. 14300-9 (1).

²⁰ *Ibid.*

²¹ Sec., First Sea Lord to First Sea Lord, Aug. 24, 1943, enclosing draft memo. for Mr. Churchill, *ibid.*

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material, could be accepted. The committee finally agreed that provided no manpower was required beyond that already allocated to the navy, the Admiralty's proposals could be approved in principle. As far as aircraft carriers were concerned, action was postponed until a more thorough study could be made.²²

A new situation arose when the Admiralty announced, on October 30, 1943, its decision to cut down its escort-building programme.²³ This announcement was followed early in November by a personal message from Admiral Cunningham, the newly-appointed First Sea Lord, to the C.N.S. asking for additional assistance with manning. He explained that the manpower reserves of the Royal Navy had been depleted even more than had been realized at the time of the Quebec Conference.²⁴ Before deciding what the Canadian navy should do under these altered circumstances, Capt. W. B. Creery, R.C.N., the A.C.N.S., was sent to London to discuss the whole matter with Admiralty officials. As a result of his visit it was agreed that the Canadian navy should follow the Admiralty's lead in reducing frigate and corvette programmes, and that the Canadian personnel released from that commitment should be used so as to extend further the policy agreed on at Quebec of transferring R.N. ships to the R.C.N. for manning and commissioning. The specific new proposals now made were that Canada should take over from the Admiralty 10 frigates and 2 C.V.E.'s.²⁵ Decision regarding the C.V.E.'s had to await the adoption by the Cabinet of a definite naval air policy, but there was no difficulty in securing approval for the acquisition of the frigates.²⁶ These were recommissioned into the R.C.N. during 1944. Seven were river-class frigates similar to those being built in Canada. The other three belonged to the newer loch class, which were slightly larger, and had somewhat greater endurance and a revised armament; but the main difference lay in the method by which they were constructed. They were specially designed for pre-fabrication in British steel plants, so as to save shipyard time in assembling the hulls and superstructures. The production of lochs had just got well under way in the United Kingdom; but had not yet started in Canada, although orders had been placed, when

²² War Cttee. of the Cabinet Minutes, Sept. 8, 1943, N.S. 8020-1 (2).

²³ Admiralty to B.A.D., B.A.T.M., N.S.H.Q. (signal), Oct. 30, 1943, N.S., M.S. 1017-10-22 (1).

²⁴ Cf. D. of P. to C.N.S., Mar. 14, 1944, N.S. 1017-10-61 (1).

²⁵ Report by Capt. W. B. Creery, R.C.N., Dec. 12, 1943, N.S., M.S. 1017-10-22 (1).

²⁶ C.N.E.C. to C.N.S., Nov. 18, 1943, *ibid.*

the escort programmes were cut back. Accordingly these three were the only loch-class frigates acquired by the Canadian navy.

While in London the A.C.N.S. had also discussed with the Admiralty detailed arrangements for carrying out the Quebec Conference proposals respecting cruisers, fleet destroyers, and landing craft. The transfer of the two destroyers raised few problems. The Admiralty had suggested at first that two tribals, the *Eskimo* and *Tartar*, which were completing refits, would be the most suitable for Canada since they could operate as a homogeneous flotilla with the Canadian tribals already serving in United Kingdom waters. The Naval Staff, however, preferred to ask for more modern intermediate fleet "V"-class destroyers.²⁷ These were smaller and lighter than the tribals and had about the same speed; their superiority lay in their greater endurance, and in the fact that they carried the latest Admiralty weapons and equipment. A firm request was made for two of these new vessels, the *Valentine* and *Vixen*, and they became part of the Canadian navy in February 1944, being renamed the *Algonquin* and *Sioux* respectively.²⁸ The original intention of the Admiralty had been to present these ships as a "free gift" to the R.C.N. The Canadian Government preferred, however, to accept them as "reverse mutual aid," since they were being transferred as a result of the Admiralty's manning difficulties and Canada's offer of assistance.²⁹

The cruisers which the Admiralty agreed at that time to turn over to the R.C.N. were the *Minotaur* and the *Superb*, which were still under construction. These would be 8,000-ton vessels armed with 9 6-inch guns on triple mountings, 10 4-inch guns on twin mountings, and numerous smaller anti-aircraft weapons as well as 2 sets of 21-inch torpedo tubes. They would be the latest in a class of fairly large cruisers with long endurance designed by the Admiralty for the defence of Britain's widespread trade routes and empire.³⁰ Earlier ships of this type had been the *Fijis* which although similar in size had carried 12 6-inch and 8 4-inch guns. The *Ugandas* had

²⁷ S.C.N.O. (L) to N.S.H.Q., Nov. 8, 1943, and reply, Nov. 11, 1943 (signals), N.S. 18 020-552 (1).

²⁸ C.N.P. to A.C.N.S., Dec. 20, 1943, *ibid.* It was decided to continue using the "tribal" names partly to confuse the enemy.

²⁹ Sec. of State for Dom. Aff. to Can. High Comm., London, Dec. 22, 1943, and reply, J.C. 17, 1944, A.R.O., W.G. 647-4-19.

³⁰ By international agreement, cruisers were classified as "light" and "heavy" not in relation to their displacement which might range from about 5,000 to 10,000 tons, but according to the calibre of their main armament. Light cruisers had 6" or smaller guns, heavy cruisers had guns up to 8" in calibre.

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been built next with the number of 6-inch guns reduced to nine.³¹ The *Minotaur* and *Superb* would represent a further revision in that they would have two extra 4-inch guns, but would otherwise resemble the Ugandas in size and armament. The main difference between these last two and all earlier vessels, however, lay in their entirely new methods of fire-control employing thermionic devices on a scale unprecedented at sea.

It had been thought originally that the *Minotaur* and *Superb* would both be completed during 1944; but by February of that year it had become clear that the *Superb*, at least, would not. Building had fallen far behind schedule because of labour and material difficulties, and because unexpected problems had arisen in connection with the new-type fire-control installations.³² R.C.N. crews were already beginning to arrive in the United Kingdom, and it was impossible to forecast with any accuracy when the ships would be ready for them. Under these circumstances new arrangements had to be made, and it was decided that while the *Minotaur* would be accepted as planned, the *Uganda* would be taken in place of the *Superb*.³³ *Uganda* had been undergoing a long refit and modernization in the United States since November 1943, after having been damaged in a Mediterranean action, and was expected to be ready for service again during the summer. She resembled the *Minotaur* in important respects sufficiently for the two to act as consorts, and the fact that she was less up-to-date than *Superb* was outweighed by her being available much sooner. The *Uganda* was commissioned as a Canadian ship in October 1944, and the *Minotaur*, renamed *Ontario*, in April 1945. Both were received as gifts from the United Kingdom Government another example of the fact that manning ships and getting them into service had become much more important than any question of their money value.

The arrangement made at Quebec that Canada should man a squadron of thirty-six major landing craft conformed to the recommendation of S.C.N.O. (L) for reorganizing Canadian combined-Operations forces overseas.³⁴ However, in view of the Admiralty's manpower deficiency and need for

³¹ Later in the war "X" turret was removed from the Fijis to compensate for extra top-weight in the form of fire-control and other radar gear, and they became practically identical with the Ugandas.

³² Memo. by S.C.N.O. (L), Feb. 8, 1944, N.S. 18020-342 (1).

³³ Naval Board Minutes, Feb. 28, 1944.

³⁴ S.C.N.O. (L) to Sec. N.B., July 20, 1943, N.S. 1037-34-1 (1).

more help, it was decided that the taking over of these vessels should not involve merely a transfer of Canadians from minor to major landing craft, as the S.C.N.O. (L) had envisaged, but should be looked upon as a new commitment. Personnel for the first and second flotillas at least would be supplied from Canada; while veterans of minor craft would be assigned, as they became available, to the third flotilla and to the assault craft carried by the *Prince Henry* and *Prince David*.³⁵ In order to obtain trained officers and ratings for overseas service, the army was asked to assume almost entire responsibility for combined Operations on the west coast, and the Fishermen's Reserve crews there were given the choice of volunteering for duty abroad or leaving the Service. The volunteers and other personnel trained in British Columbia were dispatched to the United Kingdom, and early in March 1944 the whole squadron of three flotillas had been commissioned.³⁶

The vessels in this Canadian squadron were landing craft, infantry (large). The Admiralty representatives at Quebec had originally suggested that the R.C.N. supply crews for landing craft, tank, of the type known as L.C.T. (3). The latter were the principal kind of major landing craft operated by the R.N., and had been designed and built in the United Kingdom. However, the S.C.N.O. (L) had warned that they were unhandy, specialized vessels, with poor living quarters and offering little opportunity for advancement or for gaining experience in seamanship. The Naval Staff had therefore insisted on taking L.C.I. (L)'s, which actually were small ships with adequate crew accommodation, and which were seaworthy enough to make the winter passage of the Atlantic from the United States where they had been built.³⁷

The fact that these were American vessels made their transfer to the R.C.N. a nice problem in international casuistry. They were being acquired by the Admiralty on lease-lend terms, which it was the declared policy of the Canadian Government not to accept. Some special arrangement had therefore to be made with the United States Government. There was no difficulty on the American side: the Secretary of the Navy informed the Canadian ambassador that the U.S.N. was quite willing to lend L.C.I. (L)'s to Canada for the duration of the war. The Cabinet War Committee, however,

³⁵ Sec. N.B. to S.C.N.O. (L), Sept. 14, 1943, N.S. 1037-34-5 (1).

³⁶ Naval Board Minutes, June 7, 1943; C.N.M.O. to N.S.H.Q. (signal), June 23, 1944, N.S. 1250-1 (1).

³⁷ Memo. on "Canadian Naval Participation in Combined Operations" cited above.

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was prepared to accept this offer only if a clear distinction could be made between it and lease-lend. This was accomplished by limiting the duration of the loan to one Operation, "Neptune," at the conclusion of which the vessels would automatically revert to American ownership. As in the case of lease-lend, there was no obligation to replace vessels lost while on loan.³⁸

Only 24 L.C.I. (L)'s were included in the original agreement with the U.S.N., because at that time it had been thought that 2 flotillas of 12 vessels each would probably be all for which the R.C.N. would be able to supply crews before "Neptune" began. In fact, however, Canada found it possible to man all three flotillas, although owing to a shortage of vessels the number in each was reduced to ten. Rather than negotiate another special agreement with the United States in order to obtain the 6 L.C.I. (L)'s needed to complete the third flotilla, it was decided to put Canadian crews in 6 craft that had been loaned to the R.N. These 6 had the same status as the others, except that they could not be commissioned as H.M.C. ships. All reverted to their previous ownership as soon as the "Neptune" Operation had been completed.³⁹

It was not until early in 1944 that the Cabinet War Committee finally reached a decision about aircraft carriers. It had set up a joint R.C.N.-R.C.A.F. committee in September 1943, to consider the whole question. In October this committee had reported in favour of the navy's acquiring and operating carriers, but had recommended that for the time being no shore establishments should be provided for training air units in Canada. It had suggested that the R.C.N. should rely instead on the assistance of the Royal Navy's Fleet Air Arm, and on Canadian air crew personnel trained as part of the R.N. quota in the British Commonwealth Air Training Plan.⁴⁰ The accepting even of this limited responsibility with regard to carriers had been viewed with some misgiving by the Cabinet, principally because it might involve the R.C.N. in added manpower commitments. The Prime Minister insisted particularly that if new undertakings such as this were believed to be imperative, equivalent reductions would have to be made in other directions. A remark by the C.N.S. that the

³⁸ Naval Staff Minutes, Dec. 24, 1943; Sec. N.B. to C.N.S., June 26, 1944, N.S. 1250-1 (1).

³⁹ Naval Staff Minutes, Dec. 24, 1943 and Apr. 24, 1944; C.N.M.O. to N.S.H.Q. (signal), July 15, 1944, N.S. 1250-1 (1).

⁴⁰ War Cttee. of the Cabinet Minutes, Sept. 8, 1943; report of Joint R.C.N./R.C.A.F. Cttee., Oct. 12, 1943; N.S. 1700-913 (1).

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carriers were wanted "in a large part, because of post-war considerations", was also noted, and the Prime Minister "pointed out that the government were not justified in employing their wartime powers to authorize expenditures which were primarily related to the post-war period."⁴¹

Financial objections also made to the acquisition of these ships, however, were set aside by the Minister of Finance, who stated that it was to Canada's advantage to obtain everything possible from the United Kingdom or the United States, because strain on the national resources was increased only by things done in Canada.⁴² Purchases from the United Kingdom in particular were actually beneficial, for otherwise that country could not secure funds with which to continue buying Canadian war materials of types that were being produced in excess of Canada's own requirements. He added that "if the present proposal were approved, the carriers should be purchased from Britain, not accepted as a gift." This attitude was notably different from that which had been necessary earlier in the war, when purchases from outside the country had had to be strictly curtailed owing to foreign-exchange difficulties.

Although an interesting illustration of the tremendous strides which the Canadian economy had made during the war years, the views of the Minister of Finance were not strictly relevant, as it turned out, to the matter under discussion. The carriers that the navy wanted at that time were C.V.E.'s for use in connection with convoy work, and investigation showed that these could not be purchased from either Britain or the United States: they were being built in the United States, but American legislation had forbidden their sale to any foreign power.⁴³ They could be leased, and the Admiralty was obtaining a number in this way; but Canada's reluctance to accept lease-lend or similar aid stood in the way. The nature of the work performed by C.V.E.'s prevented the difficulty from being overcome, as it was in the case of the L.C.I. (L)'s at about that same time; the only course therefore seemed to be to man some of the C.V.E.'s that were on loan to the Admiralty. As long as they remained part of the R.N. there could be no American objection, and at the same time the aims of helping the Admiralty with its manning problem

⁴¹ War Cttee. of the Cabinet Minutes, Oct. 21 and Nov. 10, 1943, N.S. 1700-913 (2)

⁴² War Cttee. of the Cabinet Minutes, Oct. 21, 1943, *ibid.*

⁴³ Notes by B.A.S.R., Washington, Mar. 17, 1944, N.S. 1017-1061 (1).

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and giving carrier experience to Canadian officers and ratings would be achieved. There were some drawbacks to this scheme, however, and at first the Cabinet refused to agree to it, mainly for fear of the accusation that Canada "had accepted lease-lend by 'back-door' methods."⁴⁴

Meanwhile a situation had arisen which made it very awkward to persist in this refusal. In his urgent request to the R.C.N., in November 1943, for further assistance with manning, Admiral Cunningham had asked particularly for help in connection with the C.V.E.'s that were being brought north from American shipyards for completion to Admiralty specifications at Burrard Dry Dock Ltd. in Vancouver. This had been impossible in the absence of Cabinet authorization, but the Naval Service had agreed to loan to the R.N. as many officers and ratings as possible for one C.V.E., the *Nabob*, which had commissioned in September with a care and maintenance crew only. By the end of the year, Capt. H. N. Lay, the commanding officer, and a number of other Canadian officers and ratings had been appointed to the *Nabob*, and the time was approaching when she would be ready to sail.⁴⁵

Under these circumstances the Minister raised the subject of C.V.E.'s again at a Cabinet War Committee meeting on January 12, 1944, just a week after that body had come to the conclusion that vessels of this class should not be manned by the R.C.N. He urged that the whole question should be reconsidered, pointing out that no suitable British-built carriers would be available for at least a year, and that in the interval, if Canadian personnel were to obtain any experience as complete naval air units, it would have to be in C.V.E.'s. If two C.V.E.'s were manned and operated, apart from their planes and air crew, which could be supplied by the R.N., the cost for both ships would amount to about \$4,000,000 a year and each crew would number nine hundred. Manning would not be a problem because the extensive reductions made in escort building had left the navy with a surplus more than adequate for this commitment. After some hesitation, the War Committee finally approved the manning on these terms of two Admiralty C.V.E.'s.⁴⁶ One was the *Nabob*; the other a sister ship, the *Puncher*. The arrangement under which they remained R.N. ships and had R.N. as well as R.C.N. personnel

⁴⁴ War Cttee. of the Cabinet Minutes, Jan. 5, 1944, N.S., M.S. 1017-10-61 (1).

⁴⁵ Memos. etc., N.S. 1017-10-61 (1).

⁴⁶ War Cttee. of the Cabinet Minutes, Jan. 1 and 12, 1944, N.S. 8020-511 (2).

on board proved very unsatisfactory, chiefly because of differences in pay and accommodation in the two navies. Methods by which the *Nabob* and *Puncher* might become entirely Canadian continued to be investigated, therefore, during 1944; but although steps were taken to improve conditions on board, no final solution of this problem was ever found.

Toward the end of 1943, plans for the Pacific war and for the post-war period began to be clarified, and in the course of the following year-and-a-half a final policy was gradually formulated. Preliminary proposals were for much larger forces than eventually proved practicable. A Plans Division memorandum in January 1944 envisaged two R.C.N. task forces for use against Japan, each consisting of 2 cruisers, 1 carrier, and 8 or 9 destroyers. An earlier memorandum had recommended a post-war fleet of 4 cruisers, 2 light fleet carriers, 16 fleet destroyers, 6 frigates, and 6 Bangors or 4 Algerines.⁴⁷

In May 1944, active consideration of Pacific strategy in conjunction with the United Kingdom Government began. At a Commonwealth Conference in London from May 1 to May 16, the Dominion Prime Ministers learned that no combined master plan yet existed, and they discussed the matter in general terms. At the same time a Canadian Joint Staff Mission began meeting with the British Chiefs of Staff, and on May 19 the latter decided to draw up concrete and comprehensive proposals as to how Canadian forces should be used in the war against Japan and in the post-war occupation of Europe.⁴⁸ An Admiralty *aide mémoire* prepared as a result suggested tentatively that the R.C.N. should consider using 2 cruisers, 2 C.V.E.'s, 2 fleet "V" destroyers, and all the Canadian tribals, for fleet work in the Pacific; the *Prince Robert*, 10 river-class destroyers, 69 frigates, and 12 castle corvettes, for anti-submarine or anti-aircraft escort duty; the *Prince Henry* and *Prince David* for combined Operations; and 12 Algerines for minesweeping. As many Canadian Bangors as could be made available should be employed for mine clearance in European waters, and a small "token force" of corvettes could share in the occupation of Europe. In addition to all these the R.C.N. might man a flotilla of new fleet destroyers, and a number of R.N. frigates, L.S.T. (3)'s, L.C.I. (L)'s, major support craft, and escort maintenance ships; or alterna-

⁴⁷ Naval Staff Minutes, Jan. 24 and Dec. 27, 1944.

⁴⁸ Chiefs of Staff Cttee. Minutes, June 7, 1944; memo. by Sec., Chiefs of Staff Cttee., June 13, 1944, N.S. 1655-1 (1).

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tively Canadians might be loaned as part-complement to R.N. cruisers or fleet carriers.⁴⁹

The Admiralty's *aide mémoire* was shown informally to C.N.M.O. in June, and it had already been studied at N.S.H.Q. before being officially presented by the British Chiefs of Staff for the consideration of the Canadian Joint Staff Mission in London on July 27.⁵⁰ Discussions followed throughout August, and on September 7 a memorandum containing the final recommendations of the Canadian Naval Staff was handed to the Minister. The Staff accepted the Admiralty's proposals as far as existing ships were concerned, except that they favoured returning the 2 C.V.E.'s to the R.N. and taking over 2 light fleet carriers instead. With regard to the additional R.N. ships that had been suggested for manning, the Staff was of the opinion that only 8 new fleet destroyers, preferably of the Crescent class, should be obtained, and possibly certain maintenance or depot ships as well. Estimated personnel requirements in the eastern theatre under this modified scheme were just over 22,000.⁵¹

The second Quebec Conference between Mr. Churchill and President Roosevelt began on September 11 and ended on September 16. On the 13th, at a special meeting in Quebec, the War Committee of the Canadian Cabinet decided:

... that Canadian military forces should participate, as a matter of preference, in the war against Japan in operational theatres of direct interest to Canada as a North American nation, for example in the North or Central Pacific, rather than in more remote areas such as Southeast Asia.

The following day when the British and Canadian Chiefs of Staff exchanged views, they agreed that the wishes of the Canadian Government could best be met by arranging for the R.C.N. to operate with the main British fleet in the Central Pacific. At the same time the C.N.S. made a verbal statement to the First Sea Lord as to the number and types of ships which the Canadian Staff had recommended for use against Japan.⁵²

On October 11 the Cabinet War Committee decided that R.C.N. forces serving in the Pacific should be limited to

⁴⁹ C.N.M.O. to Sec. N.B., June 14, 1944, and same to same, Aug. 3, 1944, N.S. 1655-2 (1).

⁵⁰ *Ibid.*; Naval Staff Minutes, July 3, 1944.

⁵¹ D. of P. to A.C.N.S., Sept. 7, 1944; A.C.N.S. to C.N.S., Sept. 9, 1944; C.N.S. to Min., Sept. 7, 1944; N.S. 1655-2 (1).

⁵² War Cttee. of the Cabinet Minutes, Sept. 13, 1944, N.S. 1655-1 (1); Chiefs of Staff Cttee. Minutes, Sept. 14, 1944; memo. by N.A. (P. and P.), C.N.M.O., Oct. 10, 1944, N.S. 1655-2 (1).

approximately 13,400 officers and men, a little more than half the number which the Naval Staff had envisaged. This meant reducing the number of ships that could be sent to 2 cruisers and 2 light fleet carriers, the *Prince Robert* re-armed as an anti-aircraft ship, 10 fleet destroyers, and about 40 frigates and corvettes. It further implied both approval of the Staff proposal to take over two light fleet carriers in place of the C.V.E.'s, and also the omission of the *Prince Henry* and *Prince David*, and of a considerable number of destroyers, frigates, corvettes, and Algerines, from the original list which had been shown to the First Sea Lord at Quebec. The Admiralty was naturally disappointed that Canada's contribution in the Pacific would be "not as understood at Quebec." Of special concern was the disposition of the *Prince Henry* and *Prince David*, which were urgently required because of the shortage of R.N. ships suitable for carrying combined-Operations personnel over great distances. In answer to an Admiralty request for more information on this point, the government expressed its willingness to transfer to the R.N. any ships that were needed and which the R.C.N. could not man.⁵³

On April 4, 1945, when the European war was drawing to a close, the Prime Minister announced in the House of Commons the principles on which government policy would be based in the war against Japan. He stated that it was not intended to detail men for service in the Pacific, and that all personnel returning from abroad who volunteered for that theatre would be granted thirty days' embarkation leave, in addition to any normal leave.⁵⁴ At a Cabinet War Committee meeting on April 11, the Minister asked how this would affect the manning of ships already earmarked for the Pacific, especially the light fleet carriers whose transfer to the R.C.N. was still being discussed with the Admiralty. The Prime Minister replied that "government policy in this respect was now settled and no commitments in respect of manning Canadian ships should be undertaken beyond the number that could be provided for by the voluntary method."⁵⁵ The Naval Service, still anxious to obtain the 2 carriers and 8 new Crescent destroyers, decided under these circumstances to set up a priority system for manning Pacific force ships, giving the carriers second place only to the *Uganda* and the *Prince*

⁵³ War Cttee. of the Cabinet Minutes, Oct. 11, 1944, N.S. 1655-1 (1); D. of P. to A.C.N.S., Oct. 18, 1944, N.S. 1655-5 (1); N.S.H.Q. to C.N.M.O. (Signal), Oct. 26, 1944, N.S. 1655-2 (1).

⁵⁴ *House of Commons Debates*, 1945, 1st Sess., p. 48.

⁵⁵ War Cttee. of the Cabinet Minutes, Apr. 11, 1945, N.S. 1655-7 (1).

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Robert, followed by the Crescents, the "V" and tribal destroyers, and finally the frigates.⁵⁶

The transfer of the light fleet carriers and Crescent destroyers had not been accomplished by VJ-day, although negotiations had been proceeding actively since early in 1944. In fact the official beginning of discussions concerning the Crescents may be traced back to December 1942, when the Canadian Prime Minister had sent a personal message to Mr. Churchill asking that Canada should be allowed to purchase 14 escort destroyers from the R.N. whenever they could be made available. The 6 river-class destroyers received by the R.C.N. as gifts during 1943 had been considered a partial answer to this request. The 2 fleet "V" 's which became H.M.C. ships early in 1944 had not, since their acquisition arose out of the special agreements reached as a result of the first Quebec Conference.⁵⁷

Following that conference, the Naval Board had decided, on August 30, 1943, that the remaining eight destroyers to be acquired should be of the fleet rather than the escort type.⁵⁸ This change of policy was made in order to meet anticipated destroyer requirements for the Pacific and the post-war navy, but it was premature and had to be revised in the light of a report received at N.S.H.Q. a few days later from Captain (D) Halifax. He had pointed to the poverty of equipment and general weakness of the ships in the Western Local Escort Force, where the only fast vessels were the town-class destroyers which were unlikely to stand up to another North Atlantic winter.⁵⁹ In view of the delay in getting Canadian frigates into service, it would be necessary to obtain additional escort destroyers from the R.N. if Canadian groups in the Mid-Ocean and Western Local Escort Forces were to be kept efficient. As the whole question of the efficiency of Canadian escort vessels was coming to a head at that time, it had not been difficult to convince the C.N.S. and the Naval Board, once the matter was brought to their attention, that the acquisition of additional fleet destroyers should be postponed until after escort needs had been met.⁶⁰

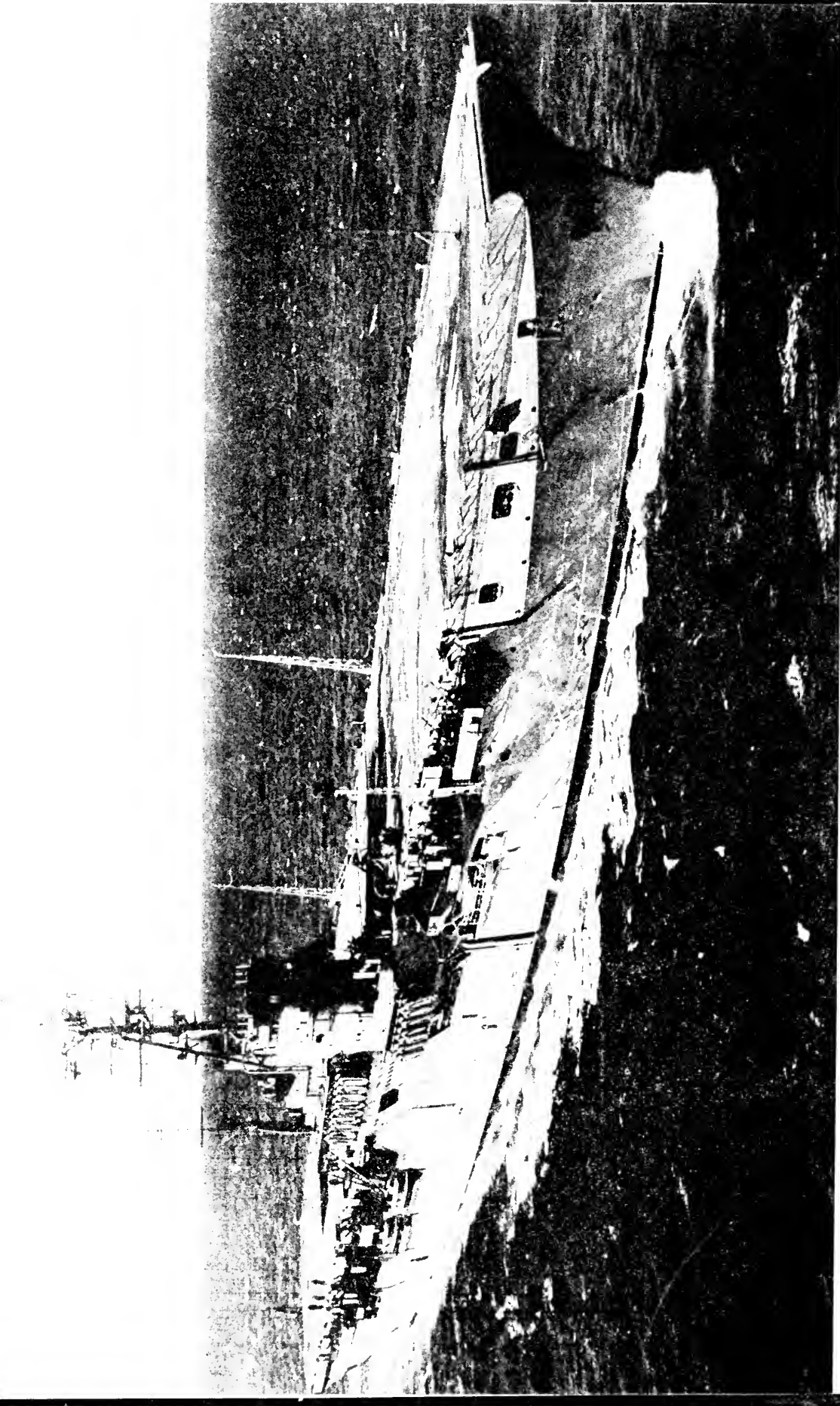
⁵⁶ Cf. Sec. N.B. to H.M.C.S. "Peregrine", July 20, 1945, N.S. 1655-2 (3).

⁵⁷ S.O. (P) to D. of P., Oct. 7, 1944, N.S. 1655-9 (1).

⁵⁸ Naval Board Minutes, Aug. 30, 1943.

⁵⁹ Capt. (D) Halifax, to C. in C., C.N.A., Aug. 25, 1943; note on A.C.N.S. to D. of P., Sept. 21, 1943: N.S. 1057-1-27 (1).

⁶⁰ D. of P. to A.C.N.S., Sept. 24, 1943, *ibid.*; Naval Staff Minutes, Oct. 1, 1944; Naval Board Minutes, Oct. 4, 1944.



Light fleet carrier. H.M.C.S. *Warrior*

PROCUREMENT OF SHIPS LAST PHASE, 1943-45

The general scaling-down of escort requirements and the cancelling of frigate and corvette building programmes, decided on during the visit of the A.C.N.S. to London in November and December 1943, had come before any additional escort destroyers had been obtained, and had led to a final alteration of policy in favour of fleets. When asked, the Admiralty had agreed to consider releasing to the R.C.N. 8 fleet destroyers in lieu of the balance of the 14 escort destroyers originally asked for.⁶¹ In January 1944 the Director of Plans had recommended that these should be Crescent-class destroyers. The Crescents were the latest of a number of flotillas of intermediate-sized destroyers being built by the Admiralty. An earlier programme had included the Canadian fleet "V" 's, and apart from the fact that the Crescents' equipment was more up-to-date, they differed from the "V" 's principally because they had only one instead of two sets of torpedo tubes, and carried the new 4.5-inch calibre guns on single HA LA mountings in place of 4.7-inch guns.⁶²

Discussion about the Crescents continued throughout 1944, in connection with the general formulation of plans for the Pacific. In January 1945 the Admiralty finally made a definite offer to lend a whole flotilla of eight to the R.C.N. for use against the Japanese.⁶³ This offer was accepted by the Cabinet War Committee in February, on the understanding that when the Crescents were completed they would be manned in place of older destroyers which would be laid up, so that no total increase in naval complement would be involved.⁶⁴ Actually, none of the Crescents were in commission by VJ-day, and only two, the *Crescent* and *Crusader*, ever became part of the Canadian navy.

The story of the light fleet carriers closely parallels that of the Crescents. Both classes were wanted for use in the Pacific and for retention in peace-time. Negotiations with regard to both proceeded throughout 1944, and were concluded early in 1945; but since the actual transfer had not been accomplished, they were re-opened when the war ended and the post-war naval complement had been set.

⁶¹ Report by Capt. W. B. Creery, R.C.N., Dec. 12, 1943, N.S., M.S. 1017-1022 (1).

⁶² Cf. Naval Staff Minutes, Jan. 21, 1944; D. of P. to A.C.N.S., Sept. 1, 1944, N.S. 8020-511 (2).

⁶³ Naval Staff Minutes, Feb. 5, 1945.

⁶⁴ War Cttee. of the Cabinet Minutes, Feb. 11, 1945, N.S. 1655-7 (1), 299, Feb. 21, 1945, N.S. 1655-2 (2).

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There were many reasons why it seemed preferable to the Naval Staff to acquire two new Colossus-class carriers in place of *Nabob* and *Puncher*. The fact that the two latter could not be commissioned as Canadian ships on account of lease-lend complications placed them in an anomalous position, and created many difficulties of maintenance and administration. The new carriers were being built in the United Kingdom and could be obtained by purchase, loan, or gift, and fully incorporated into the R.C.N. Moreover the C.V.E.'s were makeshift vessels in any case, admirably economical for escort work, but not at all suitable for fleet Operations or for acting as the core of a peace-time naval air service. Ships of the Colossus class, on the other hand, were particularly valuable from these last two points of view. They were considerably larger, with a flight deck almost two hundred feet longer than that of a C.V.E., and they had about seven knots greater speed, and carried 30 instead of 18 aircraft.⁶⁵ Their equipment and anti-aircraft armament was extensive and modern. They were being built for the specific purpose of operating with small cruiser and destroyer task forces such as the Canadian navy hoped to maintain against the Japanese and in the post-war period. When the *Nabob* was torpedoed on August 22, 1944, and so seriously damaged as to be likely to remain out of action indefinitely, the Naval Staff recommended the immediate opening of formal negotiations for two light fleet carriers.⁶⁶

Protracted delays occurred again, however, while Canadian policy in regard to the Pacific was being clarified, and it was not until January 1945 that the Admiralty made a firm offer to lend two carriers along with the eight Crescent destroyers to the Royal Canadian Navy. After further discussions lasting into May it was finally agreed that Canada should man and commission the two light fleet carriers *Warrior* and *Magnificent*. They would be considered as being on loan for use in the Pacific, but the R.C.N. would have the option of buying them later if it wished to do so.⁶⁷ Neither ship had been completed by VJ-day, and it was not until January 24, 1946, that the first of them, the *Warrior*, was commissioned.

⁶⁵ D. of P. to A.C.N.S., Aug. 29, 1944, N.S. 8020-511 (1); Naval Staff Minutes, Sept. 5, 1944; D. of P. to A.C.N.S., Sept. 1, 1944, N.S. 8020-511 (2).

⁶⁶ Naval Staff Minutes, Sept. 5, 1944. For a complete account of these negotiations see also: C.N.M.O. memo., May 24, 1945, and D. of P. memo., "Summary of Negotiations in Ottawa for the Acquisition of Light Fleet Carriers", n.d., N.S. 18020-1 (1).

⁶⁷ Cf. War Cttee. of the Cabinet Minutes, Feb. 14, 1945, N.S. 1655-7 (1); C.N.M.O. to Sec., Admiralty, May 7, 1945, N.S. 8020-1 (2).

HALIFAX NAVAL BASE AND ITS OUTPORTS

*Into the mist my guardian prowls put forth,
Behind the mist my virgin ramparts lie,
The Warden of the Honour of the North,
Sleepless and veiled am I!*

RUDYARD KIPLING

BASES are vital to the exercise of sea power and they are therefore as important to a navy as its warships. A naval base exists to serve the needs of warships operating at sea. These needs are many and varied: warships require an anchorage safe from the weather and defended from the enemy; they demand periodic replenishment of fuel, ammunition, food, and stores of all kinds, and they must be maintained, repaired, and refitted. Operational direction must be exercised over them, and their crews have to be cared for, kept at full strength, and adequately trained.¹ Together the bases available to a navy must satisfy all these needs; individually they vary greatly in function. Some bases are little more than defended anchorages, well placed in relation to the enemy; others are capable of handling the most extensive repairs. Whatever its capacity or specific rôle, however, a base exists to maintain warships at sea.

Equally important to the exercise of sea power are the ports used by the merchant marine. These fulfil the same function for the merchant ship as the naval bases do for her fighting sister. In war-time the facilities of a mercantile port are usually drawn upon by a navy to supplement its own; the navy also becomes responsible for the protection of the port and for the naval control of merchant ships using it. Every important port, in time of war, is likely to have a naval establishment commensurate with its strategic value, and to become in fact a naval base.

There are, therefore, various types of base; and their number and respective size and location depend upon many factors

¹ Training establishments may or may not be situated at a naval base; operational training, however, is usually carried out at or near a base and directed from it.

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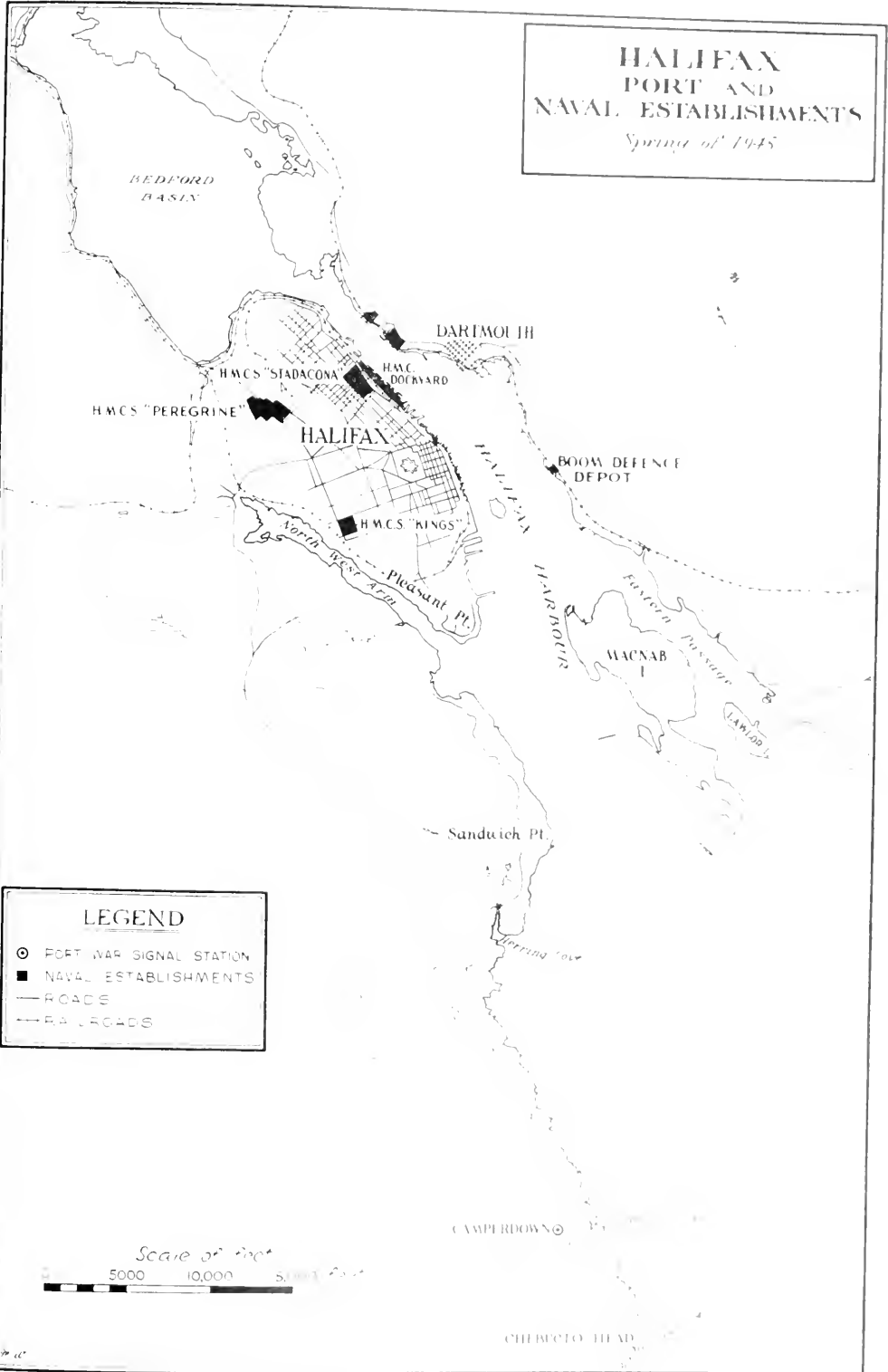
—above all on the availability of suitable harbours and on their strategic position in relation to the enemy, to vital sea lanes, and to sources of supply. The base facilities required to serve a twentieth-century navy are very extensive, and the personnel needed to operate them is therefore large, and its duties manifold and diverse. The establishment and administration of naval bases are among the most important of a navy's activities ashore and account for much of its shore-based personnel. In planning its bases a navy must weigh all these considerations and make the best use of what is available to it in the light of the tasks it is required to perform.

By the end of the Second World War the Naval Service possessed thirteen bases of varying size and function. The largest and most important of these was located at Halifax, which owed its naval importance to three great assets: its strategic position, its magnificent harbour, and its developed port facilities. Situated on the south-east coast of Nova Scotia, Halifax lay close to and a quarter of the way along the sea routes between the major United States ports and those of Great Britain. The most extensively used of any in peace-time, these routes became vital to the success of the Allies in war, and retained their significance through all phases of the conflict with the Axis.

Halifax itself was one of the two Canadian winter ports serving ships on the Atlantic run, and was also a focal point for coastal shipping along the eastern seaboard of the Dominion. Well placed as a convoy-assembly port, and as a base for convoy escorts or warships operating independently in the North Atlantic, it was, however, too far south to support efficiently units engaged in the protection of the St. Lawrence River and Gulf—major areas for both ocean and coastal shipping except in the winter months.

The port itself lay on a sheltered inlet about four miles long and sixteen hundred yards wide; and to the north a narrow passage led to Bedford Basin, a landlocked body of water some three miles in length by one-and-a-half miles in width. Altogether the harbour covered an area of thirteen square miles of which at least ten were not less than thirty feet in depth. Bedford Basin formed an excellent fleet anchorage with good holding ground and no swell; and in addition to alongside berths the harbour provided considerable room for ships at anchor. Finally, the port was one of the few in eastern Canada that was not closed by ice in winter.

**HALIFAX
PORT AND
NAVAL ESTABLISHMENTS**
Spring of 1945



LEGEND

- ⊙ FORT WAR SIGNAL STATION
- NAVAL ESTABLISHMENTS
- ROADS
- +— RAILROADS

Scale of 1:20,000



CHEBUCTO HEAD

HALIFAX NAVAL BASE AND ITS OUTPORTS

Halifax lay nearly eight hundred miles east of Montreal—too far from the industrial centre of the country and the western wheat fields to serve in time of peace as the main outlet for Canadian exports. This peace-time drawback became a war asset when ship-time and not cost was the determining factor. Nevertheless, Halifax was one of five principal seaports in eastern Canada, and in 1938, the last full year of peace, it ranked second to but far below Montreal in the number of sea-going vessels putting into port; while in terms of sea-going cargoes handled in the same year, Halifax came fourth among eastern Canadian ports.² It was well equipped to handle its peace-time traffic; possessing a large number of both private and government-owned wharves, and adequate storage space. The distribution centre for petroleum products along the Atlantic coast of Canada and in Newfoundland, it possessed a large oil refinery and fuel-oil storage sufficient for its own needs. Although the large Dominion Government graving docks were located at Saint John and Quebec, ship-repair facilities were available to handle normal demands, and included a privately-owned dry dock 570 feet in length. Halifax was the Atlantic terminus of the Canadian National Railways and was also served by a branch line of the Canadian Pacific Railway. Its population of 68,000 in 1939 had jumped to 99,000 by the last year of war.³

Halifax was the R.C.N.'s only base on the east coast of Canada when the Second World War began. It had been built by the Royal Navy to sustain a small naval squadron at a time when warships were less demanding than they afterwards became. The base had been altered in some respects in the year following its transfer to Canada in 1910, but on the outbreak of war its capacity remained much as it had been when the Naval Service took possession.⁴

Before 1941, all naval activities in Halifax were confined to H.M.C. Dockyard which occupied a narrow strip of the congested water front on the west side of the harbour, some five-sevenths of a mile in length and not more than five hundred feet wide. A navy of thirteen small ships and two thousand men had no need of elaborate bases, and the dockyard contained no more than was essential for minimum re-

² *The Canada Year Book*, 1940, p. 693.

³ *Halifax City Directory*, 1939 and 1945. The latest census, taken in 1941, placed the figure at 70,488.

⁴ For an account of Halifax naval base to 1939, see vol. I, *passim*.

quirements—less, in fact, than was subsequently available at all but the smallest of Canada's war-time naval bases.

On the outbreak of war in 1939, Halifax became simultaneously a base for the Royal Navy and a convoy-assembly port for all vessels supplying Britain from North America. Later, when the St. Lawrence River was closed to ocean traffic, it assumed to the utmost limits of its capacity the function of a loading port for Canadian material on its way to Britain and the battlefronts. It remained the nerve centre of the R.C.N. on the east coast as Canada gradually assumed responsibility for all naval Operations in the North-west Atlantic, and it became a major repair base for Canadian warships. At all times Halifax remained the most important of Canada's naval bases.

During the first two years of war the primary menace to shipping in the Western Atlantic was the surface raider. Heavy-gun ships were required to protect convoys, and prior to United States intervention these were mainly provided by the Royal Navy. Within the first two weeks of war British warships made their appearance in Halifax, and from then until the summer of 1941 the Royal Navy made continuous use of the port as a base for its convoy escorts and independent units operating in the Western Atlantic. The battleships *Revenge*, *Royal Sovereign*, and *Ramillies* were regular visitors; while *Resolution*, *Rodney*, *Malaya*, *Warspite*, and the battle-cruiser *Repulse* appeared there at various times, as well as an occasional aircraft carrier. The cruisers *Berwick*, *York*, and *Emerald* were amongst the first to arrive; and British destroyers, corvettes, submarines, and cutters, were in evidence from time to time. The class of warship most frequently seen in Halifax, however, was the armed merchant cruiser. Because of the limited number of British warships of the heavier type, these converted liners carried the main burden of convoy escort during this early phase of the war at sea. The first to arrive in Halifax in late October 1939 was H.M.S. *Asturias*, and she was followed shortly by such veterans of the North Atlantic as *Ascania*, *Alamnia*, *Ansonia*, *Laconia*, and the *Ranpura*, *Montclare*, *Rajputana*, and *Jervis Bay*. In all nearly 90 different British warships appeared from time to time between September 1939, and June 1941, and of these 24 were armed merchant cruisers.⁵

⁵ Convoy Pook (D.T.D. records); monthly reports of arrivals and sailings of naval vessels in C.O.A.C.'s Monthly Reports, Feb. 1940 to Dec. 1941, *passim*, N.S. 1000-5-13 (1) to (9).

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For a brief time in 1939 Halifax became a base for French submarines engaged in ocean convoy.⁶ On November 25, the French A.M.C. *Quercy* arrived from Brest escorting the submarines *Casabianca*, *Pasteur*, *Achille*, and *Sfax*. The *Quercy* had on board a number of officers and men as spare crews for these and other submarines which were expected to arrive from France for convoy duty. The French ship was ill designed to serve as a submarine depot in Canadian winter weather, and the R.C.N. was approached with some urgency for assistance in housing 241 officers and men. As no accommodation was available ashore the French crews were placed aboard the Canadian National Railways passenger liner *Prince David*, at that time lying idle in the harbour. Before the end of the year a change in policy resulted in the departure of both submarines and spare crew.

In the next few months Halifax also played host to other French units including the battleship *Lorraine*, the aircraft carrier *Béarn*, and the cruisers *Marseillaise*, *Jean de Vienne*, *Dupleix*, and *Maréchal Foch*. Other visitors included two Netherlands cruisers, and a Netherlands submarine which remained for some time in connection with operational training for the R.C.N. United States warships also appeared in Halifax from time to time, particularly in the last four months of 1941. During this brief period the battleship *New Mexico*, twenty-five destroyers, and other smaller American craft, used the port. In late 1941, two Polish destroyers, the *Garland* and the *Piorun* also operated out of Halifax.⁷

The control of convoy escorts based on Halifax was exercised by the Royal Navy through the Rear Admiral Third Battle Squadron:

The Rear Admiral Third Battle Squadron, under the Commander-in-Chief, America and West Indies Station (Bermuda) is in command of the Ocean Escort Force operating from Halifax and is responsible for its organization and administration. His duties in no way interfere with the organization of the convoys themselves or the control of the base which remain the responsibility of the Royal Canadian Navy under the Commanding Officer, Atlantic Coast.⁸

Rear Admiral L. E. Holland, R.N., who held this appointment until December 1939, first flew his flag in H.M.S. *Resolution*.

⁶ Admiralty to C.N.S. (signal), Nov. 11, 1939, N.S. 1037-45-1 (1); material in A.R.O., M. 04967.40.

⁷ Reports of arrivals and sailings in C.O.A.C.'s Monthly Reports, *passim*, N.S. 1000-5-13 (1) to (9).

⁸ Escort General Orders, H.M.S. *Seaborn*, Art. 1, Mar. 3, 1940 (D.N.H.S. records).

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In order to avoid absence from Halifax for prolonged periods he transferred his headquarters ashore on October 25 and was provided with offices at Royal Canadian Air Force Headquarters. His presence on land raised a delicate problem, for he outranked the senior Canadian naval officer in the latter's own base. A technical solution for this difficulty was found by transferring the Admiral and his staff to a ship in Halifax harbour. In January 1940, Rear Admiral S.S. Bonham-Carter, R.N., who succeeded Admiral Holland, hoisted his flag in H.M.S. *Seaborn*, a converted yacht originally acquired to serve as a submarine mother ship. H.M.C.S. *Venture*, the former Canadian training schooner, was also taken over by the Royal Navy to provide accommodation for the ratings attached to *Seaborn*.⁹ The problem of accommodation for personnel of the Royal Navy at Halifax was a continuous one, and it became particularly acute during periods when British submarines were based on the port. Armed merchant cruisers were frequently used during their lay-over in port to house submarine crews and other personnel.¹⁰ In March 1941 the situation was temporarily eased by the allocation of H.M.S. *Forth*, a new and well-equipped submarine depot ship, to Halifax. In June, however, *Forth* departed to fill a pressing need for a repair ship at the newly-formed escort base in St. John's, Newfoundland.

Seaborn remained the headquarters of the Royal Navy at Halifax until September 30, 1941, when she was decommissioned following the withdrawal of the R-class battleships and the reduction and redistribution of armed merchant cruisers. When the United States destroyers were taken over in September 1940, an additional British naval establishment was set up in Halifax. Commissioned as *Seaborn II* it had offices ashore, but came under the administration of Admiral Bonham-Carter. *Seaborn II* was paid off on December 31, 1940, on the completion of its assigned task.¹¹

Upon the withdrawal of the Rear Admiral Third Battle Squadron his duties were assumed by the Canadian naval authorities. For a time the only establishment of the Royal Navy in the Halifax area was the small Royal Naval Air Station at Dartmouth, established early in the war to service

⁹ Report of Rear Admiral L. E. Holland, R.N., R.A. 3rd B.S., Dec. 23, 1939, *ibid.*; R.A. 3rd B.S. to Admiralty, July 19, 1941, A.R.O., M.013449/41.

¹⁰ R.A. 3rd B.S. to Admiralty, May 20, 1940, and other documents in N.S. 1037-45-3 (1).

¹¹ R.A. 3rd B.S. to Admiralty, July 19, 1941, A.R.O., M.013449/41.

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ship-borne aircraft.¹² The many administrative problems concerning British personnel serving afloat in Canadian waters, and in connection with the manning of ships built in Canada for the Royal Navy, led the Admiralty to establish a general administrative base at Halifax late in 1942. Commissioned as H.M.S. "Canada" the establishment was set up as an independent command under a Captain, R.N. By March 1943 its staff numbered fifty and it was responsible for some four thousand men.¹³ A year later it was placed under the Canadian naval authorities for all matters other than pay accounting.¹⁴ In July 1944 its remaining duties were assumed by the Royal Naval Air Station which had been commissioned late in 1943 as H.M.S. *Seaborn*.¹⁵

The use of Halifax by major units of the Royal Navy on the outbreak of war, and its use as a convoy-assembly port, made the installation of port defences an urgent necessity.¹⁶ The Naval Service immediately instituted an examination service, and placed the existing port war signal station at Camperdown in operation. As soon as possible war watching stations were set up at Osborne Head to the east of Halifax and at Bald Rock to the west.¹⁷ Admiral Holland, on his first arrival, had to take special precautions in view of the lack of net defences:

On arrival at Halifax it was disturbing to find that there was no net defence in place, and that the only A/S vessels with Asdic were two destroyers which, for most of the time were absent on escort work. In collaboration with the local authorities, berths were chosen in which ships could lie without presenting too easy a target to a submarine—a battleship berth being selected at which the depth of water did not exceed the draught of the ship by more than a few feet.¹⁸

The provision of net defences at certain Canadian ports had received some attention before 1939, but because of the priority assigned to west-coast defence it was not until June, 1939, that any material was diverted from Esquimalt to Halifax. Early in September, arrangements were made to have double-line anti-submarine nets laid across the main entrance to the harbour from McNab's Island to the western

¹² Admiralty to C. in C., H.M. Ships and Vessels, Home Fleet, etc., May 8, 1940, N.S. 1037-45-5 (1).

¹³ C.O., H.M.S. "Canada" to Cdre., Halifax, May 21, 1943, N.S. 95-70-150 1 (1).

¹⁴ C.N.O. 3088, Sept. 25, 1943.

¹⁵ C.N.O. 3804, July 22, 1944.

¹⁶ See App. II.

¹⁷ N.S.H.Q. to C. in C., Halifax (signal), Aug. 25, 1939, N.S. 1006-4-1 (1); C.N.S. to D.Min., Aug. 31, 1939, N.S. 1001-7-1 (1).

¹⁸ Report of Rear Admiral L. E. Holland, R.N., 3rd B.S., Dec. 23, 1939, A.R.O., M.04967/40.

shore. The task was expeditiously carried out under private contract, a temporary obstruction was in position by the end of October, and by November 18 the permanent nets were completed. Early in 1940 a pile obstruction was placed across the less-used eastern passage to Halifax harbour, which provided complete protection against ocean-going submarines.¹⁹ Various improvements were instituted from time to time, notably the superimposing of small-mesh nets on the seaward line early in 1942 and the extension of the pile obstruction at about the same time, in order to secure the port against attack by midget submarine. Experimental work was also carried on with other devices including curtain nets for obstructing light surface craft.²⁰ No attacks on the net defences at Halifax were ever recorded, but life aboard the gate vessels was not wholly uneventful. On the evening of May 12, 1940, H.M.S. *Revenge*, outward bound, rammed and sank the starboard gate vessel. There were no casualties, but it is said that the next time *Revenge* passed through the boom the crews of both gate vessels took up abandon-ship stations.

The provision of modern artillery defences at Halifax was part of a long-term plan for coast defence adopted by the Canadian army in 1938. Lack of funds, delays in delivery, and the priority of west-coast defence, meant that the armament installed on the outbreak of war, while reasonably plentiful, was old and generally deficient in fire-power. New equipment was mounted as it became available, but it was not until late in 1943 that the Halifax defences reached their maximum effective strength.

In 1939 Canada had available a mere handful of anti-aircraft guns, most of which were obsolescent or obsolete, and for the first two years of war Halifax, like other important ports, had no really effective anti-aircraft defence. In April 1941 the Rear Admiral Third Battle Squadron placed the anti-aircraft armament of H.M.S. *Forth* at the disposal of the Halifax Fortress Commander to bolster the anti-aircraft defences of the port.²¹ When Canadian-made Bofors and 3.7-inch guns became available in 1942, however, Halifax became the most heavily-defended point in Canada.

On the night of October 13-14, 1939, a U-boat in command of Kapitänleutnant Gunther Prien penetrated the defences of

¹⁹ Similar defences had been placed at Halifax during the First World War.

²⁰ Information on boom defence, Halifax, N.S. 1053-4 series.

²¹ J.S.C. Atlantic Coast Minutes, Apr. 4, 1941 (A.C.S. 10-10 (2)).



Habitat boom seen from west shore

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the British fleet anchorage at Scapa Flow and sank the battleship *Royal Oak*. This exploit heightened the concern of the Admiralty for the safety of its warships in defended ports, and resulted in a decision to augment as far as practicable the net defences at all important harbours by the addition of controlled minefields. Late in November the Admiralty approached the Canadian Government with the suggestion that Halifax be provided with this form of defence. Early in 1940 a British expert visited Ottawa and Halifax to work out detailed plans with the Naval Service. Arrangements were then made for R.C.N. personnel to attend a course in controlled mining at H.M.S. "Vernon" in Portsmouth.²² At the same time consideration was given to the manufacture of equipment in Canada; but the Admiralty reported in March that they could supply material in five months, and nothing further was done about Canadian production despite continued discussion of the project for several years.

Meanwhile the Naval Service went ahead with the programme, including plans for the necessary shore establishments and the acquisition of a vessel suitable for conversion as a mine-layer. The S.S. *Sankaty* finally acquired for this latter purpose was a former Staten Island ferry being fitted out at Halifax for use in Northumberland Strait. Never entirely suitable for her new rôle, she nevertheless served throughout the war as mine and loop-layer at Halifax and elsewhere. Efforts to obtain a suitable replacement were successful only towards the end of the war, and H.M.C.S. *Whitethroat*, a converted Western Isles trawler, arrived at Halifax late in 1945 in time to lift the minefield for the last time.²³

The Admiralty's original intention had been to undertake the installation with its own equipment, but when the time came other commitments in the United Kingdom made this impracticable.²⁴ R.C.N. personnel recently returned from H.M.S. "Vernon" assumed the task, commencing in September 1940. Progress was very slow mainly because of constant delays in the arrival of essential equipment from the United Kingdom, and one shipment, finally dispatched early in 1941, was lost through enemy action. During the fall and winter,

²² Br. High Comm., Ottawa, to Sec. of State (Ext. Aff.), Nov. 25, 1939; same to same, Jan. 18, 1940; same to same, Feb. 8, 1940: N.S. 1028-5-3 (1); N. Sec. to C.O.A.C., June 15, 1940, N.S. 1040-13-2 (1).

²³ Material in N.S. 1028-5-5 (1 and 2), and N.S. 15501-1 (1).

²⁴ Can. High Comm., London, to N.S.H.Q. (signal), Aug. 8, 1940, N.S. 1028-5-3 (1).

however, valuable experience was gained not only in the laying of mine loops but in the assessment of their effectiveness in the conditions existing at Halifax. The plan called for two mine-fields, one on either side of the anti-submarine net, and both fields were laid in the winter and spring of 1941 despite difficult weather conditions and continued delay in the provision of equipment. During the same period the control station and accommodation ashore were erected, and on June 12 the field was formally placed in operation. While maintenance was a continuous and often arduous task, the field continued to provide effective protection until the end of the war.²⁵

In December 1939 the Admiralty suggested that harbour-defence asdics be installed at Halifax.²⁶ The Naval Service agreed, and also decided to supplement this type of detecting apparatus with indicator loops. Urgent requirements in the United Kingdom delayed the arrival of any equipment until October 1940 and from then on progress continued to wait on procurement. Submarine cable began to arrive in April 1941 and was soon available in sufficient quantity to permit the laying of one loop. The influx of cable during the next few months presented an embarrassing problem of storage: cable filled the controlled-mining base, lay in large coils wherever space could be found in the dockyard, and overflowed into the spacious grounds of the army's Wellington Barracks. However, this deluge permitted the laying of the two remaining loops, and that part of the project was completed in July.²⁷ The cables were laid by *Sankaty* despite her many shortcomings for this purpose. "H.M.C.S. *Sankaty* with over 80 tons of cable in her hold, would proceed to sea in the calmest weather only, bows down and well-nigh unmanageable."²⁸

The placing of harbour-defence asdics proved to be a more difficult task, demanding not only the best efforts of *Sankaty*, but also the assistance of C.G.S. *Druid* and C.G.S. *Lady Laurier* and of a number of tugs and harbour craft. After two unsuccessful efforts the first unit was laid on September 30, but it took nine attempts the following month to place the second in its proper position. Meanwhile accommodation for the control instruments had been provided in the new port

²⁵ Reports of O. i/c Controlled Mining in C.O.A.C.'s Monthly Reports, *passim*, N.S. 1000-5-13 series.

²⁶ Br. High Comm., Ottawa, to Sec. of State (Ext. Aff.), Dec. 23, 1939, N.S. 1046-12-2 (1).

²⁷ El. A Lieut.-Cdr. W. G. Brissenden, R.C.N.V.R., "The History of A S Fixed Defences in the R.C.N. 1939-1945," n.d. (D.H.D. records).

²⁸ *Ibid.*, p. 3.

war signal station erected on the western shore of the harbour entrance. In November 1941 the loops and asdics were connected ashore and the system placed in full operation.

The problem of storage was finally overcome in February 1942 when the property of the Compagnie Télégraphique Française at Dartmouth was turned over to the Naval Service as a base for anti-submarine fixed defences. While most of the materials first used at Halifax were supplied from Great Britain, cable of the required type was subsequently manufactured in Canada, and the National Research Council developed a signature-recording instrument that was finally installed not only in the control station at Halifax but at other loop stations established at Canadian bases later in the war. The Halifax loops worked satisfactorily, although a particularly bad storm in December 1942 put them out of action and involved extensive repairs and replacements. The harbour-defence asdics were less successful, and some doubt existed as to their effectiveness in the hydrographic conditions at Halifax. Repair work at Halifax and the installation of equipments elsewhere on the east coast were carried out with the aid of the cable ships *Cyrus Field* and *Lord Kelvin*. H.M.C.S. *Sackville* was eventually made available for conversion to a loop-layer, but was not completed until the end of the war in Europe.²⁹

As early as June 1940 arrangements were made between the National Research Council and the Naval Service to provide radar coverage of the controlled-minefield area at Halifax.³⁰ One of the first sets to be assembled in Canada was installed in September 1940, nine months before the minefield itself was in operation.³¹ It was originally designed to throw a fixed beam over the guard loop of the minefield, so that in thick weather or at night the control station could distinguish between signatures registered by surface vessels and those by submarines. In practice, however, the set was found to be more useful when employed as a moving beam to log the position and course of ships in the vicinity of the minefield. In this latter rôle it proved to be a valuable aid and was retained until the end of the war.³²

²⁹ *Ibid.*, *passim*; material in 1046-13-2 series.

³⁰ Minutes of the Radio Research Cttee., June 5, 1940, N.S. 1014-S-2 (1); N. Sec. to C.O.A.C., June 28, 1940, N.S. 1052-3-5 (1).

³¹ X.D.O.'s report in C.O.A.C.'s Monthly Report, Sept. 1940, N.S. 1000-5-13 (3).

³² C.O.A.C. to N. Sec., Oct. 20, 1941, N.S. 1052-3-1 (1); C. in C., C.N.A. to Sec. N.B., Oct. 14, 1944, N.S. 1028-5-3 (1); C.O.P., Halifax to C. in C., C.N.A., Jan. 22, 1945, N.S. 11000-198 (1).

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In September, 1940, the National Research Council undertook on behalf of the Naval Service to supervise the construction of a coast-defence radar station at Halifax.³³ The first station of its kind to be erected in Canada, it was similar in structure and performance to the "early-warning" stations placed along the coast of England prior to 1939. It was designed to serve a dual purpose, and was equipped with a short-range indicator to serve as a surface watch over the indicator loops, and a long-range indicator for early warning of surface ships.³⁴ Turned over to the Naval Service early in 1942 it was used for a short time in conjunction with the indicator loops. This use of shore radar, however, was abandoned in favour of patrol vessels equipped with asdic.³⁵

Meanwhile arrangements had been made for the production of radar equipment in Canada on a large scale, and policy as to its use in coast defence had been clarified. The Canadian army, responsible for coast-defence batteries, had found radar to be an invaluable aid in finding the range and bearing of targets at sea, and twenty army coast-defence sets had been included in the original construction programme drawn up early in 1941.³⁶ In the interests of economy of effort, and because the defence of ports against surface craft was primarily an army responsibility, it was decided that the army stations could perform both the rôle of range finding and that of plotting the position of ships within the approach area of a defended port.³⁷ The system worked well, and it gave the army stations constant practice and enabled them to attain a high degree of accuracy.³⁸ As a result of this decision the naval station was turned over to the army in June 1942.³⁹ The army subsequently installed radar sets of an improved type on each side of Halifax harbour.

The installing of radar completed the fixed-defence installations at Halifax. In 1941 a new and commodious port war signal station was constructed and became the headquarters

³³ D.P.D. to X.D.O., Halifax (signal), Sept. 9, 1940, N.S. 1052-3-1 (1).

³⁴ J. T. Henderson, N.R.C., Halifax to D. of P., Jan. 9, 1941; R.D.F.O. to S.A/S, Dec. 12, 1941: N.S. 1052-3-5 (1).

³⁵ X.D.O.'s reports in C.O.A.C.'s Monthly Reports, N.S. 1000-5-13 series, *passim*; N. Sec. to A/Pres. N.R.C., Jan. 14, 1942 (1).

³⁶ Minutes of special meeting on R.D.F. of Chiefs of Staff Cttee., Dec. 29, 1941, N.S. 1014-8-6 (2).

³⁷ Sec. N.B. to C.O.A.C., Apr. 17, 1942, N.S. 1052-5-5 (1). There are several references in Naval Staff Minutes to this question. The final decision was reached at the meeting of Mar. 23, 1942.

³⁸ Interview with El. Lieut.-Cdr. (R) H. G. Burchell, R.C.N., Sept. 29, 1945.

³⁹ N.O.I.C., Halifax to C.O.A.C., July 8, 1943, N.S. 1052-3-5 (2).

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for the naval defence organization at Halifax.⁴⁰ Following the introduction of radar as an effective means of early warning, the war watching stations at Osborne Head and Bald Rock were withdrawn.⁴¹ By late 1944 it was found that the effective co-ordination of port defences made the examination service largely superfluous, and in February 1945, at Halifax and other defended ports, it was discontinued and replaced, where the amount of mercantile traffic warranted, by a traffic control vessel which assisted merchant ships through the port defences.⁴²

Local patrols and minesweeping in the approaches to Halifax were at first carried out by H.M.C.S. *Gaspé* and H.M.C.S. *Fundy*, two Basset-class minesweepers in commission when war broke out, and these were subsequently assisted by miscellaneous craft acquired from various government departments and private owners in 1939 and 1940. By February, 1940, ten auxiliary vessels were available for patrol duties,⁴³ but it was not until May that the first of these was equipped with asdic. In December the force was augmented by H.M. C.S. *Collingwood*, one of the first corvettes to be commissioned in the R.C.N., and a coil-skid and two LL minesweepers were added the following spring; by June seven corvettes were operating with what had now become known as the Local Defence Force. Operational requirements elsewhere soon resulted in the departure of the corvettes, and the auxiliary vessels carried on until there was a sufficient number of new ships to replace them. The first four M.L.'s placed in commission late in 1941 were used for a time as patrol boats for the indicator loops.⁴⁴

While the fixed defences of Halifax were never challenged by the enemy, the port minesweeping patrols were on one occasion called upon to deal with his handiwork. On June 1, 1943, three surfaced mines were sighted about six miles from Halifax and the port was closed to all traffic. Within thirty hours a channel was swept and normal schedules resumed. On the 3rd, the S.S. *Halma*, a convoy straggler, was mined and sunk in the declared danger area six miles south of the harbour

⁴⁰ X.D.O.'s report in C.O.A.C.'s Monthly Report, Nov. 1941, N.S. 1000-5-13 (S).

⁴¹ D. of P. to A.C.N.S., Sept. 30, 1943; P.D.O. to D. of P., Dec. 10, 1943; N.S. 1001-7-1 (I).

⁴² Chiefs of Staff Minutes, Dec. 29, 1944; Sec. N.B. to C. in C., C.N.A., Jan. 6, 1945; N.S. 11700-138 (I).

⁴³ The minesweepers *Fundy*, *Gaspé*, *Arleux*, *Arras*, *Rayon d'Or*, *Venosta*, *Vierne*, and the armed yachts, *Acadia*, *French*, and *Fleur de Lis*. [C.O.A.V.'s report in C.O.A.C.'s Monthly Report, Feb. 1940, N.S. 1000-5-13 (I)].

⁴⁴ C.O.A.C.'s Monthly Reports, N.S. 1000-5-13 series, *passim*.

entrance. Exploratory sweeps revealed a ring of mines of the moored-magnetic type sown within a radius of six to seven miles of the Halifax light vessel. Local minesweeping patrols were reinforced by a number of Bangor minesweepers diverted from escort duties and by ten British minesweepers which happened to be in port at the time. During the next three weeks fifty-three mines were destroyed or recovered while two more were sighted. No other losses occurred, and the enemy apparently did not consider that the return justified the investment, for no further mines were laid off Halifax.⁴⁵

During the period of British operational control of ocean escorts working out of Halifax, the Canadian naval authorities assisted British warships in the allocation of berths, the provision of fuel and supplies, and the undertaking of running repairs.⁴⁶ Imperial stocks of explosives, guns, mountings, paravanes, torpedoes, and small arms, were stored at the R.C.N. base, and ordnance equipments were overhauled as necessary. Running repairs to H.M. ships were carried out at the naval dockyard and by private firms. In April, 1940, 7 British warships received some repairs at Halifax, and this monthly number rose to 24 by June 1941.⁴⁷ While accommodation was never adequate in the early days, assistance was given to personnel of the Royal Navy wherever possible. In September, 1940, two thousand officers and men were accommodated in R.C.N. barracks during the intervals between the arrival and taking over of fifty United States destroyers.⁴⁸

The presence of British warships in such substantial numbers during the first two years of war was readily accounted for by the fact that in September, 1939, Halifax became the great assembly port in North America for convoys bound for Great Britain. Imports from North America, important to Britain's economy in peace, became a matter of life and death in war; and in the days before the United States had become a belligerent, Halifax was the obvious port for the gathering together of ships for transatlantic convoy. Provided by nature with a commodious harbour, it was as conveniently located as

⁴⁵ C. in C., C.N.A., War Diary, June 1943, N.S. 1000-5-13 (19). However, mines were laid off St. John's, Newfoundland, the following October.

⁴⁶ Escort General Orders, H.M.S. *Seaborn*, Oct. 29, 1940 (D.N.H.S. records).

⁴⁷ Engineering Dept. reports in C.O.A.C.'s Monthly Reports, Apr. 1940, June 1941, N.S. 1000-5-13 (1) and (6).

⁴⁸ The X.O. "Stadacona II" reported: "It was necessary to suggest to the Paymaster that in future corn on the cob was not to be served when R.N. drafts were here, as they considered they were being given parrot food." [X.O. "Stadacona II" report in C.O.A.C.'s Monthly Report, Sept. 1940, N.S. 1000-5-13 (3)].

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any one place could be to the major loading ports along the Atlantic seaboard of the United States and the main outlets for Canadian produce in the St. Lawrence River.

The operation of the convoy system required a complex organization almost world-wide in scope, but the responsibility for the assembling and sailing of convoys from Halifax was from the first a commitment of the R.C.N. Reserve officers previously assigned to undertake the naval control of merchant ships were immediately called up on the outbreak of war and were ready to dispatch the first convoy which left on September 16. From then until the end of the year, 527 ships grouped in twenty-five convoys sailed from Halifax. Two special convoys carrying the first Canadian contingent to the United Kingdom also sailed in the fall of 1939. During the whole war "Approximately 148 troop convoys, comprising 282 ships left . . . although many of these were of the 'one ship un-escorted' type."⁴⁹

In the first four months of 1940, while Halifax remained the only assembly port in the western hemisphere, a further 944 ships sailed from the port in convoy.⁵⁰ By May the number of escorts had grown sufficiently, through the fitting-out of armed merchant cruisers, for the Admiralty to institute a Bermuda section for ships coming from the Pacific through the Panama Canal, and from Atlantic and Caribbean ports south of Norfolk, Virginia. These ships assembled in Murray's Anchorage on the north side of the island of Bermuda, and proceeded in convoy to a point off the coast of Newfoundland where they joined the outbound convoy from Halifax. In July a similar arrangement was made at Sydney, Nova Scotia, so that ships loading in the St. Lawrence would not be delayed by having to steam westward to Halifax. At the same time Sydney was also made a convoy-assembly port for slow convoys consisting of ships with a speed of less than nine knots.⁵¹

The use of Sydney and Bermuda relieved but by no means removed the strain on Halifax. Of the 4,000 ships convoyed across the Atlantic in 1940 slightly over half were assembled at Halifax. In the summer of 1941 the Sydney and Bermuda sections were discontinued, and Halifax became once again the only port for what were now classed as fast convoys. Of the

⁴⁹ S.T.O. Halifax to D.N.I. and T., Jan. 29, 1916, "History of N.C.S.O., Halifax", N.S. 1440-127 (1).

⁵⁰ Convoy statistics compiled in Mercantile Section of D.T.D., N.S.H.Q. (D.T.D. records).

⁵¹ "Outline History of Trade Division, N.S.H.Q., Ottawa, 1939-1915," Mar. 1916 (D.T.D. records).

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5,050 ships that proceeded to Great Britain in convoy during 1941, 3,099 sailed from Halifax.⁵²

Halifax remained the foremost convoy-assembly port in North America until September, 1942, when New York became the point of departure for both fast and slow convoys. Subsidiary convoys, however, continued to assemble at Halifax and Sydney, joining the main convoys at sea. By March, 1943, even New York with its great port facilities was unable to handle the enormous load placed upon it, and Halifax was made the assembly port for slow convoys—the rôle performed by Sydney in earlier days. In August 1942, 7,169,567 tons of merchant shipping were reported as passing through the Halifax gate. By October the figure was reduced to 2,527,452. In April 1943, it had climbed back to 3,426,576.⁵³

Yearly total of Ships Sailing in Convoy from Halifax 1939-1945

[TRADE STATISTICS CONVOY BOOKS (D. OF T. RECORDS)]

Year	In Ocean Convoys	In Coastal Convoys	Yearly Total
1939	527	...	527
1940	2265	...	2265
1941	3099	...	3099
1942	2514	1403	3917
1943	1817	1889	3706
1944	1458	1200	2658
1945	759	662	1421
GRAND TOTAL	12,439	5154	17,593

The increase in navigational dangers and the congestion in harbour which were unavoidable in war-time, together with two of the severest winters on record, resulted in a number of marine disasters in and near Halifax. On March 29, 1940, the British ship *Esmond* inbound from St. John's, Newfoundland, rammed and sank the Halifax pilot vessel *Hebridean*. Six pilots and three members of the crew were drowned. Four years later, "in one of the severest gales in many years" a second pilot vessel, the *Camperdown*, ran aground in the approaches to the harbour without, however, any loss of life. In March, 1941, H.M.C.S. *Otter* caught fire and sank close by the lightship in the same area, with a loss of nineteen lives. Seventeen months later the lightship itself was struck by two inbound vessels, but did not sink. In March, 1942, two mer-

⁵² Convoy statistics cited above (D.T.D. records).

⁵³ X.D.O.'s reports in C.O.A.C.'s Monthly Reports, Aug. 1942, Oct. 1942, Apr. 1943, N.S. 1000-5-13 (13), (15), and (17).

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chant ships, the *Claire Lilley* and the *Nueva Andalucia* ran aground and broke up while trying to make port. The following month the S.S. *Troingate* with six hundred tons of toluol and small-arms ammunition aboard caught fire while at anchor in Halifax harbour. As the fire could not be brought under control the ship was sunk by the gunfire of H.M.C.S. *Chedabucto*. The next year, in July, the Halifax Shipyard tug *Erg* was run down and sunk in the harbour itself with serious loss of life.⁵⁴

The use of Halifax as a convoy-assembly point increased the responsibilities of the R.C.N. which was accountable for the routing of merchant ships, the reporting of their movements, and their organization into convoys. In addition, the R.C.N. co-ordinated the activities of the various civil authorities in charge of the employment of shipping with those of the Royal Navy whose duty it was to protect the convoys once they left harbour.

Nor did the responsibilities of the R.C.N. end there. The tactics of unrestricted warfare at sea, adopted by the Germans from the first day of war, pointed to the need of defensive equipment for merchant ships. Protection was required not only against submarines, surface ships, and aircraft, but also against the hidden danger of mines, particularly non-contact magnetic mines which were employed by the enemy as early as November 1939. The installation, inspection, and repair of defensive equipment in merchant ships, were tasks that devolved on the naval authorities at all major war-time ports, and particularly on Halifax, which had from the first assumed so important a rôle in this respect.

Defensive equipment for merchant ships became progressively more elaborate and eventually included, in addition to armament, paravane gear for sweeping moored mines, plastic armour for bridge protection, ship-borne nets for defence against torpedoes, and noise-makers towed astern to decoy acoustic torpedoes and safely detonate acoustic mines. In 1939, however, the shortage of defensive gear was such that many ships had to sail with little or no protection. Only twenty-seven gun equipments were available in Canada for merchant vessels on the outbreak of war, and additional supplies were slow in arriving from England.⁵⁵ Installations at Halifax were limited by the short supply, but almost from the

⁵⁴ C.O.A.C.'s Monthly Reports, *passim*, N.S. 1000-5-43 series.

⁵⁵ "History of Trade Division" cited above, App. vii (D. F. D. records).

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beginning the inspection and repair of defensive equipment and the supply of ammunition and stores became tasks of considerable magnitude. In February, 1940, 178 ships were inspected and provided with stores and equipment, while only two were fitted with guns. By May, 1941, the number of monthly inspections had risen to 316 with a corresponding rise in the issue of stores, while 23 ships were supplied with armament and 7 with paravane gear.⁵⁶

Shortly after the outbreak of war both merchant vessels and warships had to be demagnetized as a protection against magnetic mines. As early as February, 1940, the R.C.N. at Halifax had arranged with scientists at Dalhousie University to undertake experimental work in this connection. By March, a portable unit for determining the magnetism of ships had been designed, and its successful use permitted degaussing to be undertaken at the port. The first installation was made the same month in H.M.C.S. *Fleur de Lis*. In April eleven ships were degaussed, and the number rose to twenty-three by September. Toward the end of 1940 the work of installation diminished, but degaussing equipment required constant checking, adjustment, and repair, and the large number of ships using the port provided an abundance of work of this nature.⁵⁷

In June, 1940, the Admiralty decided that open ranges for checking the effectiveness of degaussing equipment should be established at important ports in the empire, and at their request the R.C.N. undertook the installation of deep and shallow ranges in Bedford Basin, on the understanding that the necessary recording instruments would be provided by the Admiralty. The first installation of its kind to be established outside the United Kingdom, it was placed in operation in November 1940. By the end of 1942 over two thousand ships had been tested at Halifax.⁵⁸

As the Germans devised more sensitive magnetic mines, ever greater care had to be taken in eliminating ship's magnetism. Many refinements were introduced in coil-degaussing, and in addition a process known as deperming became standard practice in Great Britain by about mid-1940. The commonest method of deperming was by rigging an electric cable around

⁵⁶ D/G report in C.O.A.C.'s Monthly Reports, Feb. 1940, May 1941, N.S. 1000-5-13 (1) and (6).

⁵⁷ D/G reports in C.O.A.C.'s Monthly Reports, 1940, *passim*, N.S. 1000-5-13 (1 to 4).

⁵⁸ Information on D/G ranges in N.S. 1027-12-1 (1) and (2), and N.S. 1027-13-4 (1) and (2).

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a ship from bow to stern, and flashing through it a heavy current which neutralized the permanent magnetism of the ship for a period of time. In March, 1941, the Admiralty mentioned the possibility of establishing a deperming station at Halifax. The R.C.N. and National Research Council officials in Halifax had already been considering the fitting out of a mobile unit for this purpose, in view of the shortage of wharves at Halifax. This latter alternative was agreed to by N.S.H.Q. and the Admiralty, and in August, 1941, the former coil-skid mine-sweeper *Ross Norman* was ready for service as a deperming ship.⁵⁹

Toward the end of 1940 the enemy began to lay acoustic mines in United Kingdom waters, and the following July an acoustic range to measure ships' noises and to test the efficiency of acoustic sweeps was installed alongside the degaussing ranges. This location proved unsuitable, however, as ships were unable to proceed at normal sea speed in the confined waters of Bedford Basin.⁶⁰ Moreover the degaussing range itself was inconveniently situated, as ships had to proceed to Bedford Basin for testing which was sometimes not possible in the limited time they had in port. To remove these difficulties a second degaussing and acoustic range was placed across the main entrance to the harbour in June 1942; and from then on all ships entering the port were automatically checked, and only those needing adjustment were sent to the Bedford Basin ranges for more thorough examination.⁶¹

Halifax also became an important centre for the training of seamen and ratings responsible for manning defensive equipment in merchant ships. At first this work was carried out without special facilities. Late in 1943, however, a firing range was established at Osborne Head where the former war watching station served as a mess hall. The range was equipped with a look-out tower, a small magazine, and concrete firing platforms for guns and rocket weapons.⁶²

Early in 1942 successful trials were carried out in Great Britain with ship-borne anti-torpedo nets for the protection of merchant ships. From then until the end of the war 768 allied

⁵⁹ Information on deperming unit, Halifax, N.S. 1027-1-5 (1).

⁶⁰ N.R.C., Halifax to Anti-Magnetic Mining Officer, Halifax, Dec. 18, 1941, N.S. 1027-13-4 (1).

⁶¹ Report, "The Halifax Channel D. G. Range," D D.S.R. (R.C.N.) to S.F.T.D., Dec. 3, 1942, N.S. 1027-13-4 (2). In July 1942, 1,240 ships were checked on the Channel Range, and 81 on the Bedford Basin Range. [D G report in C.O.A.C.'s Monthly Report, July 1942, N.S. 1000-5-13 (14)].

⁶² "History of Trade Division" cited above, p. 46 (D.F.D. records).

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ships were equipped with this form of defence, of which 203 were outfitted in Canada. Late in 1942 the Admiralty set up a base at Halifax for the provision and maintenance of this type of defence. While the base was the responsibility of the Admiralty, it was manned by the R.C.N. and supplied by the United States Government through lease-lend.⁶³

Early in 1942 some merchant vessels were equipped with catapult aircraft. These ships, known as C.A.M.S. (Catapult Aircraft Merchant Ships), first appeared in Halifax in the fall of 1941. The following year merchant aircraft carriers began to accompany transatlantic convoys. Halifax was called upon to service ship-borne aircraft, and the task devolved on the D.F.M.S. organization in co-operation with the Royal Canadian Air Force and the Royal Naval Air Station at Dartmouth. The first M.A.C. ship, the S.S. *MacAlpine*, arrived early in June 1943, and from then on the converted merchant vessels became a regular sight in Halifax harbour.⁶⁴

Halifax dockyard in the early days of the war became not only the centre for the operation and maintenance of R.C.N. ships but also for the training of all new entries from eastern Canada. It was by no means adequately equipped to handle any one of these functions. It was deficient in almost every respect, even for the strictly limited peace-time needs of the Service, and from the very first day of war the demands made upon it exceeded its capacity. In 1938 the dockyard had been described as follows:

The shore establishments at Halifax are in a peculiarly bad state. The Public Works for the past three years have been asked to provide funds in the estimates for a storehouse, a new Barracks and a new wharf. The storehouse is needed to replace many old wooden storehouses presently spread all over the Dockyard. Their continued usage is inefficient and uneconomical. A portion of the Barracks is unsafe and should not be used for human habitation. No. 3 Wharf is rapidly reaching the stage where it would be a waste of money to repair it. The Dockyard has practically no lifting devices and new torpedo depot and boiler shop are required together with new machinery in practically all the shops.⁶⁵

The outbreak of war resulted in an immediate expansion of the R.C.N. at Halifax. The number of officers grew from a

⁶³ "Statistical Summary of War on British, Allied, and Neutral Shipping," Admiralty Trade Division (Statistical Dept.), p. 27, N.S. 1480-13 (1); "History of Trade Division," pp. 47-48, and App. vii, p. 6; interview with S.O. (T), Oct. 11, 1946. In April 1943, 21 ships were serviced of which 6 were United States Liberty Ships. (Report of A.N.D. in C. in C., C.N.A., Monthly Report, Apr. 1943, N.S. 1000-5-13 (18)).

⁶⁴ "History of Trade Division" cited above, App. vii, p. 3; A.N.D. report in C. in C., C.N.A.'s Monthly Report, Apr. 1943, N.S. 1000-5-13 (18).

⁶⁵ C.N.S. to D.Min., May 31, 1938, N.S. 1017-10-18 (1).



Evening divisions, H.M.C. Dockyard, Halifax

mere handful in September to over a hundred by the end of the year.⁶⁶ By January, 1940, nine hundred ratings were accommodated in the barracks, gymnasium, skating rink, and other buildings in the dockyard, and in rooming houses throughout the city. By April some fourteen hundred ratings were attached to H.M.C.S. "Stadacona", the Halifax depot ship, and less than six hundred of these could be accommodated in the dockyard.⁶⁷ Office space was also inadequate, and the base staff was scattered throughout the yard wherever room could be found.⁶⁸ By January, 1940, the number of ships at Halifax for which the R.C.N. was directly responsible had grown from four warships and a training schooner to eighteen warships and twenty auxiliary craft, and the problem of berthing was already acute. This had been solved in part by the use of wharves on the Dartmouth side of the harbour, but renovation of the dockyard jetties became urgent.⁶⁹

Construction undertaken in 1940 barely provided for the peace-time needs of the base. The Naval Service still had no comprehensive plan to provide the shore establishments necessary to complement its shipbuilding programme. Temporary barracks, an administration building, a new ordnance depot, repairs and extensions to jetties, and alterations to existing buildings to meet the immediate needs of the base, made up the building programme for that year.⁷⁰ The need of additional accommodation for those undergoing training soon forced the navy to overflow the confines of the dockyard. On August 1 the Exhibition Grounds, formerly occupied by the army, were commissioned as "Stadacona II." Within a month the complement of the new establishment had grown from 206 to 745, and by the end of the year stood at some 1,200.⁷¹

By late 1940 it was very evident that the ever-expanding training programme would necessitate further development on

⁶⁶ Navy List, Dec. 1939.

⁶⁷ Naval Staff Minutes, Jan. 29, 1940; R.C.N. Barracks report in C.O.A.C.'s Monthly Report, Apr. 1940, N.S. 1000-5-13 (1).

⁶⁸ C.N.S. to D.Min., June 6, 1940, N.S. 37-6-1 (1).

⁶⁹ The French Cable Wharf at Dartmouth had been used almost from the beginning of the war [C.N.S. to D.Min., Sept. 29, 1939, *ibid.*]. The use of the terms "jetty" and "wharf" at Canadian ports and naval bases does not follow the dictionary meanings of these words. The term "jetty" is normally used by the navy to cover both meanings, while "wharf" is similarly used by the port authorities. Even this rule is not inviolate, and the practice adopted in the text has been to follow local custom in each case.

⁷⁰ Clerk of Works report and Shipwright's report in C.O.A.C.'s Monthly Reports, Feb. to Dec. 1940, *passim*, N.S. 1000-5-13 (1 to 4); Chief Engineer, D.P.W. to D.Min. (P.W.), June 6, 1941, N.S. 40-1-11 (1); material in N.S. 37-6-1 (1).

⁷¹ C.O. "Stadacona's" reports in C.O.A.C.'s Monthly Reports, Aug. 1940, Dec. 1940 N.S. 1000-5-13 (5) and (6).

a large scale.⁷² Negotiations to take over the army's Wellington Barracks just north of the dockyard—hastened by the destruction by fire of the dockyard barracks blocks the day before Christmas—reached a successful conclusion early in the new year, and an extensive programme of both permanent and temporary construction was undertaken. Meanwhile additional temporary accommodation for schools and offices was found in various parts of the city. The first of the temporary structures put up on the army property, whose buildings had not unexpectedly been renamed Nelson Barracks, became available in the spring of 1941, but the permanent building programme was subject to many delays and was not completed until the fall and winter of 1942-43. Meanwhile the insatiable demands of the training schools led to the taking-over of King's College in April, and in October the first exodus of training from Halifax was made when the signal school moved to St. Hyacinthe in the Province of Quebec.⁷³

In peace-time, naval vessels had been repaired in the dockyard, except for dry-docking which was done by private firms under contract. This reliance on private enterprise was especially necessary in a small navy, and remained an integral part of the repair programme throughout the war. The demands for repairs at Halifax increased steadily after 1939 as ever more warships and merchant vessels used the port, and particularly as the latter began to show the strain of the arduous and relentless routine of war.

By late 1940 it was evident that existing docking and repair facilities on the east coast were both inadequate and badly organized to meet the demands made upon them. Moreover it seemed certain that in the next few months the pressure would become even greater. British ports, subject to constant air attack, were filled to capacity, and the British Government had to turn to North America for substantial assistance in the docking and repair of both merchant and naval ships. Finally by the summer of 1941 the Naval Service began to realize that its extensive shipbuilding programme would provide it with a task of ship maintenance, refit, and repair, for which almost no preparation had been made at Canadian naval bases.⁷⁴

⁷² See ch. 10.

⁷³ Reports of C.O. "Stadacona" in C.O.A.C.'s Monthly Reports, *passim*, N.S. 1000-5-13 series.

⁷⁴ Defence Council Minutes, June 15, 1940; Naval Staff Minutes, Oct. 1940; B.P.C. Minutes, Nov. 5, 1940, N.S. 1078-3-6 (1); Br. High Comm., Ottawa, to Sec. of State (Ext. Aff.), May 15, 1941, N.S. 1026-3-2 (1).

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These considerations among others led to the appointment in November of a Controller of Ship Construction and Repairs, with power to place the ship-repair industry on a war-time footing and to encourage and assist its development.⁷⁵ The taking in hand of naval repairs was greatly speeded up by the institution of the Emergency Repair Agreement between the government and private firms, which did away with the inevitable delays of peace-time procedure.⁷⁶ The government also undertook to assist in obtaining machinery and labour, and in the latter connection provided housing accommodation at Halifax for several thousand men.⁷⁷

Early in 1941 consideration was given to an ambitious scheme to develop Halifax as a great repair port which would possess a dry dock capable of docking ships of any size. The importance attributed to Halifax at this time was summed up as follows:

By virtue of her position as guardian of the Western Atlantic, and as possessor in that vital area of a well-equipped and secure naval base on one of the finest harbours in the world, Canada bears a grave and urgent responsibility. Not only is Halifax an essential depot for the maintenance of our trans-Atlantic naval units, from battleship to submarines, upon which our ability to protect shipping is entirely dependent; but in the worst case—the successful conquest by the enemy of the British Isles—it would almost certainly become the main base for units of the Royal Navy which, as Mr. Churchill has declared and reiterated may make their way to the New World to carry on the fight.⁷⁸

By March 1941, however, the Canadian economy was in the process of being fully mobilized for war, and a major scheme of this nature, involving a great expenditure of labour and material as well as of time, had to be weighed against many other urgent demands. After careful consideration it was finally abandoned as a war-time project.⁷⁹ Meanwhile efforts were made to obtain a floating dry dock for Halifax. Early suggestions included the use of the 25,000-ton dock at Montreal, or alternatively the 20,000-ton dock at Prince Rupert, B.C.⁸⁰ It was finally decided, however, to build a 25,000-ton floating dry dock patterned on the one at Montreal

⁷⁵ P.C. 6797, Nov. 27, 1940.

⁷⁶ P.C. 6708, Aug. 27, 1941.

⁷⁷ Sec. of State (Ext. Aff.) to Br. High Comm., Ottawa, May 26, 1941, N.S. 1026-3-2 (1).

⁷⁸ Unsigned memo. of D.P.D., Mar. 11, 1941, attached to "Interim Report on Docking Facilities, Halifax," B.P.C., Mar. 18, 1941, N.S. 1078-3-6 (1).

⁷⁹ B.P.C. Minutes, Mar. 18, 1941, *ibid.*; Naval Staff Minutes, Nov. 28, 1942. C.N.S. did not feel that the graving dock could be justified in terms of winning the war. The Admiralty also felt it would not affect the position of the fleet for some years. [Material in N.S. 1026-3-5 (1)].

⁸⁰ Material in N.S. 1026-3-5 (1).

for which plans were readily available, at an anticipated cost of \$3,000,000.⁸¹ Built in record time by the Dominion Bridge Co. of Montreal on slipways of the Halifax Shipyards Ltd., it was launched late in 1941, was completed by the following June, and was leased by the Naval Service to the Halifax Shipyards Ltd.⁸²

The docking and repair of R.C.N. ships received separate consideration. By the beginning of 1941, the R.C.N. possessed 3 armed merchant cruisers and 13 destroyers, as well as numerous armed yachts and auxiliary craft. Within a year it expected to have in commission an additional 50 corvettes, 20 minesweepers, and a large number of harbour craft. To provide dry-docking facilities suitable for ships of the size of a destroyer and under became absolutely necessary if the larger docks were to be left free for merchant vessels and British warships. Marine railway haul-outs were normally used for this purpose, and enough of these had to be provided to meet the needs of a large number of ships.

At this time there were no haul-outs on the east coast capable of handling destroyers, although one was in process of construction at the Dartmouth plant of the Halifax Shipyards.⁸³ Smaller haul-outs existed both at Halifax and at outports along the east coast of Nova Scotia; but the latter were for the most part old, and designed to handle wooden hulls.⁸⁴ In order to make full use of existing resources, and to relieve congestion in Halifax, the Naval Service made a survey of existing repair plants at the smaller ports in Nova Scotia (usually referred to as "outports") with a view to their development. After careful consideration of such factors as size of harbour, capacity of existing plant, available labour supply, and costs of construction, it was decided to provide haul-outs of 3,000-ton capacity at Halifax, Sydney, and Shelburne; one of 2,000 tons at Pictou; 1,400-ton haul-outs at Liverpool and Lunenburg; and small 200-ton slips at Shelburne, Sydney, and Gaspé. The dual nature of the naval repair organization was revealed in the arrangements made to operate these new docking facilities. The two haul-outs at Shelburne and the slips at Gaspé and Sydney were to be the responsibility of the R.C.N. The remainder were to be leased to private firms for operation and maintenance under the terms

⁸¹ P.C. 544, Jan. 24, 1941.

⁸² Interview with Mr. B. Robertson, Dominion Bridge Co. Ltd., Montreal, Oct. 11, 1945.

⁸³ B.P.C. Minutes, Nov. 5, 1940, N.S. 1053-4-4 (1).

⁸⁴ E. in C. to C.N.S., May 8, 1941, N.S. 44-5-5 (1).

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of the Emergency Repair Agreement.⁵⁵ By arrangement with the Controller of Ship Repairs the private firms were to receive government assistance in providing labour and machinery. The Naval Service, on the other hand, became responsible for the personnel and plant at its own sub-bases. While none of the haul-outs was available before late 1942, extensive use was made of the outports for repair and refit in late 1941 and throughout the following year. Three 200-ton haul-outs were constructed in the dockyard at Halifax late in the war for M.L.'s and small auxiliary craft.

The concern over repairs was abundantly evident in plans for the development of the naval dockyard at Halifax submitted by C.O.A.C. in January 1941. These plans called for the removal of all services not essential to repairs, including training, administration of auxiliary vessels, port defences, victualling and supply depots, and the development of the dockyard as a major repair base with new shops and storage buildings, wharfage, and adequate utility services. At the same time it was fully realized that the dockyard must continue its existing functions pending completion of new buildings, and that construction would have to be undertaken by stages to avoid undue congestion and dislocation.⁵⁶

In the next few years the dockyard developed in accord with this general pattern, but it never became solely a repair yard. While repairs remained a crucial problem, operational training and administration had also to be provided for, and all three functions had to share the dockyard so that ships could be dealt with effectively during their short stay in port. A start was made in 1941 in renovating the south end of the dockyard. Progress was slow, however, particularly because space was so confined that new construction had in many cases to await the removal of old buildings; while demands on the existing plant grew so steadily that even these obsolete and sometimes dilapidated structures could not be spared until the last minute.

The year 1941 was a turning point in the war-time history of Halifax. The menace of the surface ship in the Western Atlantic receded after the ill-fated cruise of the *Bismarck* in May. Moreover the United States, long uneasy in its neutral rôle, began in midsummer to take an effective part in the

⁵⁵ P.C. 82/4417, June 18, 1941; P.C. 57-832, Feb. 1, 1942.

⁵⁶ Chief Engineer, Halifax to C.O.A.C., Jan. 19, 1941; C.O.A.C. to N. Sec., Jan. 19, 1941; N.S. 37-441 (1).

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protection of convoys. These developments led to the withdrawal of British warships from Halifax and the departure of the Rear Admiral Third Battle Squadron. This milestone in the war-time history of the base was noted in the Report of Proceedings with typical naval reticence:

On 13th October, H.M.S. *Menestheus* and the Armed Merchant Cruisers, *Wolfe*, *Ranpura*, *Maloga*, and *Aurania* were sailed from Halifax to the United Kingdom in two groups. They were followed on the 24th October by the Armed Merchant Cruisers *Chitral*, *Montclare*, *Worcestershire*, and *Ausonia*.

A total of 2,500 Air Force personnel together with 55 naval personnel embarked in Armed Merchant Cruisers for passage to the United Kingdom. Advantage was taken of the opportunity to embark several hundred tons of naval stores, Naafi stores, and the balance of Imperial Stock remaining on hand in Halifax.⁸⁷

During the spring and summer of 1941 German U-boats began to fill the gap left by the surface raiders. The intervention of the United States, however, enabled the Naval Service to maintain, even as late as August, its policy, which had been adopted in May 1940, of sending warships to the United Kingdom.⁸⁸ In the event, however, United States naval Operations in the Western Atlantic were short-lived. The entry of that country into the war resulted in the withdrawal of almost all its ships to other theatres, leaving a gap which had to be filled largely by the R.C.N.⁸⁹ These events placed on the naval base at Halifax a tremendous burden for which it had not been adequately prepared.

The strain on Halifax was foreshadowed by two developments in 1941: the arrival of new-construction ships and the formation of the Newfoundland Force. The influx of new-construction ships began in November, 1940, with two of the ten corvettes built in Canada for the Royal Navy. By the following March the last of these had sailed for the United Kingdom. Only four R.C.N. corvettes reached Halifax before the freeze-up. In January, 1941, H.M.C.S. *Collingwood* joined the Halifax Local Defence Force, while *Chambly*, *Orillia*, and *Cobalt*, were working up. In April *Wetaskiwin*, *Alberni*, and *Agassiz*, arrived from the Pacific coast through the Panama Canal. The following months ships bottled up in the St. Lawrence River and the Great Lakes by the winter ice were able to sail for Halifax, and by June the total number of arriv-

⁸⁷ S.O.O.'s report in C.O.A.C.'s Monthly Report, Oct. 1941, N.S. 1000-5-13 (8).

⁸⁸ Naval Council Minutes, Aug. 5, 1941.

⁸⁹ Memo., "Development of Canadian Naval Policy," D.P.D., Dec. 9, 1943, N.S. 1017-10-39 (1).

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als, not counting those destined for the Royal Navy, had reached thirty-three.⁹⁰ The same month the Newfoundland Force was formed under Canadian command, and comprised in addition to available Canadian corvettes all R.C.N. destroyers serving in United Kingdom waters, and the ten R.N. corvettes built in Canada which had been turned over to the R.C.N. on loan.⁹¹ While the Newfoundland Force was based on St. John's, Halifax was the nearest and at first the only base where the escorts could be fitted out, manned, repaired, and refitted. By the end of the year 13 destroyers, 58 corvettes, 24 Bangor minesweepers, and 4 M.L.'s, were either allocated by N.S.H.Q. and the Admiralty to Canadian operational forces in the Western Atlantic or under training at Halifax. All of these had been serviced at one time or another through the naval organization at Halifax.⁹²

The increase in the responsibility of the R.C.N. at Halifax was reflected in the growth of the command organization during 1941. On the outbreak of war the Commander in Charge, Halifax, had assumed the duties of Commanding Officer Atlantic Coast.⁹³ With virtually no staff to begin with, he gradually assembled the personnel necessary to meet his operational, administrative, and training requirements. In these early days all officers were borne on the books of H.M. C.S. "Stadacona", and were directly responsible to the one officer either in his capacity as C.O.A.C. or as Cdr. in C. Dockyard. As naval establishments were set up at other east-coast ports they were also placed under his command. In 1940 a separate Commander in Charge was appointed under C.O.A.C., and made responsible for the administration of auxiliary vessels and port defences. He was also appointed Commanding Officer H.M.C.S. "Venture" which became the base depot ship for all personnel and ships under his command.⁹⁴ By 1941 two further developments had become necessary: the centralizing of expenditure and civil appointments under one officer in the dockyard, and the creation of an establishment complete with its own technical, engineering, and accountant staff, to be responsible for the administration and operational training of new-construction ships during periods of taking over

⁹⁰ S.O.O.'s reports in C.O.A.C.'s Monthly Reports, Nov. 1940 to June 1941, N.S. 1000-5-13 (4), (5), and (6).

⁹¹ See ch. 7.

⁹² Allocation of H.M.C., H.M., and Allied Ships to Canadian Forces as of Jan. 1, 1942, N.S. 1057-3-6.

⁹³ N.S.H.Q. to all Heads of Branches (signal), Sept. 5, 1939, N.S. 61-1-6 (1).

⁹⁴ Navy List, June 1940; C.O.A.C. Organization Chart, May 1940 (D.N.H.S. records).

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and working up.⁹⁵ To meet this latter need a depot for the administration of destroyers and corvettes was established. Commissioned as H.M.C.S. "Sambro" on July 28, 1941, it was placed in charge of an experienced officer whose title was Commander (D) (later Captain (D)). Cdr. in C. Dockyard, however, retained control of the Local Defence Force, and of the training and work-ups of new-construction minesweepers.⁹⁶

To improve the efficiency of the repair organization the Senior Engineer Officer was made Superintendent of the Dockyard, and became the co-ordinating authority for the dockyard departments. At the same time he was made responsible for the expenditure of public funds in so far as they applied to the repair of ships and establishments. In addition this officer held the title of Superintendent of Overseers in the Maritime Area, "in which connection his duties are expanding to a degree hardly anticipated as a result of the operation of the Emergency Repair Agreement as it applies to the repair of ships by contract."⁹⁷

A rapid expansion in the activities of the dockyard took place at this time. In October the Naval Superintendent reported that several hundred temporary civil servants had been hired in the preceding few months. Representatives of the Treasury and the Department of Munitions and Supply were appointed to the dockyard to assist in financial and supply matters, and a Director of Civil Personnel was employed to supervise the ever-growing number of civilians. By October the dockyard had reached, in the opinion of the superintendent, the maximum output of which it was capable until the new shops should have become available.⁹⁸

The events of 1941 proved to be a mild foretaste of what was in store for Halifax the following year. The outbreak of hostilities between Germany and the United States in December, 1941, removed the protection which the neutrality of the latter had afforded along the Atlantic seaboard. The U-boats, already driven to operate for the most part beyond the periphery of British air defence, immediately expanded their activity to what they expected to be an area of easy pickings where defence would be weak and badly organized. The first impact of the enemy in January, 1942, was reported as follows:

⁹⁵ C.O.A.C. to N. Sec., Mar. 14, 1941 and reply, Apr. 12, 1941, N.S. 1-54-1 (1).

⁹⁶ S.O.O.'s report in C.O.A.C.'s Monthly Report, July 1941, N.S. 1000-5-13 (6); C.O.A.C. memo., n.d., (received N.S.H.Q., Nov. 27, 1941), N.S. 64-1-6 (1).

⁹⁷ Supt. H.M.C. Dockyard, Halifax to N. Sec., Oct. 23, 1941, N.S. 37-21-1 (1).

⁹⁸ *Ibid.*

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Enemy activity has greatly intensified both in volume and boldness. In the area north of 40° and between 40° W. and 67° W. nineteen ships were torpedoed and sinkings took place within ten miles of St. John's, Cape Race and Cape Sable, while sightings and attacks were made within the same distance of Halifax.⁹⁹

To meet the new danger the protection of transatlantic convoys had to be extended not only to Halifax but as far west as Cape Cod where all ships which had loaded in the United States assembled for the Sydney and Halifax convoys. In addition the large and vital Canadian coastal trade had to be organized in convoy as soon as possible. The most urgent and difficult problem was the supply of sufficient escorts. All available ships were pressed into service. New-construction ships were frequently sent on operational duties before they were completed or finally worked up, while ships awaiting refits put to sea pending the time when the repair organization could take them in hand. British warships, already serving in small numbers in the Newfoundland Force, were withdrawn from the western approaches to Great Britain, and joined with Canadian forces to form the Western Local Escort Force based on Halifax.¹⁰⁰ By the end of March, when this force reached operational strength, it comprised 13 British and 5 Canadian destroyers, and 20 Canadian corvettes. The Newfoundland Force, which meanwhile had become the Mid-Ocean Escort Force, numbered 23 British and 47 Canadian destroyers and corvettes.¹⁰¹

By 1942 Halifax had assumed in addition to all its other functions that of a major operational base. The administrative duties involved in the forming and operating of escort groups placed a new and heavy burden on the command. Moreover, the large number of ships operating off the east coast in weather so severe that scarcely one escaped injury, taxed the repair organization to the limit.¹⁰² By spring it was evident that the co-ordination of all the various activities at Halifax required an extensive reorganization to clarify responsibility, eliminate duplication of control, and speed up the administrative machinery of the base.¹⁰³

⁹⁹ S.O.O.'s report in C.O.A.C.'s Monthly Report, Jan. 1942, N.S. 1000-5-13 (9).

¹⁰⁰ S.O.O.'s reports and Captain (D)'s reports in C.O.A.C.'s Monthly Reports, Jan., Feb., and Mar., 1942, N.S. 1000-5-13 (9) and (10); "History of Trade Division" cited above, *passim*.

¹⁰¹ Allocation of H.M., H.M.C., and Allied Ships to Canadian Forces, Apr. 1, 1946, N.S. 1057-3-6 series.

¹⁰² Several R.N. ships, including R.N. corvettes on loan to the R.C.N., made use of U.S. ports under the lease-lend agreement, one ship going as far as Galveston, Texas.

¹⁰³ C.O.A.C. memo., Apr. 9, 1942, N.S. 61-3-33 (1).

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From the beginning of the war the functions of training and base operation had been closely associated at Halifax. While this system had been satisfactory when the base was small, it was no longer efficient. Moreover the navy had grown and was growing far more rapidly than had been anticipated, and accommodation was already a critical problem. The new Nelson Barracks, intended to house personnel under training, when completed would have a capacity of four thousand. By the spring of 1942 the requirements for the base itself were estimated as being over five thousand. Moreover, the city was already overcrowded and there was difficulty in obtaining skilled labour for the repair yards because of the acute shortage of housing. Everything pointed to the desirability of separating the base and training establishments and removing the latter from Halifax.¹⁰⁴

Under the reorganization which became effective in May 1942, "Sambro" and "Venture" were paid off and all accounts held there were transferred to H.M.C.S. "Stadacona" which became the base depot, Halifax.¹⁰⁵ All training was taken away from "Stadacona" and placed under a newly-established sub-command known as H.M.C.S. "Cornwallis", which was to be moved out of Halifax as soon as accommodation could be provided elsewhere. The administration of port defences, barracks, all components of the dockyard, and of everything concerned with the efficient operation of the port, was all centralized under a Naval Officer-in-Charge, and the old position of Cdr. in C. Dockyard was abolished. All naval technical and repair services at Halifax other than those operating under the Emergency Repair Agreement were amalgamated under the Engineer Superintendent in the dockyard. All repair work handled under the Emergency Repair Agreement, or undertaken at the other east-coast naval bases, became the responsibility of the Supervising Naval Engineer, Maritimes.¹⁰⁶

Despite much talk in 1941 little construction had been undertaken in the dockyard. Additional office space and a new stores building had been occupied late in the year. The problem of storage, however, remained acute. In January, 1942, the Acting Director of Naval Stores reported that "the present space for Naval Stores, Halifax, is terribly inadequate and in certain Departments the congestion is almost un-

¹⁰⁴ Projects Cttee. Minutes, Apr. 25, 1942, N.S. 1078-3-12 (1).

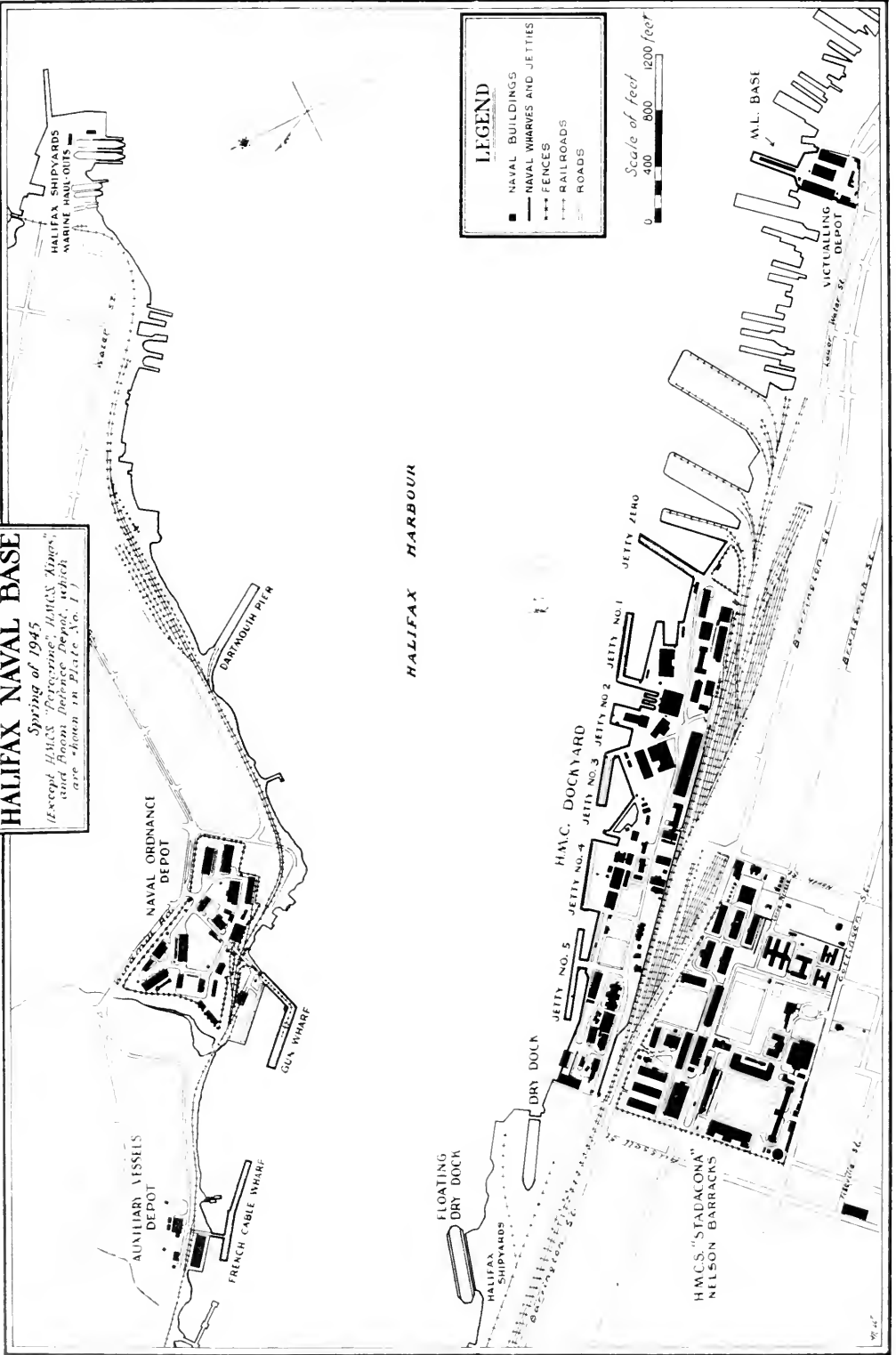
¹⁰⁵ Naval Board Minutes, Mar. 23, 1942.

¹⁰⁶ Atlantic Coast Command Organization Chart, May 1942 (D.N.H.S. records); C.O.A.C. memo., Apr. 25, 1942, N.S. 1078-3-12 (1).

PLATE II

HALIFAX NAVAL BASE

Spring of 1945
(Except HMCS "Petrevere", HMCS "Apogee", and Boom Distance Depot, which are shown in Plate No. I.)



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believable.”¹⁰⁷ By 1942 it was clear that the development of the dockyard as already approved would not be sufficient. Limitations of space, however, meant that further expansion was impossible without removing some existing facilities to another place. A new armament depot, completed the previous year, had like everything else at Halifax increased its activities many times. Located in the centre of the dockyard it greatly added to the general congestion. A self-contained unit, it could operate away from the yard without detriment; while its removal would not only relieve congestion but make available modern buildings which could readily be converted into badly-needed repair shops, and put off the day when a whole new dockyard would have to be built.¹⁰⁸ The Naval Service agreed with these arguments of the Halifax Planning Committee, and approved the construction of a new armament depot at Dartmouth, across the harbour from the dockyard, with its own gun wharf, and with maintenance and storage buildings for guns, gun mountings, torpedoes, depth charges and depth-charge equipment, paravanes, and a multitude of other ordnance stores.¹⁰⁹ The project was finally approved by Order in Council in July 1942, at an estimated cost of £3,000,000, and construction was started the same month.¹¹⁰

In 1942 the renovation of the south end of the dockyard finally got under way in earnest. While construction in this area was to continue until the end of the war and after, its benefits began to be evident by the end of the year. To help solve the stores problem, negotiations were undertaken with the army to acquire several new and commodious army stores buildings immediately south of the dockyard. The army agreed on condition that the Naval Service provide stores space elsewhere.¹¹¹ The first of these buildings was taken over in April 1943, and the rest were occupied as alternative space for army stores became available.¹¹² New port-defence depots, minesweeping stores, and a wharf for auxiliary vessels, were acquired or constructed on the Dartmouth side of the harbour during 1942. A new victualling depot erected about a mile south of the dockyard was occupied in December.

¹⁰⁷ A D.N.S. to A D.Min., Jan. 6, 1942, N.S. 1279-25 (1).

¹⁰⁸ Halifax Planning Cttee. Minutes, Jan. 24, 1942, *ibid.*

¹⁰⁹ Naval Board Minutes, May 11, 1942; Projects Cttee. Minutes, Apr. 28, 1942, N.S. 1078-3-12 (1).

¹¹⁰ P.C. 6467, July 24, 1942.

¹¹¹ P.C. 92, Jan. 9, 1942.

¹¹² Lieut. D. W. Overend, R.C.N.A.R., "R.C.N. Buildings and Lands in the Halifax Area," May 1, 1945 (D. of P. records).

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Throughout the war the magazines at Halifax handled a tremendous quantity of ammunition and underwater explosive missiles for many types of warship, as well as supplies for defensively-armed merchant vessels. Located in Bedford Basin the magazines had been built in 1927 for the joint use of the army, navy, and air force. Even before the war they had proved inadequate for the needs of the R.C.N., and \$130,000—a substantial sum in those days—had been voted in the estimates for 1939 for their enlargement.¹¹³ Nothing was accomplished before September, however, and during the early days of war improvised shelter and open storage had to be used.¹¹⁴ By the summer of 1943, however, over \$1,300,000 had been spent on the development of the magazines which by this time were used exclusively by the R.C.N.¹¹⁵

As early as 1940 the Naval Service had considered the provision of an inland reserve magazine accessible by rail to all east-coast bases, in order to remove concentration of explosives at points vulnerable to air attack. A suitable location was chosen at Renous in north-eastern New Brunswick, but because of pressure of other commitments on labour and materials construction was not undertaken until 1943, at an estimated cost of \$1,400,000.¹¹⁶

Despite this relief the Halifax magazines continued to be so overtaxed that it was not possible to comply with all safety regulations. This was particularly true following the cessation of hostilities with Germany when numerous ships were being de-ammunitioned. On the evening of July 18, 1945, a short series of explosions occurred on the crowded magazine jetty. These were followed by a violent fire which spread to buildings and dumps ashore and resulted during the night in an "uninterrupted bombardment of an area extending over a radius of at least one mile from the magazine area." The last major explosion occurred early the next morning and the fire was gradually brought under control, but not before a large part of the magazine had been destroyed and considerable damage done to nearby property by blast. A number of people were injured and one patrolman lost his life in the initial explosion. The cause of the explosions was never ascertained, but their

¹¹³ D.N.E. to D.N.E.S., Jan. 31, 1939, N.S. 75-29-1 (1).

¹¹⁴ C.N.S. to Min., Sept. 29, 1939, N.S. 1017-10-39 (1).

¹¹⁵ Document attached to P.C. 81 9745, Dec. 27, 1943, N.S. 37-4-41 (2).

¹¹⁶ Naval Staff Minutes, June 3, 1940, and Oct. 6, 1942; Naval Weekly Report, Feb. 5, 1943, N.S. 1000-5-7 (3).

extent was undoubtedly the result of the crowded conditions in the magazine area.¹¹⁷

The storage of naval fuel at Halifax presented no serious problem during the war. The large Imperial Oil Refinery, which normally supplied all Canadian east-coast bases, handled most of the fuel-oil used by warships at Halifax.¹¹⁸ Early in 1941 the Naval Service decided to erect 70,000 barrels of reserve tankage on McNab's Island in Halifax harbour, lest the refinery or commercial storage facilities should be damaged by enemy action; at the same time it approved the construction of a small 15,000-barrel tank at the French Cable Wharf, to provide additional operational tankage.¹¹⁹ No other naval storage was undertaken at Halifax by the Naval Service. Before the United States entered the war the British Petroleum Board acquired 700,000 barrels of tankage at Halifax to assist in shuttling petroleum products from this continent to the United Kingdom. The tanks were not completed until 1942 and very little oil passed through them at first. With the institution of fuelling at sea, however, they were used by the Admiralty to store fuel oil brought from the Caribbean area for its escort carriers and for transshipment to the United Kingdom. Supplies held in this tankage provided an additional reserve in case of emergency and were also available for British and American warships.¹²⁰

Following the initial attacks along the east coast of Canada, the enemy moved south with terrible effect on the vital sea traffic along the eastern seaboard of the United States. In May, U-boats appeared in the St. Lawrence with similar success. In October they returned in force to the Atlantic sea lanes causing serious losses to transatlantic convoys. In all, during 1942, 956 merchant ships were sunk in the North Atlantic as a result of U-boat action.¹²¹

For the R.C.N. at Halifax it was a year of unprecedented activity. By June, 1942, 47 Canadian and 14 British warships

¹¹⁷ Findings of the Board of Inquiry into the Bedford Magazine explosion, Aug. 10, 1945, N.S. 1150-158/57-1 (1).

¹¹⁸ In 1944 the total tankage at Imperoyal for heavy fuel oil storage was 1,031,000 bbls.; for diesel fuel, 252,000 bbls.; for high-octane gasoline, 1,752,000 gallons. [Canadian Port Facilities, July 1944 (D.F.D. records)].

¹¹⁹ N.S.H.Q. to C.O.A.C., Dec. 11, 1940; same to same, Apr. 23, 1941; N.S. 1044-12-8 (1), N.S. 1044-18-8 (1); C.N.S. to A. D.Min., Apr. 26, 1941, N.S. 1044-12-8 (1); P.C. 491, June 20, 1941.

¹²⁰ D.Min. to Undersec. of State (Ext. Aff.), Apr. 17, 1941, N.S. 1044-12-8 (1); D. Fuel to C.N.E.S., Dec. 11, 1944, N.S. 1044-12-8 (5).

¹²¹ "Statistical Summary of War on British, Allied and Neutral Shipping" cited above, N.S. 1480-13 (1).

were regularly based on Halifax, and a further 26 were operating out of other east-coast bases. The 43 R.C.N. ships attached to the Mid-Ocean Escort Force shuttled between St. John's and Londonderry; and while they now had access to the repair and supply facilities at Londonderry and other ports in Great Britain, they continued to rely to some extent on those at Halifax. In addition to its other duties Halifax functioned as the R.C.N.'s principal manning and supply depot, operational training centre, and base for the working up of new-construction ships—all functions of the navy which expanded very rapidly during 1942.

By agreement with Great Britain and Canada, the United States Navy had exercised command in the Western Atlantic from late 1941. By 1943 its many other commitments, particularly those connected with the opening of convoy routes in the Mediterranean, continued to prevent the allocation of an adequate number of ships to U.S. Task Force Twenty-Four, whose commander at Argentia, Newfoundland, had exercised this authority.

Early in March a conference of British, United States, and Canadian naval officers, was held in Washington to consider the whole question of anti-submarine warfare in the Atlantic.¹²² Two of its decisions affected the destiny of the Halifax naval base. First the conference agreed that because of the re-allocation of United States forces, Great Britain and Canada should take complete charge of trade convoys between the British Isles and all Atlantic ports north of and including New York. A line known as CHOP was established near the 47th meridian to divide the British and Canadian areas of responsibility: west of this line and north of the United States Eastern Sea Frontier Command, N.S.H.Q. assumed responsibility for the control and protection of ships in transatlantic convoy. The conference also concluded that in the war against the U-boat, sea and air forces should be closely co-ordinated, and that the latter, under a single air commander, should be placed under the operational direction of the responsible naval commander.¹²³

To conform with these decisions the Commander Task Force Twenty-Four turned over his responsibility for the protection of shipping in the North-west Atlantic to the former

¹²² Atlantic Convoy Conference Minutes, Mar. 1 to 12, 1943, pp. 24 and 25, N.S., T.S. 11270-128 (I). See ch. 14.

¹²³ *Ibid.*, App. 'A' to minutes of 1st meeting (A.C.C.1).

Commanding Officer Atlantic Coast who had meanwhile assumed the title Commander in Chief, Canadian Northwest Atlantic.¹²⁴ Under C. in C., C.N.A. were placed all Canadian sub-commands in the Atlantic area, including Newfoundland which had previously been independent of Halifax. In order to relieve Admiral Murray of the many administrative duties formerly borne by him as Commanding Officer Atlantic Coast, the naval officers-in-charge of sub-commands were given a large measure of local administrative control, and direct access to N.S.H.Q. on numerous matters of a non-operational nature.¹²⁵ At Halifax itself, the N.O.I.C. became Commodore, Halifax, and assumed in addition to his former duties much of the administrative responsibility for the base formerly vested in C.O.A.C., including Captain (D)'s organization, and the training establishments in Halifax.¹²⁶

The co-ordination of naval and air Operations necessitated the setting-up of joint headquarters to include a combined Operations room, and an up-to-the-minute plot of the positions of the U-boats, convoys, escorts, and air patrols, based on all available information. This required the provision of suitable headquarters, trained personnel, and direct communication with the respective Service headquarters in Ottawa.

The establishment of a joint Services headquarters for all three Services had been considered at the beginning of the war in connection with the defence of the east coast. Nothing had been done, however, because of the lack of trained personnel.¹²⁷ By 1942, when the form of enemy attack was abundantly evident, the need of closer navy-air co-operation in anti-submarine warfare pointed to the desirability of a combined Operations room, and steps were taken to provide accommodation at R.C.A.F. Headquarters in Halifax.¹²⁸ However, outside of temporary measures including the exchange of liaison officers and the installation of improved inter-Service communications, nothing had been effected prior to the Washington Conference, and it was not until July, 1943, that C. in C.,

¹²⁴ C.O.A.C. assumed title of C. in C., C.N.A., on Apr. 1 and took over from C.T.F. 24 one month later. [N.S.H.Q. to Admiralty (signal), Mar. 30, 1943; N.S.H.Q. to A.I.G. 161, Apr. 29, 1943; N.S. 1700-102 1 (1)].

¹²⁵ Sec. N.B. to C.O.A.C., Mar. 19, 1943; same to same, Mar. 26, 1943; Sec. Memo. No. 276, Mar. 29, 1943; N.S. 1700-102 1 (1).

¹²⁶ C.O.A.C. to Capt. (D), N.O.I.C. and C.O. "Kings," N.O.I.C. and C.O. "Cornwallis" (different contents), Mar. 18, 1943, *ibid.*

¹²⁷ J.S.C. Minutes, Aug. 2, 1939; J.S.C. to C.S.C., n.d.; N.S. 1001-1-16 (1).

¹²⁸ C.S.C. Minutes, Feb. 24, 1942; Cabinet War Cttee. Minutes, Mar. 18, 1942 (extract in Clerk P.C. to Sec. C.S.C., Mar. 21, 1942); N.S. 1001-1-16 (1); C.S.C. Minutes, Nov. 10, 1942; Naval Staff Minutes, Nov. 23, 1942.

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C.N.A., was able to move his staff from the dockyard to the Area Combined Headquarters.¹²⁹

By 1943 the total complement of the R.C.N. had reached 54,000, and the problem of drafting and advancement of men in ships and shore establishments had assumed such proportions as to warrant the setting up of a separate establishment to handle the work. On the first of April, therefore, an R.C.N. Depot was established at Halifax, and made responsible under the direct supervision of N.S.H.Q. for the drafting of all men in the R.C.N. Sub-depots were established at Esquimalt, B.C., St. John's, Newfoundland, and Greenock in Scotland.¹³⁰ The Halifax depot was located in H.M.C.S. "Stadacona" during the first year of its existence. By 1944, however, its functions had expanded to the point where further accommodation was necessary. Moreover it had become advisable by this time to separate the depot from the base organization in order to avoid overlapping and confusion of authority.¹³¹ On October 1, therefore, the R.C.N. Depot was commissioned H.M.C.S. "Peregrine" and set up as a separate entity with quarters in a former British Commonwealth Air Training Depot at Halifax which the R.C.N. had taken over by stages during the first half of 1944.¹³²

During the course of the war eighty M.L.'s were commissioned in the R.C.N., most of which operated from bases on the east coast, along the St. Lawrence, and in Newfoundland. The first four M.L.'s had been commissioned at Halifax in the winter of 1940-41. During the next navigational season other boats, except for two retained at Quebec, were worked up at Halifax as they became available, and allocated to bases along the east coast and in Newfoundland. They had first been administered by the Captain in Charge as part of the Local Defence Force, and later by Captain (D). By the beginning of 1943 fifty-one M.L.'s were in commission, and the many problems peculiar to the operation of these small craft made it essential to provide at once a central organization for their administration.¹³³ In March, therefore, a Captain (M.L.) was appointed at Halifax and made respon-

¹²⁹ J.S.C. to C.S.C., May 20, 1942, N.S. 1001-1-16 (1); C. in C., C.N.A. War Diary, July 1943, N.S. 1000-5-13 (18).

¹³⁰ C.N.P. to Sec. N.B., Apr. 12, 1943, N.S. 30-8-38 (1).

¹³¹ D.F.A.S.S. to C.N.P., June 4, 1945, N.S. 1700-233 (1).

¹³² Naval Order 4008, Oct. 14, 1944; information on acquisition of R.C.A.F. Depot, N.S. 37-4-466.

¹³³ D.O.D. to V.C.N.S., Dec. 11, 1942, N.S. 1057-21-1 (1); Naval Staff Minutes, Jan. 14, Feb. 11, 1943; Naval Board Minutes, Mar. 18, 1943.

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sible for the training of personnel, the working-up of boats, and the correlation of maintenance and operational programmes on the east coast. In order to provide this officer with the necessary disciplinary authority, an establishment under his command was commissioned as H.M.C.S. "Gannet."¹³⁴ The yacht *Venture II*, which as H.M.S. *Seaborn* had once been the headquarters of the Rear Admiral Third Battle Squadron, was made available for the Captain (M.L.) and was tied up alongside the new Victualling Depot south of the dockyard.¹³⁵

The impressive expansion of the operational and administrative commitments of the R.C.N. at Halifax was more than equalled in the field of ship maintenance and repair. By 1943 existing repair facilities on the east coast were rapidly reaching the saturation point, and the proportion of warships awaiting or undergoing refit in that area became high enough to cause grave concern.¹³⁶ The basic reasons for this situation were not hard to find. By March, a hundred Canadian and twenty British warships, exclusive of M.L.'s, were allocated to Canadian bases on the east coast and in Newfoundland.¹³⁷ By April the work demanded of H.M.C. Dockyard, Halifax, by anti-submarine vessels, had increased three hundred per cent over that required the year before. Moreover the number of merchant ships seeking repairs at Halifax and Saint John had grown steadily during the same period. In this connection, older ships and lame ducks, pushed from port to port in Great Britain and the United States in search of repairs, tended to gravitate to Halifax and Saint John, in the hope of finding better treatment.¹³⁸ By 1943 American ports and navy yards were severely taxed by the vast ship construction and repair programme for the navy and merchant marine of the United States, and as the year wore on British ports could no longer be fully relied on as in the past by warships and merchant vessels on the North Atlantic run, because of pre-invasion demands on dockyard labour and equipment.¹³⁹ During 1943, therefore, a load was placed on east-coast repair facilities

¹³⁴ Sec. N.B. to C.O.A.C., Mar. 26, 1943, N.S. 1057-21-1 (1); N.S.H.Q. to A.I.G., May 7, 1943, *ibid.*

¹³⁵ C. in C., C.N.A. to N.S.H.Q. (signal), May 5, 1943, *ibid.*

¹³⁶ Allied A/S Survey Board to C.N.S., May 18, 1943, N.S. 1271-15 (1).

¹³⁷ Allocation of H.M., H.M.C., and Allied Warships to Canadian Forces, Mar. 1943, N.S. 1057-3-6.

¹³⁸ A/S Survey Board to C.N.S. cited above, N.S. 1271-15 (1); Naval Staff Minutes, June 3, 1943; C.N.E.C. to A.C.N.S., June 9, 1943, N.S. 1057-1-39 (1).

¹³⁹ C.O.A.C. to Sec. N.B., Mar. 27, 1943, N.S. 1057-1-35 (1); S.C.N.O. (L) to Sec. N.B., Aug. 27, 1943, N.S. 1057-1-35 (3); Naval Staff Minutes, Aug. 30, 1943.

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which they had not been designed to handle, but which they nevertheless had to bear. For the industrial heart of Canada lay along the upper St. Lawrence River and the Great Lakes, far from the scene of Operations and inaccessible to ships in winter.

A careful investigation of the repair and refit of warships on the east coast revealed that specific reasons for delay were a shortage of labour, interference with refit schedules to meet urgent operational requirements, the completion of new-construction warships at Halifax instead of at the builder's yards, and a lack of proper co-ordination between the various naval departments at Halifax which were concerned with repairs and refits.¹⁴⁰ To these reasons a fifth was soon to be added: the provision of new and improved types of fighting equipment in ships, a process which involved in the case of certain of the older corvettes extensive reconstruction of the superstructure.¹⁴¹

The shortage of labour was by this time general throughout the Dominion. The many demands made on Canadian manpower by the armed forces and by the industrial war effort had stretched the supply of skilled labour to the utmost. Moreover the acute shortage of housing at Halifax and at the outports made it difficult to entice labour to the east-coast ship-repair yards from industries in other parts of Canada. Early in 1942, the Naval Service had been forced to make extensive use of naval ratings at Halifax. Recruits were mostly untrained and required a long apprenticeship before becoming effective.¹⁴² Nevertheless this policy had to be continued at Halifax, and extended to other bases where there was little hope of obtaining civilian labour.

The urgent need for escorts in 1942 had prevented many Canadian warships from refitting on schedule; and continuous operation in the arduous conditions of the North Atlantic resulted in a serious increase in the number of ships' defects. Once a ship could be spared from Operations she usually required an extensive refit, which in turn necessitated the retention of other ships in operation beyond their allotted time. To this vicious circle was added the fact that new-construction ships built on the Great Lakes or along the St.

¹⁴⁰ Memo. "Repair and Refitting East Coast," by D. Org., June 18, 1943, N.S. 1057-1-35 (1).

¹⁴¹ D.W.T. to A.C.N.S., Dec. 7, 1943, *ibid.*

¹⁴² Memo. by D. Org. cited above, *ibid.*

PLATE III

ORGANIZATION OF C. IN C. C. N. A.

The organization described here was operative in Oct 1943, and was set up in substance in this form, which it may not submit to other, to not change until the end of the war.

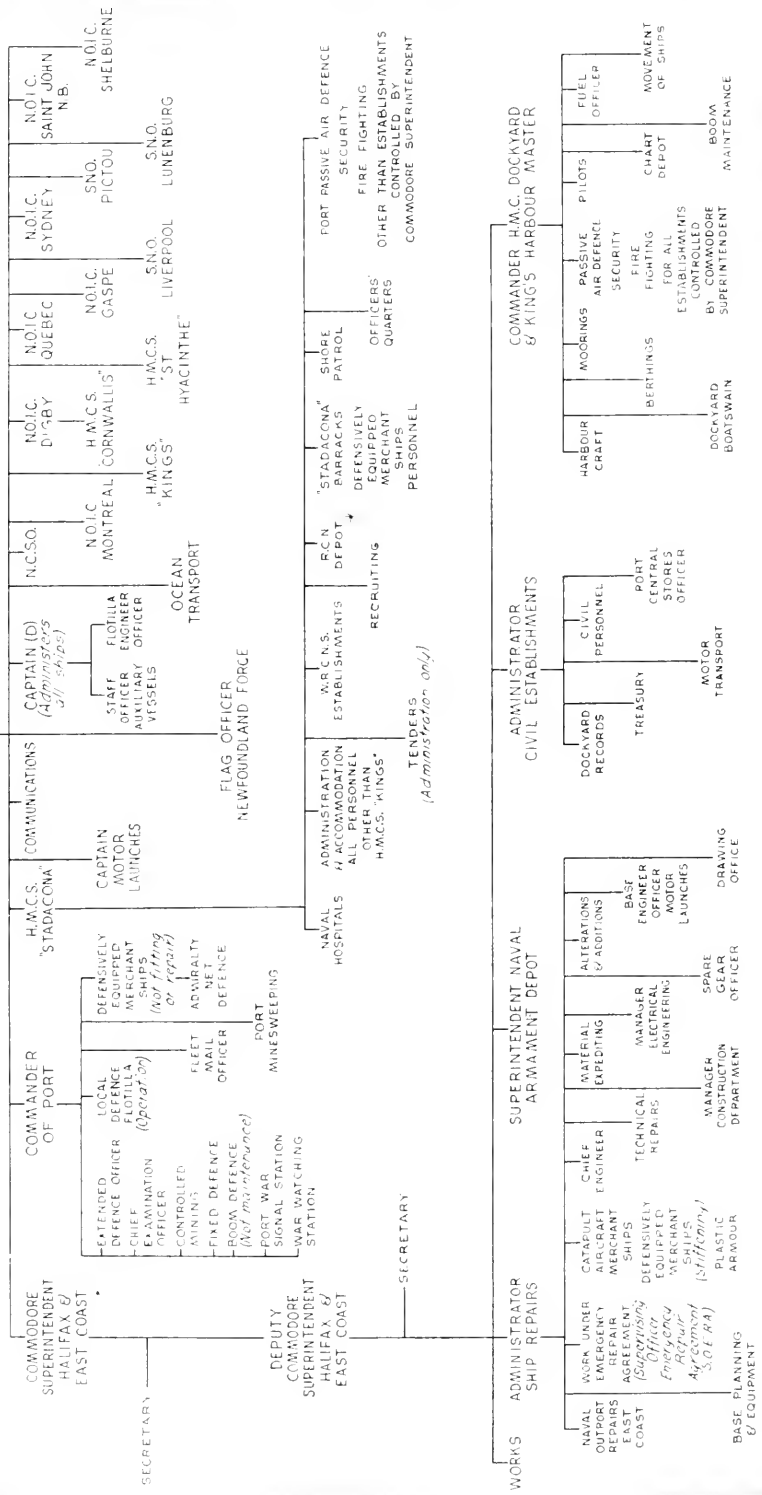
COMMANDER IN CHIEF
CANADIAN NORTH WEST ATLANTIC

SECRETARY

CHIEF OF STAFF

ENGINEER CAPTAIN

* These two establishments commonly comprise about a staff, with being by one and the Commander Superintendents organization was normally in the R.C.A. Depot also. Commanded as H.M.C.S. "Dorchester".



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Lawrence River were often rushed to salt water before completion to avoid the freeze-up, or left the yards in the same condition because the necessary equipment was not available to the builder. In either case the ships had to be completed after their arrival in Halifax. Finally, by 1943, the repair of warships on the east coast had become a major enterprise, and the repair organization at Halifax had not kept pace with this development.¹⁴³

In October, therefore, a further reorganization took place within the naval command on the east coast. An executive officer with headquarters at Halifax was appointed Commodore Superintendent and placed in charge of the repairing, refitting, and storing, of H.M.C. ships at all naval bases on the east coast and at the outports. His task was to co-ordinate the many activities involved, and he was relieved of all duties other than those essential to this purpose. Placed nominally under the Commander in Chief, Canadian Northwest Atlantic, he was responsible directly to N.S.H.Q. in all matters coming within his province.¹⁴⁴

As the authority of the Commodore Superintendent in Halifax itself cut across that exercised by the Commodore, Halifax, this latter position was abolished and all matters not the concern of the new repair organization reverted to the control of the Commander in Chief, Canadian North-west Atlantic. To assist Admiral Murray in assuming this additional burden, an officer with the rank of Commodore was appointed Commanding Officer "Stadacona." This officer assumed, in addition to the duties of that office, many of the administrative functions of the former Commodore, Halifax. Responsibility for the defence of the port and for all matters concerned with the defensive equipment of merchant ships was assumed by a Commander of the Port, who was placed directly under the Commander in Chief. The administration of all ships including local defence forces was centralized under Captain (D), who was shortly to be relieved of many of his onerous training duties by the establishment of a Canadian operational training base in Bermuda.¹⁴⁵

While this organization remained basically the same until the end of the war, certain changes in it were subsequently

¹⁴³ *Ibid.*; D.O.D. to V.C.N.S., Mar. 22, 1943, *ibid.*

¹⁴⁴ Memo., by D. Org. cited above, *ibid.*; Sec. N.B. to C. in C., C.N.A., Sept. 18, 1943, N.S. 1700-102 I (1); Sec. Memos. No. 360, Sept. 27, and 364, Oct. 15, 1943, *ibid.*

¹⁴⁵ C. in C., C.N.A. to Cdre. "Stadacona," Oct. 10, 1943; C. in C., C.N.A. to Sec. N.B., Oct. 15, 1943; *ibid.*

brought about in the light of experience. It was found that the Commander in Chief needed his principal administrative officer close by him at Area Combined Headquarters, where he would be unencumbered with the duties of Commanding Officer "Stadacona." He was therefore appointed to Admiral Murray's staff as Chief Staff Officer (Administration), and the jurisdiction of the Commanding Officer "Stadacona" reverted to its former limits.¹⁴⁶ Experience also showed that the various activities of the local defence force were so closely integrated that it was inefficient to have the force under the operational direction of one officer and the administrative authority of another. In September 1944, therefore, the Commander of the Port, already the operational authority for the local defence force, took over the responsibility for its administration from Captain (D).¹⁴⁷ Meanwhile, in June 1944, in order to effect a further decentralization of disciplinary authority in the Halifax Area, H.M.C. Dockyard was removed from the jurisdiction of the Commanding Officer "Stadacona" and commissioned as a separate establishment known as H.M.C.S. "Scotian."¹⁴⁸

Other measures were taken to improve the handling of repairs on the east coast and in Newfoundland. Efforts were made to obtain more labour for private firms operating under the Emergency Repair Agreement, and Lunenburg, Liverpool, and Pictou, were provided with additional storage and accommodation facilities to help speed up the de-storing of ships turned over to these ports for refit, and to furnish additional quarters for skeleton crews. At Halifax and elsewhere on the east coast the repair of naval ships was given priority over new ship construction, and running-repair facilities at St. John's were developed to their utmost. In December, 1943, a forecast of R.C.N. refitting and repair commitments for 1944 indicated little hope of their being met through existing facilities on the east coast. In addition to continuing its efforts along the above lines, therefore, the Naval Service decided to develop its establishments at Sydney and Shelburne with the utmost speed as major refitting bases, and to man them with naval personnel.¹⁴⁹

As late as May 1944 there was no apparent improvement in the length of time taken for refits, largely because of the

¹⁴⁶ Interview with Capt. R.E.S. Bidwell, R.C.N., Nov. 1946.

¹⁴⁷ C. in C., C.N.A. to Sec. N.B., Sept. 14, 1944 ("Scotian" D.H. 3-19-1 (1)).

¹⁴⁸ C. Supt. to General Dockyard (signal), May 25, 1944, ("Scotian" D.H. 3-26-1 (1)).

¹⁴⁹ D.W.T. to A.C.N.S., Dec. 7, 1943, N.S. 1057-1-35 (1); Naval Staff Minutes, Dec. 27, 1943; C.N.S. to Min., Dec. 31, 1943, N.S. 1057-1-35 (1).

HALIFAX NAVAL BASE AND ITS OUTPORTS

extensive alterations and additions required to be undertaken along with normal refit in order to provide new combat equipment necessary to the fighting efficiency of Canadian warships.¹⁵⁰ To alleviate the pressure on east-coast bases a number of corvettes were sent to repair yards on the west coast of Canada, in the United States, and in Great Britain. Furthermore a cutting-back of the Canadian ship-construction programme in 1944 permitted the use of shipyards in the St. Lawrence River during the summer months; and late in the year Shelburne and Sydney began to function as major refit and repair bases.¹⁵¹ Despite these measures, however, the refit and repair of warships continued to be the major problem faced by east-coast bases until the end of the war.

By the beginning of 1943 the U-boat had lost the initiative in the North Atlantic never to regain it. Many factors had contributed to this end. At sea the ratio of allied anti-submarine vessels to enemy U-boats steadily increased as the vast ship-construction programmes of the United States, Great Britain, and Canada, bore fruit. Moreover, greatly improved devices for detecting and destroying underwater craft, new tactics, and better-trained crews, helped the Allies to make more efficient use of the forces available to them. At the same time the merciless bombing of enemy submarine pens and construction yards by the allied air forces based in Britain, made it impossible for the German navy to keep itself supplied with an adequate number of U-boats. Finally, in 1944, as a result of the successful invasion of Europe, the German undersea fleet was deprived of its bases in France and the Low Countries.

The ubiquitous U-boat, however, remained one of the most destructive weapons in the possession of Germany's crumbling military machine. Equipped with the highly effective acoustic torpedo, and later with *Schnorchel*, a device which permitted it to run on its diesels and recharge its batteries while submerged to periscope depth, the U-boat was able to carry on its campaign against shipping until the end of the war. As late as the winter of 1944-45 German submarines provided grim evidence of their presence off Halifax. One 10,000-ton ship was sent to the bottom while forming up in an outbound convoy, two others were sunk and one was damaged in a westbound Sydney-Halifax convoy, and later three ships

¹⁵⁰ Naval Staff Minutes, May 15, 1944.

¹⁵¹ D.W.T. to C.N.S., Sept. 29, 1944, N.S. 8785-166/10 (1).

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were torpedoed in an eastbound Boston-Halifax convoy as it steamed up the searched channel.¹⁵²

While the Royal Canadian Navy dispatched over a hundred ships to European waters to assist in the invasion of Europe, it assumed at the same time a greater responsibility for the protection of transatlantic convoys in order to relieve R.N. ships for other duties.¹⁵³ The assumption of these additional commitments was made possible by the increase in the number of ships available to the R.C.N. during the latter part of the war. In January 1943, excluding auxiliary vessels, the R.C.N. had 201 ships in commission and most of these were engaged in anti-submarine activities. By the end of 1944 this total had risen to 387. This increase was largely accounted for by the addition to the fleet of 33 corvettes, 69 frigates, and 12 Algerines, all of which were used as anti-submarine vessels.¹⁵⁴

Despite changes in the strategic situation and in the disposition of warships, there was little respite for Halifax. As the principal naval base on the east coast it was responsible in some measure at least for the vast majority of Canadian warships, a large number of which continued to operate in the Western Atlantic until the cessation of hostilities.

WARSHIPS* BASED ON HALIFAX FROM JANUARY 1942 TO MAY 1945

(Taken from statements on Allocation of H.M., H.M.C., and Allied ships to Canadian Force, in N.S. 1057-3-6 series)

	Destroyers	Frigates	Corvettes	M/S's	Aux. Vessels	M.L.'s
January 1942	2	..	3	7	3	..
June 1942	19	..	23	16	3	..
January 1943	6	..	26	18	2	10
June 1943	18	..	37	31	4	15
January 1944	3	..	28	40	4	38
June 1944 .....	..	..	35	20	3	27
January 1945 .....	..	..	40	27	2	9
May 1945	2	1	42	32	2	18

* Canadian, British, and Free French.

¹⁵² "History of Trade Division" cited above, p. 52 (D.T.D. records).

¹⁵³ D.P.D. report: "The first year of Operational control in the Northwest Atlantic," June 10, 1944, N.S. 1650-5 (1).

¹⁵⁴ Summary of Information respecting Departmental Activities, Jan. 15, 1943, and Dec. 6, 1944 (D.N.H.S. records).

OTHER BASES IN EASTERN CANADA

THE Naval Service established six other naval bases on the Canadian mainland to support the war in the Atlantic and the Gulf of St. Lawrence. Most of these bases assumed responsibility, in some measure, for both naval and merchant ships. In broad terms, however, they could be divided into two general classes: those ministering to the needs of merchant ships, and of naval units before these had become operational; and those established to support operational warships. In the first class came the shore establishments at Montreal, Quebec, and Saint John.

Montreal and Quebec are situated on the St. Lawrence River, which with the Great Lakes forms the most important inland waterway in North America, and one of the greatest in the world. Nearly two thousand miles in length, this inland trade route penetrates to the heart of the continent, and provides the shortest and most direct outlet to the sea for the highly-developed industrial areas of the United States and Canada through which it passes. The river itself, however, was navigable to all types of ship only as far as Quebec, some three hundred miles from its mouth. For a further 160 miles — as far as Montreal — it was accessible to ships with a draught of less than thirty feet. Over its whole length it could be used only by ships drawing less than fourteen feet of water. A further limitation was the closing of the river by ice from December to April or May. Nevertheless the St. Lawrence River formed the major highway for the shipment by water of Canadian exports, and in addition supported an extensive river and coastal traffic which formed an essential part of the economy of eastern Canada. Montreal, at the head of almost all ocean shipping, was not only Canada's largest city but its most important and highly-developed port.

The city of Quebec, overlooking the estuary of the St. Lawrence River, has always been a stronghold in the defence of eastern Canada. Situated at the head of the natural deep-

NAVAL SERVICE OF CANADA

water channel, it occupies a commanding position over all ship-traffic proceeding up the river to Montreal and the Great Lakes. It was very unlikely, however, that any hostile ship would attempt the long journey to Quebec, and the fixed artillery defences at that port were limited to a battery of two 7.5-inch guns placed on the south shore below the city where they commanded the approach areas. Manned just prior to the outbreak of war, these guns were maintained in operation until September, 1943, when they were placed in maintenance to release army personnel for duty overseas.¹

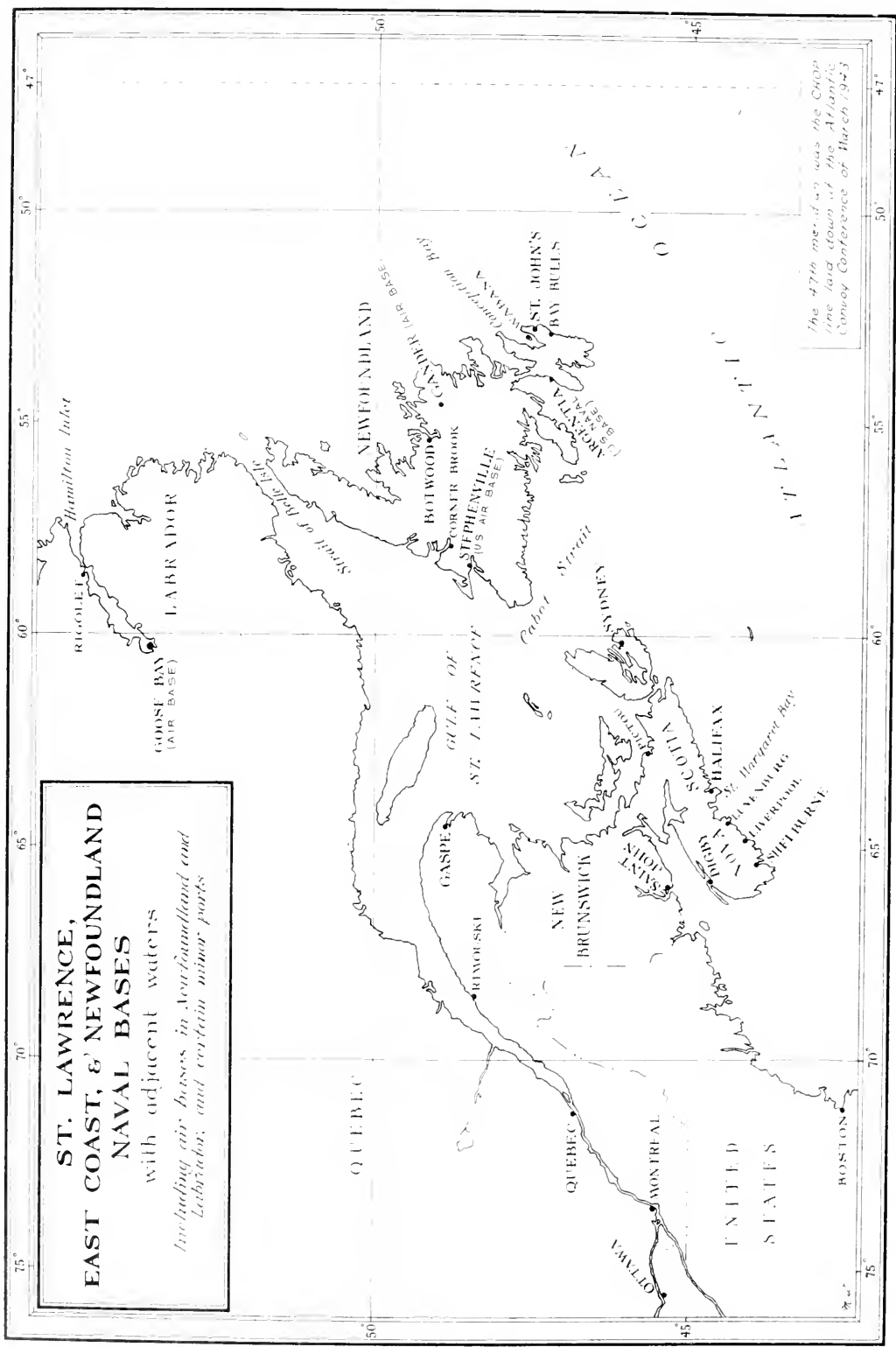
Two 18-pdr. mobile guns were set up about twenty miles below Quebec on the Island of Orleans, which is strategically situated at the point where the river flows into the estuary. These guns supported the examination vessel which operated off shore from the beginning of the war. A port war signal station, located near the examination battery, completed the defences of Quebec. Quarters for both naval and military personnel on the island were constructed by the Canadian army. In addition to performing its defensive rôle, the examination service proved very useful to the naval control authorities at Quebec and Montreal by obtaining precise information not always available in advance during war-time when wireless silence at sea is obligatory.²

The first naval control service in the St. Lawrence River was instituted at Quebec in September, 1939, with headquarters in the local customs building. Three R.C.M.P. motor boats, the *Chaleur*, *Madawaska*, and *Fernand Rinfret*, were taken over by the R.C.N.; one of them was used for harbour patrol and the others for the examination service. In July 1940 a river patrol was instituted with headquarters at Rivière du Loup. This patrol covered the area between Ile aux Coudres, sixty miles below Quebec, and West Point on Anticosti Island. It consisted of the diesel yacht *Ambler*, and the motor boats *Eileen*, *Cleopatra*, and *Anna Mildred*. In June 1940 H.M.C.S. *Bras d'Or*, a trawler minesweeper, was stationed at Rimouski to carry out searching sweeps in shallow waters and to ensure that no mining took place undetected. After several weeks on duty the minesweeper developed defects necessitating a general refit which took most of the summer. In mid-October, shortly after she had resumed the patrol, the

¹ Extract from Major Court-Treath's report on Quebec in J.S.C. to Min., Dec. 16, 1936, C.S.C. 100; information supplied by Hist. Sec. (Gen. Staff).

² N.O.I.C. Quebec to C. in C., C.N.A. (signal), Sept. 30, 1944, N.S. 1700-138 (1).

**ST. LAWRENCE,
EAST COAST, & NEWFOUNDLAND
NAVAL BASES**
with adjacent waters
*Including air bases in Newfoundland and
Labrador; and certain minor ports*



*The 47th meridian was the CHOP
line laid down at the Atlantic
Convoy Conference of March 1943*

OTHER BASES IN EASTERN CANADA

Bras d'Or was dispatched to shadow a suspicious vessel proceeding from Comeau Bay to Sydney and was never seen again. She was assumed to have foundered in the Gulf of St. Lawrence on October 19, 1940.³

These inadequate anti-submarine measures could only be supplemented in the early days by routing ships so that they were spread out as much as the area would allow; a method which proved most unpopular with ships' masters because of the navigational dangers involved. Fortunately no U-boats appeared in the St. Lawrence until 1942. When they did, the Gulf Escort Force based on Gaspé assumed most of the responsibility for anti-submarine patrols in this area. During 1942, however, two M.L.'s were retained in the St. Lawrence to form the Quebec Force, and the following year six corvettes and an armed yacht were placed under the control of the Quebec naval authorities. By 1944, however, a redistribution of warships had reduced the Quebec Force to one unit.⁴

A naval routing office was established at Montreal in September 1939, as a subsidiary of the naval control service at Quebec. In December it became a separate entity directly under N.S.H.Q. The naval control service at Montreal served as an important channel for the passing of information to and from shipping agents whose head offices were in that city, and the Ministry of Shipping (later Ministry of War Transport) representative who also had his headquarters there. A manning pool for merchant seamen was established in the vacant Place Viger Hotel in June 1941, and became one of the largest centres in the Empire for D.E.M.S. training. In this connection a dome teacher for anti-aircraft training was opened in 1943, and a firing range similar to that at Halifax was established the following year at Coteau Landing on Lake St. Francis.⁵

The fitting, maintenance, and repair of D.E.M.S. equipment, and similar work on degaussing, became important tasks at Montreal and Quebec. The undertaking of an extensive merchant-shipbuilding programme in the St. Lawrence

³ Encl. in N.O.I.C. Quebec to C.O.A.C., Jan. 10, 1941, "Report on Quebec Sub-Base from September, 1939 to December 31st 1940," N.S. 1011-1-1 (1); N.O.I.C. Quebec Monthly Reports, Mar. to Oct. 1940, *passim*, N.S. 1000-5-15 (1).

⁴ Allocation of H.M., H.M.C., and Allied Warships to Canadian Forces, *passim*, N.S. 1056-3-6 series.

⁵ Encl. in N.C.S.O. Montreal to D.N.I. and T., Dec. 20, 1945, "Historical Survey of Naval Control Activities, Port of Montreal, 1939-1945," N.S. 1400-127 (1); material in N.S. 10-6-1 (1); N.O.I.C. Montreal, Monthly Reports and War Diaries, N.S. 1030-5-22 (1) and N.S. 1926-112 (1).

NAVAL SERVICE OF CANADA

area from 1942 to 1944 increased the work of the D.E.M.S. office in Montreal, which became responsible for the defensive equipment of all new-construction ships at Montreal, Sorel, and Quebec.⁶

The Quebec naval control service, at first responsible for all routing in the St. Lawrence River, subsequently shared this task with Montreal as far as the upper St. Lawrence was concerned. It retained the responsibility for routing ships in the lower St. Lawrence, the Saguenay, and along the Gaspé coast as far as Chandler near the entrance to Chaleur Bay.⁷ Quebec also reported the movements of all ships proceeding up the river. "It should be remembered that the shipping handled at this reporting base is about the third largest in the world, 1,388,658 (gross) tons passed through the port in ward in August. From April to December, 1940, 3,806 ships totalling 8,694,633 gross tons were checked by the examination service. Of these 1,176 were ocean-going ships, 1,104 were lake and coasting vessels, and 1,526 were river 'bateaux' ".⁸ The figures remained high for 1941, but following the sinkings in the St. Lawrence which began in May, 1942, they dropped sharply for ocean-going and coastal shipping and remained low through 1943. The following year shipping began to flow more freely, reaching almost normal proportions in the last year of war.

Following the institution of coastal convoys in May 1942, Quebec became responsible for the organization of convoys leaving the St. Lawrence. These convoys were assembled off Bic Island about 160 miles below the city, and at nearby Rimouski a naval control office was established which, under the supervision of the Naval Officer-in-Charge, Quebec, became responsible for this task. An asdic-maintenance base was also set up at Rimouski in August for the use of ships engaged in convoy escort. H.M.C.S. *Madawaska*, and later C.G.S. *Jalobert*, served at Rimouski and Bic Island to assist in the work of assembling convoys.⁹

In 1943, when submarines appeared farther up the river than they had the previous year, convoys were assembled at

⁶ N.O.I.C. Montreal, Monthly Report, Dec. 1941, N.S. 1000-5-22 (1).

⁷ Encl. in N.O.I.C. Quebec to D.N.I. and T., Dec. 19, 1945, "Résumé of Naval Control Organization, Port of Quebec, 1939-1945," N.S. 1400-127 (1); "Report on Quebec Sub-Base" cited above, N.S. 1011-1-1 (1).

⁸ N.O.I.C. Quebec to C.O.A.C., Oct. 11, 1940, N.S. 40-4-1 (1); App. to "Report on Quebec Sub-Base" cited above, N.S. 1011-1-1 (1).

⁹ "Outline History of Trade Division, N.S.H.Q., Ottawa, 1939-1945" (D.T.D. records); N.O.I.C. Monthly Reports, May and Aug. 1942, N.S. 1000-5-15 (1).

Quebec while ships from the outports below the city were sailed to join the convoy as it proceeded to sea. At Quebec a convoy anchorage was laid out which extended up river from the Quebec-Lévis Ferry to Wolfe's Cove.¹⁰

The instituting of an extensive shipbuilding programme in Canada for naval ships increased the activities of the naval establishments at Quebec and Montreal. Most of the new construction undertaken in eastern Canada was carried out at shipyards along the St. Lawrence River and in the Great Lakes. Small war vessels for both the Canadian and British navies were built in Canada in large numbers from 1940 to 1944 while an extensive shipbuilding programme for both British and United States account was undertaken in American shipyards along the Great Lakes. All new ships built in this area proceeded to sea by way of the St. Lawrence River. Many Canadian warships were commissioned at Montreal, and a naval manning pool was established in the army's Jacques Cartier Barracks at Longueuil on the south shore of the river opposite the city itself.

Most of the warships arriving from the shipyards received at least minor repairs and adjustments at Montreal or Quebec. Degaussing coils were also frequently installed at these ports on warships built either in the vicinity or on the Great Lakes. In addition, warships were provided with stores of all kinds, confidential books, and navigational equipment. At Quebec work-up trials were carried out whenever possible before warships proceeded to the Atlantic. As early as 1940 the Naval Service undertook the supervision of asdic installations at Quebec in some of the converted yachts and the corvettes built for Admiralty account. In the early days the staff at Quebec were also responsible for installing anti-submarine gear in both British and Canadian warships building at Sorel, Montreal, Kingston, Collingwood, and Port Arthur.

In 1940 arrangements were made with the army to store ammunition and depth charges in the military magazines at Lévis and in one of the old forts on the south side of the river. In April 1942, a second fort was taken over to serve as a magazine from which explosive stores could be issued to new-construction warships. All these services were extended to British and American warships as required. When the shipbuilding programme began to taper off toward the end of the

¹⁰"Résumé of Naval Control Organization . . . Quebec" cited above, N.S. 1400-127 (1).

war, some use was made of ship-repair firms at Montreal and Quebec for repairing and refitting Canadian warships.¹¹

Little naval construction ashore was required at either Montreal or Quebec. Both ports were well provided with commercial ship-repair facilities, and the latter possessed two large graving docks owned by the Dominion Government. Storage space amounting to some 417,000 square feet was rented in various places along the water-front at Montreal. The naval headquarters in that city, commissioned as H.M. C.S. "Hochelaga II", first occupied part of the customs building but subsequently moved to the Ogilvie Flour Mills Building at 224 Place d'Youville. Later in the war two private homes were placed at the disposal of the Naval Service, one of which was used as an officers' barracks and wardroom and the other as a small naval hospital.¹²

In late 1940 and early 1941, an administration building and a small barracks were built at Quebec on the south side of the Princess Louise Basin. Two large sheds belonging to the National Harbours Board and part of the immigration building were rented for storage space and to house an ordnance workshop.¹³ Early in 1942 the Naval Service decided to install a degaussing range in the channel south of the Island of Orleans in order to permit the adjustment of degaussing equipment on new-construction warships before they entered dangerous waters. The range was completed in August, and operated satisfactorily until the end of the navigating season. Unfortunately, when the river-ice drifted away the following spring it took the range with it, and for the rest of the war naval craft were tested by magnetometer, a portable device similar in principle to that first used at Halifax.¹⁴

The city of Saint John, N.B., is situated on the north shore of the Bay of Fundy, at the mouth of the St. John River. It lies nearly five hundred miles east of Montreal, and by sea some three hundred miles west and north of Halifax. One of the two principal winter ports in eastern Canada, it was the Atlantic terminus of the main line of the C.P.R., and was also served by a branch line of the C.N.R. The port was well

¹¹ *Ibid.*; "Report on Quebec Sub-Base" cited above, N.S. 1011-1-1 (1); N.O.I.C. Quebec, Monthly Reports, *passim*, N.S. 1000-5-15 (1); N.O.I.C. Montreal, Monthly Reports, *passim*, N.S. 1000-5-22 (1); "Survey of Naval Control Activities . . . Montreal" cited above, N.S. 1400-127 (1); Naval Staff Minutes, *passim*.

¹² Material in N.S. 40-6-1 (1); "Key to R.C.N. Property" (D. of P. records).

¹³ *Ibid.*; material in N.S. 40-4-1 (1).

¹⁴ Naval Staff Minutes, Mar. 26, Apr. 16, and Apr. 23, 1942, Dec. 13, 1943, and Jan. 22, 1944.

equipped to handle its peace-time traffic, and its berthing capacity exceeded that of Halifax. In the amount of sea-going cargoes handled in 1938, Saint John ranked third among ports in eastern Canada after Montreal and Sydney and before Halifax.¹⁵ Its chief drawbacks lay in the limitations of its harbour which, while ice-free, is small and too narrow to provide much room for ships at anchor. The inner harbour is partly sheltered from the sea, but the outer anchorage is unprotected. Moreover, unusually high tides are experienced in the Bay of Fundy, and at Saint John the spring rises amount to twenty-five feet. The strong ebb tide sometimes attains a speed of five knots. The approach area is shallow and is accessible to large ships only through a dredged channel.

Saint John was too far from the principal areas of Operations to become an important naval base, and both its position and the limitations of its harbour precluded its use as a convoy-assembly port. Its importance in the war at sea lay principally in its capacity as a loading port and in its extensive ship-repair facilities. During the first two years of war its use in the former respect was mainly limited, as in peace-time, to the winter months when Montreal was closed to traffic by ice. In 1943, however, following the decision to prohibit all but essential coastal shipping in the St. Lawrence, Saint John was used extensively as a loading port for Canadian war equipment destined for Britain and Europe.

The port possessed two dry docks, one of which, built in 1921 under government subsidy, was 1,163 feet long,¹⁶ and capable of docking a warship the size of the *Hood*. Early in the war dredging had been undertaken to deepen the channel to the dry dock so that it could be used by warships of the Third Battle Squadron based on Halifax. The first British warship to make use of the dry dock was H.M.S. *Iaconia* which arrived on June 14, 1940. From then until the withdrawal of the Third Battle Squadron, the armed merchant cruisers *Rajputana*, *Jervis Bay*, *Aurania*, *Ranpura*, *Ascania*, *Voltaire*, and *Maloja*, were dry-docked at Saint John.¹⁷ The shortcomings of the port for this purpose were later summed up by the Commander in Chief, America and West Indies Station, in a report to the First Sea Lord: "The main trouble here is the very big rise and fall in the tide. The work done at

¹⁵ *Canada Year Book*, 1940, p. 693.

¹⁶ Length, 1162.7'; width, 133'; depth over sill, 40.2'; cost, \$5,500,000. [*Canada Year Book*, 1942, p. 618].

¹⁷ N.O.I.C. Saint John, Monthly Reports, *passim*, N.S. 1415-1429 (1).

the dockyard is first class, but owing to the lack of suitable labour they cannot undertake complicated refits.”¹⁸

In January, 1941, the Admiralty asked the Naval Service to place the dry dock in a condition to refit capital ships. This would have involved extensive preparations including the deepening of the channel, and the provision of machinery, labour, and skilled technicians capable of handling the complicated equipment of this class of ship. A considerable amount of dredging had been undertaken, but the narrowness of the channel, the high tides, and unpredictable currents, made it a hazardous job to manoeuvre a battleship into the dry dock.¹⁹ In fact only one capital ship made the attempt. On March 17, 1941, the battleship *Ramillies* docked at high water under adverse weather conditions, with a snow storm brewing, a fresh breeze from the south-east, and a cross stream of 1.5 knots. The approach channel varied from 340 to 500 feet in width, and because of the current and wind the ship had to head up some twenty degrees, giving it a virtual beam of 220 feet. *Ramillies* docked without mishap, however, and remained at Saint John until March 30.²⁰

Plans were drawn up to develop the dry dock for the use of capital ships, but before they could be implemented the expenditure of labour and material involved was made superfluous by the participation of the United States in the war. The intervention of that country resulted in the withdrawal of the Third Battle Squadron from Halifax, and it also made available to British warships the well-equipped docking facilities of the American ports.²¹

Nevertheless the facilities of the Saint John dry dock for handling merchant vessels and the smaller warships of the R.C.N. were improved, and during the rest of the war the dry dock played an important part in the repair of both types of ship. In August 1941, the Naval Officer-in-Charge, Saint John, reported that: “The Dry Dock continued to be one of the busiest places in the area and at one time this month there were seven ships of various types and sizes in the dock at one time, with three others tied out alongside the fitting-out berths.” In the early days of the war the R.C.N. made use of Saint John on occasion for the refit of destroyers including the

¹⁸ C. in C., A. and W.I. to First Sea Lord, Sept. 15, 1941, A.R.O., M.014796/1941.

¹⁹ Naval Council Minutes, July 14 and 28, 1941; Notes for Cabinet War Cttee., n.d., N.S. 1026-3-4 (1); material in N.S. 1056-9-2 (1).

²⁰ C.O. *Ramillies* to R.A., 3rd B.S., Mar. 23, 1941, N.S. 1026-3-4 (1).

²¹ Naval Staff Minutes, Oct. 15, 1942.

OTHER BASES IN EASTERN CANADA

Skeena, *Assiniboine*, *Hamilton*, and *St. Croix*. From 1943 on the number of R.C.N. warships refitting at Saint John substantially increased.²²

The fixed-artillery defences at Saint John were at first limited to several light pieces and the two six-inch guns near the entrance to the harbour. These heavier weapons which supported the examination vessel were naval guns manufactured in 1896, which had originally formed part of the armament of H.M.C.S. *Niobe*, one of the two cruisers which had been obtained from the Royal Navy when the R.C.N. was established in 1910.²³ The plan of coast defence drawn up by the army prior to the war called for a counter-bombardment battery of three 7.5-inch guns. The heavy and medium gun equipments called for by pre-war plans, however, had been ordered in Great Britain because there were no facilities in Canada for making them; and the programme of installation had been spread over several years. Moreover the many urgent demands made on British sources as a result of war delayed delivery in some cases. The guns, however, arrived early in 1940; they were installed during the summer and manned by September. In 1940, two 4.7-inch guns were added to the close defences of the port. After September 1943 these guns were progressively placed in maintenance as the threat of surface attack receded.²⁴

No anti-submarine nets were installed at Saint John, for the high tides and strong currents made the provision of this type of defence impracticable. Moreover the shallow approaches to the inner harbour provided a natural barrier. Early in 1941, an anti-boat boom, made up of baulks of lumber chained together and liberally covered with spikes, was designed and partly installed on an experimental basis. Even this type of defence proved unsatisfactory, and the project was never completed.²⁵ In 1942, however, an anti-torpedo net was placed across the approach area to the dry dock and fitting-out berths, as a protection against air-borne torpedo attack. The presence of the net in this confined area made it difficult to dock and undock ships, and in view of the remote possibility of air-borne torpedo attacks by 1943, the nets were removed.²⁶

²² N.O.I.C. Saint John, Monthly Reports, Aug. 1941, and *passim*, N.S. 1145-112 9 (1).

²³ Abstracts from War Diary 3rd (N.B.) Coast Brigade R.C.A. (Hist. Sec., Gen. Staff records).

²⁴ Information obtained from Hist. Sec. (Gen. Staff).

²⁵ Interview with Cdr. J. P. Singleton, R.C.N. (R), D.H.D., Nov. 1946.

²⁶ Naval Staff Minutes, Aug. 12, 1941, Apr. 2, May 18, and Dec. 28, 1942, and July 19, 1943.

NAVAL SERVICE OF CANADA

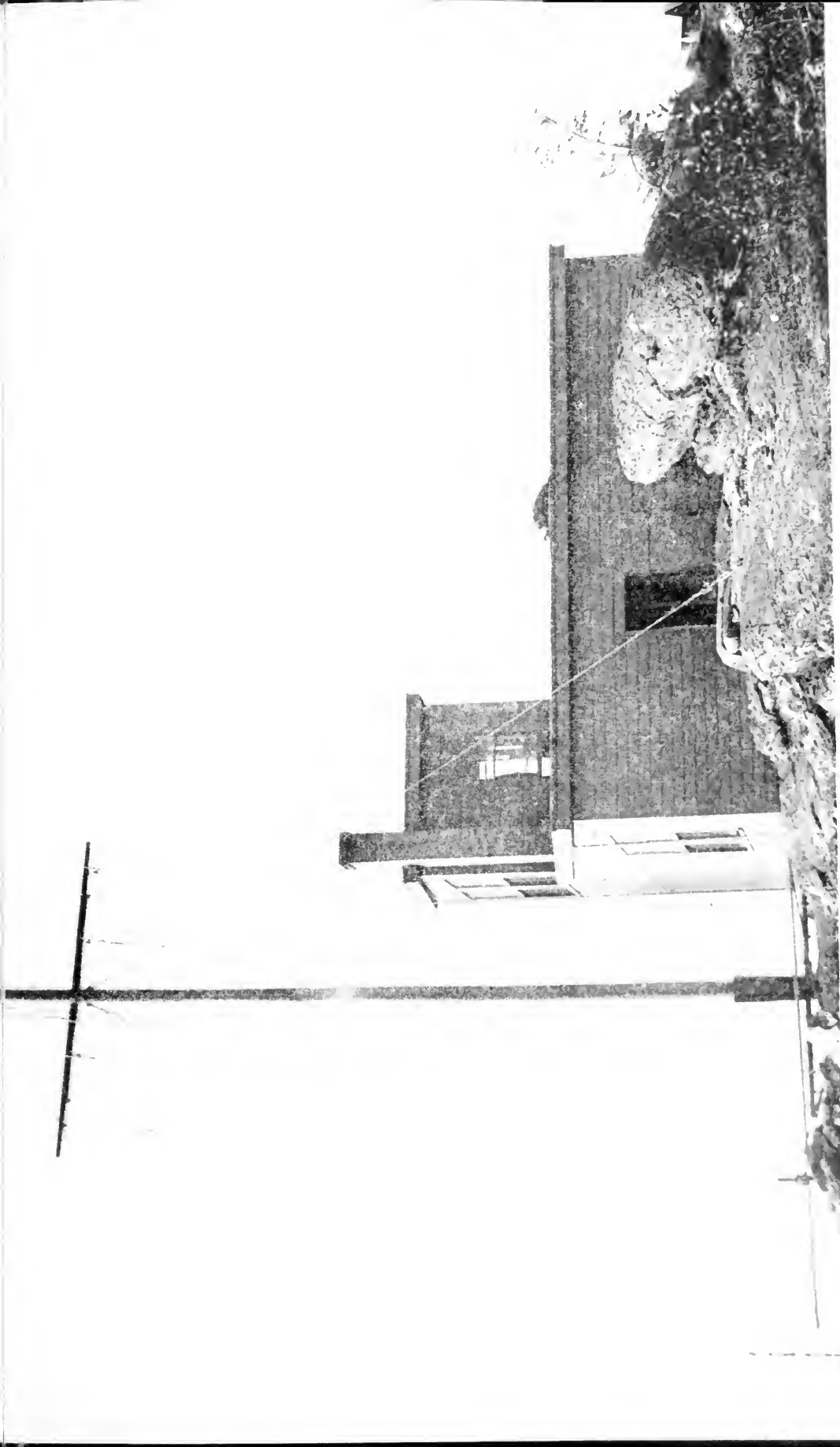
The increased use made of the port at Saint John in 1943 made that area more tempting to U-boats, and the smallness of the harbour often compelled ships awaiting berths to remain in the outside anchorage where no anti-submarine protection existed. The Naval Staff therefore decided to install indicator loops in the approach area so that the mobile defences could be warned in advance of the presence of submarines. The field was laid in November, 1943, by the cable ship S.S. *Cyrus Field*, and comprised at first five loops and later six. Watch-keeping began in May 1944, when the self-contained naval control station at Mispic Beach was completed.²⁷

On September 5, 1939, the R.C.M.P. patrol boats *Cabtor* and *Acadian* (renamed *Invader*) arrived from Halifax, and two weeks later the examination service was instituted. These craft proved entirely too small to stand the severe weather often experienced in the outside anchorage, and in January they were relegated to harbour-patrol duties along with another ex-R.C.M.P. craft *Vigil II*. The examination service was undertaken by two ocean-going tugs, the *St. Anne* and the *Murray Stewart*. C.G.S. *Zoarces* replaced the *St. Anne* in March, and remained in the service along with the *Murray Stewart* until the end of the war. A port war signal station was constructed at Mispic point east of the port, but was not placed in operation until March, 1941, because of lack of electrical generating equipment. In January, 1941, a war watching station was established at Tyner's Point to the west of the harbour. This station was closed following the installation of indicator loops.²⁸

The naval control service was established on September 1, 1939. Its principal function in the early part of the war was the independent routing of ships, either direct to their respective destinations or to Halifax and Sydney for convoy. Traffic was heavier during winter months: in January 1941, for example, 76 ocean-going ships and 44 coastal vessels entered the port. Until 1943 summer traffic was very slack. In that year, however, Saint John was used the year around, often to the capacity of its labour supply but seldom to that of its loading facilities. The activities of the naval control service increased

²⁷ The most important of the references to this subject in Naval Staff Minutes are those of Aug. 17, Sept. 8, and Nov. 13, 1942; El. A. Lieut.-Cdr. W. G. Brissenden, R.C.N.V.R., 'The History of A S Fixed Defences in the R.C.N. 1939-1945,' n.d. (D.H.D. records).

²⁸ N.O.I.C. Saint John, Monthly Reports, *passim*, N.S. 1445-112/9 (1).



Port War Signal Station, H.M.C.S. "Captor", Saint John, N.B.

following the institution in this area of coastal convoys, which began in March 1942, and were continued until July 1944.²⁹

The naval forces operating from Saint John were never strong. The U-boats did not attack shipping in the Bay of Fundy, and the urgent need of warships elsewhere left the port with only a small local-defence force. From March 1942, when it was set up, until the end of the year, this force consisted of two armed yachts, the *Caribou* and the *Husky*, which were joined by two M.L.'s in October. During the first half of 1943, two R.N. Western Isles trawlers, the *Anticosti* and the *Magdalen*, made up the force. In August they were joined by two R.N. B.Y.M.S.'s, and these in turn were replaced by five M.L.'s in December. From this time on the force remained relatively stable. In January, 1945, it comprised two Western Isles trawlers and six M.L.'s.³⁰

D.E.M.S. inspection was instituted at the port in January 1940, and this service, which later included repairs and alterations, was continued throughout the war. As at other important Canadian ports an anti-aircraft dome teacher was erected in 1943, and a firing range was set up at Saint's Rest overlooking the Bay of Fundy to the west of the city. From May 1940, the base undertook the installing and repair of degaussing equipment in merchant ships using the port and naval vessels refitting there. Late in 1943, an Admiralty Net Defence depot was established at Saint John.³¹

On the outbreak of war, office space was rented in the city, and a disused barge of the Department of Public Works was taken over as a naval barracks. Renamed "Captor II", it remained in service until the summer of 1942 when it was condemned by the medical authorities. Its name, however, lived on as that of the depot ship at Saint John. Wharfage was leased at Reed's Point, and a number of small sheds nearby were rented to provide storage space, workshops, and offices. In June 1942, the Naval Service approved plans to set up a small "naval centre" at Saint John which would occupy two buildings, one to contain administrative offices and officers' quarters, and the other to serve as a barracks and sick bay. Construction was not undertaken until the spring of 1943,

²⁹ *Ibid.*; A. N.C.S.O. to D.N.I. and T., Oct. 6, 1945, "History of Naval Control Operations, Saint John, N.B.," N.S. 1440-127 I.

³⁰ Allocation of H.M., H.M.C., and Allied Warships to Canadian Forces, *passim*, N.S. 1056-3-6 series.

³¹ "History of Naval Control" cited above, N.S. 1440-127 I; N.O.L.C. Saint John, Monthly Reports, *passim*, N.S. 1145-112 6 (1); material in N.S. 1027-11-6.

however; and even then progress was very slow owing to the acute shortage of manpower, aggravated by an urgent need for longshoremen during that busy year.³² It was not until the end of January 1944 that the staff of H.M.C.S. "Captor II" moved into the new barracks at Reed's Point.

Naval fuel requirements at Saint John were small throughout the war. Until 1943 the navy obtained what supplies it needed from commercial sources. In February of that year, however, a 14,600-barrel tank was rented from the Imperial Oil Co. and converted for the storage of bunker "B" fuel, as this grade was unobtainable commercially.³³ The navy continued, however, to rely on commercial facilities for its supplies of diesel fuel and high-octane gasoline. The naval tank at Saint John, on occasion, served the training ships operating at "Cornwallis" which was situated on the opposite side of the Bay of Fundy. Plans for the construction of additional tankage at Saint John were abandoned when the fuel programme was scaled down in the summer of 1943. The supply of fuel to merchant ships was a more serious problem. No lighter facilities existed at Saint John, and it was almost impossible for ships to fuel alongside because of the unusually heavy tides. Moreover, since fuel oil came to the port by rail, its cost was considerably higher there than at Halifax; and although pipe lines were installed in August 1943, to service merchant ships, little use was made of them for this reason.³⁴

In the summer of 1940, certain events had a stimulating effect on base planning. Foremost of these were the great German military successes of the spring and early summer which had a far-reaching significance for the war at sea. Great Britain itself was placed in imminent danger of invasion, an event that might result in the Royal Navy's having to base itself on Newfoundland and the east coast of Canada. The German navy acquired bases in Norway, the Low Countries, and France, thereby greatly strengthening its position in the Atlantic. Even an attack on North America, formerly a remote contingency, became a possibility to be seriously considered. The strategic reverses suffered at this time were intensified by the entry of Italy into the war on the side of Germany, and by the defection of the French fleet.

³² Naval Staff Minutes, June 27, 1942; Naval Board Minutes, June 25, 1942; P.C. 4292, May 25, 1943; P.C. 4529, June 15, 1944; N.O.I.C. Saint John to Sec. N.B., July 27, 1943, N.S. 40-3-1 (2); Sec. N.B. to N.O.I.C. Saint John, Aug. 9, 1943, *ibid.*

³³ P.C. 1533, Feb. 25, 1943.

³⁴ Information on fuel oil, Saint John, N.S. 1044-12-10 (1).

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The R.C.N. was not strong enough to meet the anticipated scales of attack without the aid of the British or United States navies; and in these circumstances the provision of naval bases became a foremost consideration—a fact recognized in the Naval Plan of 1940:

On the assumption that the naval defence of Canada must be conducted . . . with the full cooperation of the British and or the United States Fleets, the first requirements from Canada will be the provision of adequate bases.³⁵

The choice of sites for new bases rested mainly on two considerations: their strategic position for the defence of the east coast and adjacent waters, and their suitability as defended anchorages for the largest warships. In June 1940 a sub-committee was appointed by the Naval Staff to determine the location of new bases. Sixteen harbours on the east coast were considered on the basis of their position, class of anchorage, defensibility, and existing facilities for repairs, fuel, supplies, and communications. The sub-committee recommended Halifax and Sydney in Nova Scotia, and Gaspé in Quebec, for development as main bases. The first two were already defended to some extent, and had proved their usefulness. The third was ideally situated for the defence of the St. Lawrence gulf and river areas, and possessed a first-class and easily-defended harbour. The provision of a base in south-western Nova Scotia was also recommended:

This would not only assist operations in providing another base from which a striking force could operate but would also provide an alternative base for some units of the fleet, thus preventing all 'the eggs being in one basket.'

Shelburne, near the south-west tip of Nova Scotia, was suggested for this purpose. While the harbour was not capable of handling anything heavier than a cruiser, it was considered suitable in all other respects.³⁶ The sub-committee's terms of reference excluded Newfoundland, but the provision of naval bases on that island was also under consideration at this time and will be dealt with in the next chapter.

The additional commitments resulting from the decision to establish new bases placed a considerable strain on the small headquarters staff at Ottawa. The task of base development was a difficult one. Bases are expensive and take a long time

³⁵ Naval Plan, Aug. 1940, N.S. 1017-10-1 (2).

³⁶ Report of Sub-committee on Fleet Anchorages in Eastern Canada, June 23, 1940, N.S. 1400-9 (1).

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to build, and unlike ships they are immovable. The provision of equipment, moreover, involves the attention of almost every branch of the Service. The location of bases and the nature of their development were therefore questions that required careful consideration and efficient co-ordination to an unusual degree.

In October 1940, the Base Planning Committee was formed at N.S.H.Q. to prepare and co-ordinate plans for all bases except those at Halifax and Esquimalt.³⁷ At about the same time the Directorate of Works and Buildings was organized to assume responsibility for the details of approved projects.³⁸ The letting of contracts was undertaken by the Department of Munitions and Supply. The development of existing bases at Halifax and Esquimalt remained a matter of direct negotiation between the commanding officers on both coasts and N.S.H.Q. Projects approved in this manner were carried out in the early days, as they had been in peace-time, by the Department of Public Works. During the first year of its existence, however, the Base Planning Committee often found itself dealing with the expansion of these two bases, and in September 1941 a separate Halifax-Esquimalt Planning Committee was set up.³⁹ The same month the Construction Liaison Officer was appointed to co-ordinate the activities of the two committees with those of the Directorate of Works and Buildings.⁴⁰ In April 1942, in order to centralize authority, the committees were merged and became the Projects Committee.⁴¹ In November both the duties of the Projects Committee and those of the Construction Liaison Officer were absorbed in the Directorate of Organization, formed at that time to meet the many problems arising in the field of organization as a result of the rapid expansion of the Naval Service.⁴² All base planning remained the responsibility of the Director of Organization until May 1943, when his duties were assumed by the Director of Plans.⁴³ The Directorate of Works and Buildings, however, remained in existence for the whole period, and the Department of Munitions and Supply continued to assume responsibility for contractual arrangements, including

³⁷ Naval Staff Minutes, Oct. 28, 1940; B.P.C. Minutes, Oct. 29, 1941, N.S. 1078-3-6 (1).

³⁸ E. in C. to C.N.S., Oct. 2, 1940; same to same, Nov. 17, 1940; N.S. 64-2-20 (1).

³⁹ B.P.C. to C.N.S., Aug. 20, 1941; D.C.N.S. to C.N.S., Sept. 4, 1941; N.S. 1078-3-6 (1).

⁴⁰ *Ibid.*

⁴¹ Projects Cttee. Minutes, Apr. 21, 1942, N.S. 1279-80 (1).

⁴² Naval Staff Minutes, Nov. 12, 1942.

⁴³ *Ibid.*, Nov. 29, 1942.

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from 1941 onward most of the work undertaken at Halifax and Esquimalt.

Except for Halifax, Sydney was the only port of those chosen for base development in 1940 which already possessed a naval establishment. On the outbreak of war the Naval Service had appointed a Naval Officer-in-Charge, Sydney, who had established examination and naval control services.

In 1939, in volume of sea-borne cargo handled, the port of Sydney had ranked second only to Montreal among eastern Canadian ports. This large traffic was accounted for by the fact that seventy per cent of the coal produced in Nova Scotia, Canada's richest Province in this respect, was mined near Sydney. The Sydney area was also the centre of a well-developed iron and steel industry which accounted for a third of the Canadian domestic production.⁴⁴ This industry obtained its iron ore from the easily accessible, abundant, and high-grade deposits on Bell Island in Conception Bay, on the east coast of Newfoundland.

The significance of Sydney's iron and steel industry to Canadian war production as a whole emphasized the importance of defending the port and the vital ore shipments from Newfoundland. Sydney was one of the points marked for modern fixed-artillery defences. On the outbreak of war, however, its heaviest defence was provided by two 6-inch guns which had once formed part of the upper deck-mountings of H.M.C.S. *Rainbow*, the first Canadian cruiser ever stationed on the west coast.⁴⁵ Heavier defences were provided as these became available from England later in the war.

The provision of anti-submarine nets at Sydney had been approved before the war, and at the time of its outbreak a Canadian naval officer was in England consulting with Admiralty experts on the design of nets for Sydney as well as other important ports. Material, however, was not available in sufficient quantity to permit installation until July 1940. The work was done under private contract, and the nets were supplemented by extensive rock and gravel fills extending toward the shore from either end.⁴⁶ The next year anti-torpedo nets were laid directly behind and parallel to the anti-

⁴⁴ *Canada Year Book*, 1940, pp. 693, and 337 table 16.

⁴⁵ Colonel Commanding Defended Port of Sydney to Major G. W. L. Nicholson, Feb. 28, 1945 (D.N.H.S. records).

⁴⁶ Dom. London to Naval, Ottawa (telegram), Sept. 20, 1939, N.S. 1053-6-1 (1); P.C. 1871, Feb. 9, 1940; N. Sec. to C.O.A.C., May 2, 1940, N.S. 1056-6-1 (1).

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submarine nets, in order to give complete protection to the port which by that time had become an important convoy-assembly point.

As early as January, 1940, the Naval Service approved the installing of indicator loops and one harbour defence asdic at Sydney.⁴⁷ Halifax had priority, however, and it was not until May 1942 that the asdic unit and its self-contained control station were in operation. This device for underwater detection operated more successfully at Sydney than at Halifax, the unit being better situated in relation to the sea-floor than those at the latter port.⁴⁸ After further consideration the Naval Service concluded that indicator loops would serve no useful purpose at Sydney: they were useful mainly as a means of detecting submerged submarines, and it was felt that the shallow approaches to the harbour prohibited the entry of U-boats except on the surface.⁴⁹ Both the nets and the asdic unit had always to be lifted in the fall and relaid in the spring because of ice in the harbour during the winter months.

The Royal Canadian Navy was unable to install any underwater defences at Wabana in the early part of the war, because of more urgent commitments elsewhere and the limited amounts of available equipment. Two years later, on September 5, 1942, two ore-ships, the *Lord Strathcona* and the *Saganaga*, were torpedoed and sunk in the anchorage at Wabana. On November 2, the ore-ships *Rosecastle* and *P.L.M.27* suffered the same fate in similar circumstances. As a result of these sinkings temporary anti-torpedo nets were placed at Wabana in December 1942, and retained until the freeze-up. A more permanent fixture was laid in May 1943, consisting of double-line anti-torpedo nets running parallel to the loading wharves six hundred feet to seaward, which were provided with single-line gates at each end enclosing the area between the nets and the shore. This installation presented special problems, owing to its unique design, the rapid drop in the sea floor, and the exposed position of the area to be protected.⁵⁰

The economic life of the port of Sydney was vulnerable to sea attack at one other point. The city is situated on the island of Cape Breton which is separated from the mainland

⁴⁷ D. A. S. to D.C.N.S., Jan. 23, 1940, N.S. 1046-13-2 (1).

⁴⁸ "History of A.S. Fixed Defences" cited above (D.H.D. records).

⁴⁹ Naval Staff Minutes, Jan. 1, 1943.

⁵⁰ Naval Staff Minutes, Nov. 12, 1942; F.O.N.F. Monthly Report, Dec. 1942 and May 1943, N.S. 1000-5-20 (2 and 3); interview with Cdr. J. P. Singleton, R.C.N. (R), D.H.D., Jan. 1946.

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of Nova Scotia by the Strait of Canso, a narrow stretch of water about a mile wide and fifteen miles long. Railway connection with the island is made possible by the use of a railway ferry which operates between Port Mulgrave on the mainland and Hawkesbury on the island, about six miles from the southern entrance to the strait. The maintenance of this link was vital to the efficiency of Sydney as a port and naval base. From October 1939 to September 1943, the north and south entrances to the strait were each protected by a battery of two 4-inch guns. During the latter part of the war only one gun in each battery was kept manned.⁵¹

Early in the summer of 1940, the Royal Canadian Navy instituted an examination service at the southern entrance to the strait. No further naval measures were contemplated until August 1942, some months after U-boats had appeared off the east coast. All forms of underwater defence in use at Canadian ports were then considered, as well as the building of an embankment completely across the strait. It was finally decided to provide indicator loops and anti-submarine nets at both entrances, at an estimated cost of slightly over a million dollars for both installations.⁵² First priority was given to the indicator loops which were in operation by June 1943. Delays in the preparation of the anti-submarine nets resulted in a decision to postpone their installation until the spring of 1944, when the ice would be clear of the strait. At that time the matter was reviewed again. Conditions of tide and current made the provision of this type of underwater defence a costly and hazardous undertaking, and in view of the improved strategic situation it was finally decided to abandon the project.⁵³

Sydney is normally ice-bound from December to late April or May, and in winter essential shipping was accommodated at the small port of Louisbourg, about twelve miles by land to the south-east. Regular use was made of the port in winter, not only by a small number of ore and coal ships, but by the Sydney and Port aux Basques ferry, the normal means of transit between Canada and Newfoundland and the link between the railway systems of the two countries.

Louisbourg, which is the only Canadian ice-free port east of Halifax, possesses a harbour that was too small to serve as

⁵¹ Information obtained from Hist. Sec. (Gen. Staff).

⁵² This subject appears frequently in Naval Staff Minutes. The most important references are: Naval Staff Minutes, Aug. 27 and 31, and Nov. 2 and 12, 1942.

⁵³ Naval Staff Minutes, Aug. 9, 1943, Apr. 10 and May 29, 1944.

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a naval base. Because of the presence of U-boats off the east coast, however, it was decided in the winter of 1942-43 to provide the port with certain defences to give protection to both merchant ships and their naval escorts.⁵⁴ In January 1943, two 18-pdr. guns (mobile) and two searchlight equipments were provided and manned by the army. The Naval Service considered various means of protecting the narrow entrance to the harbour, and finally concluded that the best form of defence in the circumstances would be provided by a double-line anti-torpedo net equipment with a single-line gate. The net was retained in position the year around, to ensure a defended port alternative to Sydney in case the latter were mined, as Halifax was in June 1943.⁵⁵

By the spring of 1940 it was apparent that when ports in the St. Lawrence River and in Newfoundland were active, much valuable time would be lost if ships which loaded in these areas were forced to proceed as far west as Halifax for convoy assembly. In April the British Ministry of Shipping suggested that Sydney, which is 250 miles east of Halifax, should replace Halifax as the convoy-assembly port in North America during the summer months. "It is estimated that from July to November inclusive, if Halifax were maintained as the assembly port in preference to Sydney, about one hundred ships per month would suffer an increased diversion."⁵⁶ It was finally decided, nevertheless, to retain Halifax as the main assembly port, but to institute a sub-section of the Halifax convoy, which was to assemble at Sydney and join the main convoy south of Newfoundland. On July 31, 1940, the first of these sections sailed from Sydney.⁵⁷

The experience of the previous year had also revealed a great need for a separate convoy to accommodate ships with a speed of 9 knots and under. Since the beginning of the war ships with a speed of less than 9 knots had proceeded independently, at considerable risk, while those which could barely maintain that speed were included in convoy but often retarded the faster ships which they accompanied. In August, therefore, the Admiralty decided to institute a slow convoy which was to include ships with a speed between $7\frac{1}{2}$ and 9 knots inclusive. The first of the slow convoys, which were to assemble at

⁵⁴ C.O.A.C. to N.S.H.Q. (signal), Nov. 16, 1942.

⁵⁵ Naval Staff Minutes, Dec. 3, 1942 and Oct. 23, 1944; C.O.A.C. to N.S.H.Q. (signal), Feb. 12, 1943, N.S. 1053-14-1 (1); J.S.C. Atlantic Coast Minutes, May 4, 1943, N.S. 11273-5.

⁵⁶ Ministry of Shipping to Admiralty, Apr. 12, 1940, A.R.O., M.07096/40.

⁵⁷ "History of Trade Division" cited above, p. 18 (D.T.D. records).

Sydney, sailed on August 15, 1940.⁵⁸ The Sydney-Clyde convoys, as they were called, got off to a bad start, S.C.1 losing three merchant ships and its escort H.M.S. *Penzance* through enemy action.⁵⁹

Sydney harbour was well suited to its new rôle. It consists of an inlet about three miles long by twenty-four hundred yards wide, which opens into two arms capable of providing anchorage for a large fleet. Only the south arm, however, is completely sheltered from the sea. The port of Sydney was not a general-cargo port. Designed to handle two principal commodities, it was not as well equipped as Halifax or Saint John to satisfy the diverse requirements of a large number of ships. Wharfage, fuelling facilities, and tug and pilotage services, were all inadequate to meet the demands made on them. Crew trouble was particularly prevalent in ships at Sydney, and there existed no accommodation for apprehended deserters except the county jail.

Previous to August 1940 the port had departed very little from its peace-time routine, except during a brief period in the spring and early summer of 1940 when it became a port of refuge for ships which had escaped from Norway and France. The arrivals of these ships were described in the report of proceedings of the naval control officer in July:

Several interesting events occurred during the month: the arrival of the Norwegian S/S *Gro* with the remains of a cargo of coal, part discharged at Narvik, and among this coal Aluminium Ingots which the Master had stolen to prevent them from falling into German hands, and with the proud distinction of having shot down, with rifles, one of three attacking German planes. The arrival of the tiny Norwegian Herring drifter *Kaare II* from Tromso via the Faroes and St. John's Newfoundland—an epic voyage for a small vessel burdened with 23 souls ranging in age from 8 months to 74 years.⁶⁰

The use of Sydney as a convoy-assembly port immediately increased the tempo of life at the naval base. During the month of August the harbour contained at one time as many as ninety-two ships.⁶¹ Of the ships arriving for convoy many were old and some were unseaworthy. They represented a diversity of nations, and there were pronounced differences in living conditions aboard and discrepancies in standards of pay among the various crews.

⁵⁸ *Ibid.*

⁵⁹ N.C.S.O. Sydney to D.T.D., June 25, 1945, "A History of Naval Control Service at Sydney N.S.", N.S. 1440-127 (1).

⁶⁰ N.O.I.C. Sydney, Monthly Report, July 1940, N.S. 1000-5-21 (1).

⁶¹ *Ibid.*, Aug. 1941.

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With S.C. convoys, Sydney began accumulating a collection of ships of all ages, types and nationality. Lakers, whalers and small coasters were pressed into service to augment the ocean convoys and to replace tonnage lost in United Kingdom coastal trade. It is remarkable that so many arrived after running the hazards of convoy, collision, submarine and downright unseaworthiness with inexperienced crews and inadequate equipment . . . in the fall of 1940 and up to August 1942 . . . the port, on a sailing day, looked like any coal port in the United Kingdom in peacetime when tramp steamers were loading for the bunkering ports of the world. During these early years degaussing and D.E.M.S. armament were taken in hand and with the addition of running repairs to old and ill-found ships the repair situation was strained to the limit. It was a 'red-letter day' when no ships remained after a convoy sailing . . . Crew trouble added to the . . . delays but convoys were sailed on schedule whether ocean convoys were available or not . . . in one case neither commodore nor escort could be found to sail with the convoy. Such things were, no doubt, in evidence everywhere and it is to the everlasting credit of the Merchant Navy that non-sailings due to crew trouble were as few as they were. Ships were sailed that would never have received a seaworthy ticket in peacetime but, fortunately, marine casualties did not add materially to the occasional severe losses by enemy action.⁶²

In November 1940, 1,528,000 gross tons of shipping entered the port. This figure was in part a result of the arrival of thirty-six ships from an eastbound fast convoy escorted by H.M.S. *Jervis Bay* which had been attacked and scattered by the German pocket battleship *Admiral Scheer*. The arrival of these ships swelled the total of those in harbour to 127. Heavy traffic continued throughout 1941. In September of that year, 416 ships entered the harbour, making a total of 1,728,000 gross tons, the greatest recorded in any one month throughout the war.⁶³ In May 1942 coastal convoys began to assemble at Sydney. The port became an important way station between Quebec and Halifax. Ore ships running between Sydney and Wabana, the Sydney and Port aux Basques ferry service, and other ships plying regularly between Newfoundland and the east coast, were organized into convoys. From July to November, 1942, Sydney also became the assembly point for convoys proceeding to Greenland with supplies for United States forces in that area. These convoys were escorted by the United States Coast Guard cutters *Bluie East*, *Bluie West*, *Crystal 1*, and *Crystal 2*. The Greenland convoys subsequently sailed from Argentia, the United States naval base in Newfoundland.

Sydney ceased to be the main convoy-assembly port for slow convoys in the summer of 1942. By that time the full

⁶² "History of Naval Control Service at Sydney" cited above, N.S. 1440-127 (1).

⁶³ *Ibid.*; N.O.I.C. Sydney, Monthly Reports, *passim*, N.S. 1000-5-21 series.

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effect of United States participation in the war was beginning to be felt. The availability of well-equipped harbours further south reduced the importance of Sydney in the matter of ocean-convoy organization. Slow convoys were moved first to Halifax, then to New York, and then back to Halifax, but they never returned to Sydney. The ill-luck that had dogged these convoys since their inception accompanied the last convoy to sail from the port. "Convoy S.C. 94 sailing on the 31st [July 1942] . . . suffered losses of 36.6% and this black spot ended Sydney's role as main assembly port."⁶¹ Sydney sections of both fast and slow convoys, however, continued to assemble in the harbour until the end of the war, as did coastal convoys. The use made of Sydney harbour as a convoy-assembly point is illustrated in the following table:

Number of ships sailing in convoy from Sydney 1940-1945

(TRADE STATISTICS CONVOY BOOKS (D.T.D. RECORDS))

Year	Ocean Convoy	Coastal Convoy	Total
1940	937	.....	937
1941	1568	.....	1568
1942	547	1387	1934
1943	138	1444	1582
1944	492	1527	2019
1945	78	490	568
Grand Total	3760	4848	8608

The escort for the first Sydney section of the Halifax convoy included the British cruiser *Caradoc* and the Canadian destroyer *Ottawa*. Because of a shortage of escort vessels, however, the protection offered to these convoys could not be maintained at that strength. By September, the auxiliary yachts *Elk* and *Husky* were carrying the main load of this escort work. During 1940 the slow convoys were accompanied by the British sloops *Penzance*, *Dundee*, *Leith*, *Scarborough*, *Deptford*, *Sandwich*, *Folkestone*, and *Enchantress*, supported in Canadian coastal waters by auxiliary craft such as the *Reindeer*, *Laurier*, and *Rayon d'Or*.

In 1941 some new-construction corvettes were allocated to Sydney for local escort duties, while the Newfoundland Force was formed to provide escorts in the mid-ocean area. The corvettes *Napanee*, *Dauphin*, and *Arvida*, were among the first to join the Sydney Force, and later additions included

⁶¹"History of Naval Control Service at Sydney" cited above, N.S. 1110-127 (1).

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Kamsack, Shawinigan, Louisburg, and Sudbury. In October the Bangor minesweeper H.M.C.S. *Nipigon* joined the force for minesweeping and anti-submarine duties.⁶⁵

The Sydney Force started the 1942 season with 1 Bangor, 2 armed yachts, and 1 auxiliary and 4 magnetic minesweepers. By October it included 6 Bangors and 6 M.L.'s. During 1943 the Force was augmented by Royal Navy ships of the trawler type, and following the mining of Halifax two Royal Navy B.Y.M.S.'s, were loaned to it for minesweeping duties. In October the force comprised twenty-two British and Canadian warships. From then on its size remained fairly constant although its composition was changed from time to time.⁶⁶

Most of the merchant ships assembling at Sydney were coal burners. Fairly often, however, oil-burning ships coming from ports in the Caribbean, or through the Panama Canal from the Pacific, required topping up at Sydney before proceeding in convoy. Commercial fuel-oil tankage at Sydney was small and loading facilities were inadequate, and after the port had come to be used for assembling convoys the supply of fuel oil to merchant ships was at times a problem. During 1940, tank cars had to be used occasionally for this purpose.

With the opening of the 1941 season the R.C.N. rented a 24,000-barrel tank to provide additional storage, and this fuel was also available to merchant ships. To assist in bunkering fuel the R.C.N. also provided an oil barge, the *C.D.110*, which was operated on their behalf by the Imperial Oil Co., and which did good service until its departure after the 1942 navigational season. In June, 1941, it was decided to erect 76,000 barrels of naval tankage for bunker and diesel fuel,⁶⁷ and in March 1942, approval for the installing of high-octane gasoline storage at certain Canadian bases included 96,000 gallons for Sydney. The bunker-fuel storage was completed by the beginning of 1943, and was put in operation at the opening of navigation. The high-octane gasoline storage, although completed, was never connected to the jetty and did not serve as operational tankage. The navy continued to assist in supplying fuel to merchant ships, and in 1944 when mercantile requirements temporarily increased, H.M.C.S. *Dundern* served at Sydney as a lighter.⁶⁸

⁶⁵ *Ibid.*; N.O.I.C. Sydney, Monthly Reports, *passim*, N.S. 1000-5-21 series.

⁶⁶ Allocation of H.M., H.M.C., and Allied Warships to Canadian Forces, *passim*, N.S. 1056-3-6 series.

⁶⁷ P.C. 4492, June 20, 1941.

⁶⁸ Information on fuel oil, Sydney, N.S. 1044-12-7 series.

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Late in 1940 it was decided to install an open degaussing range at Sydney similar to the one at Halifax.⁶⁹ Construction of the control hut ashore was started in May 1941, and National Research Council scientists arrived from Halifax towards the end of June. In order to get sufficient depth of water the range was laid across the channel of the south arm, and extended for some twelve hundred yards. It was placed in operation on September 27, 1941, and between then and the end of the season 117 rangings of merchantmen were carried out.⁷⁰ The first ship to be degaussed at Sydney was completed in July 1940, and from then on this work was undertaken as needed. Following Sydney's designation as a convoy-assembly point, the port became increasingly important as an inspection centre for defensive equipment in merchant ships. In July 1942, for example, 218 ships were inspected for D.E.M.S., and 265 for degaussing, while 65 were tested on the degaussing range. In October 1943, a sub-depot for Admiralty Net Defence was established at the port.⁷¹

The provision of a small base for the naval establishment was undertaken in 1940. The Naval Officer-in-Charge and his staff were at first accommodated in the *Post-Record* building at Sydney. By May 1940, however, the staff numbered 120 officers, ratings, and civilians, and work was started on the construction of a small naval administration building and the conversion of a warehouse to provide barracks, a machine shop, stores, and additional office space. By July the complement had grown to 253 and working conditions became very cramped. "The office space and the activities of the Control Service are still being carried on in a room eighteen feet by twelve feet; the greater part of which is occupied by desks, chart tables etc."⁷² Several small buildings were erected during the summer and the administration building was occupied late in September 1940. The conversion of the warehouse took longer to complete, and it was not fully in use until the opening of the 1941 season.⁷³

The development of Sydney as a naval base for the servicing of warships, as distinguished from its growth as a convoy-assembly port, began in the summer of 1940. Just what that

⁶⁹ Naval Staff Minutes, Dec. 10, 1940.

⁷⁰ Div. of Physics and Elec. Engineering, H.M.C. Dockyard, Halifax, "Report on the Degaussing Range at Sydney N.S.," Apr. 23, 1942, N.S. 1074-3-1 (1).

⁷¹ N.O.I.C. Sydney, Monthly Reports, *passim*, N.S. 1000-5-21 series.

⁷² N.O.I.C. Sydney, Monthly Report, Aug. 1940, N.S. 1000-5-13 (2).

⁷³ N.O.I.C. Sydney, Monthly Reports, May to Sept. 1940, N.S. 1000-5-13 (1 and 2).

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development would eventually entail was certainly not foreseen at the time. Early in 1942, the chairman of the Base Planning Committee was to point out the factors which meanwhile had affected decisions concerning the design and capacity of the base. These included changes in ship dispositions after December 7, 1941; the increase in the task of repairs following damage to United Kingdom repair facilities; changes in the anticipated scales of attack; and the proposed removal of new-entry training from Halifax. In view of these conditions he felt that the Base Planning Committee could not consider itself permanently committed to previous recommendations, no matter how carefully they had been studied at the time.⁷⁴ These specific points were the result of basic changes in the strategic situation which had taken place since the base was first planned.

In October 1940, the Naval Service had envisaged the establishment of a small but complete base to be situated at Point Edward on the west side of the south arm of Sydney harbour, opposite the city.⁷⁵ The existing headquarters at that time was situated on the water-front of the port, on a small piece of government property surrounded by essential port facilities which prevented expansion in that locality. The site finally chosen for development in the designated area lay between Barasois Creek and Crawley Creek, and comprised 850 acres.⁷⁶ No priority was given to new construction at Sydney, however, as the base was already defended and provided with headquarters and barracks, whereas no development whatever had been undertaken at Gaspé or Shelburne. Plans were drawn up during 1941 to provide a small base with "adequate facilities for the repair and maintenance of H.M. ships whether Canadian or otherwise, for handling victualling, naval and armament Stores and Fuel, for the operation of Harbour Defences, for maintenance of communications with ships and other Establishments, and for the accommodation and training of personnel."⁷⁷ The base was planned to accommodate 476 persons and was to cost about \$3,000,000. The contract was drawn up in November 1941 with the Dominion Construction Corporation Ltd. of Toronto.⁷⁸

⁷⁴ Chairman B.P.C. to C.N.S., Feb. 5, 1942, N.S. 116-8-1 (2).

⁷⁵ Naval Council Minutes, Oct. 30, 1940.

⁷⁶ P.C. 10214, Dec. 13, 1940.

⁷⁷ P.C. 123/7841, Oct. 9, 1941.

⁷⁸ Material in N.S. 40-5-1 (1).

The change in the war at sea which took place at the beginning of 1942 had an immediate effect on the plans for Sydney. By April the enemy had moved close to the American continent. Almost the whole of the Dominion's naval effort was concentrated on the defence of shipping in Canadian coastal waters or in the North Atlantic. "National Defence for Naval Services state that the Sydney base is now considered as second in importance on the East Coast and, in case of necessity, all essential naval operations would be carried out from that point."⁷⁹ Halifax, the Royal Canadian Navy's main east-coast base, was already seriously congested, and the restricted area within which it was located did not afford any opportunity to plan new construction in such a way as to reduce the danger from air attack. The base could easily have been put out of action by a few well-directed bombs, and by 1942 the rapid development of the capabilities of aircraft had made such an attack possible.

Except for the serious drawback that its harbour was ice-bound in winter, Sydney was well suited to serve as an alternative to Halifax. It possessed a commodious harbour almost ideally situated for the defence of ocean trade routes and important coastal waters, and was, in fact, better located than Halifax to serve as a base for the defence of Canadian trade, being closer to the important routes which passed through the Gulf of St. Lawrence.

The large and undeveloped area available for the new base at Sydney also provided a good opportunity for the construction of a base as safe from air-attack as it could be made without resorting to a prohibitive expenditure of time and money. The original plans had made full use of this fact, and later additions were particularly planned with the requirements of passive defence in mind. All buildings, and particularly the dockyard shops, were deployed so as to provide minimum vulnerability to air attack consistent with the efficient operation of the base.⁸⁰ Construction materials used were of a "semi-permanent" character, aiming at durability, low maintenance costs, relative immunity to fire, and clean appearance. Availability of materials was a prime consideration, however, and some compromises had to be made to avoid

⁷⁹ Memo. for Cabinet War Cttee., Apr. 22, 1942, N.S. 1067-2-1 (1); P.C. 74 3546, Apr. 30, 1942.

⁸⁰ S.C.L. to D.T.D., Jan. 9, 1942, N.S. 116-8-1 (1); B.P.C. Minutes, Jan. 23, 1942, N.S. 1078-3-6 (1).

delays in construction.⁸¹ Establishing a base on undeveloped land involved the provision in their entirety of essential services such as water supply, sewers, electric power, and roads. Sydney base, as completed, was not only the best laid-out of Canadian naval bases, but it had been designed throughout to meet standards of accommodation that equalled the best of those adopted at other bases and establishments erected during the war.

By 1943 the repair and refit of warships became the prime consideration in the expansion of naval bases on the east coast of Canada:

Due to the expansion of the Navy, the shipbuilding programme and the resultant shortage of skilled labour, commercial shipyards and machine shops are taxed beyond their capacity, and it has become necessary to train and employ naval labour in increasing numbers and to provide additional workshops and repair facilities at Naval Bases in order to keep H.M.C. Ships in operation. The expansion planned for Sydney at the present time is almost entirely for this purpose.⁸²

The development of Sydney as a major repair base involved not only the provision of additional equipment and shops, but also the expansion of barracks and services to accommodate twenty-five hundred persons. The programme was approved in April 1943, at a total estimated cost, including existing development, of \$10,849,969.⁸³

Early in 1943 it was decided to make a temporary use of the Point Edward base as a centre for new-entry training until the repair shops were ready to operate. In January the commanding officer of the base was appointed and set about the preparation of the barracks for this purpose. During February the first new-entry trainees and a nucleus of repair personnel arrived, and part of the base was occupied for the first time. On March 15, 1943, Point Edward was commissioned "Protector II" as a tender to "Protector I", the headquarters establishment in Sydney. By the end of the month some five hundred officers and men, of whom two hundred were new entries, were based at "Protector II"; from then on the numbers grew steadily. By the end of the year the personnel at Sydney, including "Protector I", numbered 181 officers and 2,131 men.

"Protector II" was officially opened by the Commander in Chief, Canadian Northwest Atlantic, on the first of June. The

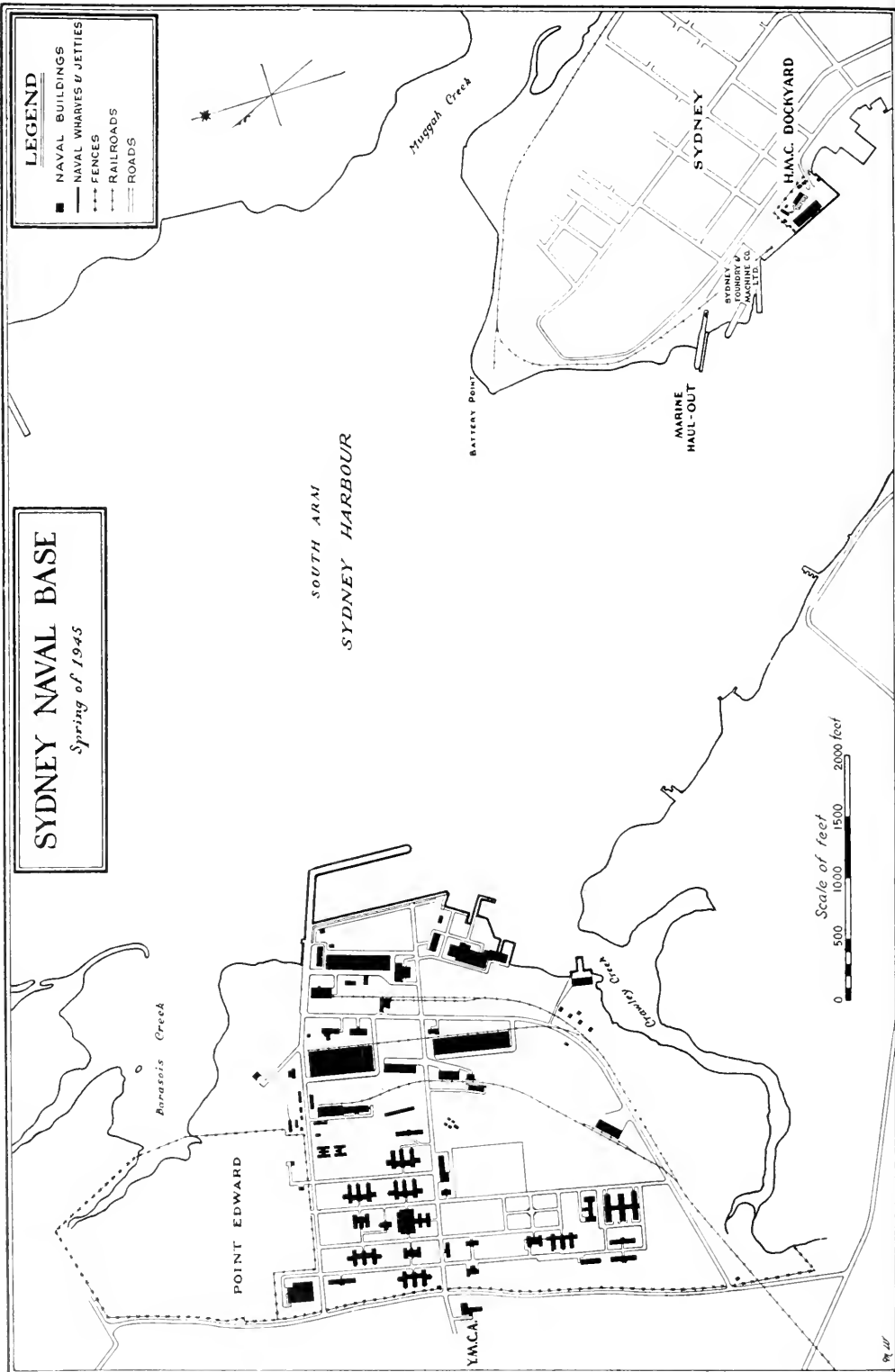
⁸¹ D.W.B. to D.Min., Feb. 18, 1942, N.S. 116-8-1 (2).

⁸² App. "A" to Naval Board Minutes, July 5, 1943.

⁸³ P.C. 109 3303, Apr. 23, 1943.

SYDNEY NAVAL BASE

Spring of 1945



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base had been in operation only a few months when, on October 11, 1943, fire destroyed the main oiling and refitting jetty. No ships were damaged, but this serious mishap postponed the full use of Point Edward for refitting and repair purposes. The temporary loss of the means of fuelling warships was overcome by the use of the British oiler *Scottish Musician*, recently relieved from service at St. John's, Newfoundland. The jetty was rebuilt during the winter and spring, and was available for use by July 1944.⁸⁴

The Sydney sub-command was reorganized in October 1943, to bring it into line with the new organization at Halifax. "Protector I" and "Protector II" were combined and commissioned as H.M.C.S. "Protector". The Naval Officer-in-Charge, Sydney, assumed nominal control of the new establishment, and direct responsibility for the operation of warships, the defences of the port, and the activities of merchant ships. Under him, the Commanding Officer "Protector" took charge of the barracks at both Sydney and Point Edward, the R.C.N. hospital, the shore patrol, and Special Services. The dockyard and repair organization was centralized under the Captain Superintendent, who became directly responsible to the Commodore Superintendent Halifax in all matters which concerned the repair and refit of warships.⁸⁵

By the late summer of 1944 Point Edward began to operate fully as a repair and refitting base. Urgent demands for running repairs continued to take up much of the time of the repair staff, and through the summer months about eighty per cent of their time was taken up with this work. Yet during the last six months of the conflict with Germany, Sydney made an appreciable contribution as a refitting base. As the probable end of the war became a matter of months, plans were made to use Point Edward as a centre for de-storing and decommissioning the many ships that would become surplus to requirements,⁸⁶ and this work was carried out at Sydney for some time after the cessation of hostilities.

Shelburne was first chosen to provide a defended anchorage for British and United States warships, and to serve as a base for light craft engaged in anti-submarine patrols.⁸⁷ It was also considered as a possible alternative to Halifax, in case

⁸⁴ N.O.I.C. Sydney, War Diaries, N.S. 1000-5-21 series.

⁸⁵ N.O.I.C. Sydney, War Diary, Oct. 1943, N.S. 1000-5-21 (2); material in N.S. 1700-102 1.

⁸⁶ Naval Staff Minutes, Oct. 30, 1944.

⁸⁷ Report of Sub-committee on Fleet Anchorages in Eastern Canada, June 23, 1940, N.S. 1400-9; Naval Plan, Aug. 1940, App. 1, pt. II, N.S. 1017-10-1 (2).

that port should in any way be rendered unusable. Shelburne Harbour was suitable in many ways to serve this triple rôle. Situated on the south coast of Nova Scotia near its western tip, about 110 miles south-west of Halifax, it lay within a few miles of the main transatlantic sea routes between the north-eastern United States and Great Britain, and close enough to the Bay of Fundy to serve as a base for the patrol of the sea approaches to Saint John, N.B.⁸⁸ Its harbour, open to navigation the year round, is a completely sheltered inlet four miles long by one to two thousand yards wide, suitable as an anchorage for cruisers, destroyers, or smaller craft, but too shallow for capital ships. The town of Shelburne, with a population of sixteen hundred, lay at the head of Shelburne Harbour, and had direct road and rail communications with Halifax.

Prior to the summer of 1940 Shelburne had not departed from its peaceful ways, but its strategic position had not been overlooked in deliberations on high policy. In February 1940 the British Government requested permission to establish a contraband-control station in Canada. From the beginning of the war, neutral shipping en route from North America to non-belligerent countries in Western Europe had been brought into British ports for examination. This procedure increased congestion in harbours already fully taxed by the demands of war. The Admiralty, therefore, requested permission to station H.M.S. *Vandyk* at a Canadian port for contraband-control duties.⁸⁹

The institution of a contraband-control station in North America, however, was a delicate matter because of the neutrality of the United States. Neutrality legislation passed in that country in 1939 prohibited the entry of American ships into belligerent ports lying east of 66° W., and north of 35° N. Saint John, N.B., was the only major Canadian east-coast port situated west of this prohibited area. It was, however, already defended,⁹⁰ and in addition it was considered an alternative loading port to Montreal, in the event of the closing of the St. Lawrence through enemy action. Moreover ships could only enter the port at certain states of the tide, and the outside anchorage was exposed and generally unsuitable for ships at anchor.

⁸⁸ C.N.S. to Min., July 22, 1940, N.S. 1021-1-1 (1).

⁸⁹ Sec. of State (Ext. Aff.) to Br. High Comm., Ottawa, Feb. 26, 1940, and reply, Mar. 20, 1940, N.S. 1056-8-1 (1).

⁹⁰ The R.C.N. was most reluctant to have neutral ships in a defended port, not only because they might add to congestion in the harbour, but also because they would provide an excellent means for enemy agents to obtain information on naval and other defences.

As an alternative to Saint John the Naval Service suggested Shelburne, which was only 45 minutes of longitude inside the prohibited area. As in the case of Saint John, ships clearing from Shelburne could shape a course parallel to and southward of the convoy routes as they existed at that time. The harbour was suitable: it was sheltered, and unencumbered by mercantile traffic; it was not used for any naval purpose; and it was ideally situated in relation to normal shipping routes.⁹¹ This last point was an important consideration. Diversion of American shipping required the use of patrol ships, as vessels of United States registry were not permitted to clear for belligerent ports, and technically had to be forced there through stress of weather or by naval or military compulsion.⁹² The greater the distance of the contraband-control port from the normal routes of shipping, the greater would be the demands on the all-too-few warships available to either the British or Canadian navies.

Discussions with the United States Government, however, soon revealed that it would accept no port which came within the neutrality zone laid down by the Declaration of Panama.⁹³ This decision ruled out all ports west of and including Halifax, leaving only Sydney, Louisbourg, and St. John's, Newfoundland. None of these ports were suitable from the naval point of view. Louisbourg and St. John's were too small, while Sydney was a defended port, and an alternative convoy assembly point. Moreover, the use of any of these ports involved extensive diversion of neutral shipping and its passage across convoy lanes. The Naval Service therefore reiterated its conviction that Shelburne was the only practicable location for a contraband-control base, and negotiations were still at an impasse when the German invasion of Norway made the whole project unnecessary.

No development took place at Shelburne in 1940. Port defences were the first consideration, and the necessary materials were assembled early in the new year. Plans for the base itself were drawn up in the winter and spring of 1941. By the time they were finally approved they included, in addition to the facilities necessary for a small advanced base, provision for a 3,000-ton marine railway suitable for hauling out cor-

⁹¹ C.N.S. to Admiralty (signal), Mar. 16, 1940, N.S. 1056-8-1 (1).

⁹² U.S. A/Sec. of Commerce to Collectors of Customs etc. (circular), Feb. 29, 1940, *ibid.*

⁹³ Declaration of Panama, Oct. 3, 1939. For the boundaries of the Inter-American Security Zone established by this declaration, see *The International Year Book, 1939* (New York and London 1940), chart facing p. 597.

vettes, frigates, and destroyers. These additional repair facilities were provided to supplement the nearby commercial ship-repair yards at Lunenburg and Liverpool, and to relieve Halifax of the anticipated demand on its already overcrowded repair facilities.⁹⁴ The base itself was located about half a mile from the town on the east side of the inner harbour, adjacent to the seaplane base of the Royal Canadian Air Force, and not far from the army fortress headquarters. The contract for the base was awarded to the Acadia Construction Co. in July 1941, and construction began shortly thereafter.⁹⁵

By the spring of 1941 several officers were stationed at Shelburne, and during the summer the defences of the port were installed. By June, close-defence and examination batteries were ready for action. The development of new bases on the east coast of Canada and in Newfoundland greatly increased the demand for heavy coast artillery. In September 1940, the United States made available to Canada eight 10-inch guns and carriages,⁹⁶ two of which were mounted at Shelburne and placed in operation the following March. In September 1940 also, the examination service was instituted, and the following month the anti-submarine nets, the only underwater defences provided at Shelburne, were installed. By the end of the year the base complement numbered 16 officers and 120 men, and accommodation was found for them in the town. Hospital facilities were provided for both naval and air force personnel by the Canadian army.⁹⁷

In January 1942, the enemy submarines closed in on the coast of North America, and on the 21st the Norwegian S.S. *Alexander Hoegh* was sunk in the vicinity of Shelburne. This was the beginning of intermittent enemy activity in the Shelburne area for the next six months; yet the Royal Canadian Navy had not enough ships to base a striking force on Shelburne. The only two warships operating from the base when the enemy first struck were the armed yachts *Lynx* and *Fleur de Lis*. These served as patrol, rescue, and examination vessels. Their effectiveness, except in the last rôle, was very limited. The Staff Officer at Shelburne, at the time commented:

While it is fully appreciated that no other vessels are available . . . craft like the H.M.C.S. *Lynx* and the H.M.C.S. *Fleur de Lis* are not suitable

⁹⁴ B.P.C. Minutes, Jan. 2, 1941, N.S. 1078-3-6 (1); Naval Staff Minutes, Apr. 25, 1941; material in N.S. 40-S-1 (1).

⁹⁵ Director of Construction (M. and S.) to D. Min., July 27, 1941, *ibid.*; P.C. 6353, Aug. 19, 1941.

⁹⁶ P.J.B.D. Journal, Sept. 10, 1940, and Jan. 20, 1941 (E.A. 105 (1)).

⁹⁷ N.O.I.C. Shelburne, Monthly Reports, July to Dec. 1941, N.S. 1000-5-23 (1).

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for off shore work in winter North Atlantic weather. Both vessels do very well when nosed head to sea. The H.M.C.S. *Lynx* is not bad stern to sea running before it; both craft roll their rails under in a beam sea making rescue work a risky and dangerous undertaking and towing an utter impossibility except in the best weather conditions."

Rescue work was later facilitated by the allocation of a tug to Shelburne; while the armed yachts *Reindeer*, *Raccoon*, and *Renard*, operated from the base for a short while. In May 1942, the Shelburne Force comprised one Bangor minesweeper and one coil skid minesweeper; and its effectiveness was not increased until April 1943, when six M.L.'s arrived at the base.⁹⁹

During 1942 the construction of the base itself as originally planned was completed, except for the 3,000-ton haul-out. On May 1 the base was commissioned H.M.C.S. "Shelburne", and the following month the ship's company, numbering 115, occupied the barracks and administration building. The port defences were completed with the opening of the port war signal station in May, and communications were greatly improved when the new wireless station was placed in operation the same month. The 200-ton haul-out was ready for use in October, and in December the fuel-oil storage tank was filled for the first time. By the end of the year the complement of the base had reached 242.

While no great demands were made on Shelburne as an operational base, its development continued because of the ever-growing need for repair facilities. Commercial ship-repair facilities along the Atlantic seaboard were limited; and by 1942 it was evident that they would have to be supplemented by constructing new repair yards. Most of the firms in the outports were small and already expanded to their limits; labour was hard to get, and accommodation inadequate. The policy of developing naval dockyards to handle at least some of the demands of naval ships was implemented rapidly from 1942 on, and Shelburne was one of the bases chosen for this purpose. It had many advantages: an ice-free port, already defended, it was reasonably close to Halifax and to the southern convoy routes factors which meant the saving of the valuable time of ships passing to and from port. Moreover the base was close to Lunenburg and Liverpool, which

⁹⁸ N.O.I.C. Shelburne, Monthly Report, Jan. 1942, *ibid.*

⁹⁹ Allocation of H.M., H.M.C., and Allied Warships to Canadian Forces, *ibid.*, NS 1076-3-6 series.

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would facilitate quick interchange of materials and equipment; and it was this fact which had resulted in the decision in 1941 to place a large haul-out at Shelburne, long before the port was thought of as a major refitting base. Once provided with haul-outs, the extent to which the base could handle repairs depended on the number and capacity of its repair shops, and on the number of skilled ratings available to operate them. The development of a naval repair base, however, involved more than that, for accommodation, and medical and recreational facilities, had to be provided for a large complement. As at Sydney, the Naval Service had not only to build the plant, but to furnish, in addition, all the necessaries and some of the amenities of life for those employed to operate it.

While the repair base at Shelburne had had its beginning as far back as June 1941, when approval was first given for the construction of two haul-outs, a long step forward was taken in the spring of 1942 when the decision was made to construct a large machine shop at the base. In order to provide for the increase in complement resulting from this decision, plans were also drawn up to double existing accommodation, to provide a sick bay and a drill hall, and to increase the capacity for bulk stores. The estimated cost of the base was doubled, reaching the figure \$2,720,000.¹⁰⁰ Progress on these additions was slow, and it was not until August 1943, a month after the completion of the 3,000-ton haul-out, that the machine shop was turned over to the navy by the contractors. Shelburne's usefulness as a repair base dates from this time. Meanwhile still further development at the base was being planned to meet the acute shortage of repair facilities on the east coast. The ship's company had increased from 252 in January 1943 to 507 by September; and the anticipated complement for 1944 had been set at 1400. This increase in complement called for additional accommodation, particularly for the large number of skilled artisans of petty officer rank, and also for Wrens who were now making their appearance at shore establishments. Moreover the fifty-bed army hospital, hitherto used by base personnel, was quite inadequate to serve even the anticipated base complement let alone the personnel of warships operating from the port or refitting at the base, and an extension to accommodate 125 beds was included in the plans for expansion. Other items included a large cafeteria capable

¹⁰⁰ C.N.S. to D. Min., Apr. 11, 1942, N.S. 40-S-1 (2); Projects Cttee. Minutes, Apr. 21, 1942, N.S. 1078-3-12 (1); P.C. 54 5350, June 23, 1942; material in N.S. 40-S-1 series.

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of serving six hundred persons at a time, a laundry, a ward-room for officers, and a canteen for men. To increase Shelburne's capacity to handle repairs, additional workshops and an armament depot were added to the list. Finally, the provision of magazines to supply ships using the base was considered as an urgent necessity, so as to relieve the over-worked magazines at Halifax. The estimated cost of the base as expanded, including the purchase of land, was placed at \$4,818,985.¹⁰¹ This programme was approved in July 1943, and was carried out during the next year and a half by the same contractors who had undertaken the original project.

During 1943 Shelburne began to operate as a repair base. With the completion of the 3,000-ton haul-out in June, warships began to appear at Shelburne with increasing regularity for repair or refit. During its first year this haul-out handled forty-two warships. The first ship to be docked was H.M.C.S. *Fundy*, which was followed by *Rosthern*, *Ingonish*, *The Pas*, and *Elk*. The first destroyer to be taken in hand at Shelburne was H.M.C.S. *Niagara* which was docked in October 1943. The complement of the base increased steadily during 1943, and by the first month of the new year it had reached 829 officers and men. With the completion of the new repair shops in 1944 the base really got into its stride. The complement crossed the thousand mark in April, reached 1,500 by August, and numbered over 2,000 by the end of the year. The first ship to undergo extensive refit and alterations at Shelburne was H.M.C.S. *Skeena*, which arrived in February. Other ships refitted during 1944 included *Assiniboine*, *Shawinigan*, *Saskatchewan*, *Saint Catherines*, *Cape Breton*, *Kootenay*, and *Waskesiu*; while many others were taken in hand for less extensive repairs. During the first four months of 1944 eight M.L.'s were allocated to the Shelburne Force, and their maintenance was undertaken by the dockyard staff using the 200-ton haul-out. Various auxiliary vessels of the navy were repaired at Shelburne, and several 126-foot motor minesweepers building for the Royal Navy were also docked in the naval slipway.¹⁰²

By the end of 1944, the complement at Shelburne far exceeded that anticipated when the construction programme

¹⁰¹ P.C. 1399, Feb. 22, 1943; P.C. 69 4120, May 19, 1943; P.C. 5948, July 28, 1943, material in N.S. 40-8-1 series; N.O.I.C. Shelburne, Monthly Reports and War Diaries, *passim*, N.S. 1000-5-23 (1 and 2).

¹⁰² N.O.I.C. Shelburne, War Diaries, *passim*, N.S. 1000-5-23 (2).

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had been drawn up in 1943. The problem of accommodation, however, was greatly relieved by the acquisition of the adjacent air force base, and later of the nearby army buildings. The Royal Canadian Air Force Station at Shelburne, immediately south of the naval base, was a flying boat operational base for anti-submarine patrols on the east coast, and also served as a winter station for aircraft operating from such summer bases as Botwood, Gaspé, and North Sydney.¹⁰³ Early in 1944, however, it was decided to discontinue the use of this base; the buildings and facilities were therefore turned over to the R.C.N.,¹⁰⁴ and this provided much-needed living accommodation and storage space. The army fortress headquarters, just north of the naval base, was released to the navy by the army in September 1944, following the withdrawal of all fixed-artillery defences at Shelburne; and these buildings served as accommodation for the skeleton crews of ships under refit. The army hospital had been taken over by the navy the previous May, and a large annex was added to meet the increased needs of the base for hospital accommodation. Early in 1944, plans were approved for the further development of Shelburne to increase its usefulness as a repair and refitting base. The new programme included an additional wharf and a 35-ton crane, as well as additions to repair shops, the provision of a foundry, and the construction of six additional barracks blocks. This construction was planned in three stages, the last to be undertaken in 1945 when the base complement was expected to be over three thousand. The programme was approved in June, but only a portion of it was in hand when, in view of the approaching end of the war, most of it was cancelled.¹⁰⁵

Gaspé Bay is situated on the eastern tip of the Gaspé Peninsula, a tongue of land about 150 miles long forming the southern shore of the lower St. Lawrence River. The bay is sixteen miles long, and is divided into an inner and outer harbour by a sand-spit which projects half-way across the basin some eleven miles from its entrance. The inner harbour, 600 to 2,900 yards wide, is completely sheltered, and accessible to any kind of warship; while the outer harbour, with an average width of five miles, provides unlimited anchorage, but is subject to heavy swells and open to direct winds from the

¹⁰³ D. Min. (Air) to D. Min., Mar. 17, 1943, N.S. 40-8-1 (4).

¹⁰⁴ N.S.H.Q. to C. in C., C.N.A., Jan. 8, 1944, *ibid.*

¹⁰⁵ P.C. 108 4433, June 10, 1944; Naval Staff Minutes, Oct. 31 and Dec. 4, 1944.

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south-east. Gaspé Bay was ideally situated to serve as a base for the protection of the St. Lawrence River and the northern portion of the Gulf, and also provided an excellent and easily-defended anchorage for capital ships. Its value for naval purposes was marred only by the fact that it is icebound from December to May. The village of Gaspé, with a population slightly under a thousand, lies at the head of Gaspé Bay, and is the terminus of the Canadian National Railways' line serving the southern coast of the Peninsula.

The establishment of a naval base at Gaspé was first mentioned early in 1940, when consideration was being given to the allocation of a small number of armed yachts and aircraft for the protection of the St. Lawrence River area. The early naval plans for Gaspé were extremely modest, and contemplated merely the provision of a staff of twelve to co-ordinate naval and air Operations and to make the necessary victualling arrangements for five armed yachts and possibly two destroyers.¹⁰⁶ By summer, however, Gaspé had become more important in the eyes of the naval planners, because of its suitability as a fleet anchorage for British or United States warships in the event of the invasion of Great Britain. For this reason and because of its commanding position in the Gulf, Gaspé was included as one of the three main bases to be developed to support Canadian warships, and also any allied ones which events might bring to those waters.¹⁰⁷

By the summer of 1940 Gaspé was envisaged as a defended anchorage, and a small advanced base comprising a combined navy and air force Operations building, as well as a wireless station, water-supply and electric power plants, separate naval barracks, and storehouses. Arrangements were made for diesel fuel to be supplied locally, and the first two armed yachts, expected to commission in July, were to be allocated to the Gaspé command. Port defences were to include fixed-artillery defences, anti-submarine and anti-torpedo defences, and also a controlled minefield when materials became available.¹⁰⁸

Meanwhile, in June 1940, H.M.C.S. *Eileen*, a sixty-five-foot motor launch converted for river-patrol duties, and the first warship to enter Gaspé in the Second World War, arrived in search of the naval base. Unable to find it the ship proceeded

¹⁰⁶ Naval Staff Minutes, Mar. 18 and Apr. 16, 1940.

¹⁰⁷ Report of Sub-committee on Fleet Anchorages in Eastern Canada, June 22, 1940, N.S. 1400-9 (1); Naval Plan, July 7, 1940, N.S. 1017-10-1 (2).

¹⁰⁸ C.N.S. to Min., July 12, 1940, *ibid.*; C.N.S. to D. Min., July 24, 1940, *ibid.*

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on its way to Rivière du Loup.¹⁰⁹ The *Eileen* had been unsuccessful because no naval establishment existed at Gaspé until early in July when the late Cdr. J. W. R. Roy, R.C.N., was appointed Senior Naval Officer. Two junior officers were appointed at the same time, and the base began operations in a small wooden building in the lower part of the town.¹¹⁰

The Senior Naval Officer, with no ships to command, concerned himself with establishing communications, and selecting sites for the naval base and the outlying defence establishments. The first wireless station was set up in a hen-coop in the garden of a house rented by the R.C.A.F., and was in operation in July. The site finally chosen for the base was at Sandy Bay on the south shore of the inner harbour, several miles from town and close to the railway. A large flat tract of land in otherwise hilly country, it provided room for expansion, made for easy construction, and was, moreover, already served by a Dominion Government wharf and two oil tanks. Suitable sites were also chosen for port defence installations along the shore of the outer harbour and at the entrance to the bay.¹¹¹ In October, H.M.C.S. *Vison* arrived to become the first warship to operate out of the base. In November the Gaspé sub-command was closed down for the winter months and *Vison* returned to Halifax.¹¹²

It was not until the following summer that port defences were installed at the port. The contract for boom defences was let in April, 1941, and the work was completed by August. Two fixed-defence batteries of two 75-mm. and two 4.7-inch guns respectively came into operation in July, while two 10-inch counter-bombardment guns, obtained in the United States, were ready for action the following month.¹¹³ The examination service started in September when the *Venning*, a 58-foot diesel-powered craft, took up station in Gaspé harbour. A temporary port war signal station was established at one of the batteries, and a war watching station was located in the lighthouse at Cape Gaspé. By 1941 the use of Gaspé as a defended anchorage for big ships seemed less likely than it had the previous year; no steps were taken to install a controlled minefield, and anti-torpedo nets assembled for Gaspé

¹⁰⁹ "Gaspé: The Story of a Base," in R.C.N.M.R. No. 16, Apr. 1943.

¹¹⁰ Naval Staff Minutes, June 25, 1940; Navy List, June 30, 1940.

¹¹¹ S.N.O. Gaspé to C.O.A.C., Aug. 1, 1940; "Report on Development of Gaspé" by Lieut. (SB) (E) D. W. Overend, R.C.N.V.R., Apr. 1, 1944 (D. of P. records).

¹¹² N.O.I.C., Gaspé, Monthly Report, Sept. and Oct. 1940, N.S. 1000-5-17 (1).

¹¹³ Overend, "Report on Gaspé" cited above (D. of P. records); information obtained from Hist. Sec. (Gen. Staff).

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were sent to Sydney to give additional protection to that important convoy assembly port.¹¹⁴

Plans for the construction of the base had proceeded slowly during the winter and spring of 1940-41, and had undergone revision and expansion. Additions included a 200-ton marine haul-out for M.L.'s and a 6,000-barrel diesel-fuel tank. On July 24 the contract for the naval base was let to A. Janine and Co. of Montreal, who were also responsible for constructing army and air force facilities located on either side of the naval site. The work began almost immediately, and by the end of the year Gaspé was well on the way to becoming a small but complete operational base.¹¹⁵

The port opened for the 1941 navigational season in June, and the following month four armed yachts, the *Reindeer*, *Raccoon*, *Lynx*, and *Vison*, arrived to form the Gaspé Force. The base complement grew slowly, with the numbers reaching 8 officers and 51 men by November.¹¹⁶ Accommodation was found in private houses, summer hotels, and cabins, in the town, while a canteen was opened in a farmhouse near the naval base. Operationally the season was a quiet one—the last Gaspé was to have for some time—and the routine life of the base was broken only by the visit of an occasional new-construction ship as it made its way from the St. Lawrence to Halifax.¹¹⁷

Construction at the base continued through the winter, and by March, 1942, the first buildings were occupied by the base staff. On May 1 the naval base was commissioned as H.M.C.S. "Fort Ramsay." It had enjoyed this distinction for less than two weeks when word was received that the S.S. *Nicoya* had been torpedoed eight miles off Chloridorme on the north-east coast of Gaspé Peninsula. The only naval ship at the base, the examination vessel *Tenning*, was immediately dispatched to search the area, while eighty survivors were brought to Gaspé by road. This event ended the routine and obscure rôle that Gaspé had hitherto played in the war at sea, and marked the beginning of an active and strenuous summer. It was fortunate that base facilities planned for such an

¹¹⁴ Sec. N.B. to C.O.A.C., Sept. 29, 1942, N.S. 1053-6-1 (1).

¹¹⁵ Information on base construction contained in N.S. 40-7-1 series, and in Overend, "Report on Gaspé" (D. of P. records).

¹¹⁶ "Distribution of Canadian Naval Personnel," Nov. 26, 1941, N.S. 1012-5-2 (1). Note: Until Dec. 1942, N.S.H.Q. records of base complements are incomplete and should be considered as approximate only.

¹¹⁷ N.O.I.C. Gaspé, Monthly Reports, *passim*, N.S. 1000-5-17 (1).

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eventuality were ready, for the most part, to meet the needs of the warships that were immediately dispatched to form the Gulf Escort Force. By June 1, 5 Bangor minesweepers, 3 M.L.'s, and an armed yacht, were allocated to this Force; which by September included, in addition, 7 corvettes and 3 M.L.'s, making a total of 19 warships. Besides operating and maintaining the Gulf Escort Force, Gaspé provided for the needs of warships of other commands, particularly those of the Western Local Escort Force and of the Sydney and Quebec Forces, which visited the base from time to time. During the summer of 1942, twenty-three ships were sunk in the Gulf, many of them close to Gaspé itself; and this number included two warships of the Gulf Escort Force, the veteran yacht *Raccoon* and the corvette *Charlottetown*. Gaspé not only exercised control over naval counter-measures but assisted in the rescue and care of survivors. In September alone over two hundred survivors were looked after at the base.¹¹⁸

During the year the complement of "Fort Ramsay" steadily increased. By June the figures stood at 16 officers and 164 men, and had increased by the end of the year to 34 and 291 respectively.¹¹⁹ The base complement had far outgrown the number anticipated and provided for in the original building programme. Moreover the use of Gaspé by so many ships in 1942 had severely taxed the limited storage and repair facilities, and during the winter of 1942-43 it was decided to expand the base by the provision of twenty-five new buildings and the extension of a number of existing ones, and to install a large oil-fuel storage plant and additional magazines. It was found, however, that the many demands on labour and materials at this time prevented the undertaking of the programme until the end of the year.¹²⁰

Meanwhile the St. Lawrence River was closed to all but a limited amount of essential coastal shipping, while the U-boats left the Gulf for Operations elsewhere: the use made of Gaspé during 1943 was therefore much less than had been expected. The base continued to support a force of 3 to 5 Bangor minesweepers and 12 to 14 M.L.'s, and the complement reached its peak of 62 officers and 585 men in October, 1943, a

¹¹⁸ *Ibid.*; Allocation of H.M., H.M.C., and Allied Warships to Canadian Forces, N.S. 1056-3-6 series; folder containing documents relating to the defence of the St. Lawrence River and Gulf (D. of P. records).

¹¹⁹ Monthly Personnel Report, June 1942, N.S. 1012-5-26 (1); Weekly Summary of Information respecting Departmental Activities, Dec. 18, 1942 (D.N.H.S. records).

¹²⁰ B.P.C. Minutes, Feb. 6, 1943, N.S. 1078-3-6 (2); Naval Board Minutes, Feb. 8, 1943; D.W.B. to C.N.E.S., July 7, 1943, N.S. 40-7-1 (4).

total far below that of 1,184 which had been estimated in January of that year.¹²¹ Certain improvements were made at the base during 1943: a new war watching station was opened at Cap Rosier, and wireless and telephone communications with other commands were greatly improved; while arrangements were made with the New Brunswick International Paper Co. at Dalhousie for the refit of warships based on Gaspé, thus relieving the strain on other east-coast facilities and avoiding the long trip to Halifax. Because of the number of M.L.'s at the base, a spur was added to the existing wharf for their use; while temporary storage for 96,000 gallons of high-octane gasoline was added to existing air-force tankage which had hitherto been drawn on by M.L.'s.¹²²

By the time new construction could be started at Gaspé it was clear that the strategic importance of that base had diminished to such an extent that further development on a large scale was unnecessary.¹²³ There had been no sinkings in the Gaspé area during the preceding navigational season, and the U-boat appeared to be less aggressive in all operational areas. Accordingly the new programme for Gaspé was largely abandoned. Certain alterations, however, were carried out in existing buildings to provide additional space, and use was made of a farmhouse and contractor's shacks on naval property for summer accommodation. This situation was further alleviated by the taking over of the army buildings adjacent to the naval property, when these became vacant in November, 1944, as a result of a decision to place all of the Gaspé fixed-artillery defences in maintenance, to release men for overseas duty.

It was not until October, 1944, that enemy submarines, now equipped with *Schnorchel*, reappeared in the Gulf; and during the next two months they torpedoed the frigate H.M.-C.S. *Magog*, the corvette *Shawinigan*, and the merchant ship *Fort Thompson*.¹²⁴ Activity at Gaspé flared up briefly during this period, but with the closing of navigation in this area the enemy departed never to return.

¹²¹ Information respecting Departmental Activities, Oct. 14, 1943 (D.N.H.S. records); Overend, "Report on Gaspé" cited above (D. of P. records).

¹²² N.O.I.C. Gaspé, War Diaries, 1943, *passim*, N.S. 1926-112 5.

¹²³ Naval Staff Minutes, Oct. 25, Nov. 15, and Dec. 20, 1943; Naval Board Minutes, Jan. 11, 1944.

¹²⁴ N.O.I.C. Gaspé, War Diary, Oct. and Nov. 1944, N.S. 1926-112 5.

CHAPTER 7

BASES OUTSIDE CANADA

THE Island of Newfoundland, with an area slightly larger than that of Ireland, lies east of the Gulf of St. Lawrence and forms a massive barrier between it and the Atlantic Ocean. It extends from the eastern tip of Labrador, from which it is separated by the narrow Strait of Belle Isle, for nearly 300 miles in a south-westerly direction to within 57 miles of Cape Breton Island; and to the east it reaches out to the mid-Atlantic Ocean. The position of Newfoundland is one of great strategic importance, both for the defence of the Canadian eastern seaboard and for the protection of adjacent ocean trade routes.

Since it had first become a British possession Newfoundland had relied almost wholly on the general supremacy of the Royal Navy for its defence; although a precedent for Canadian co-operation had been established in the First World War when warships of the Royal Canadian Navy shared in the patrol of its coastal waters.¹ The rôle of Canadian forces in the defence of the island had been the subject of a desultory correspondence between the British and Canadian governments prior to September 1939, and of consultation with Newfoundland in the early days of the Second World War.² But urgent defence problems nearer home and the despatch of troops overseas prevented the Canadian Government from taking any action until the summer of 1940.

In June a small Canadian military force and a flight of aircraft were sent to Newfoundland. In August discussions between Canadian and Newfoundland representatives took place at St. John's, where it was agreed that Canada would reinforce its army and air force in Newfoundland, and provide fixed coast-artillery defences at certain points. The R.C.N., still severely hampered by lack of ships and personnel, envisaged the ultimate establishing of advanced bases at St. John's

¹ See vol. 1, ch. 11.

² Mem.o. by Joint Staff Cttee. on the defence of Newfoundland, Dec. 12, 1938, C.S.C. 100 (4); correspondence (E.A. 1156-0-39C (1)).

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and Botwood to support a local-defence force of from ten to twelve ships. The only action possible in the near future, however, was the provision of examination services.³ St. John's, situated on the east side of the Avalon Peninsula, was the most important commercial port in Newfoundland, and the logical place for a local defence force despite its small harbour. Botwood, on the north side of the island, possessed one of the few good and easily-defended harbours in Newfoundland, but had the serious drawback of being ice-bound in winter. It was chosen to perform a dual function: to provide a defended harbour in Newfoundland for large warships, and to serve as a base for local patrols in that area.⁴

The contribution of the United States to continental defence was greatly facilitated by the action of the British Government, announced early in September, whereby the United States was permitted to establish bases in Newfoundland and other British possessions in the western hemisphere. The United States immediately planned to build a naval base at Argentia on Placentia Bay, ninety miles west of St. John's, an air base at Stephenville on the west side of the island, and a large army establishment at St. John's.⁵

The active participation of the military forces of the United States in an area already to some extent defended by Canada, called for a clarification of the respective positions of the two countries in Newfoundland. This was first done in the protocol annexed to the formal agreement, dated March 27, 1941, granting the United States the right to establish bases on the island. The governments of the United States and Great Britain recognized in this document that the defence of Newfoundland was an integral part of the Canadian scheme of defence, and further stated that Canadian defence interests would be fully respected.⁶ A more specific delineation of responsibilities was contained in the second Joint Canadian-United States Basic Defence Plan drawn up in October 1941. Joint Task II of this plan concerned itself with the defence of Newfoundland and the protection of sea communications within its coastal zone. It assigned to the armies and air forces of both countries equal responsibility for the defence of

³ Minutes of meeting held at Government House, St. John's, Aug. 20, 1940, N.S. 1033-2-1 (1); Naval Plan, Aug. 1940, N.S. 1017-10-1 (1).

⁴ D. of P. to D. Org., Jan. 20, 1943, N.S. 1033-2-7 (1).

⁵ Encl. in Br. High Comm., Ottawa, to Sec. of State (Ext. Aff.), Oct. 21, 1940 (E.A. 1156-D-39C (1)).

⁶ *Protocol concerning the Defence of Newfoundland between Canada, the United Kingdom, and the United States*, Mar. 27, 1941, Canada Treaty Series, 1941, No. 2 (Ottawa 1943).

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Newfoundland in co-operation with the respective navies of each country; and primary responsibility to the R.C.N. for the protection of sea communications in the coastal zone and for the naval defence of St. John's and Botwood.⁷ By late 1940 the first coast-defence batteries had been installed in Newfoundland by the Canadian army.

The Naval Service was forced to move more slowly. Plans, however, were drawn up for the defence of St. John's and Botwood, and the necessary materials were ordered.⁸ The Royal Navy's activities in Newfoundland had been limited to St. John's, where Capt. C. M. R. Schwerdt, R.N., Secretary to the Governor, had assumed the duties of Naval Officer-in-Charge on the outbreak of war and had been provided with a staff of three officers.⁹ In December 1940, this nucleus was augmented by the arrival of the first Canadian naval officers, appointed to undertake the examination service, and H.M.C.S. *Macsin* was detailed to St. John's to serve as examination vessel.¹⁰ Several more Canadians arrived early in the new year, and the Admiralty arranged for the loan of its personnel at St. John's to the R.C.N. so that the establishment could operate under a single direction.¹¹ While the provision of base facilities was still in the stage of planning and procurement the whole project was suddenly overshadowed by new developments.

Until late in 1940 the German submarines had operated for the most part near the British Isles, and naval escorts had ordinarily accompanied convoys only as far as 15°W. With the passage of time, however, various conditions made it both practicable and desirable for the U-boats to operate further to the west: notably the acquisition by Germany of bases in Norway, the Low Countries, and France; the expanded production of long-range submarines; and the increasing effectiveness of allied counter-measures in the north-western

⁷ Joint Canadian-United States Basic Defence Plan No. 2 (Short Title A.B.C. 22), (D. of P. records).

⁸ The plans called for:

St. John's: Port war signal station, wireless station, anti-torpedo nets, boom-defence building, and two examination vessels.

Botwood: Port war signal station, floating base ship, sono-buoy anti-submarine detecting apparatus, and one examination vessel.

⁹ In the early days of the war St. John's served as a routeing point for merchant shipping, much of which was concerned with the shipment of iron ore from Bell Island. In late 1940 the port had been used as a fuelling station for the ex-U.S.N. destroyers en route to the United Kingdom.

¹⁰ *Macsin* was subsequently replaced by *Marvita* and *Shulamite*, two Newfoundland customs cutters which were taken over by the R.C.N. in May 1941.

¹¹ Admiralty to N.S.H.Q. (signal), May 3, 1941, N.S. 40-21-1 (1).

approaches to Great Britain. By the end of 1940 the Royal Navy was forced to escort convoys to 30°W.; moreover, by the following spring it was necessary to afford protection even farther to the westward. The Admiralty therefore decided to base an escort force on Newfoundland, which in conjunction with similar forces operating from Iceland and the United Kingdom would give effective cover as far as 45°W.¹² St. John's was finally chosen as the base for the Newfoundland force, because it was already defended to some extent and had the best port facilities on the island.¹³ Its strategic position, close to and a third of the way along the great circle route from continental North America to Great Britain, was ideal for the purpose.

This proposal altered the purpose of the naval base at St. John's. Hitherto it had been planned as a base for Canadian local-defence forces only, but now it was destined to play an important part in the rapidly-developing "Battle of the Atlantic." The type of base to be established, and the respective rôles of the Admiralty and the Naval Service in its construction and operation, became questions for immediate answer.

When the Admiralty's decision reached it on May 20, 1941, the Naval Service immediately offered to escort convoys in the Newfoundland area with a force which would include all the available Canadian destroyers and corvettes under the command of a Canadian officer.¹⁴ The idea of concentrating its forces on a well-defined and vital objective which also was immediately related to the defence of the Dominion, held a strong appeal for the small Canadian navy. The Admiralty accepted this offer, and requested the appointment of Cdre. L. W. Murray, R.C.N., as Commodore Commanding Newfoundland Force: it was apparent from the size of the force which the Admiralty expected to operate under his authority that it would include ships of the Royal Navy. In a separate dispatch the Admiralty stated that St. John's was being considered as a base for running repairs only; and that the greatest possible use was to be made of existing shore facilities, supplemented at first by fleet auxiliaries.¹⁵ With this in mind

¹² Minutes of meeting held by V.C.N.S. (R.N.), Admiralty, London, May 20, 1941, A.R.O., P.D. 09769; Admiralty to N.O.I.C. St. John's (signal), May 20, 1941; Admiralty to N.S.H.Q. (signal), May 20, 1941; N.S. 1033-6-1 (1); Admiralty to C. in C., Plymouth, etc. (signal), May 21, 1941, N.S. 1033-2-1 (1).

¹³ N.O.I.C. St. John's to Admiralty (signal), May 20, 1941, N.S. 1033-6-1 (1).

¹⁴ N.S.H.Q. to Admiralty (signal), May 21, 1941, *ibid.*

¹⁵ Br. High Comm., Ottawa, to Sec. of State (Ext. Aff.), May 24, 1941, *ibid.*

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the matter was carefully studied by the Canadian naval authorities both at St. John's and Ottawa, and the Base Planning Committee prepared a report listing in detail the shore facilities considered necessary.¹⁶ In the meantime Col. C. W. G. Gibson, Minister of National Revenue, went to St. John's to make preliminary arrangements with the Newfoundland Government for the acquisition of property.¹⁷

It was difficult to proceed further without having clarified the respective legal and financial responsibilities of Canada and Great Britain. At the same time as it accepted control of the Newfoundland Force, the Naval Service had offered in general terms to provide all the necessary shore facilities.¹⁸ The Canadian Government, however, had subsequently expressed the opinion that title to the base would most appropriately vest in the United Kingdom Government because of its special relationship to Newfoundland, and that Great Britain should also bear the financial responsibility under such terms and conditions as might be agreed to between the governments. On the other hand, Canada was willing to assume the cost if Great Britain so desired, but felt that in such a case title should vest in the Canadian Government.¹⁹ The Newfoundland Government, while expressing the wish that the base should be established and operated by the Royal Navy, was willing to co-operate in any way that did not involve financial liability.²⁰

The British Government's decision, communicated to Ottawa on June 29 in the form of a message from the First Lord to the naval Minister, recommended that the establishment of the base should be a joint undertaking—a solution offered in the interests of speed, and because it appeared to be in accord with the expressed wishes of the Newfoundland and Canadian Governments.²¹ The Admiralty was to assume responsibility for the capital cost of additional naval facilities, and working through the Newfoundland Government on an

¹⁶ Reports were prepared by Rear-Admiral S. S. Bonham-Carter, R.N., Eng. Rear-Admiral H. A. Sheridan, R.N., Eng. Captain G. L. Stephens, R.C.N., and Captain C. M. R. Schwerdt, R.C.N., *ibid.* For recommendations see Base Planning Cttee. Minutes, June 23, 1941, N.S. 1078-3-6 (1).

¹⁷ Memo. by Min. reporting decision of Cabinet War Cttee. of June 24, 1941, which authorized preliminary steps to be taken to acquire property, June 25, 1941, N.S. 1033-6-1 (1).

¹⁸ C.N.S. to First Sea Lord (signal), May 26, 1941, *ibid.*

¹⁹ Sec. of State (Ext. Aff.) to Br. High Comm., Ottawa, June 22, 1941, *ibid.*

²⁰ Nfld. Govt. to Dom. Office (telegram), June 6, 1941, A.R.O., M.07876/41; same to same, June 28, 1941, A.R.O., M.09812/41.

²¹ Minute by Head of Military Branch (R.N.), June 27, 1941, A.R.O., M.09812/41.

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agency basis was to negotiate the terms of occupation of existing properties, the acquisition and tenure of sites, ownership of new buildings, and similar questions. Titles to property were to be vested in the Admiralty or the Newfoundland Government according to the circumstances of each case. The existing arrangement whereby the R.C.N. was to control the Newfoundland Force remained unchanged, and the Admiralty gratefully accepted the offer of the Canadian naval authorities to administer and maintain the base. The general assistance of the Canadian Government was also requested, particularly with the transfer of material and equipment. The First Lord announced that a joint mission representing the Admiralty and the Ministry of War Transport was to be sent forthwith to St. John's, to prepare a co-ordinated scheme to meet naval and mercantile requirements as expeditiously as possible.²²

The Canadian Government immediately accepted the arrangements as outlined by the First Lord. At the same time they asked for and received assurance that the Admiralty would not relinquish its title without prior consultation with Canada. The government's full co-operation was offered, and all information already collected was placed at the disposal of the joint mission.²³ The latter, meanwhile, lost no time getting to St. John's, and from there went to Ottawa where the arrangements for British-Canadian co-operation were worked out in detail. The mission asked the Canadian Government if the placing and supervision of contracts and the negotiations for sites at St. John's could be carried out by the Naval Service on behalf of the Admiralty. The government agreed to this request, and also made the necessary money available from Canadian funds in the first instance, on the understanding that it would be recovered later from Great Britain.²⁴

Plans were to be drawn up by the Naval Service and the mission in consultation with Cdre. Murray. The Canadian Government would then be responsible for the placing of contracts and the supervision of work, while the Newfoundland Government would act in all matters relating to the acquisition of property. Any important departure from these arrangements and any alterations of the total cost were to be reviewed jointly, and in the latter case the Admiralty was to be consulted. To facilitate the operation of this machinery, a joint

²² Admiralty to C.N.S. (signal), June 29, 1941, N.S. 1033-6-1 (1).

²³ Sec. of State (Ext. Aff.) to Br. High Comm., Ottawa, July 2, 1941, *ibid.*

²⁴ P.C. 48/6379, Aug. 19, 1941.

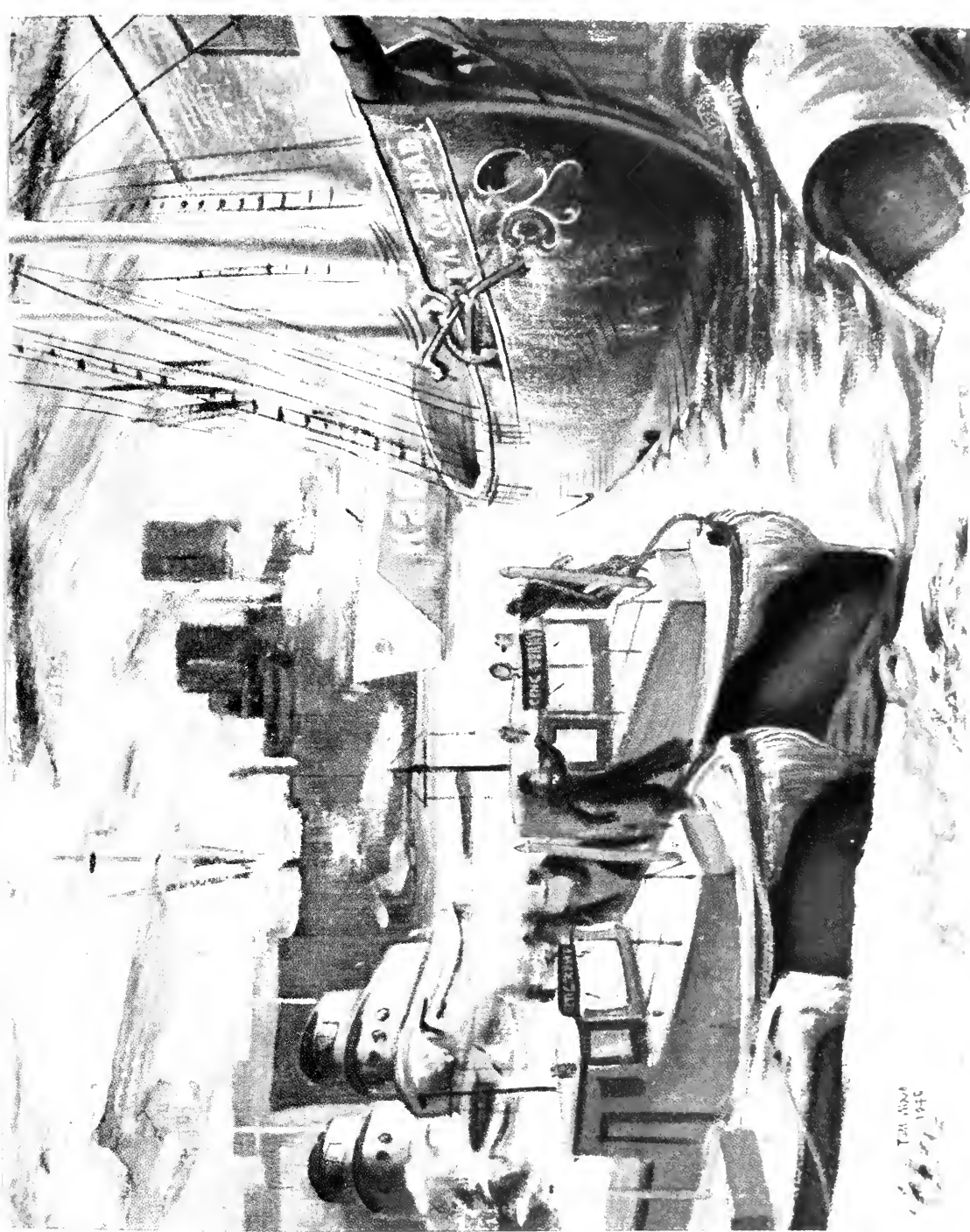
committee representing both the mission and the Naval Service was set up in Ottawa.²⁵ The respective financial liabilities of the two governments, as finally worked out, placed to Admiralty account the costs of acquiring property and the capital cost of base construction. Canada, for her part, would bear the expenses of administration and physical maintenance.²⁶ The R.C.N. in St. John's was something like a tenant living free of rent in a house which he himself had designed, of which he paid for the upkeep, and in which members of the landlord's family were welcome to take shelter.

The difficulties of establishing the naval base at St. John's were clearly revealed in the various appreciations submitted to Ottawa. St. John's harbour was small—slightly over 700 yards across at its widest point and some 2,100 yards long. The chief harbour of the island, it was completely taken up with commercial wharves and jetties, of which those not essential to the economic life of the city were small and dilapidated, and of no use for naval purposes. Another limiting factor was that about a thousand feet of the least-used part of the waterfront had been leased to the United States Army under the bases agreement. Moreover, the preceding winter had seen the harbour occasionally filled to capacity with merchant ships which had been forced to leave convoy for refuge or repair. The city itself could not provide sufficient accommodation for offices, storage, or barracks; and neither materials nor equipment for construction were available locally. The city was crowded close to the harbour on its north side and little available land could be found there. The south side, while less congested, was very steep and rocky. The one dry dock was fully occupied by merchant ships, did not have sufficient equipment for naval repairs, and was seriously handicapped by the lack of skilled labour. Necessity alone dictated the setting up at St. John's of facilities for a large naval force. Certain restrictions were inevitable, and the development of the base necessarily involved inconvenience and high costs.

The plans for shore facilities as finally drawn up included the renovation of most of the wharves on the south side of the harbour, which were to be used jointly by the navy and their owners; and the reconstruction of a group of jetties near the north-west corner of the harbour. The land behind the site for

²⁵ Minutes of preliminary meeting of St. John's Joint Cttee., July 24, 1941 (D.Min.'s records).

²⁶ Sec. of State (Ext. Aff.) to Br. High Comm., Ottawa, Oct. 20, 1941, *ibid.*



Harbour Craft
Jetty

by
Lieut. Tom Wood
National Gallery
of Canada

Tom Wood
1945

these jetties was to be cleared of its buildings and developed as a dockyard. Up a steep hill, a third of a mile to the westward, was the barracks site, and a mile to the north-east, next to the Newfoundland Hotel, that of the administration building. Close by the latter, on its north-east side, the hospital was to be erected. The magazine and oil-fuel depot were to be placed on the south side of the harbour. Port war signal stations at Fort Amherst and Cape Spear, and a wireless station west of the city, completed the project.

The base was designed to provide shore facilities capable of supporting a force of about sixty destroyers, corvettes, or sloops, without recourse to fleet auxiliaries. The Admiralty hesitated to give final approval to all items because of the possible effect that American naval aid in convoy work, then under discussion, might have on the importance of the base. In view of this attitude, and because in any case concurrent building was limited by available supplies and labour, individual items were given a priority rating, with the hospital, the wireless station, and port war signal station, placed first on the list. The Department of Munitions and Supply arranged for the contract with the E.G.M. Cape and Co. of Montreal on a cost plus fixed fee basis.²⁷

Meanwhile the Newfoundland Force had begun to operate from St. John's. Seven corvettes had arrived on May 27, 1941, a number that increased to forty by August. All Canadian destroyers were withdrawn from service in United Kingdom waters and were sent to St. John's early in June. On June 3 the first three corvettes were sailed to escort an east-bound convoy. For running repairs the Newfoundland Force could count on the facilities of H.M.S. *Forth*, a new and well-equipped submarine depot ship, which arrived from Halifax on June 14; and for stores and fuel it was served by the Admiralty store-ship *City of Dieppe*, which completed the journey from Gibraltar on June 3, and by the Admiralty oilers *Teakwood* and *Clam*, in operation at St. John's on May 29 and June 9 respectively. As personnel increased, offices were rented ashore. Office space and living accommodation were also provided in H.M.S. *Forth*; and on its replacement in September by H.M.S. *Greenwich*, an older and smaller depot ship, the Naval Service chartered the Great Lakes steamer *Georgian*,

²⁷ The details of this programme as finally approved are contained in signals sent by Mr. E. A. Seal, head of the joint mission, to Admiralty, and in minutes of the St. John's Joint Cttee. (D.Min.'s records).

NAVAL SERVICE OF CANADA

which as *Avalon II* served as a floating barracks.²⁸ During these early days, improvisation, hard work, and long hours, helped to compensate for the lack of shore facilities.

The delays involved in preparing plans, letting contracts, clearing land, and obtaining and transferring material, were such that work on the base did not commence until August, 1941. By winter all construction on important buildings was well advanced, but by no means completed. The wireless station was occupied in January, and the port war signal station the following month. The hospital was taken over in April, and in May some of the dockyard buildings were in use. During the summer the administration building, barracks, and the balance of the dockyard buildings, were occupied. By the end of August the dockyard jetties and the south-side wharves were in full use, although the latter were not complete in every detail. The dockyard shops still lacked certain essential machinery, which prevented full operation and necessitated the retention at St. John's of H.M.S. *Greenwich* until July, 1943. The *City of Dieppe*, however, left in May 1942, and about the same time the Naval Service purchased *Avalon II*, and continued to use her as a floating barracks even after shore accommodation had been completed.²⁹

The magazine and fuel depot took longer to construct, and the capacity to be provided in each case was increased early in 1942. One of the most important tasks at St. John's was to provide fuel for the escort force. The Imperial Oil Co. operated a newly-built 30,000-barrel tank on shore; but as this amount was no more than enough for the expected requirements of merchant ships, the Admiralty had sent the merchant fleet auxiliaries *Teakwood* and *Clam* to St. John's, while the R.C.N. provided H.M.C.S. *Moonbeam*, one of its two oil barges on the east coast. Meanwhile plans were drawn up to erect naval shore tankage with a capacity of 89,000 barrels.

Consumption of fuel oil at St. John's steadily increased, until by March 1942 it had reached a weekly total of 39,000

²⁸ F.O.N.F., Monthly Reports, *passim*, N.S. 1000-5-20 series. The *Georgian* was built in 1910 at Wyandotte, Mich., U.S.A. Successively christened *Rochester*, *Cape Eternity*, and *Georgian*, she had served as a passenger liner on the Great Lakes prior to her acquisition by the R.C.N. *Georgian* was not entirely suited for her new role:

As 'Georgian' was originally built as a passenger steamer plying for overnight traffic only, the cabins are extremely small and have no accommodation for officers' clothing or personal belongings. With the exception of about 12 or 18 cabins there is only space enough to undress and to turn into the bunk. [C.C.N.F. Monthly Report, Sept. 1941, N.S. 1000-5-20 (1)].

²⁹ F.O.N.F., Monthly Reports, *passim*, N.S. 1000-5-20 series.

barrels. At the same time the supply of fuel oil on the east coast was being seriously jeopardized through enemy action. In May 1942 stocks at St. John's were so depleted that three coastal tankers remained in harbour, while the *Teakwood*, because of her much greater capacity, proceeded to Halifax for fuel. To ease this difficulty the Admiralty replaced *Clam* by the larger Royal Fleet Auxiliary *Empire Salvage*, a former Dutch tanker which had been captured from the Germans. Meanwhile, in March 1942, in view of the urgent need for sea-going tankers, the programme for shore tankage was expanded by 180,000 barrels. The following September the first of the shore tanks went into operation, and in December *Empire Salvage* sailed from St. John's.

To assist in supplying fuel to both shore and floating tankage, the Admiralty provided the merchant fleet auxiliaries *British Honour* from November 1942 to May 1943, and *Scottish Musician* from May 1943 to March 1944. In September 1943 the balance of the shore tankage went into operation and *Teakwood* joined the shuttle service to St. John's, going as far as Montreal for fuel oil. In December, after three-and-a-half years of service at St. John's, *Teakwood* sailed for Halifax and then to the Clyde. The bunker-fuel tankage erected at St. John's was the largest of any undertaken by the Royal Canadian Navy. The length of time required to build the fuel depot resulted from the difficulties encountered in clearing a suitable site on the high and rocky ground south of the harbour, as well as from those experienced in procuring and transporting materials. The only addition to the fuel depot was a 12,000-barrel tank for diesel fuel, completed in the spring of 1945 but never placed in operation. For its supplies of diesel fuel and high-octane gasoline, the navy relied on stocks kept by the Imperial Oil Co., and on those carried by the base-supply ship H.M.C.S. *Preserver* which served at St. John's for varying periods.³⁰

St. John's harbour was a difficult one to protect with fixed defences. Unlike most harbours it had no confined approach area, but faced directly on the open sea from which it was separated by a narrow channel, a thousand yards in length and flanked by steep cliffs. The only point of land to seaward of the harbour was Cape Spear, four miles to the south-east. The R.C.N. built a port war signal station at Cape Spear, but it was found in practice that the main station needed to be close

³⁰ Material in N.S. 1044-12-5 series.

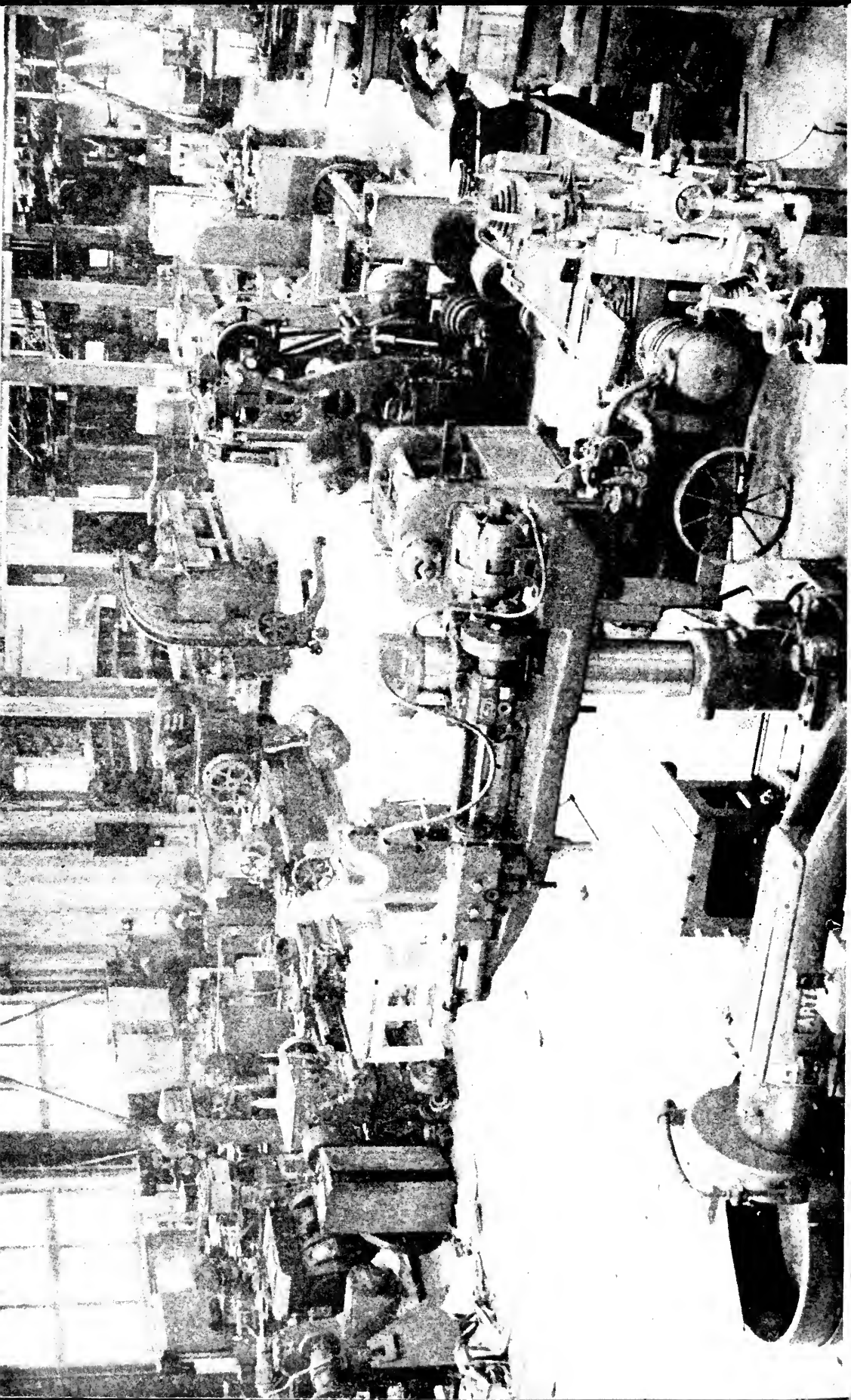
to the harbour entrance in order to control ships entering. A temporary station, first situated in Cabot Tower on Signal Hill, overlooking both the city and sea, and subsequently moved to Fort Amherst, became in fact the main port war signal station, with the one at Cape Spear playing a secondary rôle. The narrow entrance to the harbour, difficult enough to negotiate without artificial obstacles, was protected at first by three anti-torpedo baffles, installed in the autumn of 1941. In March 1942 the enemy fired torpedoes, unsuccessfully aimed, at the harbour entrance; and in order to provide complete protection against this form of attack, a single-line anti-torpedo submersible gate, raised and lowered by a steam winch ashore, was placed across the harbour in December 1942. Meanwhile, a controlled minefield, traversing the outer entrance of the harbour, was in operation by June 1942, after having been unsuccessfully laid earlier in the year. This completed the underwater defences of St. John's harbour, as the absence of a confined approach area rendered other devices wholly impracticable.³¹

A field of moored magnetic mines, of a type identical with those laid in the approaches to Halifax the previous June, was discovered off St. John's on October 12, 1943. A shortage of minesweepers and adverse weather conditions meant that the field was not wholly cleared until December, although most of the mines had been accounted for a month after they had been laid. On October 19, two merchant ships sailing in convoy from Wabana to Sydney struck mines and sank about fifteen miles south of Cape Spear. The entire crew of one ship was saved, but 27 of a crew of 41 on the other were lost. To assist in sweeping operations, all minesweepers that could be spared from the Halifax Force were allocated temporarily to F.O.N.F., while several British minesweepers assisted, including two which were on passage to the United Kingdom. In all, thirty-five mines were accounted for in the waters around St. John's.³²

The Canadian personnel at St. John's in July 1941 numbered 150 officers and 750 men, and this number did not increase materially until the next summer. The complement of the base was augmented during this period by the British personnel serving aboard the fleet auxiliaries at St. John's. By November 1942 the Canadian total had risen to 2,000 men. The following June 2,700 officers and ratings were serving at

³¹ N.S. 1053-7-1 to 6, and 1028-5-6 (1 and 2).

³² Weekly Reports to Min., Oct. to Dec. 1943, N.S. 1000-5-7 series.



the base, and six months later this number had reached 3,600. By the end of 1944 the figure stood at 5,000.

The Newfoundland Command was set up as an independent command on its establishment in June 1941, and C.C.N.F. had under him three senior officers: a Maintenance Captain and Captain of the Port, a Captain (D), and a Commanding Officer H.M.C.S. "Avalon".³³ Late in 1941 Cdre. Murray, on his promotion to Rear Admiral, became Flag Officer Newfoundland Force. In December 1942, the organization was revised and based substantially on that in effect at Halifax, whereby much of the administrative detail was assumed by a Chief of Staff and a Naval Officer-in-Charge. The following March, when the Commanding Officer Atlantic Coast became Commander in Chief North-west Atlantic, Newfoundland reverted, in the main, to the status of a sub-command; reporting on all operational affairs and on some questions of policy to Halifax, but on all other matters direct to Ottawa. In January 1944 a further internal reorganization took place, when the position of N.O.I.C. was abolished and F.O.N.F. assumed personal responsibility for base administration.³⁴

During the first year-and-a-half of its operation St. John's had serviced an ever-increasing number of ships. For a while in 1941 American assistance in protecting the sea lanes had reduced the burden carried by the ships at St. John's. After the United States entered the war, however, the many demands of other theatres entailed the withdrawal of all their destroyers from the North Atlantic. At the same time, the completion of new-construction ships made it possible to increase the number of Canadian warships operating in this area. In January 1942, to meet the extension still farther westward of U-boat operations, the Atlantic convoy escorts were re-grouped into two main forces; a mid-ocean and a western local. The ships comprising the former force under this scheme shuttled between St. John's and Londonderry in Northern Ireland, while those of the latter, based on Halifax, frequently turned around at St. John's. The total number of warships entering and leaving St. John's nearly trebled between July 1941 and December 1942.³⁵

³³ N.S.H.Q. to Admiralty (signal), June 6, 1941, N.S. 1033-6-1 (1). H.M.C.S. "Avalon" was never formally commissioned but was set up as an independent accounting establishment by signal [N.S.H.Q. to C.C.C.S., May 31, 1941, *ibid.*].

³⁴ D. Org. to V.C.N.S., Dec. 22, 1942, N.S. 1033-7-1 (1); Naval Board Minutes, Feb. 22 1943; C.N.O. 3353, Jan. 22, 1944.

³⁵ F.O.N.F., Monthly Reports, *passim*, N.S. 1000-5-20 series.

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To provide a place where sea-going officers could meet away from their ships, Captain (D), Newfoundland, organized the Sea-Going Officers' Club in January 1942. Known as the "Crow's Nest," it became famous among officers serving in ships in the North Atlantic as a place for recreation and conviviality. The "Crow's Nest" was located in the top storey of a warehouse close by the waterfront. The officers of each ship of the Mid-Ocean Escort Force were allotted four square feet of wall on which to record any decoration they considered to be suitable, and in the course of time the walls bore designs, trophies, or badges, representing almost all the ships based from time to time on St. John's. The last ship to present her badge to the club was H.M.C.S. *Capilano*, the formal ceremony taking place on May 7, 1945.³⁶

Captain (D) also established a summer camp for sea-going personnel about seven miles outside the city. The camp, capable of accommodating about two hundred ratings, provided an opportunity for personnel to get away from the cramped quarters and the rigid discipline of shipboard life. It was opened in July 1942, and continued to function until the end of the war.

St. John's harbour also served as a refuge and repair base for merchant ships. Its rôle in this respect had been carefully considered by the British Ministry of War Transport in July 1941, and the British Joint Mission had made specific recommendations for the improvement of the existing dry dock which it had hoped could be reserved for mercantile needs. However, this could not be done. Almost from the beginning, and to an increasing extent throughout 1942, urgent repairs to warships made such demands on the dry dock that its use by merchant ships was greatly reduced, and the latter usually had to wait several weeks and in some cases several months to be repaired. In addition to holding up valuable merchant shipping, this delay added to the inevitable congestion of the harbour. To solve these two problems the Naval Service decided, early in 1942, to make Bay Bulls, eighteen miles south of St. John's, a protected anchorage, and to establish there a small base capable of handling running repairs. Manned by Canadian naval personnel, the base was to be used principally for warships, leaving the St. John's dry dock free for merchant repairs. A combined machine shop, barracks, administration building, sick bay, and officers' quarters, were

³⁶ Sea-Going Officers' Club (Crow's Nest), (F.O.N.F. records 1080-20).

BASES OUTSIDE CANADA

to be provided, as well as a 3,000-ton haul-out; and the harbour was to be protected by anti-torpedo nets. The whole project was estimated to cost \$3,000,000, and was approved by the Cabinet War Committee in July 1942.³⁷ The Newfoundland Government offered to give \$300,000 towards its construction and to act as agent in acquiring land.

Meanwhile the demands on St. John's were increasing. By the beginning of 1943 there was an acute shortage of accommodation and storage space. While the auxiliary base at Bay Bulls had been planned to alleviate the strain on repair facilities, it was not expected to be available for another year. A shortage of dockyard personnel further delayed essential repair work, and it was found impossible to give adequate maintenance to the escort ships operating from the base. In March of 1943, representatives of the Admiralty and the Naval Service undertook a careful review of the situation. In assessing future demands on the base, it was pointed out that the following winter would see not only a considerable increase in British escort vessels on the North Atlantic run but also a substantially larger number of merchant ships. On the other hand, the refit schedule of the R.C.N. envisaged the full use of all ship-repair facilities then available in the Maritime Provinces of Canada, and in Newfoundland, while additional requirements of the United States Navy were likely to demand a greater part of the available repair facilities in the United States. In order, therefore, to ensure adequate maintenance of naval and merchant ships, it was felt that St. John's should be developed to its fullest extent. Its strategic location reinforced this conclusion. As a member of the British Admiralty Delegation expressed it: ". . . when the real crunch is likely to come it is obvious that the geographical position of St. John's makes it essential that it should be developed to the utmost both as a base for running repairs . . . and a refuge port including emergency repairs for escorts and merchant ships. . ."³⁸

It was accordingly decided to double the naval repair facilities at St. John's, to provide additional living accommodation for 1,500 men and 850 women, and to build a second 250-bed hospital. In addition to the provision of a new stores building a number of other improvements had been recommended, and the programme called for substantially increased

³⁷ Naval Board Minutes, June 15, 1942; Min. to Min. (Fin.), Sept. 15, 1942, N.S. 1033-2-9 (1).

³⁸ B.A.D. to Admiralty (signal), Mar. 20, 1943, N.S. 1033-2-6 (3).

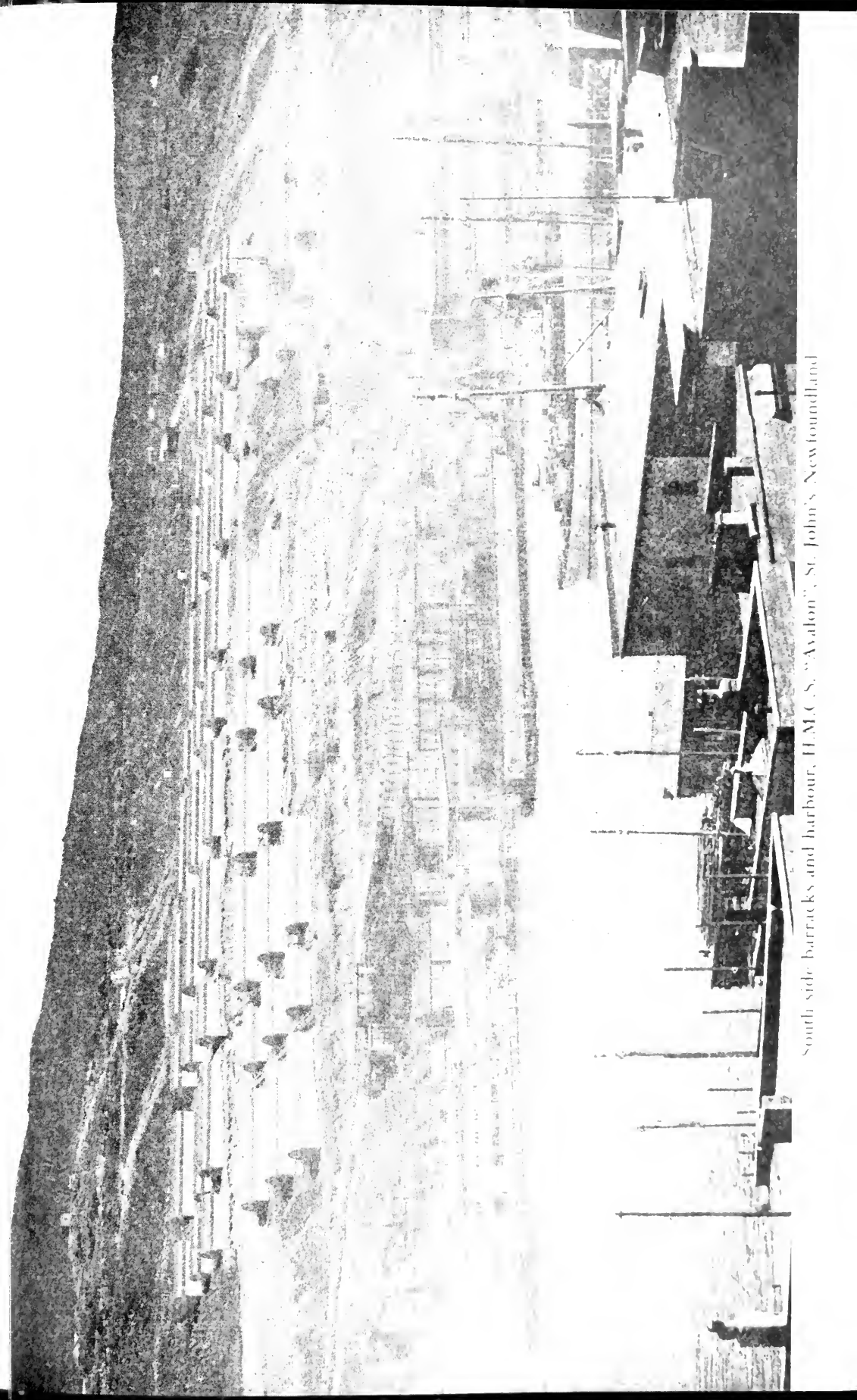
NAVAL SERVICE OF CANADA

training facilities including attack and dome teachers. The new repair facilities were to comprise a floating dock, greatly enlarged workshop space, and additional equipment. With this development it was considered that the base would be capable of handling all the ships which the harbour could hold.

Much of the new construction had of necessity to be placed on the south side despite its limitations, as this was the only area available close to the harbour for any substantial development. Moreover it was an advantage to have workshops near the south-side wharves where a large proportion of the warships docked; and the difficulty of transporting personnel, especially in winter, argued in favour of placing accommodation as close to the workshops as possible. The bulk of the added accommodation, therefore, was divided between the existing barracks and a new site on the south side. Before construction actually started it was decided to use Quonset huts for the greater part of the additional barracks. These huts, made of semi-circular sheets of corrugated iron, and used extensively by the American armed forces as "advance" accommodation, had the advantage of economy, and of speed in supply and construction. The balance of new accommodation was to consist of standard R.C.N. wooden buildings. The hospital was to be built west of the city, next to the existing Sanatorium and Mental Hospital to which it would be a valuable annex after the war. The work on new construction was commenced in early summer and the floating dock, acquired from the United States Navy, arrived in September.³⁹

The original estimate of the cost of the St. John's base had been \$6,000,000, and this amount had been authorized by the Admiralty and the Canadian Government for expenditure. A review of the situation in the spring of 1943 indicated that \$3,000,000 more would be needed to cover the cost of the original programme then approaching completion. The cost of the new programme was estimated at \$7,000,000 bringing the total to \$16,000,000. This total expenditure was approved by the Admiralty and the Canadian Government late in April 1943, and the following month the contract was given to the E.G.M. Cape and Co. of Montreal, who had been responsible for the original construction. The same general procedure was followed for the new as for the old programme, except that

³⁹ Length of blocks, 260'; width, 44.6'; depth over sill, 18'; lifting capacity, 1800 tons.



South side barracks and harbour, H.M.C.S. "Avalon", St. John's Newfoundland

BASES OUTSIDE CANADA

the Admiralty negotiated directly with the Newfoundland Government for the necessary sites.⁴⁰

New construction, begun in early summer, was carried out during the following twelve months. The course of the war, however, tended to reduce the use of St. John's: the increasing timidity of the U-boats in the spring and summer of 1944, and the concentration of men and ships in England for the invasion, resulted in the withdrawal of British ships temporarily from the Newfoundland area. In the spring of 1944, therefore, the Naval Board decided to complete the work at St. John's as quickly as possible, and several items were deleted from the programme.⁴¹ Except for the canteen, the south-side barracks were never used.

The unexpected development of St. John's completely overshadowed that of Botwood, the other base in Newfoundland planned for by the R.C.N. in 1940. Originally conceived as a defended anchorage, available for either the British or United States navies, and as a base for local defence forces, it had been used for neither purpose during the first three years of the war. The plans for Botwood remained largely on paper until 1943, except for the provision of certain fixed-artillery defences, the building of a naval wharf, and the setting up of a temporary examination service. Early in 1943 a decision was reached to proceed with Botwood as an operating base for local defence forces for the Northern Newfoundland and Labrador area; and to provide an office and barracks building, fuel tanks, an examination service, port war signal station, and harbour defence asdics. Late in the same year, however, because of the improved strategic situation, the programme was scaled down, leaving only an examination service and the harbour defence asdics.⁴² The only regular patrol carried out in that area was that of the base supply ship *H.M.C.S. Preserver* with its family of M.L.'s, which first appeared there in August 1942.

While other places in Newfoundland were considered from time to time for some form of naval defence, none was provided with fixed defences. At Corner Brook, on the west coast of the

⁴⁰ Naval Board Minutes, Mar. 18, 1943; B.A.D. to Admiralty (signal), Mar. 20, 1943, N.S. 1033-2-6 (3); F.O.N.F. to Admiralty (signal), Apr. 13, 1943, *ibid.*; Cabinet War Ctee. Minutes (extract), Apr. 16, 1943, N.S. 1033-2-19 (1); B.A.D. to N.S.H.Q. (signal), Apr. 26, 1943, *ibid.*; P.C. 4017, May 18, 1943, N.S. 10-21-1 (3).

⁴¹ Naval Staff Minutes, May 15, 1944; Naval Board Minutes, June 30, 1944.

⁴² D. of P. to D. Org., Jan. 20, 1943, N.S. 1033-2-7 (1); Naval Board Minutes, Nov. 16, 1943.

island, a volunteer patrol force was organized in 1942 by the Bowaters Pulp and Paper Mills. This patrol was taken over by the R.C.N. in 1943 and subsequently abandoned.⁴³ Lewisporte, near Botwood, an important unloading port for aviation fuel required at Gander airfield, was protected by the M.L. patrol serviced by H.M.C.S. *Preserver*.⁴⁴ Other Newfoundland ports relied on the general coverage offered by ships based on St. John's, and by the Canadian and American air forces stationed in Newfoundland.

The Canadian Government spent \$17,075,000 on naval bases in Newfoundland, and of this amount \$14,313,000 was charged to Admiralty account for the development of St. John's. The balance of \$21,000 for Botwood and \$2,141,000 for Bay Bulls,⁴⁵ remained a Canadian commitment. The arrangement whereby Canada constructed, financed, and administered the St. John's base, on behalf of the Admiralty, was circuitous and to some extent dilatory; moreover, it placed the R.C.N. in an anomalous position. The Naval Service had been anxious to assume title to the base when the Newfoundland Force was formed, but the Canadian Government's lack of enthusiasm, together with that of the Newfoundland Government, had resulted in the Admiralty's decision to make the project a joint one.⁴⁶ In June 1942, Canada informally consulted Newfoundland on the transfer of title to the Naval Service on the grounds of efficiency of operation and development, and because of Canada's increasing naval responsibilities in that area. The Newfoundland Government, however, did not favour the suggestion, and it was not pursued further.⁴⁷ Again in the spring of 1943, when the base expansion programme was under consideration, the matter was considered without result.⁴⁸ All titles, however, were reviewed in order to vest them uniformly in the Admiralty, as the base had grown so rapidly that property had been variously acquired in the names of the Admiralty, the Newfoundland Government, and the Naval Service, and in some cases the legal position was obscure.⁴⁹

⁴³ *Ibid.*, June 7, 1943.

⁴⁴ H.M.C.S. *Preserver*, the first of two base supply ships built for the R.C.N., was commissioned in July 1942. Designed as an M.L. mother ship she was fitted with a machine shop, sick bay, spare accommodation, and ample space for stores and fuel.

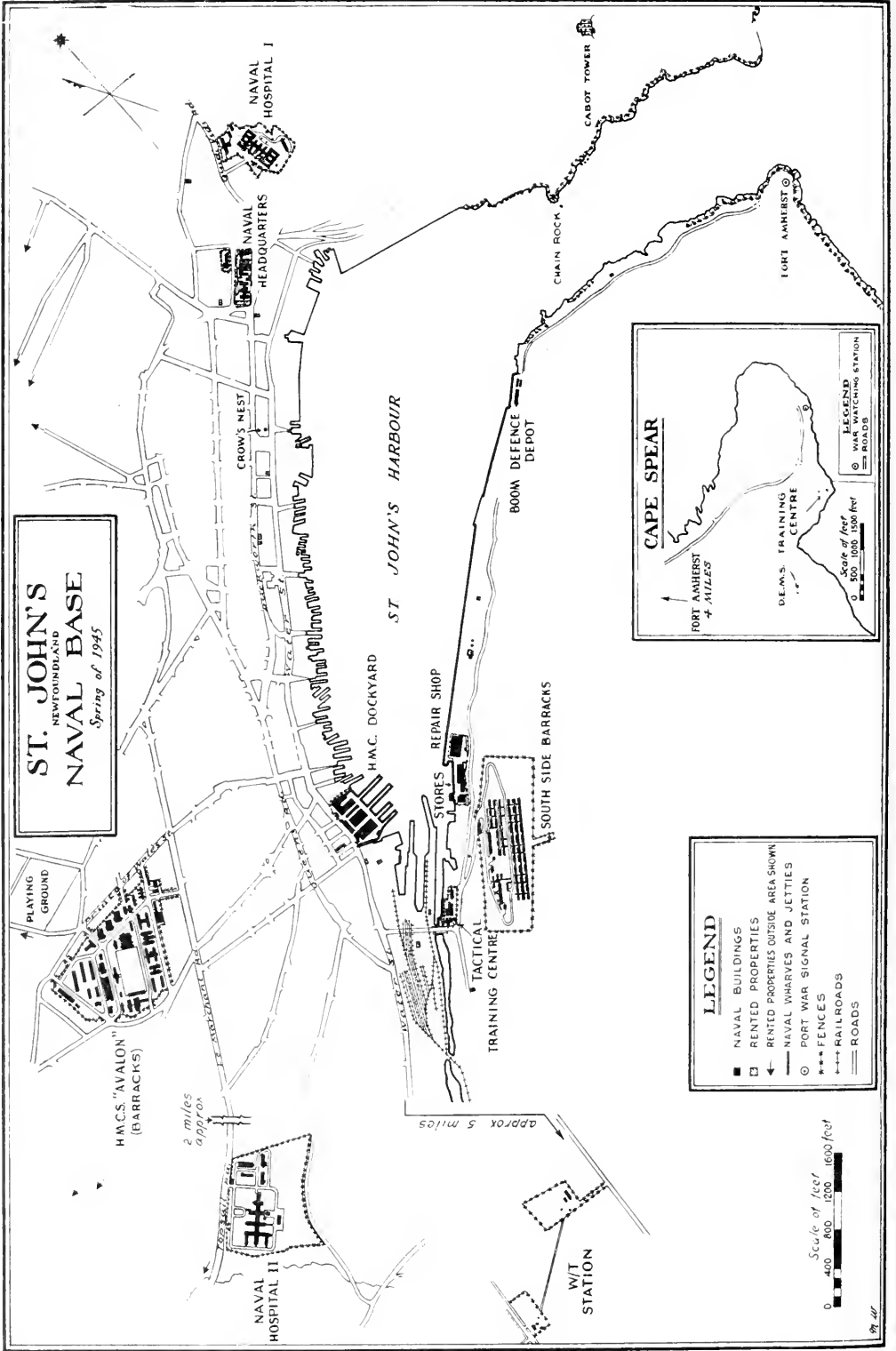
⁴⁵ These are approximate figures supplied by the C.T.O. (N).

⁴⁶ Memo. by Head of Military Branch, June 27, 1941, A.R.O., M.09812/41.

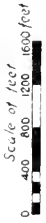
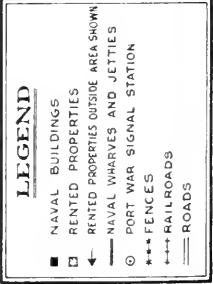
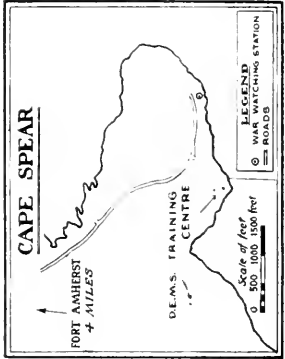
⁴⁷ Naval Board Minutes, June 1, 1942; Cabinet War Cttee. Minutes (extract), July 1, 1942, N.S. 1033-2-1 (1).

⁴⁸ Sec. of State (Ext. Aff.) to Can. High Comm., Nfld. (telegram), June 27, 1943, N.S. 1033-2-3 (1).

⁴⁹ Can. High Comm., Nfld., to Sec. of State (Ext. Aff.), June 9, 1943, N.S. 1033-2-19 (1).



ST. JOHN'S
 NEWFOUNDLAND
NAVAL BASE
Spring of 1945



BASES OUTSIDE CANADA

The importance of St. John's as a war-time naval base can hardly be exaggerated. In simple terms it was the principal western base and turn-around port for ships flying the white ensign. These were engaged in escorting, on the lap between Newfoundland and the British Isles, the great transatlantic convoys that formed the main pipe-line through which the enormous resources and strength of North America were pumped into Europe. For the U-boats in the North Atlantic that small harbour was a hornet's nest, and the naval activities which were carried on there made an inestimable contribution towards winning the war.

WARSHIPS* BASED ON ST. JOHN'S FROM JAN. 1942 TO MAY 1945

[Taken from statements on allocation of H.M., H.M.C., and Allied ships to Canadian Forces, in N.S. 1057-3-6 series]

	Destroyers	Frigates	Corvettes	M/S's	Aux. Vessels	M.L.'s
Jan. 1942.....	16	—	52	2	—	—
June 1942.....	11	—	46	5	—	—
Jan. 1943.....	23	—	30	7	1	8
June 1943.....	12	2	37	9	—	9
Jan. 1944.....	12	7	39	16	2	11
June 1944.....	—	9	31	8	2	8
Jan. 1945.....	8	27	39	8	2	14
May 1945.....	3	36	41	9	2	14

* Canadian, British, and Free French.

In the summer of 1941 the Canadian-United States Permanent Joint Board on Defence recommended that the Canadian Government undertake the construction of an air base in the vicinity of the Northwest River in Labrador, to facilitate the ferrying of long and medium-range aircraft to Great Britain. The only advanced base then available for this purpose was the Newfoundland Airport at Gander, Newfoundland, which was already congested. The location chosen for the development of the Labrador base lay by Goose Bay at the western tip of Hamilton Inlet, over a hundred miles from the open sea.⁵⁰

The base was designed to accommodate about five thousand men and covered an area nearly equal to that of the city of Toronto. This gigantic project, undertaken in unsettled and inhospitable country, required tremendous quantities of materials and supplies, much of which had to be shipped by sea during the short season of navigation in that area. From

⁵⁰ C.A.S. to C.N.S., Aug. 22, 1941, N.S. 1039-13-3 (1).

NAVAL SERVICE OF CANADA

July 11, 1942, throughout the summer season, and for the remainder of the war, special convoys known as NL-LN convoys were organized by the Naval Control Service at Quebec and ran between that port and Goose Bay. During the 1942 season the arrangements for the turn-around of ships at the latter point were made by personnel of C.G.S. *N.B. MacLean* and C.G.S. *Ernest J. Lapointe*. In 1943 the Naval Service appointed a senior naval officer at Goose Bay—known to the signal coders as “Snogoose”—who thereupon assumed this responsibility.⁵¹

In order to cover the approaches to the base from the sea, the Canadian army mounted a battery. The Naval Service set up a war watching station and an examination service at the entrance to Hamilton Inlet. The small number of men required to operate this station were housed in a Hudson's Bay Company post at Rigolet. The war watching station began to operate on September 11, 1942, and a motor boat for the examination service was placed in commission the following year.⁵²

The United States naval base at Argentia, although far from completed, was commissioned on July 15, 1941. Construction had begun the previous January, and by June twenty-five hundred workmen were employed on the project. The base was designed to support anti-submarine warships and aircraft of the United States Navy, and became the headquarters of the Commanding Officer Task Force Twenty-Four when that officer took over operational control of allied anti-submarine forces in the North-west Atlantic. Following the formation of the Mid-Ocean Escort Force Argentia was used extensively as a turn-around port and running-repair base by British warships and allied forces operating with the Royal Navy. In April a British Maintenance Commander (later Captain (D)) was appointed to Argentia to look after the needs of British forces and to act as liaison officer between them and the American base. He and his staff were borne on the books of “Avalon III,” the accounting establishment of the Royal Navy at St. John's.⁵³

⁵¹ D.T.D. to D. of P., Dec. 9, 1942, N.S. 1017-10-24 (2). For an account of the experiences of the first S.N.O., Goose Bay, see: Cdr. W. G. Carr, R.C.N.R., *Checkmate in the North* (Toronto 1944).

⁵² Material in N.S. 1023-28-23 (1) and 1017-10-24 (2).

⁵³ S. E. Morison, *The Battle of the Atlantic* (photostat draft), p. 79; Cdr. Walter Karig, U.S.N.R., and others, *Battle Report* (New York and Toronto 1946), pp. 28-29; Admiralty to C.T.F. 24 (signal), Mar. 12, 1942, N.S. 40-24-1 (1); Admiralty to N.S.H.Q., Apr. 7, 1942, *ibid.*

BASES OUTSIDE CANADA

When Admiral Murray took over operational control in the North-west Atlantic from C.T.F. 24, in May 1943, the United States Navy agreed to continue operating Argentia as an active base, largely in order to support British ships in the Mid-Ocean Escort Force,⁶⁴ and in this way the base performed invaluable service until the withdrawal of British forces from the North-west Atlantic. Repairs to Canadian ships were also occasionally undertaken at Argentia when congestion at St. John's was particularly severe, although tight operational schedules did not often permit Canadian warships to proceed so far from their own base. The work done for British and Canadian forces at Argentia was of that high quality which came to be expected of the repair bases of the United States Navy.

The port of Londonderry in Northern Ireland lies twenty miles from the sea on the River Foyle, about four miles from the point where it flows into Lough Foyle. The river itself is narrow, but was navigable through a dredged channel to warships up to the size of a destroyer. The harbour, like that of St. John's, is small and not entirely suitable as a naval base. Its inherent disadvantages were, however, outweighed by its strategic position on the north coast of Ireland. With better harbours to the west denied to the Allies by the Government of Eire, Londonderry was the most suitable base for anti-submarine vessels operating in the western approaches to Great Britain.

Before September 1940, the Londonderry naval base was an obscure little organization called H.M.S. "Ferret," where fishing trawlers were being converted for minesweeping and patrol duties. Late in 1940 the Royal Navy undertook a thorough survey of the River Foyle, and the Admiralty approved the construction of a number of dolphins to accommodate ships up to and including destroyers. With the construction of berthing space for warships went the extension of the existing dry dock to accommodate all classes of destroyer.⁶⁵

In March 1941, a small delegation representing the United States Navy visited the British Isles to choose bases for American ships and aircraft against the day when the United States Navy would play an active part in the Battle of the Atlantic. An unsuccessful attempt was made to obtain the

⁶⁴ Naval Board Minutes, Mar. 18, 1943.

⁶⁵ "The Growth of Londonderry Naval Base" (D.N.H.S. records).

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use of Lough Swilly in County Donegal, Eire, an important base in the First World War. Two bases in Northern Ireland were finally chosen: Londonderry for warships, and Lough Erne, County Fermanagh, for aircraft. The latter site was subsequently found to be unnecessary, but plans were immediately drawn up for the development of Londonderry.

Material for the American base was assembled at the Naval Air Station at Quonset, Rhode Island, and shipped to Londonderry in British bottoms, since it was illegal for vessels of American registry to enter war zones. The project was called Temporary Air Facilities, and surveyors and civilian contractors began to arrive in June.⁵⁶ Construction personnel, known as T.A.F., were primed to tell the curious that they were building air fields under British contract.

The main body of workmen arrived in August, when most of the land for the various projects was formally requisitioned by the Admiralty. The base was commissioned on February 5, 1942, and by the following summer most of the construction had been completed. The T.A.F. left gradually, and in February 1943 the remainder of the work was taken over by a special group of trained enlisted men. By the summer of 1943 the Americans had built a complete base lacking only a separate dry dock. The project had been well planned, and was carried out quickly and thoroughly despite drastic regrouping of United States naval forces following the attack on Pearl Harbor. The base was constructed mainly of Quonset huts, and included a large barracks area at Beach Hill about four miles east of the city; a hospital camp four miles up the west bank of the Foyle; and at Lisahally, three miles down river, a self-contained berthing and repair base.⁵⁷

While the American establishment was under construction the importance of Londonderry as a British operational base was rapidly increasing: the port was fast growing into an Atlantic convoy-escort base overshadowing Greenock, and it began to be talked of as an alternative headquarters for the Commander in Chief, Western Approaches, should heavy bombing make Liverpool unusable. In 1941, British escort groups began running between Londonderry and Iceland, while an Iceland force acted as intermediate between the Londonderry and St. John's groups.

⁵⁶ Morison, *Battle of the Atlantic*, pp. 61-62.

⁵⁷ "The Growth of Londonderry Naval Base" (D.N.H.S. records).

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The reorganization of escort forces early in 1942 brought about changes which further increased the importance of Londonderry. At a conference in Washington late in January, it was decided to establish a Western Local Escort Force of short-legged destroyers, corvettes, and minesweepers, to operate between Halifax and a Western Ocean Meeting Point (Westomp); a Mid-Ocean Escort Force of long-legged destroyers and corvettes to escort convoys between Westomp and Londonderry (using St. John's as its western base); and an Eastern Local Escort Force to reinforce the M.O.E.F. in the western approaches to Great Britain, when additional strength was required. This decision went into effect about the middle of February, and Iceland ceased to be the turning point for ocean escorts. Under this new allocation of forces Canadian warships began to appear regularly in the Irish port.

Londonderry became a most important operational training centre for anti-submarine warships. Almost all training facilities were provided by the Royal Navy, but were used freely by the American and Canadian navies. Early in 1941, American warships, new to the conditions of actual warfare, found the training facilities at Londonderry to be of inestimable value, particularly the dome teacher for anti-aircraft training, and the "tame" submarines on which escort vessels carried out practice attacks.⁵⁸ Throughout the war Londonderry played a large part in training Canadian crews in the use of new equipment and the application of new tactics.

As time went on, changes in the disposition of allied warships altered the composition of groups using the base, without affecting its importance in the war against the U-boat. By the spring of 1942, four American groups had been withdrawn to other theatres. By the summer Atlantic escort groups based on Londonderry numbered 7 British, 4 Canadian, and 1 American. As more anti-submarine vessels became available, support groups were formed which operated independently of convoy escorts and devoted almost all their time to the search for U-boats. Many of these groups operated in the western approaches to Great Britain using Londonderry as their base. By March 1943, three Canadian support groups numbering twenty-nine ships were based there, and at this time Canadian warships accounted for more than fifty per cent of those normally using the base. The next year this percentage was to

⁵⁸ Morison, *Battle of the Atlantic*, *loc. cit.*

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become greater as a result of a further redistribution of forces.⁵⁹ The American base was decommissioned in July, 1944, and turned over to the British the following September.

By the spring of 1944, preparations were being pressed for the invasion of Europe; and a substantial number of British warships were withdrawn from Western Approaches for service elsewhere. By that summer the R.C.N. had assumed the sole responsibility for providing the warships of the Mid-Ocean Escort Force, and at the end of the year Canadian warships made up the great majority of those using Londonderry. During February 1945 the base looked after 109 Canadian, 35 British, and 4 American ships.⁶⁰

As completed, Londonderry possessed two repair yards adjacent to one another, both of which employed the same dry dock. The Royal Navy used the plant and staff of Harland and Wolff Ltd., while the United States Navy had its own yard at Lisahally. Both yards were used by Canadian ships, but from September 1942 on, most repair work for the R.C.N. was undertaken at the American base. By the end of 1943, 88 American, 68 Canadian, and 24 British ships, had been repaired by the United States Navy Yard.

The American yard at Londonderry achieved an enviable reputation among Canadians for the speed and thoroughness with which it carried out repairs. The base was not only well equipped, but was so organized as to reduce paper work to a minimum and avoid unnecessary delays. Not only did it undertake running repairs, but it often carried forward refit items such as the installing of new equipment as far as a ship's time in port would permit. Londonderry was particularly well suited for this purpose from the Canadian point of view, because new British equipment was more readily available there than at bases in Canada and Newfoundland used by Canadian ships. From the R.C.N.'s point of view the importance of Londonderry as a repair base lay chiefly in its contribution towards keeping Canadian warships at sea; but it also played no mean part in the uphill struggle that faced all bases supporting the fight against the U-boat—the battle for equipment.⁶¹

⁵⁹ S.C.F.O. (O) to Min., Mar. 11, 1944, "Report on Visit to Western Approaches" (D.N.-H.S. records).

⁶⁰ Report of visit to Londonderry by Sub.-Lieut. L. E. MacLean, W.R.C.N.S., May 3, 1945 (D.N.H.S. records).

⁶¹ "U.S. Naval Repair Base, Londonderry" (D.N.H.S. records); War Diary of N.O.B. Londonderry (Courtesy of Office of Naval History, Washington).

CHAPTER 8

WEST COAST BASES

PRE-WAR planning for the defence of Canada had implicitly recognized that the country's fundamental safety depended upon the naval power of Great Britain and the United States. As long as these two nations remained undefeated at sea the danger of actual invasion was remote. Nevertheless it was not wise to assume that none of the enemy's forces could penetrate to the coasts of North America. There was always a chance of isolated attacks by surface craft, submarines, ship-borne aircraft, or small raiding parties landed from warships or merchant vessels. In allotting its meagre peace-time resources for defence the Canadian Government concentrated on measures to meet these limited forms of attack.

All peace-time planning for defence is hypothetical, since it can be based only on assessments of the most likely course of events in war. Because of Canada's close ties with Great Britain the Dominion was unlikely to find itself at war without a very strong naval ally in the Atlantic. This might not be the case, however, in the Pacific where British naval forces were spread thin. Of the most likely aggressors, moreover, Japan was by far the strongest naval power. The United States Pacific Fleet was a potent force; but in the late 'thirties the Dominion's southern neighbour had adopted an attitude of determined neutrality, and its position in war was less certain than that of Great Britain. When the Dominion began to rearm, several years before the outbreak of war, the Canadian Chiefs of Staff felt that of Canada's two coasts the one facing the Pacific was the more vulnerable, and that it should have priority in the provision of defences.¹

This short-lived pre-eminence of the west coast in the thoughts of the Department of National Defence resulted first in the allocation of four of the Royal Canadian Navy's six destroyers to the west coast, and second in the assigning

¹ Memo. by Joint Staff Cttee., Sept. 5, 1936 (H.Q.S. 5199B).

of priority to that area for new fixed coast-artillery guns on order in Great Britain. The modern artillery defences for both coasts were first outlined in a report by Major B. D. C. Treatt, M.C., R.A., drawn up in 1936 at the request of the Canadian Government. The Joint Services Committee in Ottawa subsequently formulated a programme based on the Treatt Report and known as the Ultimate Plan, which with certain revisions continued to serve as a long-term goal for the provision of coast artillery. Lack of funds and later delays in the shipment of equipments from England resulted in the adoption of an Interim Plan in 1938, which stipulated that all available armament in Canada should be redistributed to give the greatest possible protection at each defended port. Late in 1939, a further revision called for the immediate emplacement of all guns, to be mounted where necessary on temporary platforms. By 1939 the Interim Plan for the Pacific Coast had been completed except at one point; on the Atlantic Coast, however, it had been implemented only in part at three of the five points chosen for this type of defence.²

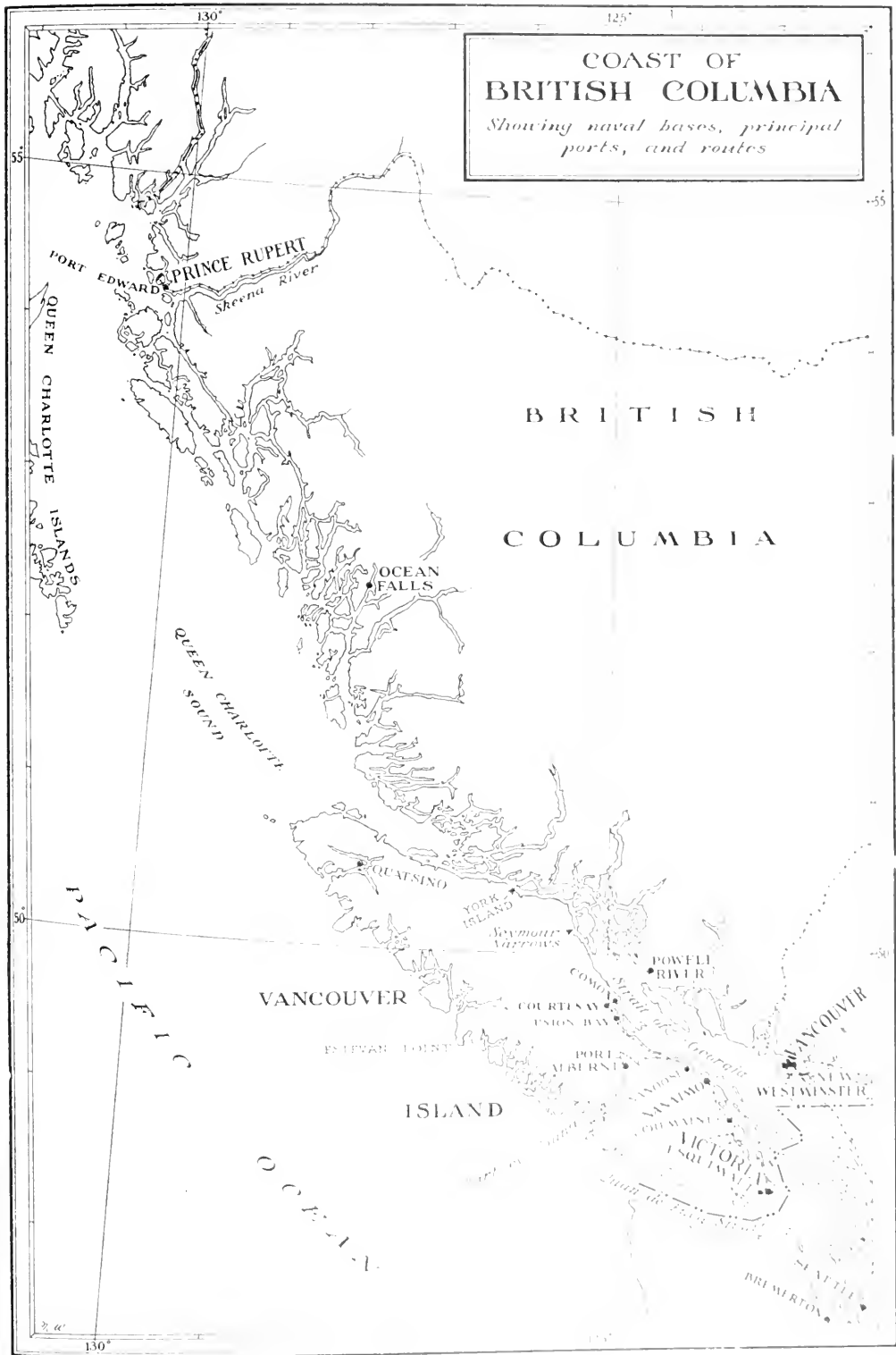
The only west-coast base of the Royal Canadian Navy before the Second World War was at Esquimalt, which was, like Halifax, a legacy from the Royal Navy. This base was better placed to defend the vital points in its area against any likely attack than was its eastern counterpart. The protection of major west-coast ports was made easier by their position in the Strait of Georgia, some distance from the open sea. There they were sheltered by Vancouver Island and could be reached by water only through the Strait of Juan de Fuca, fifteen to eighteen miles wide and about sixty miles long and lying south of the island, or through the narrow and swift-flowing waters of Johnstone Strait separating the island from the mainland to the north. The twin harbours of Esquimalt and Victoria, on the south-eastern tip of the island, lie at the main entrance to the Strait of Georgia, sixty miles east of the open sea and seventy-five miles south of Vancouver, the largest city on the Pacific coast of Canada and one of the two most important ports in the Dominion. This favourable position was offset to some extent by the fact that United States territory bordered on these waters to the south and east, providing a neutral area through which ships might approach to within a few miles of the island without being identified.

² Information obtained from Hist. Sec. (Gen. Staff).

PLATE VII

COAST OF
BRITISH COLUMBIA

*Showing naval bases, principal
ports, and routes*



WEST COAST BASES

The city of Vancouver is situated on the north-east side of the Strait of Georgia, opposite Vancouver Island. It has a splendid harbour and well-developed docking facilities, and had grown during the previous sixty years into the Dominion's third largest city with a population of over 350,000, and was the Pacific terminus of both transcontinental railways. In the fiscal year ending March 31, 1939, the tonnage of sea-going vessels arriving at and departing from Vancouver exceeded that at any other port in Canada. In respect of sea-going cargoes handled, however, Montreal led by a wide margin with Vancouver in second place.³ Twelve miles south-east of Vancouver, near the mouth of the Fraser River, lies the port of New Westminster. The only fresh-water port in Western Canada, it is also accessible to sea-going vessels.

Most of the fixed-artillery defences under the Ultimate Plan were concentrated at Esquimalt and Victoria, where they not only protected the naval base and the city but also guarded the main entrance to the Strait of Georgia. Following the successive crises in Europe during late 1938 and early 1939, some west-coast guns were removed to the east coast. During the first year-and-a-half of war, new equipments originally ordered for the west coast were diverted, as they became available, to supplement the more important east-coast defences. It was not until three days before Pearl Harbor that the Esquimalt defences were augmented by two guns loaned by the United States. Later in the war more effective armament was installed in this area. The inside passage to Vancouver was also provided with fixed-artillery defences. As long as the United States remained neutral there was always the possibility of a hostile submarine or surface ship proceeding up Juan de Fuca Strait close to the American shore and then turning north towards Vancouver. As a third defence zone for this important port other guns were placed in its immediate vicinity.

Until December 1941, the only anti-aircraft defence on the west coast consisted of two obsolescent guns in the Victoria-Esquimalt area. The first three 40-mm. Bofors guns manufactured in Canada were rushed to Esquimalt the week following Pearl Harbor. During the winter and spring of 1942 new equipments became available in ever-increasing numbers, and the personnel needed to operate them was reorganized and

³ *Canada Year Book*, 1940, p. 693.

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augmented. West coast anti-aircraft defences reached their ultimate strength by the end of 1943.

In conformity with the pattern of fixed-artillery defence, examination services were established by the Royal Canadian Navy at Esquimalt, Victoria, Vancouver, New Westminster, and York Island, on or shortly after the outbreak of war.⁴ About the same time a temporary port war signal station was set up in the lighthouse at Race Rocks just south-west of Esquimalt. Early in 1940, two permanent stations were placed in commission, one at Church Hill west of Race Rocks and the other on Discovery Island east of the port of Victoria. The former identified all warships approaching from the west and the latter any warships that might enter Canadian waters from the neutral area to the south-east. Port war signal stations were also established at York Island, in Johnstone Strait, and at Point Atkinson on the north side of the approaches to Vancouver Harbour.⁵ In the summer of 1941, in view of the weakness of naval and air patrols on the west coast, the army asked for the provision of an additional shore look-out further along the north shore of Juan de Fuca Strait. The Naval Service accordingly established a war watching station at Sheringham Point, fifteen miles west of the station at Church Hill.⁶

No major change took place until the outbreak of war between the United States and Japan in December 1941. The increase in the scales of attack which inevitably followed this event was offset by the active participation of the United States in the defence of the west coast. Immediately following the attack on Pearl Harbor, American and Canadian naval officers conferred on joint measures to be taken for the defence of Juan de Fuca Strait.⁷ This question was of particular concern to the American authorities, for the strait was the gateway to Puget Sound on which were situated the important port and city of Seattle and the great United States Navy Yard at Bremerton. The United States Navy set up an examination service at Port Angeles, opposite Esquimalt, patterned on those in existence on the Canadian side, and plans were drawn up and approved for the installing of search-

⁴ Information on the institution of examination services, west coast, N.S. 1006-4-1 (1).

⁵ C.O.P.C. to N. Sec., Dec. 10, 1939, "Summary of events October 25 to December 16, 1939," N.S. 1000-5-10 (1); material in N.S. 1006-3-1 (1).

⁶ C.O.P.C. to N. Sec., July 2, 1941, *ibid.*

⁷ Interview with S.O. (I) Joint Services H.Q., Vancouver, June 1945; C.O.P.C. to N. Sec., Dec. 23, 1941, N.S. 1000-6-1 (1).

lights, radar, and harbour-defence asdics, on each side of the strait; each Service assuming responsibility for the installations in its own territory.⁸

These plans, however, were never implemented. Equipment was scarce and badly needed elsewhere: for example, material ordered in England for the Canadian asdic installation was diverted to fill urgent requirements in the Mediterranean.⁹ Moreover both Canadian and United States experiments indicated that harbour-defence asdics were not likely to prove effective in that area. The whole project was finally abandoned in favour of an alternative scheme.

Under the new arrangement the United States Navy was to anchor a vessel near the entrance to the strait, which would identify all ships desiring to enter. This vessel, equipped with radar, asdic, and radio-telephone, was to be backed up by an anti-submarine patrol provided by the United States Navy. Thirty-four miles up the strait, off Sheringham Point, two control vessels were to be moored, one off either shore, each Service supplying its own requirements. These moored craft were to direct incoming merchant ships either to the examination service at Port Angeles or to the Canadian service off Esquimalt. Behind these vessels a second anti-submarine patrol was to be operated by the Royal Canadian Navy.

This scheme was not implemented until February 1944, principally because of the difficulty in obtaining suitable vessels. It was found that the control vessels could not be conveniently moored in the area where they had to operate, and in practice they remained mobile. In the spring of 1945, the system was modified so that Canadian and United States vessels served alternately, each performing the service for ships proceeding to both Canadian and United States ports.¹⁰

Meanwhile the fixed-artillery defences at York Island had been strengthened by the exchange of its 4.7-inch guns for two 6-inch guns at Vancouver. On the naval side, consideration was given to providing underwater detecting devices at Vancouver, Johnstone Strait, and Esquimalt. The shortage of patrol vessels which were essential to the effectiveness of both harbour-defence asdics and indicator loops, and the unsuit-

⁸ C.S.C. Minutes, June 23, 1942.

⁹ R.C.N. Progress Report to P.J.B.D. appended to P.J.B.D. Journal, Feb. 24 and 25, 1943 (E.A. 105 (4)).

¹⁰ C.S.C. Minutes, July 23 and Nov. 5, 1943; Naval Staff Minutes, Aug. 16, 1943, and Mar. 26, 1945; material in N.S. 11400-166 225 (1); C.B. (Can.) 0810.

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ability in some instances of these devices in the area considered, resulted in all projects being laid aside.¹¹ Three Admiralty-type indicator loop sets originally acquired for the west coast were offered to the New Zealand Government, while a fourth was transferred to the anti-submarine school at Digby, Nova Scotia, for instructional purposes.¹²

Anti-submarine and anti-torpedo nets were the only types of underwater defence provided on the west coast. In keeping with the pre-war emphasis on west-coast defence, material for a single-line anti-submarine net had been ordered several years before the war, and the net had already been assembled by the dockyard staff when war broke out.¹³ The installation was completed on October 16, 1939, and Esquimalt became the first Canadian harbour to be provided with net defences in the Second World War.¹⁴ Early in 1942 the nets were redesigned to make them more effective against midget submarines, and later in the war certain nets were fitted which extended to each shore to ensure protection against light craft. Anti-torpedo baffles were also laid in Esquimalt Harbour to give added protection to the dry dock. In the summer of 1943, the anti-submarine defences were strengthened by a second line of nets placed parallel to and directly behind the original installation.¹⁵

The final implementing of the joint-defence plan for the Strait of Juan de Fuca rendered some of the existing machinery of defence superfluous. Accordingly the examination services at Victoria, New Westminster, and Vancouver, the port war signal stations at Church Hill and Discovery Island, and the war watching station at Sheringham Point, were taken out of service. The port war signal station at Point Atkinson was reduced to the status of a war watching station, and some of the fixed-artillery defences in the Vancouver area were placed in maintenance.¹⁶

On the outbreak of war two naval control centres were established on the west coast, one at Vancouver and the other at Esquimalt. The one concerned itself with shipping at Vancouver and New Westminster, the other with shipping at

¹¹ This question was discussed at the following meetings of the Naval Staff during 1942: May 4, 26, and 28, June 25, July 7, and Aug. 10 and 27.

¹² Naval Staff Minutes, Aug. 30, 1943; Naval Board Minutes, Aug. 30, 1943.

¹³ Interview with S.O. (I) Joint Services H.Q., Vancouver, June 1945; C.N.S. to D. Min., May 31, 1938, N.S. 1017-10-18 (1); material in 1053-8-3 (1 and 2).

¹⁴ C.O.P.C. to N.S.H.Q. (signal), Oct. 15, 1939, N.S. 1053-8-3 (2).

¹⁵ Material in 1053-8-3 (3); interview with B.D.O. Esquimalt, June 1945.

¹⁶ Naval Staff Minutes, May 22, 1944; information obtained from Hist. Sec. (Gen. Staff).

Victoria and other ports on Vancouver Island. The naval control of merchant ships in this area was simpler than on the east coast. The volume of traffic was much smaller and there was never any occasion to establish the convoy system. Until the outbreak of war with Japan there was little change in the peace-time routine of shipping in the Pacific. Even after the area had become a combat zone, sinkings off the coast of North America were surprisingly few. One ship, the British S.S. *Fort Camosun* was torpedoed and shelled by an enemy submarine off the entrance to the Strait of Juan de Fuca on June 20, 1942. On the same day Point Estevan lighthouse was shelled by a Japanese submarine. This was the only recorded instance during the Second World War of an attack from the sea on the west coast of the Dominion. Throughout the war a total of eight American ships, mostly tankers, were sunk off the coast of California.

West-coast ports were used by both coastal and ocean-going shipping, the latter mainly calling at Vancouver, New Westminster, and ports on Vancouver Island. The former was vitally important to the economy of the west coast of Canada, for it provided the only means of transportation along the extensive shore-line of British Columbia, which was without road or rail communication except at Prince Rupert. Throughout the war only ocean-going ships were routed by the naval control service, and even those proceeded independently. The only convoy assembled on the west coast was formed for a specific military operation—the re-occupation of Kiska Island in the Aleutians in August 1943. Coastal traffic was never routed in the normal sense. Coastal routes were standard, and the naval control service was kept informed by the shipping agents of arrivals and departures and of any changes in schedule.

While the work of the naval control service was less arduous on the west than on the east coast, it was nevertheless essential to the operation of shipping in war-time. In addition to providing ships with routes designed to avoid danger areas, the service acted as liaison between the Naval Service and the Merchant Marine. It kept ship-agents informed of the movements of their vessels in various parts of the world, and on conditions existing at ports of call or of destination. It issued charts, distributed mail, and assisted in solving crew problems and in preventing desertions. Both services were provided with boarding parties early in 1943.

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Following the outbreak of war, exports through Vancouver greatly diminished, and a similar shrinkage took place at other west-coast ports handling ocean-going cargoes. For example at Port Alberni on Vancouver Island, an important shipping port for lumber and its products, the total exports for the period between September 1939 and August 1945 were slightly less than those of a normal year in peace-time. From 1942 on, the allocating of new-construction British and Canadian merchant ships to the regular run between Vancouver and the United Kingdom helped to increase the export trade in this area, which was further augmented by the decision of the Canadian Government to grant Mutual Aid to the Soviet Union.¹⁷ As a result Russian ships made frequent visits to Vancouver in the latter part of the war. No use was made of Vancouver by the United States to help ease the tremendous burden placed on its own west-coast ports by the insatiable demands of the forces operating against Japan, although this matter was being considered when the atom bomb brought an abrupt conclusion to hostilities.

The principal routeing authority on the Pacific coast during the period of United States neutrality was the British Routeing Liaison Officer at San Francisco, who came under the direction of the Trade Division at N.S.H.Q. Following the outbreak of war between the United States and Japan, the Canadian routeing officers conformed with United States routeing instructions and operated under the American Commander in that area; and throughout this period the work of naval control steadily increased. War in the Pacific meant a more rigid control of merchant shipping, which in turn involved a greater number of directives and closer contact with shipping authorities.¹⁸

Other naval activities related to the service of merchant ships were undertaken in this area. Esquimalt was one of the two points in Canada where D.E.M.S. equipment was stored in peace-time. In the first three months of war seven merchant ships were equipped with armament, and the S.S. *Rajputana*

¹⁷ The first shipment of Mutual Aid material to the Soviet Union left Canada on Aug. 26, 1943. [*Report of the Canadian Mutual Aid Board, May 20, 1943 to March 31, 1944* (Ottawa 1944), p. 21].

¹⁸ Account of Naval Control in the Esquimalt area and at Vancouver is based on: C.O.P.C. Monthly Reports and War Diaries, *passim*, N.S. 1000-5-10 series; interview with N.C.S.O. Victoria, June 1945; interview with S.O. (T) Joint Services H.Q., Vancouver, July 1945; N.C.S.O. Victoria to D.N.I. and T., Sept. 25, 1945, "Historical Survey, Naval Control Service, Esquimalt Area," N.S. 1440-127 (1); N.C.S.O. Vancouver to D.N.I. and T., Jan. 9, 1946, "Historical Records," *ibid.*

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of the Peninsular and Oriental Steam Navigation Co. was fitted out as an armed merchant cruiser by Yarrow's Ltd., Esquimalt.¹⁹ A second armed merchant cruiser, H.M.C.S. *Prince Robert*, was fitted out at Vancouver in early 1940. The provision of armament for merchant ships continued to be a major task of the Naval Armament Depot at Esquimalt throughout the war.

One repair job of particular interest was carried out early in 1942. H.M.T. *Queen Elizabeth* sailed from Sydney, New South Wales, on February 6, 1942, bound for North America via New Zealand and the Marquesas Islands. She had been ordered to proceed to Esquimalt to dry-dock and to receive additional armament. Remaining only a day in Auckland, New Zealand, she continued on her way, fuelling by tanker at Nukuhiva Bay in the Marquesas Islands, and on the afternoon of the 23rd appeared off Esquimalt.

Meanwhile preparations had been made for her arrival. The *Queen Elizabeth*, with an overall length of 1,031 feet, a beam of 118 feet, and a maximum draught of just over 39 feet, was no ordinary visitor. The depth of Esquimalt harbour was insufficient to permit her to lie alongside or at anchor, and extensive dredging operations had to be carried out before she could reach the dry dock at the peak of the tide. Arrangements were made to have sufficient tugs on hand, including two loaned by the Commandant 13th Naval District, Seattle. Docking plans and a block plan of the ship were flown to Esquimalt, and representatives of the Ministry of War Transport followed to supervise the work.

The *Queen Elizabeth* appeared the afternoon of the 23rd, too late for docking that day. She had arrived as light as possible in order to clear the dry dock, which had only 38 feet over the sill at high water, and was unable to proceed to Vancouver owing to lack of fuel. The ship therefore anchored in Royal Roads, just outside the harbour, and was protected by a continuous anti-submarine patrol of three ships. At high tide the next morning the *Queen Elizabeth* proceeded to the dry dock, but swung to the side while entering and parted her starboard paravane chain which dropped on the chocks causing several to float to the surface. As these could not be replaced immediately the ship returned to her anchorage in Royal

¹⁹ C.O.P.C. to N. Sec., "Summary of Events" cited above, Dec. 16, 1939, N.S. 1000.5-10 (1).

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Roads. The next day she was successfully docked without incident. A local resident has written:

At dawn this morning came the deep-throated demand of the *Queen Elizabeth* that Esquimalt Harbour open her boom. It was thrilling. It was England's age-old sea-power speaking; it was promise; it was hope

Now her vast funnels, down which it is said two street-cars can drive abreast, loom above the trees in Admiral's Road.²⁰

While in dry dock the ship's bottom was cleaned and painted by a party of three hundred men from the dockyard. At the same time machine guns and protective mountings were fitted, oerlikon ammunition lockers provided, and a telephone system installed. The ship's kite gear was overhauled and other miscellaneous jobs done. Four 3-inch guns were also placed on board but not fitted because of lack of time. Twenty D.E.M.S. ratings and one officer who had left England on February 6 joined the ship while she was in port.

The *Queen Elizabeth* undocked at high tide on March 10. Escorted by two corvettes and a United States destroyer she proceeded to Vancouver to fuel, and then sailed for San Francisco. Preceded by an anti-submarine sweep she passed through the Strait of Juan de Fuca during the dark hours of March 10-11. On the 11th the United States provided air escort during daylight and a destroyer escort in the approaches to San Francisco.²¹

In the early days extensive repair work was carried out at Vancouver on the apparatus of ships degaussed in Great Britain, as these had often been hurriedly fitted-out or incompletely equipped before leaving the United Kingdom. This work was carried out by local shipyards under naval supervision. During the war a large number of warships and merchant vessels were built on the west coast of Canada, all of which were degaussed. From the beginning of the war to the end of June, 1945, the Royal Canadian Navy on the west coast supervised the following number of initial installations and replacements:

²⁰ Gwen Cash, *A Million Miles from Ottawa* (Toronto 1942), p. 28.

²¹ The account of the *Queen Elizabeth's* visit to Esquimalt is based on signals and other documents in N.S. 1026-3-3 (1) and N.S. 1027-10-3207 (1); also interview with R. E. Smythies, Esq., Victoria, June 1945.

WEST COAST BASES

SHIPS DEGAUSSED WEST COAST²²

(From Beginning of War to June 30, 1945)

Year	Pre-War Merchant Ships	New-Construction Merchant Ships	New-Construction Warships
1940	16	—	1
1941	31	—	23
1942	64	61	12
1943	2	89	8
1944	3	66	17
1945	4	14	7
Total.....	120	230	68

In August 1940, the Naval Service approved the installing of a degaussing range at Vancouver similar in design to the one being provided at Halifax.²³ This installation had to await the completion of the ranges at the important convoy-assembly ports of Halifax and Sydney, and it was not until March 21, 1942, that deep and shallow ranges laid in English Bay off Ferguson Point were declared officially open. From then until the end of the war in the Pacific over nine hundred ships were ranged at Vancouver. An acoustic range was installed late in the same year and was placed in operation in February 1943.

Finally, in mid-1942, the Naval Service decided to establish a deperming station at Vancouver. The motor vessel *Gryme* was requisitioned in December and equipped as a deperming unit in H.M.C. Dockyard, Esquimalt, under the direction of the National Research Council. The *Gryme* was stationed in Vancouver Harbour, and deperming commenced on August 23, 1943. From then until the end of June 1945, 183 ships were depermed at Vancouver.²⁴

In the spring of 1942, a D.E.M.S. training centre for merchant seamen was set up at Vancouver, about the same time as a merchant-navy manning pool was established in connection with the manning of new-construction merchant ships. The training centre started with improvised equipment located in a government-owned building on the Vancouver water-front, and some time later an anti-aircraft firing range was opened on Sea Island at the mouth of the Fraser River. In mid-summer an Admiralty-pattern anti-aircraft dome teacher, similar to those at Halifax and Sydney, was approved for the

²² "D.G. Statistics—West Coast to June 30th 1945" (D.N.I.S. records).

²³ Naval Staff Minutes, Aug. 12, 1940.

²⁴ "Vancouver D.G. History" by E.A.M. B.M.O., Vancouver, July 6, 1945 (D.N.I.S. records); interview with R. E. Smythies, Esq., Victoria, June 1945.

NAVAL SERVICE OF CANADA

west-coast training centre, and the teacher was placed in operation following the arrival of the necessary equipment from England in the spring of 1943.²⁵

The fitting-out of merchant vessels on the west coast with Admiralty Net Defence equipment began in the late summer of 1942. Materials for this purpose were first supplied by the A.N.D. depot at San Francisco. In view of the extensive ship-construction programme on the west coast it was decided in September to establish a depot at Victoria. From then until the end of the war this depot was responsible for the initial provision and the servicing of that equipment on the west coast.²⁶

Before the Second World War Esquimalt was the only naval base on the west coast of Canada. Since its founding by the Royal Navy in the mid-nineteenth century, it had grown to be an establishment of modest proportions containing over forty small buildings by the time of its transfer to Canada in 1910.²⁷ During and after the First World War its growth was scarcely visible. Shortly before the Second World War it acquired several new buildings, but in September 1939 its outward appearance was very much the same as it had been twenty-nine years before. The naval base was not equipped to handle any but minor repairs to warships. The harbour, however, had obtained one great asset in this respect during the 1920's, when the Dominion Government constructed a graving dock capable of handling ships of any size. No government repair shops had been provided, but close by at Esquimalt and Victoria were commercial plants capable of undertaking extensive underwater repairs in conjunction with the dry dock. The old dry dock completed in 1887 had not been used as such since the completion of the larger one in 1927.²⁸

H.M.C. Dockyard at Esquimalt was, on the outbreak of war, considered to be better prepared than its opposite number at Halifax. In his report to the Minister on the state of the Royal Canadian Navy on the outbreak of war the Chief of the Naval Staff stated that:

Generally speaking the repair facilities here are adequate for the purpose, especially since we acquired the old Dry Dock. This dock cannot be used as a dry dock without considerable expense to modernize the pumping

²⁵ Material in N.S. 1027-14-5 (1).

²⁶ Material in N.S. 9650-13-6 (1).

²⁷ Lieut. (SB) D. W. Overend, "Esquimalt" (D. of P. records).

²⁸ For a fuller account of Esquimalt before the Second World War see vol. I *passim*.

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equipment, and a new caisson is also needed, but it affords us an excellent refitting basin. The machine shops generally are adequate and the machinery is being modernized as funds permit.

The wharfage is limited but an addition will shortly be put on the main dockyard wharf, and also it is understood that the Department of Public Works are about to increase the wharfage accommodation alongside the Esquimalt dry dock. Various new buildings have been erected in the course of the last few years, including new office Block; Torpedo Depot and Harbour Defence Store.²⁹

Esquimalt possesses a small, well-sheltered harbour, about a mile wide by a mile-and-a-quarter long. The naval establishment occupied three sites on the harbour. The naval dockyard lay immediately to the east of the entrance on a small peninsula which shields the anchorage from the open waters of Juan de Fuca Strait. The naval barracks occupied a site to the north-east of the dockyard on the opposite side of a small cove, in the same locality as the government dry dock. On the west side of the harbour was found the Joint Services Magazine, and during the war fuel and boom-defence depots were erected in this area. Esquimalt itself was not a large settlement, including besides the naval base only an army establishment and a shipyard operated by Yarrows Ltd. Nearby, however, lay the city of Victoria, the capital of British Columbia and the principal port on Vancouver Island.

The outbreak of war with Germany concentrated the attention of the Naval Service on the east coast. Until 1942 little development took place at Esquimalt except at H.M.C.S. "Naden," the naval barracks. As one of the two principal training establishments during the first part of the war "Naden" saw a great deal of activity, until most training was removed to H.M.C.S. "Cornwallis" when it moved into its quarters at Digby, N.S., in 1943. "Naden," therefore, was enlarged by the provision of new schools and barracks. The naval dockyard, on the other hand, was not called upon to support many warships in the early days, and its development was less extensive. In August of 1939, four of Canada's six destroyers were based on the west coast, but soon afterwards these were sailed to Halifax for duty in Atlantic waters. For a short while the British cruiser *Caradoc* was placed at the disposal of the Commanding Officer Pacific Coast.³⁰ In December, however, this officer reported:

²⁹ C.N.S. to Min., "Review of the Naval Requirements of Canada and the Existing Situation," Sept. 29, 1939, N.S. 1017-10-34 (1).

³⁰ Admiralty to C.N.S. (signal), Oct. 6, 1939, N.S. 18375-4 (1); C.O.P.C. to N. Sec., Dec. 16, 1939, "Summary of Events" cited above, N.S. 1000-5-10 (1).

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The present striking and defensive Naval power on the Pacific is at present practically 'NIL'.

It is certain that the Department is fully aware that under present Naval Defence conditions on this Coast, should one enemy submarine get to this Coast it would sink every single ship trading with Canadian ports with practically absolute freedom.

Naval Service Headquarters replied:

. . . The nakedness of naval defence against submarine attack on the Pacific Coast is fully realized at N.S.H.Q. but with the present orientation of the most probable place of attack we would be failing in our duty if the whole of our meagre A/S forces were not concentrated on the Atlantic Seaboard.³¹

The only naval force operating on the west coast at this time consisted of small fishing vessels manned by officers and men of the Fishermen's Reserve. This force had been formed prior to the war to meet the particular needs of the west coast. The long coast-line with its numerous inlets provided possible hiding places for enemy craft and small raiding parties. The concentration in this area of people of Japanese origin, many of whom possessed an intimate knowledge of the coastal waters, was also a matter of concern. Moreover it was evident that on the outbreak of hostilities the Royal Canadian Navy would not have sufficient strength on the west coast to undertake an effective patrol of coastal waters. The Fishermen's Reserve, therefore, was formed to fill this rôle. By October 1940, it comprised 17 vessels and 150 officers and men. These small fishing vessels, however, were not intended for offensive operations, being armed at first only with .303-inch Lewis guns. Repair work undertaken at the base in the early part of the war was not extensive, and mainly concerned itself with the patrol craft of the Fishermen's Reserve. There was little uniformity in the machinery installed in these vessels, and in most cases spare parts had to be improvised. Work of this nature was divided between the dockyard and commercial firms.³²

The most important single development at Esquimalt in the early part of the war was the construction of a modern depot for storing and handling Admiralty-grade fuel oil. The installation had been approved early in 1939, and tankage for 130,000 barrels was completed and placed in operation by the spring of 1940. Two years later, a new oiling jetty capable of accommodating a battleship was built at the fuel depot. In

³¹ C.O.P.C. to N. Sec., Dec. 8, 1939, and reply, Jan. 2, 1940, N.S. 1017-10-1 (2).

³² Interview with A/Capt. (E) T. H. Evans, R.C.N., June 1945.

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1944, a 6,000-barrel tank for diesel fuel was installed, and the following year provision was made for the storage of 150,000 gallons of high-octane gasoline.³³ In 1940, the Department of Public Works constructed additional wharfage at Esquimalt, which with the provision of several new stores buildings completed the expansion at the dockyard prior to the outbreak of war with Japan.³⁴

The attack on Pearl Harbor turned attention to the defence of the west coast. Nevertheless, despite the appearance of a new and powerful adversary in the Pacific, the Canadian Chiefs of Staff felt that pressure to increase military strength in that area should be resisted. In their opinion, the acquisition of the United States as an ally more than offset the extension of the Axis to include Japan. They pointed out that the United States Navy and Fleet Air Arm were now vitally concerned in the protection of all shipping outside Canadian coastal waters; that the United States Army and Army Air Force, with bases both north and south of Canada's Pacific coast, were now available to support Canadian ground and air forces; and that negotiations were already afoot for the joint defence of Juan de Fuca Strait. The Chiefs of Staff stated that in their opinion the decisive theatre of war was to the east and not to the west.³⁵ While this statement of policy was undoubtedly designed to counteract any hastily-considered demands to rush all available forces to the west coast, it indicated a strategic emphasis which was to be retained throughout the war.

The outbreak of hostilities in the Pacific, nevertheless, made necessary a greater development of west-coast base facilities than otherwise would have taken place. It was certain that the Royal Canadian Navy could not spare any ships from the Atlantic just at the time when the U-boats had begun their attacks on shipping in east-coast waters. On the other hand, it was possible that at some future date substantial anti-submarine forces might have to be based on the west coast. Moreover the warship-construction programme would permit of larger local-defence forces on the west coast in succeeding years. Finally, it was always possible that Esquimalt might be required as a rear base for the Royal Navy should its contribution to the war against Japan assume substantial proportions.

³³ Lieut. (SB) D. W. Overend, R.C.N.V.R., "Esquimalt" cited above (D. of P. records).

³⁴ *Ibid.*; C.O.P.C. Monthly Reports, *passim*, N.S. 1000-5-10 series.

³⁵ C.S.C. to Mins., Dec. 11, 1941, N.S. 1014-1-3 (1).

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A special meeting of the Halifax-Esquimalt Planning Committee was held seven days after Pearl Harbor to discuss a number of proposals for the development of Esquimalt, some of which had been under consideration for nearly a year. This meeting recommended an expansion programme, at an estimated cost of \$1,750,000, which was principally designed to provide modern stores buildings, offices, and barracks.³⁶

The handling of naval stores had always been a principal function of the dockyard, as Esquimalt was the only point on the west coast where they were kept in any quantity. In this respect the base served both the Canadian and British navies. A considerable amount of reserve equipment and stores had always been kept on hand for the Royal Navy since the base had been transferred to Canada. No modern buildings existed for this purpose, and stores were scattered throughout the dockyard buildings and grounds wherever space could be found.³⁷ The expansion programme provided for both permanent and temporary bulk stores; and included space for minesweeping gear, spare parts, torpedoes, inflammable stores, clothing, and food. It also provided for barracks, a wardroom, a canteen, fire-fighting equipment, and, in keeping with the new concern with air-attack, permanent air-raid shelters. Finally, the committee recommended a re-arrangement of existing building space to increase the efficiency of the workshops.³⁸

Before any steps could be taken it was necessary to acquire more land. The existing dockyard, about 350 yards wide by 530 yards long, filled up the western end of the peninsula. This space was already fully occupied, and on December 18 the Naval Service took over an area known as Esquimalt Village which lay immediately to the east of the dockyard, between it and the army establishment. The new site had on it a hotel, a foundry, and a number of cottages some of which had to be demolished.³⁹ More space was made available in the dockyard itself by the removal of the boom-defence depot to the other side of the harbour.

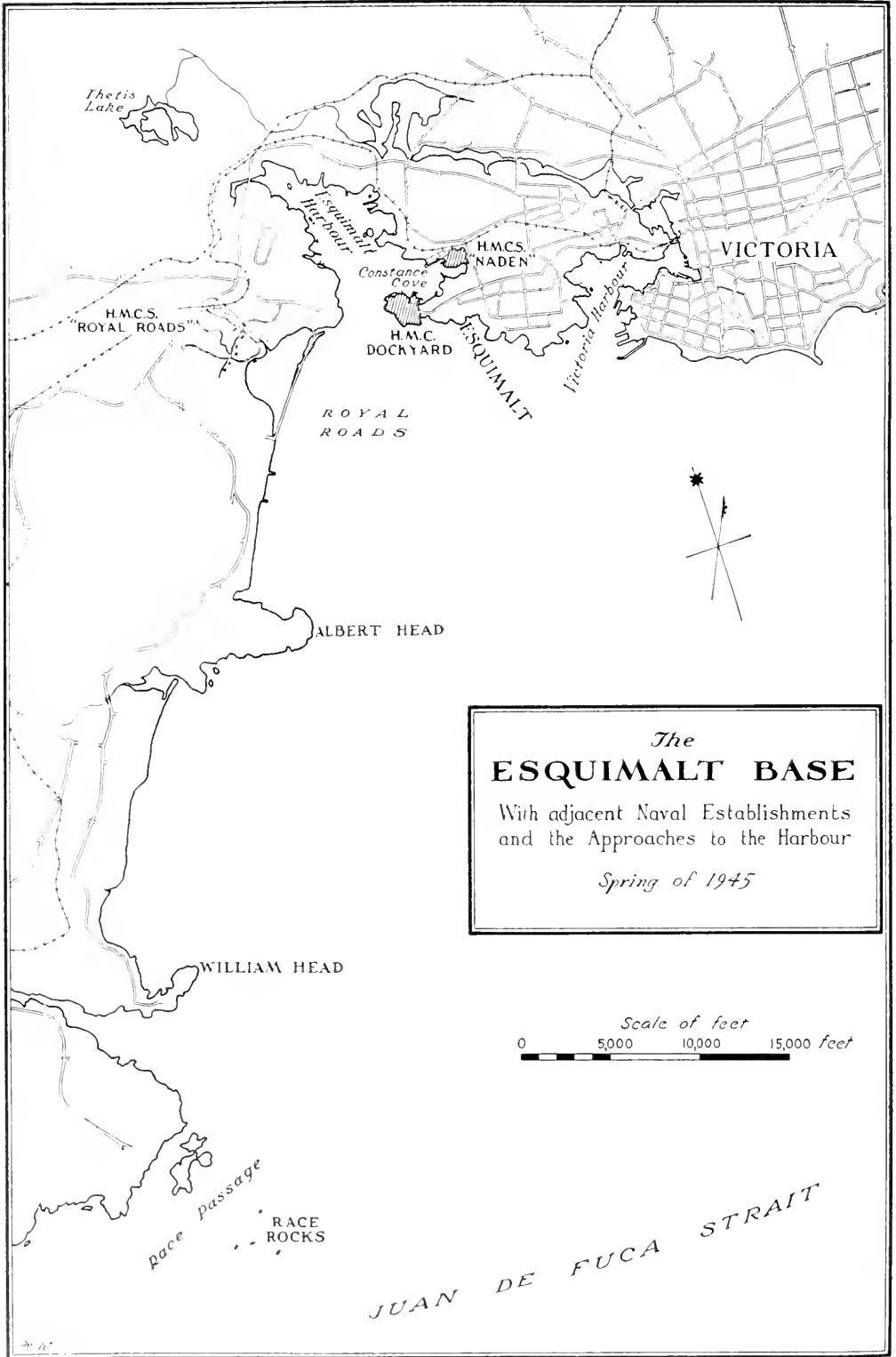
Early in the new year individual units of the expansion programme were proceeded with, but such was the lack of uniformity in headquarters' procedure that the programme as

³⁶ Halifax-Esquimalt Planning Cttee. Minutes, Dec. 14, 1941, N.S. 30-10-38 (1).

³⁷ Interview with N.S.O. Esquimalt, June 1945.

³⁸ Halifax-Esquimalt Planning Cttee. Minutes cited above, N.S. 30-10-38 (1).

³⁹ Lieut. (SB) D. W. Overend, R.C.N.V.R., "Esquimalt" (D. of P. records).



The
ESQUIMALT BASE
With adjacent Naval Establishments
and the Approaches to the Harbour
Spring of 1945

Scale of feet
0 5,000 10,000 15,000 feet

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a whole never received the formal approval of the Minister or the Privy Council. Construction of the more important buildings was started during the spring of 1942, and the programme had been largely implemented by the following winter.⁴⁰

In the spring of 1942, the Controller of Ship Repairs suggested that the old graving dock at Esquimalt be placed in operation once again. To do this required the construction of a new caisson and the supply and installing of pumping equipment. The dock was large enough to take a tribal-class destroyer and was located within the new confines of the dockyard. It had not been used as a dry dock for nearly twenty years, but in the early days of the war it had provided an excellent berth for the small craft based on Esquimalt. The Controller's suggestion received the strong support of the Naval Service, which also recommended that once refurbished the dock should be reserved for naval ships except in cases of emergency.⁴¹ Its use for this purpose, however, would greatly reduce the available berths in the dockyard, and to meet this situation the Commanding Officer Pacific Coast submitted proposals for the extension of the dockyard jetties which received Staff approval in July.⁴²

The rehabilitation of the dry dock had not yet started in the spring of 1943, when for the first time an effective attempt was made to co-ordinate all projects on the west coast and to establish a basis for future planning. In May, the Director of Plans made a personal survey of that area. On his return this officer noted:

As regards the Dockyard, it seems as though the development there to date has consisted in the construction of stores and barracks . . . Repair and maintenance facilities have been left out of the picture. This is possibly understandable in view of the fact that there have been very few ships based in Esquimalt and consequently repair and maintenance facilities have not been necessary. Present machine shops built in the nineties are totally inadequate and out of date . . . To establish adequate repair facilities it is apparent that the dockyard must be cleared of everything unnecessary . . . The whole question of stores on the West Coast must be tackled and properly planned.⁴³

The first step in planning west-coast requirements was a careful estimate of the size and character of the fleet likely to

⁴⁰ *Ibid.*; C.O.P.C. Monthly Reports, *passim*, N.S. 1000-5-10 series.

⁴¹ Naval Board Minutes, Mar. 27, 1942.

⁴² C.O.P.C. to Sec. N.B., July 6, 1942, N.S. 1006-1-8 (1); Naval Staff Minutes, July 27, 1942.

⁴³ "Diary of Visit to West Coast," May 1 to May 20, 1943, by D. of P., N.S. 1037-3 7 (1).

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be supported in that area.⁴⁴ This was provided in a comprehensive appreciation prepared by Plans Division and presented to Naval Staff on May 31. The appreciation dealt with submarine warfare only, stating that as long as the United States Navy held Midway and Pearl Harbor, surface operations were likely to be confined to the Western Pacific. It noted that there had been and still was an acute shortage of escort vessels, and that the west coast had been virtually stripped to meet more immediate needs in the Atlantic. This situation was expected to have improved greatly by 1944, at which time the needs of the west coast could be properly attended to.

There was no doubt that shipping off the west coast of North America was important, and that once Germany had been defeated it would increase both in volume and significance. On the other hand, the appreciation pointed out that according to the latest information Japan had only a hundred submarines, one-sixth of the number available to Germany. Moreover, the distance between Japan and the west coast of Canada was double that which lay between the U-boat pens in France and the east coast. The scale of attack which Japan could bring to bear on shipping off the west coast of North America was, therefore, a small fraction of that experienced in the Western Atlantic.

Japanese submarines had hitherto been employed principally in the South-west Pacific in support of naval and military Operations. At this time, however, there was thought to be a Japanese supply base in the Aleutians. Submarines had been reported occasionally in that area, and they had appeared as far south as California. No serious attempt had been made to interrupt shipping, but a change of policy was within the means of the enemy. There were only certain places off the west coast where submarine Operations would pay dividends in any way commensurate with the outlay involved, namely the focal points of shipping in the approaches to principal ports. It was there that the limited number of submarines available to the enemy would be forced to seek their targets. It was therefore concluded that anti-submarine and mine-sweeping patrols were only necessary at these points, and that beyond them diversive routeing was sufficient as it had been in the western approaches to Great Britain in the first year of the war.

⁴⁴ D. of P. to C.N.S., June 1, 1943, N.S. 1037-3-7 (1).

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The most important focal area of shipping on the west coast was the Strait of Juan de Fuca. To provide adequate protection for the forty to fifty ships entering and leaving Canadian ports by this route each month, Plans Division suggested that a total of forty warships would be required at Esquimalt of which eight would be minesweepers.

This appreciation did not consider the possibility of substantial numbers of either British or Canadian ships being based on the west coast following the surrender of Germany. It was considered that in such an eventuality the scale of attack on the west coast would be reduced, and that the main need for anti-submarine vessels would be in the South-west and Western Pacific and in the Indian Ocean.¹⁵

In placing the appreciation before the Naval Staff, the Director of Plans stressed the importance of the immediate development of the base to an extent which would permit the operation and maintenance of the ships which would eventually become available. The Naval Staff therefore directed that the ship requirements as laid down in the appreciation be accepted as the basis for the immediate development of west-coast naval facilities. At the same time it emphasized that this represented the bare minimum as seen at that time and was not in any way to limit future expansion.¹⁶

With these requirements in mind the existing programme for developing the dockyard was enlarged, particular emphasis being placed on ship repair and ordnance facilities. In this connection three factors had to be considered: dry docks, repair shops, and the special facilities required for the handling of ships' armament. The reclamation of the old dry dock had already been approved. In addition, the Naval Service authorized the construction of a 200-ton haul-out for small ships. In conjunction with these developments, a combined shipwrights' and electricians' shop, a high-speed motor repair shop, and a machine shop were authorized. At the same time the Naval Service approved the further development of the naval armament depot so that it would be capable of inspecting, repairing, and storing, armament and equipment in sufficient amounts to meet anticipated requirements. More storage space, expansion of magazines, and improved services

¹⁵ App. "A" to Naval Staff Minutes, May 31, 1943.

¹⁶ Naval Staff Minutes, May 31, 1943.

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such as water supply, distribution of electricity, and roads, were also included in the project as finally approved.⁴⁷

The limits of the dockyard had meanwhile been expanded through the acquisition of a section of land and several buildings lying immediately to the east of the base. This area had been part of the army establishment and was made available by the development of a new army ordnance store in the interior of British Columbia.⁴⁸

The programme of expansion as drawn up in 1943 left the basic problem of stores untouched. While this question had received early consideration in the development of the base, the quantity of goods shipped to Esquimalt for storage had more than kept pace with the construction of new buildings. Moreover, the development of the dockyard as a repair base made the congestion all the greater. The need became increasingly evident for a central depot for reserve storage away from the dockyard, from which all naval establishments on the west coast could be supplied. Vancouver was much more suitable for this purpose than Esquimalt: it was the western terminus of both transcontinental railway lines, and the centre of distribution on the west coast. The port, moreover, was rapidly assuming an important rôle as a construction and refitting point for both British and Canadian warships, and storage space was already urgently needed for these purposes. In April 1944 it was decided to build a 1000-foot pier in Vancouver Harbour, provided with a railway siding and crane, and storage space of some 100,000 square feet, at an estimated cost of \$2,500,000.⁴⁹

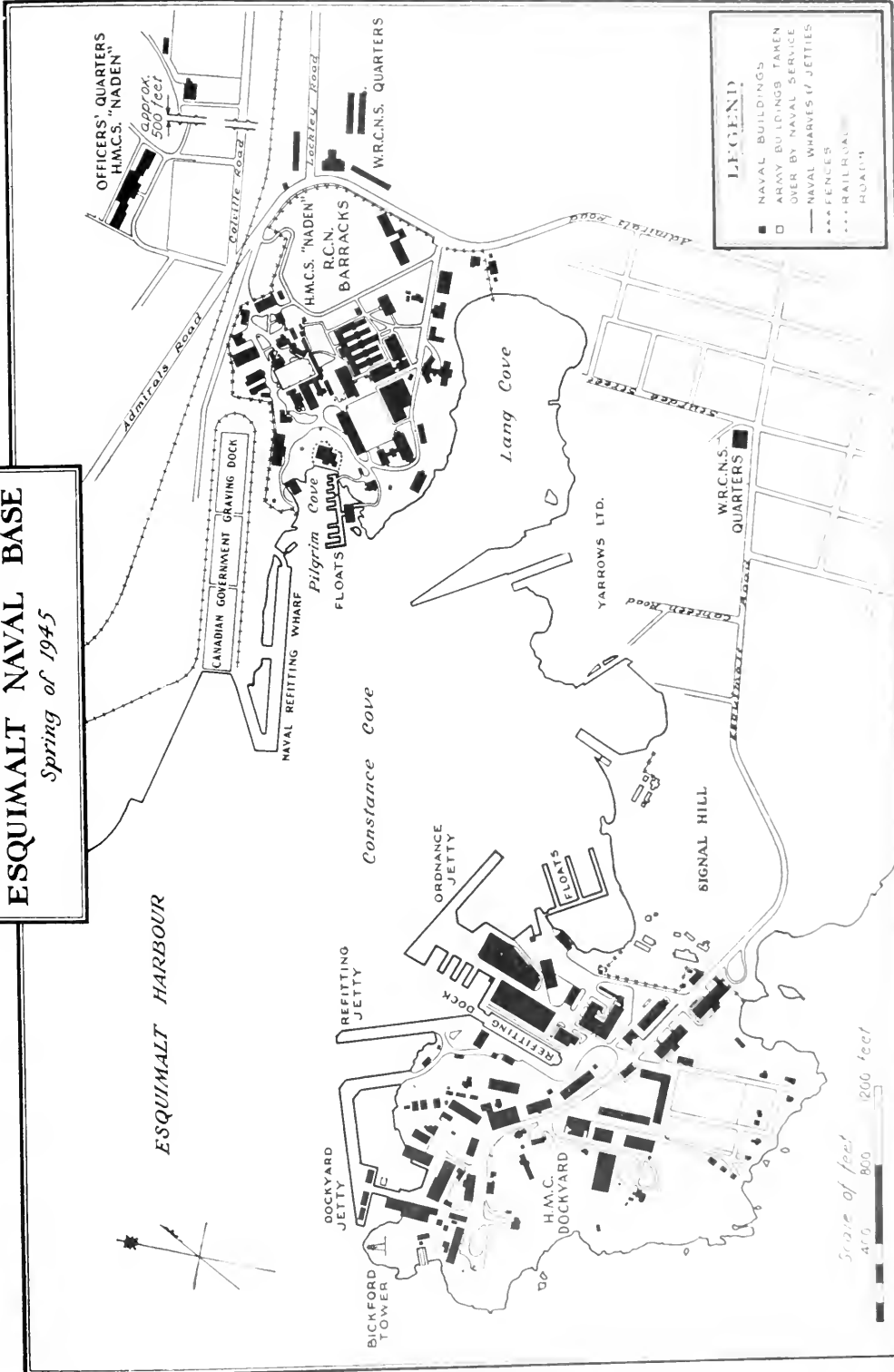
By 1945 Esquimalt was in the process of becoming a small but complete base. The course of the war, however, made no sustained demands on its newly-acquired facilities. From 1943 on, no enemy attacks were carried out off the west coast of Canada, and the abrupt ending of the war with Japan, following so closely on the surrender of Germany, removed any need which the Royal Canadian Navy might have had for a base in that area to support its efforts in the South-west Pacific. The actual use made of Esquimalt by Canadian warships during the period of hostilities with Japan is illustrated in the following table:

⁴⁷ Naval Board Minutes, Oct. 4, 1943; D. of P. to A.C.N.S., Oct. 25, 1943, N.S. 19060-112/2; A.C.N.S. to V.C.N.S., Oct. 27, 1943, *ibid.*; Naval Staff Minutes, Nov. 1, 1943.

⁴⁸ D. of P. to A.C.N.S., Aug. 18, 1943, N.S. 19060-112/2; Naval Staff Minutes, Sept. 8, 1943; Naval Board Minutes, Sept. 13, 1943.

⁴⁹ Naval Staff Minutes, Mar. 20, 1944; C.O.P.C. War Diary, Apr. 1944, N.S. 1000-5-10 (27)

ESQUIMALT NAVAL BASE
Spring of 1945



LEGEND:

- NAVAL BUILDINGS
- ARMY BUILDINGS TAKEN OVER BY NAVAL SERVICE
- NAVAL WHARVES/JETTIES
- FENCES
- RAILROAD
- ROAD

Scale of feet
0 400 800 1200 feet

WEST COAST BASES

R.C.N. WARSHIPS BASED ON ESQUIMALT FROM
JANUARY 1942—MAY 1945

(Taken from statements on Allocation of H.M., H.M.C., and Allied
Warships to Canadian Forces, in N.S. 1057-3-6 series)

DATE	Jan. '42*	June '42*	Jan. '43	June '43	Jan. '44	June '44	Jan. '45	May '45
Aux. Cruisers	2	3	3			..	..
Corvettes	3	7	2		2	3	4	4
Bangor M/S	5	13	8	5	5	5	4	4
105' Motor M/S						..	4	4
M.L.'s		6	6	6	6	6	9	9
Armed Yachts	3	2	1	1	2	1	2	2
TOTAL	13	31	20	12	15	15	23	23

* During 1942 the Pacific Coast Allocations were grouped together.

The organization of the Royal Canadian Navy on the west coast never became as elaborate as that in eastern Canada. During the war there were three naval establishments in that area at Esquimalt, Vancouver, and Prince Rupert respectively. The war never placed a burden on these establishments in any way comparable with that assumed by the bases in eastern Canada and Newfoundland. Nevertheless as the war progressed many changes took place in naval organization on the west coast to make it as efficient as possible should the occasion arise to put it to the test.

On the outbreak of war the Captain in Charge, Esquimalt, became the Commanding Officer Pacific Coast.⁵⁰ For some time, however, he continued to perform three separate functions. The Naval Secretary in a dispatch to this officer early in 1940 summed up his position: "It is appreciated that you personally are carrying on in a less active community the duties which are, at Halifax, being performed by three officers, C.O.A.C., Commander in Charge, and Naval Superintendent of the Dockyard."⁵¹ The two other senior officers at the base at this time also assumed more than one duty. The Extended Defence Officer, in charge of the naval defences, was also responsible for the administration of auxiliary vessels. The Staff Officer (Operations and Intelligence) was not only responsible for the many duties attached to his dual rôle but was also in charge of the routing of all merchant vessels.⁵²

⁵⁰ N.S.H.Q. to all Heads of Branches (signal), Sept. 5, 1939, N.S. 61-1-6 (1).

⁵¹ N. Sec. to C.O.P.C., Feb. 5, 1940, N.S. 1017-10-1 (2).

⁵² Material in N.S. 1017-10-1 (2) and N.S. 1-51-1 (1).

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As more trained officers became available the structure grew more elaborate. In the summer of 1942, a new organization for Esquimalt, patterned on that adopted for Halifax in May, was drawn up.⁵³ It did not come into force at any one time. In forwarding it to the Commanding Officer Pacific Coast, the Secretary, Naval Board, commented: "It is appreciated that it will not be practicable to give full effect to this re-organization on any one date and it is therefore desired that you will put it into effect in the most efficient manner and as the various organizations can adapt themselves to it."⁵⁴

The organization embodied many changes which had already taken place during the preceding two years. The Commanding Officer Pacific Coast was relieved of his extraneous administrative duties by the appointment of a Naval Officer-in-Charge, who became responsible for naval administration at Esquimalt. Under him the Engineer Superintendent of the Dockyard became responsible for all repairs, the Superintendent of the Armament Depot assumed the supervision of all ordnance, and numerous other officers were allotted specific duties including port defences, naval control service, communications, and naval stores. The Naval Officer-in-Charge also assumed the duties of Captain (D), which made him responsible for the administration of warships based on Esquimalt. The Supervising Naval Engineer Pacific, directly responsible to the Commanding Officer Pacific Coast, assumed charge of all new warship construction on the west coast, and was generally responsible for the machinery of all naval establishments under the Commanding Officer Pacific Coast.

In the early days all personnel under the Extended Defence Officer, Esquimalt, and all personnel at Vancouver and Prince Rupert, were borne on the books of H.M.C.S. "Givenchy." The Commanding Officer Pacific Coast and his staff, and personnel serving in the naval barracks and training establishment, were appointed to H.M.C.S. "Naden." In May 1942, the naval base at Prince Rupert was commissioned H.M.C.S. "Chatham," and shortly afterwards the establishment at Vancouver became H.M.C.S. "Burrard." Following the re-organization at Esquimalt, "Givenchy" became the depot ship for the dockyard, Esquimalt, and "Naden" that for the training establishment. Following their transfer to Vancouver

⁵³ Organization chart for west coast drawn up in July 1942 (D.N.H.S. records); C.N.P. to C.N.S., Aug. 31, 1942, N.S. 1-54-4 (1).

⁵⁴ Sec. N.B. to C.O.P.C., Aug. 31, 1942, *ibid.*

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the Commanding Officer Pacific Coast and his staff were appointed to H.M.C.S. "Burrard."

This transfer was necessitated by the setting up at Vancouver of a joint headquarters for the three Services—a measure implemented on the west coast some time before it materialized at Halifax. On the outbreak of war the question of joint headquarters on both coasts had been considered and rejected as impracticable at that time.⁵⁵ The system approved for the west coast was "that each Service maintain its own Operations Room and that all three Operations Rooms be adequately interconnected with complete communications facilities and each staffed with liaison staff officers from the other two Services."⁵⁶ The matter was not considered again until the outbreak of war with Japan.

In February 1942, the Joint Services Committee, Pacific Coast, suggested the setting up of a joint headquarters and combined Operations room on the west coast. This proposal was considered by the Cabinet War Committee on March 18, and was approved for both the Pacific and the Atlantic commands in order to ensure the close tactical co-ordination of the three Services.⁵⁷ In September 1942, the Jericho Golf Club at Vancouver was purchased for development as a joint headquarters,⁵⁸ and on November 28 the Commanding Officer Pacific Coast moved from Esquimalt to Vancouver.⁵⁹ In September 1943, a joint Operations room was also set up at Victoria for the three commanding officers in that area. A similar Operations room was also established for a short time at Prince Rupert. The closing of these secondary Operations rooms resulted from the lack of activity in those areas and the reduction of the Royal Canadian Air Force units at Victoria and Prince Rupert.⁶⁰

Early in 1942 the fear of Japanese landings on the sparsely-populated west coast of Canada led to the suggestion that Fishermen's Reserve personnel should be trained in commando tactics and man ex-Japanese fishing vessels. At the same time the Joint Services Committee on the west coast was consider-

⁵⁵ D.N.I. to C.N.S., Sept. 8, 1939, N.S. 1001-1-16 (1).

⁵⁶ C.S.C. Minutes, Nov. 6, 1940, N.S. 1272-2 (5).

⁵⁷ Cabinet War Cttee. Minutes, Mar. 18, 1942 (extract in Clerk P.C. to Sec. C.S.C., Mar. 21, 1942), N.S. 1001-1-16 (1).

⁵⁸ P.C. 9730, Oct. 27, 1942.

⁵⁹ C.O.P.C. Monthly Report, Nov. 1942, N.S. 1000-5-10 (14).

⁶⁰ Material in N.S. 19575-102 2.

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ing a more elaborate scheme involving combined army-navy Operations and the use of assault landing craft.⁶¹

The scheme as finally worked out involved the use of a hundred wooden landing craft provided by the army, manned by the navy, and maintained by both Services. The army was to assume responsibility for the maintenance of engines and the navy for all hull and underwater repairs. Operational bases were to be established at Prince Rupert in north-western British Columbia, and at Hardy Bay, Alberni, Nanaimo, and Comox, on Vancouver Island. Basic naval training started at William Head near Esquimalt in July 1942. Combined-Operations training with the army was undertaken at their establishment at Courtenay on the eastern side of Vancouver Island, and began in October.

It was intended that each operational base should be provided with facilities for running repairs, but that all major refits would be carried out at a central repair depot. In the spring of 1943, the Royal Canadian Navy took over a disused Japanese repair station for fishing vessels situated at Nanaimo on the opposite side of the Strait of Georgia from Vancouver and about sixty-five miles south-east of Courtenay.⁶²

Early in 1943 the army decided that bases for combined Operations on the west coast were no longer necessary as a defence measure. Meanwhile, however, the training in Canada of combined-Operations personnel for service in the European theatre of war had been given careful consideration,⁶³ and as a result of these developments the entire policy was revised. All operational bases were abandoned, and the entire combined-Operations activities were concentrated at Courtenay. Naval training later moved to the nearby naval camp at Comox Spit, formerly operated by H.M.C.S. "Naden" for musketry and seamanship training. This establishment became known as "Givenchy III." In February 1944 there were 51 landing craft on the west coast of which all but 8 were based on Comox.⁶⁴

In February 1941, the British Government asked the Canadian Government to allow any ships intercepted in the

⁶¹ C.O. Royal Roads to C.O.P.C., Mar. 3, 1942, N.S. 1037-34-4 (1); C.S.C. Minutes, Apr. 10, 1942.

⁶² Memo. attached to Naval Staff Minutes, Apr. 1, 1943; S.O. (C.O.) to D.W.T., Feb. 9, 1944, N.S. 482-1-8.

⁶³ Naval Board Minutes, Apr. 20, 1942; C.S.C. Minutes, June 11, 1942.

⁶⁴ *Ibid.*; Naval Staff Minutes, June 12, 1944; material in N.S. 1037-34 series.

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eastern Pacific to be brought to a Canadian port for contraband-control examination.⁶⁵ Concern was expressed over the use made by Germany of the trans-Siberian railway to carry goods shipped across the Pacific in the first instance to Vladivostok or ports in Japan. The Canadian Government felt that it was most unwise to interfere with trans-Pacific shipping in this way. In reply it expressed the opinion that such action might give Japan cause for retaliation, and it pointed to the meagre British forces in the Pacific and to the inadequacy of Canada's coast defences. It also expressed concern over the reaction of the United States.⁶⁶

The British Government, however, was most reluctant to take no for an answer. In a long dispatch it went very fully into the matter, and expressed the conviction that the "nature and dimensions of this traffic make it apparent that what is now at stake is nothing less than the undermining of the general blockade structure. . ."; that the "case for immediate action is not only strong but compelling." In its opinion a contraband service would have no effect one way or another on Japan's decision to enter or stay out of the war, and it further stated that the United States Government was being consulted on the matter. "It is our earnest hope . . . that the Canadian Government will feel able to reconsider the matter in the affirmative."⁶⁷ As a result of this second request the Canadian Government reluctantly agreed, and in the next few months preparations were made to establish a contraband-control station at Victoria, and two Canadian naval officers were sent to Bermuda for training.⁶⁸ As in the case of the contraband control base on the east coast, events overtook preparations. First the invasion of Russia, and then the attack on Pearl Harbor, so altered the situation that the need for the base had passed by the time it was ready to operate.

The Royal Canadian Navy's second war-time base on the Pacific coast was situated at Prince Rupert, 475 miles northwest of Vancouver and just north of the mouth of the Skeena River. Prince Rupert lay in the heart of an immense salmon and halibut fishing ground and its economic life chiefly re-

⁶⁵ Dom. Sec. to Sec. of State (Ext. Aff.), Feb. 9, 1941, N.S. 1066-6-1 (1).

⁶⁶ Sec. of State (Ext. Aff.) to Dom. Sec., Feb. 11, 1941, *ibid.*

⁶⁷ Dom. Sec. to Sec. of State (Ext. Aff.), Feb. 27, 1941, *ibid.*

⁶⁸ Sec. of State (Ext. Aff.) to Dom. Sec., Feb. 27, 1941, *ibid.*; C.O.P.C. to N. Sec., Nov. 27, 1941; interview, July 1945, with J. R. Elfert, Esq., Harbourmaster at Prince Rupert, who as Lieut.-Cdr. Elfert, D.S.C., R.C.N.R., was one of the two officers sent to Bermuda for training.

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volved around the fishing industry. The port, however, was not solely a fishing centre, and its strategic importance lay in the fact that it was the western terminus of the most northerly transcontinental railway in North America, and that by the great circle route it was nearly five hundred miles closer to the Aleutians and Japan than were Vancouver or Seattle. Moreover, it possessed a fine natural harbour, about ten miles in length and from half a mile to two miles in width, which was sheltered from seaward observation by Digby Island and a promontory of the Tsimpsean Peninsula, and accessible to any class of warship. In 1914 the Grand Trunk Pacific Railway had made Prince Rupert its western terminus. The port had never fulfilled its early promise as a seaport; nevertheless by 1939 it possessed a 20,000-ton floating dry dock equipped with repair and shipbuilding shops, and a grain elevator with a capacity of 1,250,000 bushels. Aside from its possible importance as a loading port, Prince Rupert was in most respects an ideal base for naval forces operating off the northern coast of British Columbia.

The only naval establishment at Prince Rupert before September 1939, was a small R.C.N.V.R. Division. Plans drawn up in 1937 for the defence of the west coast had included defences for Prince Rupert comprising anti-submarine nets, a port war signal station, an examination service, fixed-artillery defences, and the establishing of a local patrol of fishing craft and auxiliary minesweepers. In the event of war, Prince Rupert was to be considered a sub-command or subordinate naval station, its naval officer-in-charge being responsible not only for the port but for Operations in the coastal waters of northern British Columbia.⁶⁹ Before the outbreak of war none of the naval plans had been implemented.

The clearing of sites for fixed-artillery defences began in 1938, and by November 1939 several medium and light guns were ready for action. In the days immediately following the declaration of war orders were issued instituting an examination service at Prince Rupert, and H.M.C.S. *Armentières* was sailed from Esquimalt on October 4 in this connection. Several officers were appointed to the base during October, and accommodation was found in the city for the Naval Officer in Charge and his staff.⁷⁰

⁶⁹ Material in N.S. 1017-10-1 (2).

⁷⁰ Weekly Report to Min., Oct. 7, 1939, N.S. 1000-5-7 (1); material in N.S. 440-8-22 (1).



Shipbuilding, and fuel storage tanks. Prince Rupert, B.C.

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The nature of the hostilities at this time was such that a much greater immediate stress was placed on east-coast than on west-coast bases, and no further naval developments were undertaken at Prince Rupert in the early days of the war. Plans for anti-submarine nets were complete, but the port was placed last on the priority list for this type of defence. Early in 1940, material for the net was purchased and stored at Esquimalt pending the time when circumstances might warrant its installation.⁷¹

In June 1940 the R.C.N.V.R. Division was paid off and its quarters on the water-front became available to the Naval Officer in Charge. The same month, Naval Service Headquarters decided to proceed with the laying of the anti-submarine nets. As finally approved these were to consist of two lines of nets, and their cost was estimated at \$98,000. In fact, however, the second line was never installed. By the time material was available it was no longer considered necessary to provide this double protection at Prince Rupert. A single line was prepared and laid during the first half of 1941, and was ready for operation by September. Its installation was considered the most formidable undertaking in boom-laying operations assumed in Canada up to that time. The difficulties were caused by the unusual depth of water, the strength of the current, and the wide range of tide. These conditions necessitated the provision of unusually heavy stretchers, and of buoys of about twice the normal size, and prohibited the use of curtain nets when these had become standard equipment. The lack of a proper boom-defence depot greatly added to the difficulty of the task.⁷²

The anti-submarine nets running between Digby and Kaien Islands blocked the main entrance. The harbour, however, was accessible to small craft through Metlakatla Passage, a narrow channel separating Digby Island from the mainland to the north. In the summer of 1941 H.M.C.S. *Grizzly*, one of the yachts bought in the United States for patrol duties, was stationed as a permanently-moored examination and guard vessel in Metlakatla Passage.⁷³ Early the following year the passage was permanently closed by a log boom. In the fall of 1942 *Grizzly* was allocated elsewhere, and early in 1943 the

⁷¹ Material in N.S. 1053-9-2 (1 and 2) and N.S. 1053-9-3 (1).

⁷² Interview with B.D.O., Prince Rupert, July 8, 1945.

⁷³ B.P.C. Minutes, Mar. 11, 1941, N.S. 1078-3-6 (1); N.O.I.C. Prince Rupert, Monthly Report, July 1941, N.S. 1000-5-10 (4).

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boom at Metlakatla was strengthened with a line of spiked logs.⁷⁴

As early as January 1941 the possibility of expansion at Prince Rupert was discussed, and it was suggested that plans and specifications be prepared in detail and retained at headquarters pending the time when it might seem advisable to implement them.⁷⁵ By the summer of 1941 the Base Planning Committee concluded that this time had arrived, in view of the possibility of activity in the Pacific area. In its opinion the minimum requirements for Prince Rupert as the second naval base on the Pacific coast were a wireless station, a port war signal station, barracks for 150 officers and men, a boom-defence field, and adequate storage space.⁷⁶ Once these recommendations had been approved, land was acquired from the Canadian National Railways and the city of Prince Rupert, and in December the sum of \$219,310 was authorized to cover the costs of development.⁷⁷ Progress was very slow, and except for the port war signal station construction did not start until the following spring. By this time, however, the increased activity at Prince Rupert resulting from the extension of the war to the Pacific area had further altered the situation.

The value of Prince Rupert in the defence of Alaska was immediately recognized by the United States, and thirty-five days after the attack on Pearl Harbor the first United States army transport sailed from the port with men and supplies to bolster the slim north-western defences of the continent.⁷⁸ By February the United States Army had decided to use Prince Rupert as an embarkation base for troops, supplies, and equipment, for Alaska.⁷⁹ To implement this decision an impressive construction programme was undertaken during the next two years, at a cost in the neighbourhood of \$16,000,000. In the city itself the United States Army erected barracks, administrative offices, a repair shop, and large warehousing and cold-storage facilities. At Port Edward, an old town-site on Porpoise Harbour eight miles south of the city, the army established a staging area provided with all the necessaries and many of the amenities of life. Its 180 buildings included barracks, mess halls, office buildings, warehouses, chapel,

⁷⁴ Material in N.S. 1053-9-2 (3).

⁷⁵ B.P.C. Minutes, Jan. 2, 1941, N.S. 1078-3-6 (1).

⁷⁶ *Ibid.*, June 11, 1941, N.S. 1078-3-6 (1).

⁷⁷ P.C. 7130, Sept. 10, 1941; P.C. 8334, Oct. 28, 1941; P.C. 76 9400, Dec. 3, 1941.

⁷⁸ N.C.S.O. to D.N.I. and T., Jan. 6, 1946, "History of the Naval Control Service, Prince Rupert, B.C.," N.S. 1440-127 (1).

⁷⁹ P.J.B.D. Journal, Jan. 20, and Feb. 25-26, 1942 (E.A. 105 (3)).

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hospital, laundry, service club, theatre, and recreation hall. The staging area was prematurely opened on March 15, 1943, to shelter 244 troops and 387 civilians from the shipwrecked transport *Otsego*. From then until the end of the war it housed, fed, and supplied with arctic clothing and equipment, thousands of troops and civilians moving to and from Alaska.

Two large wharves and twenty magazines were built on Watson Island close by Port Edward. In the last few months of war, following a serious explosion at Port Chicago, an important west-coast ammunition and loading port, the Port Edward magazines were used to ship explosives to the Pacific theatre of Operations and to ammunition and de-ammunition United States warships.⁵⁰

The following statistics illustrate the importance of Prince Rupert as a sub-port of embarkation for the United States Army:⁵¹

<i>Peak Personnel Strength</i>	Military	3,380
June 1944	Civilian	1,704
	TOTAL	5,084
 <i>Personnel Embarked for Alaska</i>	Military	46,865
March 1943 to August 1945	Civilian	27,019
	TOTAL	73,884
 <i>Outbound Water-borne Cargo</i>		
Alaska (general cargo and ammunition)		898,751 tons
South Pacific (ammunition)		101,051 tons
United States ports		121,851 tons
	TOTAL	1,121,653 tons
 <i>Cargo Inbound, Rail and Water</i>		1,612,783 tons

The rôle of the United States Army at Prince Rupert was limited to the movement of troops, supplies, and ammunition. The defence of the port remained a Canadian commitment. The new importance of the port in the defence of the north-western frontier of the continent, therefore, increased the responsibility of the Canadian armed Services.

One of the first considerations was the provision of additional port defences. In January, the United States War

⁵⁰ D.N.I. (N.S.H.Q.) to D.N.I. (Admiralty), May 14, 1942, N.S. 1009-2-1 (1); App. to P.J.B.D. Journal, Jan. 13-14, 1944, "United States Projects and Installations in Canada January 1944" (E.A. 105 (5)); "History of the Naval Control Service, Prince Rupert" cited above, N.S. 1440-127 (1); visit to Port Edward, July 1945.

⁵¹ Contained in "History of the Naval Control Service, Prince Rupert" cited above, N.S. 1440-127 (1).

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Department offered two additional guns for the defence of Prince Rupert, and these were ready for firing by June. The close-defence artillery of the port was also augmented, and anti-aircraft batteries were established in the Prince Rupert area.⁸²

In the spring of 1942, the installation of indicator loops in the approaches to the harbour was authorized by the Naval Service.⁸³ As the R.C.N. possessed no vessel on the west coast suitable as a loop-layer, the field was laid by the U.S.C.G. *Manganita*, assisted by a boom-defence tug and an army landing craft. In connection with the laying operations the R.C.N., by arrangement with the United States Army authorities, used the harbour and railway facilities of the Port Edward base which were close to the indicator-loop site. The loops were laid in the fall of 1943, and preliminary watch-keeping conducted from a nearby army battery was begun in January 1944. The system was placed in permanent operation in April 1944, following the completion of the self-contained control station.⁸⁴

In view of its growing importance, Prince Rupert naval base was commissioned as a separate establishment on April 1, 1942.⁸⁵ Meanwhile, further development was under discussion at N.S.H.Q., and in July a supplementary barracks block for 360 men, a chief petty officers' block, and a drill hall, were authorized for construction, and two buildings on the water-front belonging to the Fisheries Research Board of Canada were transferred to the Naval Service.⁸⁶

Aside from accommodation for personnel and stores the most pressing need was for adequate wharfage. The navy had no formal right to any part of the water-front, and existing wharfage at its disposal was barely sufficient even for the small number of auxiliary craft regularly operating from the base. In view of the possible use of the port as a stepping-off place for the Aleutians and possibly Japan itself, the Projects Committee as early as April 1942 urgently recommended the provision of adequate berthing facilities.⁸⁷ In the next few

⁸² Information obtained from Hist. Sec. (Gen. Staff).

⁸³ Naval Staff Minutes, Apr. 23, 1942.

⁸⁴ El. A Lieut.-Cdr. W. G. Brissenden, R.C.N.V.R., "The History of A S Fixed Defences in the R.C.N. 1939-1945," n.d. (D.H.D. records).

⁸⁵ C.N.O. 1962, Apr. 4, 1942.

⁸⁶ C.O.P.C. to Sec. N.B., June 4, 1942, N.S. 440-8-20 (2); Projects Cttee. Minutes, June 12, 1942, N.S. 1078-3-12 (1); C.N.E.S. to D.Min. July 25, 1942, N.S. 440-8-4 (1); P.C. 6653, July 30, 1942; material in 440-8 series.

⁸⁷ Projects Cttee. Minutes, Apr. 28, 1942, N.S. 1078-3-12 (1).

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months certain additions were made to the programme, as a result of a Staff decision to treat Prince Rupert as a permanent naval base, the most important being naval magazines.⁸⁸ About the same time a joint Services hospital was authorized as a commitment of the R.C.A.F.

As part of its programme of strategic reserve fuel storage, drawn up in 1942, the Naval Service approved the construction of a modern fuel depot at Prince Rupert. The plans provided for underground storage for 180,000 barrels of fuel oil and not less than 12,000 barrels of diesel oil. The port's strategic importance at that time, and its remoteness from sources of supply, accounted for the size of the installation. Before construction had been well started, however, the programme was scaled down by reducing the amount of storage for fuel oil and by deleting the tankage for diesel oil. The construction of the depot was delayed by difficulties in procuring materials and by frequent changes in specifications resulting mainly from lack of clear-cut policy as to what protective measures were to be taken. The fuel depot as completed in the autumn of 1944 had a capacity of 93,408 barrels. Situated at Morse Creek, just west of the city, the depot comprised three tanks set in the ground, but uncovered, together with the necessary pumping and heating equipment. The oil-fuel lines were laid on the large dock of the Dominion Government's grain elevator.⁸⁹

No progress was made on the expansion programme for the naval base in 1942, despite the pressing need for accommodation. By September the situation was critical.⁹⁰ The main cause of delay was the difficulty in obtaining a contractor to do the work. It was during this period that the United States Army was carrying on its extensive building programme at Prince Rupert and Port Edward, and their activities absorbed the whole of the available labour supply. In fact many American citizens were brought in to assist in the construction of the army project. During 1943 the population of Prince Rupert, about 6,500 in peace time, rose to 23,000. This influx placed a heavy strain on public services, particularly water supply, telephone communications, and roads. Both the Dominion Government and the United States Army eventually

⁸⁸ Naval Staff Minutes, Oct. 1, 1942.

⁸⁹ Material in N.S. 1044-12-14 series.

⁹⁰ S.C.L. to C.N.E.S., Sept. 19, 1942, N.S. 440-8-20 (2).

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assisted the city in expanding its services to meet the situation.⁹¹

The revised programme involving an estimated expenditure of slightly over \$2,000,000 received the final approval of the Cabinet War Committee in March 1943. With the annual Estimates in mind, it had been stressed in committee that all but the most imperative Service expenditures in connection with home defence should be limited as far as possible in view of the changed strategic situation. By 1943 the government had before it a vast programme of war expenditure which seemed likely to strain the resources of the country, and the committee approved the project on the understanding that the authorized sum would not be exceeded.⁹²

With this ceiling in mind, certain alterations in the programme were made. The visit of the Director of Plans to the west coast in the spring of 1943 included Prince Rupert. On his return he reported that facilities for the servicing of warships were almost non-existent, and that there was an urgent need for additional wharfage.⁹³

It was laid down at this time that Prince Rupert should be developed to support eighteen warships.⁹⁴ In order to allow funds for the construction of wharves and the provision of repair facilities various items in the expansion programme were dropped, notably the construction of permanent magazines.⁹⁵ Negotiations extending over the next year-and-a-half were carried on unsuccessfully to obtain a suitable area along the water-front for development. In the course of time, however, it became evident that these facilities would not be required and the whole project was finally abandoned.⁹⁶

The base in fact was never used by Canadian warships as extensively as had been anticipated. The following table illustrates the size of the force actually based on Prince Rupert in the latter part of the war:

⁹¹ Defence Council Minutes, May 15, 1943; material in N.S. 440-1-1.

⁹² Extract from Cabinet War Cttee. Minutes, Mar. 11, 1943, N.S. 1009-2-1 (1).

⁹³ D. of P. to C.N.S., June 1, 1943, N.S. 1037-3-7 (1).

⁹⁴ App. "A" to Naval Staff Minutes, May 31, 1943.

⁹⁵ Naval Staff Minutes, Nov. 1, 1943; Naval Board Minutes, Nov. 11, 17, and 22, 1943.

⁹⁶ Material in N.S. 11400-112 1 (2).

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R.C.N. WARSHIPS BASED ON PRINCE RUPERT
JANUARY 1943 MAY 1945

(From statements on Allocation of H.M., H.M.C., and Allied
Warships to Canadian Forces, in N.S. 1057-3-6 series)

Date	Jan. '43	June '43	Jan. '44	June '44	Jan. '45	May '45
Bangor M.S.	5	3	2	2	3	3
105' Motor M.S. ....	..	..	..	..	4	4
M.L.'s. ....	..	..	..	..	3	3
Armed Yachts.	1	1	1	1	..	..
TOTAL	6	4	3	3	10	10

The hurried departure of Japanese forces from the Aleutian Islands in the summer of 1943, the completion of United States projects in Alaska, and the steady westward movement of the Pacific battle-zone, greatly diminished the strategic importance of Prince Rupert.⁹⁷ American activities at the port reached their peak during 1943, but rapidly diminished the following year. During 1944 the Canadian army and air installations in the area were reduced. Early in 1945, the Port Edward staging area was closed. It was subsequently re-opened in connection with the replacement of personnel in the Alaskan theatre, but Prince Rupert itself ceased to play an important part in American logistics. Port Edward, on the other hand, assumed a new importance in the last few months of the war as an ammunition-loading port serving the Pacific theatre of Operations.⁹⁸

⁹⁷ C.S.C. Minutes, Aug. 3, 1943.

⁹⁸ "History of the Naval Control Service, Prince Rupert" cited above, N.S. 1440-127 (1); visit to Port Edward, July 1945.

PERSONNEL AND TRAINING—OFFICERS

NAVAL training may be defined as those activities which are designed to prepare men, and also women, to perform efficiently, ashore or afloat, their respective naval duties. Since the late nineteenth century, chiefly because of the uninterrupted revolution in science and industry, these duties had increased continually in scope and variety. During the Second World War, therefore, training bulked large in the complex societies of armies, navies, and air forces. Never before had so much thought been given to methods of instruction and means of selecting personnel, nor had armed Services ever created schools and training centres on so large a scale.

The effects of the technical revolution were visible on board any modern cruiser or destroyer. Every foot of available space was occupied by weapons or equipment, often exceedingly complicated; and the whole ship was so ingeniously and elaborately contrived that the layman could only marvel at its mysteries. It was therefore necessary to choose officers and men very carefully with an eye to their intelligence, special aptitudes, and preferences, so that the greatest profit might be derived from expensive periods of training. Warfare was by far the most massive and urgent of all State enterprises, and no avenue to efficiency could safely be ignored.

The subject of personnel and training in the Canadian Naval Service during the war years covers a wide field. The training fell into a number of general divisions: initial and advanced, officer and rating, and "hostilities only" as distinguished from permanent force training, as well as that of the Women's Royal Canadian Naval Service, and of that navy within a navy, the Fishermen's Reserve. Within each of these divisions, moreover, instruction was given in many different subjects. Other closely relevant activities which must also be considered were the providing of accommodation, the work of a number of welfare services, and the machinery for recruiting.

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The selection and training of officers in the Canadian navy during the Second World War was in some respects more complicated than that of men. For the latter a uniform procedure developed early; but for officers, different methods were followed in the two reserves and in the permanent force. Moreover, a highly important characteristic of all officer selection and training, which set it apart from that of the men, was the emphasis on leadership. Selection aimed at discovering persons in the Canadian community capable of taking charge of their fellow citizens, and one of the purposes of training was to develop this power of command.

Leadership is essentially a reciprocal relationship, involving not only the character of the leader, but also that of the followers, and the qualities that fit a man to lead in civil life are not necessarily the same as those which would make him a good gunnery officer in a destroyer. Accordingly, leadership is not a fixed aptitude equally valid under all circumstances.

Armies and navies had for centuries selected officers by reason of their social eminence. But in recent times aristocratic monopoly has been increasingly resented, and the old ways have become impracticable. There has been more than sentiment in this attitude. The expansion of educational facilities and the rise in standards of living in North America and Western Europe, in the past century, have meant that the fit in mind and body might be found elsewhere than on the topmost levels of the community; and in twentieth-century warfare no important reservoir of potential leaders could be safely disregarded.

Two distinct tendencies therefore became apparent in the selection of officers: one was to make the ranks the single means of entry to commissioned status, except for certain specialists; the other was to develop methods whereby the quality of leadership might be detected irrespective of social background. These trends were more obvious in the reserve or "hostilities only" forces than in the permanent Service, but even the latter was not untouched by the new ideas. The Royal Navy went far in implementing these novel procedures, and naval forces of the Dominion followed the British example.

Selection and Training of Reserve Officers

The new work of selection was most widely applied in the volunteer reserves of the British and Canadian navies, espec-

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ially in the executive branch, which was trained to take charge of an entire ship, and had, in addition, knowledge of such specialties as gunnery, torpedo, navigation, signals, or asdic. These responsibilities never became a part of the accustomed duties of officers of the engineer, accountant, medical, or special branches.

The process of selection in the Royal Navy began to be revised early in the war. During the fall of 1940, direct entry of executive officers into the R.N.V.R. was stopped, and officer candidates, after taking their initial training along with the ordinary seamen, went to sea for at least three months. If this period of probation on the lower deck proved satisfactory, they then underwent training in H.M.S. "King Alfred" (the R.N.V.R. training establishment at Hove); and the final decision on their qualifications was made by a board of senior officers. In 1942 psychologists were requested to participate in selecting reserve officers, and their work was of great value in this field.¹ Thenceforth the "psycho" (as he was called in naval jargon) and the professional officer worked in close co-operation; and in the spring of 1943 the Royal Navy's methods of officer selection took on approximately their final shape.

There were two channels of entry: first, the seaman entry whereby a recruit, accepted as a potential officer, was sent off for initial training, part of which consisted of three days of supervised games, discussions, and group-performance tests. These last had been adapted from tests used by the German army, where the pioneer work in this field had been done in the years between the two wars.² The group-performance tests provided a small number of recruits with a practical problem, the solving of which was supposed to reveal whatever qualities of leadership existed in the group. Having passed this initial phase, the candidate went aboard a training cruiser for seven (later ten) weeks, and if his time there proved satisfactory he was drafted to H.M.S. "King Alfred." The second means of entry was from the fleet. The commissioned warrant (C.W.) candidate spent only a week on the initial course, and if deficient in seamanship went to a cruiser. The new methods of selection favoured the first type of entry, and the flow of fleet C.W.'s diminished considerably.³

By 1944 the Canadian navy had adopted most of the methods of officer selection used in the R.N. In 1939 it had

¹ Interview with Mr. Alec Rodger, Senior Psychologist, Admiralty, June 1945.

² L. Farrago (ed.), *German Psychological Warfare* (New York 1941).

³ Interview with Cdr. C.R.E. de Jersey, R.N., Staff of D.N.T., Admiralty, June 1945.

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been found that some new entries had qualified as officers in the peace-time reserves, while others, although not of this class, were considered acceptable by the commanding officers of the Divisions or of the naval barracks at "Stadacona" and "Naden." By 1941 the actual decisions regarding a candidate's qualifications were made by a board composed of the commanding officer concerned and the Director of Naval Personnel or his deputies.⁴

During the first two-and-a-half years of war the majority of officer recruits came directly from shore without experience of naval life on the lower deck, the British scheme of entry through the ranks for the executive branch having been considered and rejected.⁵ But in August 1940 the selection of officers from among volunteer reserve ratings was authorized if they possessed high educational qualifications; and in the following January each command was directed to make its selection of lower-deck personnel for the executive, engineer, and accountant branches, through recommendations of the Command Boards.⁶ N.S.H.Q. made the final decision; but later the decision of the board was considered sufficient. Finally, in February 1943, the British scheme of entry as ordinary seamen superseded the direct entry of officers into the executive branch of the Canadian navy.

As in the Royal Navy, the candidate was now subjected to a longer and more careful period of observation. He first took six weeks' training at his Reserve Division, then a shortened new-entry course at "Cornwallis", and finally several weeks in a training ship. If his performance was satisfactory he was then sent to H.M.C.S. "Kings" for his officer's training. In January 1944 the system of promoting men from the lower deck (C.W.'s) was re-organized along similar lines, except that instead of being approved by a board in one of the commands, the rating in question was brought before a selection board convened by Captain (D). Engineering, electrical, and accountant officer candidates, were still selected by means of the Command Boards however, and men of the permanent force were also made eligible to receive commissions in the R.C.N.V.R.⁷

⁴ N. Sec. to C.O. "Stadacona", Mar. 28, 1941, N.S. 103-2-1 (1).

⁵ See D.N.P. to C.N.S., Nov. 1, 1940, *ibid.*

⁶ N. Sec. to C.O.A.C., Aug. 21, 1940, N.S. 1012-5-52 (1); N.S.H.Q. to C.O.A.C., Jan. 30 1941, N.S. 1012-5-43 (1).

⁷ Naval Orders 2611, Mar. 13, 1943 and 3317, Jan. 15, 1944.

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For entry into the Royal Canadian Naval Reserve, the possession of certain maritime certificates was the criterion. The significance of these certificates, however, was not fully appreciated at first. Applicants with "foreign-going certificates" which stated that they were fit for ocean-going ships, were confused with recruits who held "home trade certificates" indicating fitness for employment in coastal waters. In November 1940 this distinction was made clear, and a candidate who held a foreign-going certificate was entered as a sub-lieutenant, mate, or lieutenant, while anyone with a home trade certificate was entered as a skipper, chief skipper, or skipper-lieutenant, and there was no difference in precedence, pay, or uniform.⁸

The selection of executive branch candidates for the volunteer reserve was more difficult than that of officers for the accountant, engineering, medical, and special branches, as most of the latter brought with them a skill and knowledge directly related to their naval duties. Intelligence tests were used at H.M.C.S. "Stone Frigate", the first officers' training centre, in selecting for the executive branch, and these were administered by members of the Canadian Psychological Association in the spring of 1940. As it was recognized that such tests gave little decisive evidence of capacity for leadership, chief reliance was later placed on such criteria as high-school matriculation for direct entry, and on less stringent educational requirements for men promoted from the lower deck. Attention was also given to the more subjective considerations of family background, civilian occupation, and appearance. Naval authorities, however, found these methods vague and unsatisfactory.⁹

Improved selection was first sought by prolonging the candidate's probationary period, and after the beginning of 1944 by enlisting the aid of the newly-created Directorate of Personnel Selection. An officer of this directorate sat as a non-voting member on each of the various selection boards, interviewed the candidate before the board was held, and assisted in the final assessment of his merits. He also supplied a list of detailed suggestions concerning the nature of "officer-like qualities", on each of which the candidate was given so many points. This was arbitrary, but it provided considerable uniformity throughout the various stages of selection. Once

⁸ Naval Order 1086, Nov. 16, 1940.

⁹ Sec. N.B. to C.O.P.C., Mar. 22, 1942, N.S. 103-2-1 (2); D.S.P. to D.C.N.P., Jan. 11, 1944, N.S. 129-1-4 (1); Min. to C.N.P., Mar. 1, 1943, N.S. 21-19-2 (1).

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the new procedure was operating, it became clear that the personnel-selection officer worked in harmony with the professional members of the boards. Agreement in some eighty per cent of the interviews at Captain (D)'s board in Halifax showed that the experienced naval officer and the personnel expert, after a period of being suspicious of one another, had developed a mutual understanding. Each type of approach had something valuable to contribute to the other.¹⁰

In spite of co-operation among board members, it was found that British members of interviewing boards were unfamiliar with the background of officer recruits, and it was suggested that the composition of the boards should be entirely Canadian.¹¹ It was also found that promotion boards had a marked tendency to disagree with the selection boards on the merits of individual candidates, and steps were taken to select potential officers from new-entry courses rather than directly from shore. The naval authorities had intended to reduce the scheme of entry progressively towards total entry from the fleet; but that source did not produce enough personnel, although it was estimated that thirty per cent of the ratings in the R.C.N. possessed the educational standards required of an officer.¹²

The method of selecting officers in the Canadian navy was, in a few minor respects, different from that employed in Britain. Screening did not take place at the beginning of a man's career, and the group-performance tests were never introduced. On the other hand, a C.W. candidate was subjected to a longer period of observation than in the Royal Navy, and received more individual attention.

The training of volunteer reserve officers took place at H.M.C.S. "Stone Frigate" at Kingston, H.M.C.S. "Royal Roads" near Victoria, and H.M.C.S. "Kings" in Halifax. Early in the war the size and function of the Canadian navy, and the type of officer which these schools should turn out, were uncertain; but it gradually developed that the standard product should be the watchkeeping officer for escort ships, and training was aimed at this result.

¹⁰ D.P.S. to D.C.N.P., Dec. 16, 1943; document by D.P.S., n.d.; D.P.S. to C.S.O.R., Mar. 17, 1944; President of "Cornwallis" Promotion Board to C.O. "Cornwallis", Jan. 6, 1944; N.S. 4525-2-1 (D); table in N.S. 4523-1 (I).

¹¹ Sec. N.B. to C. in C., C.N.A., Mar. 25, 1944, N.S. 4525-2-1 (D).

¹² C.O. "Kings" to C. in C., C.N.A., Apr. 25, 1944; Sec. N.B. to C. in C., C.N.A., Mar. 17, 1944; *ibid.* According to statistics obtained from D.P.R., a sample of 68,000 ratings, in April 1945, revealed that slightly over 30% had had three years of high school or more. Of this group, a very large number had had no more than three years of high school.

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Although some officers of the Royal Canadian Naval Reserve went directly to sea without any training, most of them, when manning commitments allowed, took a month's course at Halifax in squad drill, gunnery, signals, and naval customs and organization.¹³ R.C.N.R. personnel were in urgent demand, and this short instruction was all that time permitted. By the fall of 1940, however, when R.C.N.V.R. officers had settled down to a steady training programme, personnel of the naval reserve shared the same instruction. In 1941, when the course had been transferred to "Kings", R.C.N.R. officers were taken over by the gunnery school for training. This practice continued until the stream of naval reserve officers ran dry early in 1942. At the peak of Canada's naval strength there were roughly six hundred executive officers of the naval reserve on active service.¹⁴

When the needs of the army compelled the navy to move from "Stone Frigate" in June 1940, three classes of thirty-three men each had passed through there. All had been members of the Supplementary Reserve, a section of the volunteer reserve which had been created in 1937 for men who were interested in yachting but could not join the regular reserve because of lack of time, and who could be called up as potential executive officers in an emergency. When all the members of the Supplementary Reserve had been called up in 1940, it ceased to exist.¹⁵

The training at "Stone Frigate" took eight weeks, and was devoted to squad drill, navigation, seamanship, and signals. After completing their courses, the first two classes went to Halifax to finish off their training in gunnery, pilotage, and seamanship. The third and last class went to H.M.C.S. "Naden" for the same purpose.¹⁶

Until the spring of 1941 the R.C.N.R. had taken charge of smaller craft, and permanent-force officers had been in command of the more important vessels. At this time it was felt that a number of officers of the R.C.N.V.R. were sufficiently experienced to take over the command of certain ships, and that the remaining requirements for junior officers could be met by the training programme at "Stadacona" and "Naden", which had been re-organized in September 1940.

¹³ C.O.A.C. to N.S.H.Q. 1015 6, Oct. 6, 1939, N.S. 123-4-1 (1).

¹⁴ Interview with Lieut.-Cdr. B. G. Sivertz, R.C.N.R., C.O. "Kings", Dec. 1944.

¹⁵ N. Sec. to C.O. London Div., July 15, 1940, N.S. 115-1-1.

¹⁶ Interview with Lieut.-Cdr. Sivertz, Dec. 1944; N. Sec. to C.O. "Stone Frigate", Feb. 2, 1940, N.S. 102-1-1.

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This course took twelve weeks, and was devoted to navigation, gunnery, torpedo, and signals. In January 1941 officers' training became a separate department known as the Officers' Training Establishment, and in May the "Stadacona" section moved all its facilities from the dockyard to Kings College. The new building near Admiralty House had, for the first time in Halifax, provided officers under training with naval barracks of their own and with the organized supervision of divisional officers.¹⁷

H.M.C.S. "Kings" was commissioned in October 1941, and closed down in May 1945. During that time ninety-six classes were held, and about 3,100 officers passed out.¹⁸ As the war at sea made ever-increasing demands in the way of technical knowledge, the original course of twelve weeks was lengthened to twenty, and instruction was gradually re-shaped with a view to producing a non-specialist watchkeeping officer.

By the end of the war the duties of such an officer had become manifold. It was necessary that he should be more or less familiar with navigation, shiphandling, weather precautions, and the organization of men at action or cruising stations. It was also essential that he should know the capabilities of asdic and radar equipment, the procedure following an asdic contact, and what action to take against surface or air attack. He was required to read and transmit signals by flashing, semaphore, and wireless, at a moderate rate; to understand such signals as were used in the conduct of convoys and the hunting of submarines; and to know the action to be taken on incoming and outgoing signals. It was assumed that a sub-lieutenant in his first ship had considerable knowledge of all these things, and that six months' sea experience would give him the proficiency needed to earn a watchkeeping certificate, the diploma of the executive officer.¹⁹

In 1941, when the course at "Kings" was confined to gunnery, torpedo, navigation, and signals, the "trainee" learned comparatively little about certain of his later functions; and some of his instruction, such as gunnery fire control, was not needed in small ships. These subjects were eliminated or reduced in importance, and matters pertinent to A S Operations were emphasized. The week's training in A S, introduced in

¹⁷ C.O.A.C. to N. Sec., Aug. 16, 1940, N.S. 1-24-1 (3); "Training of R.C.N.V.R. Officers", N.S. 1440-1 (1).

¹⁸ *Ibid.*

¹⁹ Sec. N.B. to C. in C., C.N.A., May 2, 1945, N.S. 1093-1 (1); D.W.F. to D.D.W.F., Sept. 27, 1943, N.S. 129-4-1 (1).

1941, was increased to three weeks in October 1942, and the following year astronomical navigation was begun. Training in radar, covered in a single lecture in the early days, was being given a week at "St. Hyacinthe" by 1944. A course in naval disciplinary organization was added by the summer of 1943 and developed in the following year. At the same time the physical fitness of men who would sail the North Atlantic in small ships was stressed, and special instruction in physical and recreational training (P. & R.T.) was introduced at H.M. C.S. "Cornwallis." The seamanship course started in 1942 for C.W. candidates was arranged so as to allow half the time for the training normally given to leading seamen, and the other half specifically for officers' training.²⁰ In 1944, however, as potential officers had already had considerable training in such matters on the lower deck, this instruction was removed from "Kings" and reduced to one week in motor launches where experience was gained as officer of the watch.

The main function of "Kings" was further modified as a result of lower-deck recruiting. Before January 1944 the potential officer had had to prove himself at "Kings" as suitable in every way to hold a commission.²¹ After that time, however, with the establishment of several stages in the system of screening, "Kings" was assumed to have a purely training function, and rejections were determined solely by failures in technical courses, or by conduct which would normally be dealt with at least in a disciplinary court.²² The various selection boards, and the performance of the recruit in the suitability course, were to provide the final means of selection.

The training establishment for volunteer reserve officers which had been set up at "Royal Roads" in January 1941 came to an end in September 1942 when the naval college took over the buildings. Five classes were instructed there, each containing between 100 and 125 men. All the west-coast schools were short of staff and equipment, and the attempt of "Royal Roads" to become self-sufficient was never satisfactory. Radar was never taught, and instruction in asdic occupied only one week; gunnery and torpedo classes depended on facilities at "Naden", and ship training was inadequate. Fewer problems were encountered there than at "Kings", however, due to the shortness of its commission. Had "Royal

²⁰ Sec. N.B. to C. in C., C.N.A., Jan. 12, 1944, *ibid.*

²¹ There was no unanimity among naval authorities on this point.

²² Sec. N.B. to C. in C., C.N.A., Jan. 17, 1944, N.S. 129-14 (1).

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Roads” continued to train reserve officers, many of its deficiencies would no doubt have been overcome.

The three establishments, “Stone Frigate”, “Royal Roads”, and “Kings”, trained about 3,800 executive officers, and at the peak of the navy’s strength there were roughly 4,000 executive officers in the R.C.N.V.R.²³ Those who had not received instruction in officers’ schools had had some training in Halifax and Esquimalt, and a few, who had undergone no formal training, had been required to pass examinations in seamanship and pilotage in order to obtain watchkeeping certificates.²⁴

Most V.R. officers, therefore, received the best war-time training possible. At all times instruction was being revised and improved, and if it dealt more with the technical knowledge required of a sea-going officer than with the inculcation of naval tradition, the urgency of manning requirements and the development of complicated weapons forbade any other use of training time. It was not possible to produce an officer who by comparison with his men was a distinct social type. That was more easily done in the R.N., especially in the permanent force, since the well-educated Englishman is still in most cases clearly differentiated from his less privileged countrymen in speech and manners. Canadian society, on the other hand, is relatively homogeneous in its social habits, and the creation of an officer group notably different from the men it commanded would have been both difficult and pointless.

The technical revolution had compelled the executive officer as well as the rating to become a specialist in a particular department—gunnery, torpedo, asdic, signals, or navigation. The two grades of executive specialist that developed during the war were the short-course and the long-course officer, each of whom had spent a considerable time at sea and had obtained a watchkeeping certificate. The short-course specialist had taken a three or four months’ course in Canada, and had a small “n”, “a s”, etc., attached to his rank. The other, usually in the permanent force, had received his instruction with the Royal Navy and was designated by a large “N”, “A/S”, and so forth. The main difference between the two was that the long-course officer had been instructed more fully in the technical side of his subject. Specialization

²³ Statistics obtained from D.P.R.

²⁴ C.N.P. to Sec. N.B., Nov. 21, 1942, N.S. 112-1-4 (3).

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afforded the executive officer a knowledge that the short training at "Kings" or "Royal Roads" had not been able to give him. The short-course officer was considered capable of performing specialist duties in any of H.M.C. ships except cruisers.²⁵

In May 1941 it was decided that specialist courses, which had been established for about a year, should be limited to the east coast, and for a short time instruction was suspended entirely because few of the recommended officers had put in enough sea time.²⁶ But in January 1942 special instruction in gunnery, torpedo, signals, and asdic, was resumed; and short-course navigation was offered to R.C.N.V.R. officers for the first time, since naval reserve personnel were no longer available for navigating duties.²⁷

The short courses in gunnery, torpedo, asdic, and signals, were given at the schools for ratings, as these had the necessary equipment. The navigation school at "Kings", although without gyro compass, pitometer or Chernikeeff logs, or A.R.L. plot, was able to provide adequate specialist instruction in navigation.²⁸ Two of the specialties, asdic and torpedo, tended to attract fewer volunteer officers than were needed. Asdic seemed to offer an unpromising career, and in an anti-submarine navy torpedo-control was relatively unimportant.²⁹ As it was necessary to employ specialist officers for instructional duties ashore, the Royal Navy was asked to give sea appointments to Canadian long-course officers on loan, who would be used on shore when they returned to Canada.³⁰

In the fall of 1944 a long course (signal) was started at "St. Hyacinthe." Seven officers qualified successfully after training for eight months. This was the first course of its kind to be given by a Dominion navy, as the Australian Service still trained all its specialists in the United Kingdom. At the same time the communications branch developed a new class of specialist officer, the executive radar officer. For some time the separation of operator and maintainer on the officer as well as the rating level had been advocated, since both officer and rating had been compelled to devote time to mastering

²⁵ D. D.W.T. to D.W.T., Feb. 28, 1944, N.S. 21-46 (1).

²⁶ N. Sec. to C.O.A.C., Aug. 7, 1941, N.S. 21-7-6 (1).

²⁷ N. Sec. to C.C.N.F., Oct. 17, 1941, N.S. 21-25-10 (1).

²⁸ "Training of R.C.N.V.R. Officers", N.S. 1440-1 (1); interview with Lieut.-Cdr. Sivertz, Dec. 1944.

²⁹ Capt. (D), Nfld., to F.O.N.F., Apr. 7, 1943, N.S. 21-22-3 (2).

³⁰ Sec. N.B. to S.C.N.O. (L), Oct. 5, 1943, N.S. 21-4-6 (1).

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the technique of maintenance at the expense of developing adequate skill as users. This new specialist had a thorough knowledge of the operational applications of his equipment, but only a routine knowledge of maintenance.³¹ In this small way, Canada was a pioneer among the Commonwealth navies.

The numbers of short and long course executive specialists in January 1945 were as follows:

	Gunnery		Torpedo		Anti-Submarine		Navigation		Physical and Recreational Training		Signals		Radar			
	G	g	T	t	A	S	a	s	N	n	P&RT	p&rt	S	s	R	r
R.C.N.	10	—	10	—	6	—	4	—	1	—	—	—	5	—	—	—
R.C.N.V.R.	11	89	13	49	14	83	2	222	3	9	—	—	81	1	—	—
R.C.N.R.	—	3	—	1	—	—	—	1	—	—	—	—	—	1	—	—

NOTE:—This table does not include specialists who rose to the rank of commander, and Canadian specialists who served in the British Fleet Air Arm.

The training of accountant and engineer officers in the reserves, and of electrical, medical, and special branch officers (all of whom were in the volunteer reserve), was carried out elsewhere than in "Stone Frigate", "Kings", and "Royal Roads."³² In most of these branches the instruction was technical as well as disciplinary. The duties of the accountant officer, both ashore and afloat, included such responsibilities as canteen funds, pay, victualling stores, clothing, and official publications, and he sometimes acted also as manager of the ship's canteen, divisional officer for men of the accountant branch, or cipher officer. At times he might be combatant, being assigned to such posts as that of anti-aircraft-control officer; and he sometimes assisted the officer of the watch.³³ Accountant officers during the Second World War served aboard all Canadian naval ships larger than and including frigates.

At the start of the war accountant officers were selected because of their ability to assume certain duties at short notice, and they received no technical training; but early in

³¹ D.S.D. to C.N.P., Mar. 13, 1944, N.S. 21-25-1 (2).

³² "Kings" and "Royal Roads" had a few accountant and engineer officers under training.

³³ Naval Order 4406, Feb. 17, 1945. It was not an official function of the accountant officer to serve as officer of the watch.

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1941 a three-months' course was established in Halifax, most of which was devoted to accountancy duties, and the rest to disciplinary training. A year later this course moved to H.M. C.S. "Naden", where it remained until "Cornwallis" was able to accommodate the accountant school in August 1943. C.W. classes were introduced in May 1944, which cancelled the former system of promoting lower-deck candidates to probationary paymaster sub-lieutenant without formal training. The new scheme provided for technical training of the candidates before they received their commissions.³⁴

The duties of the engineer officer included the charge of engine-room ratings, and the operating and maintenance of engine-room machinery, and of apparatus such as the pumping, flooding, draining, and air-supply systems throughout his ship. By the end of the war, commissioned engineer officers were serving aboard all R.C.N. ships larger than corvettes. In corvettes and smaller vessels, warrant officers, Chief E.R.A.'s, and lesser rates, remained in charge.³⁵

During the war, technical training of engineer officers for temporary service was confined to the R.C.N.V.R. Graduates in engineering from Canadian universities were entered as probationary sub-lieutenants (E), and were instructed in marine engineering and naval discipline for about three months.³⁶ After six months at sea they were permitted to sit for their watchkeeping certificates. The sea time was frequently spent in R.N. ships, and was followed by further service at sea, in dockyards or ship-repair bases, or in overseeing new construction.³⁷ In the beginning, mechanical or mining engineering had been considered the most suitable academic training for the engineer officer. As the need for other types of graduate engineer grew, however, such specialists as civil, chemical, metallurgical, and electrical engineers, were entered in the (E) branch.

The special branch was introduced to the R.C.N. as a convenient means of entering men to perform technical duties in radar and asdic maintenance. Its original purpose was broadened as the navy grew, however, and officers entered the

³⁴ Interview with Pay Lieut.-Cdr. J. P. Loosemore, R.C.N.V.R., O. in C. of accountant school, "Cornwallis", November 1944.

³⁵ See *K.R.C.N.*, ch. 38, secs. 4 and 5. Engineer officers of commissioned rank served aboard the castle-class corvettes.

³⁶ A six-months' course in aeronautical engineering was given to fifteen officers at the University of Toronto, beginning Oct. 1944. [See N.S. 4913-102 (1)].

³⁷ Document by Sec. N.B., Jan. 4, 1943, N.S. 101-1-7 (2).

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special branch for such functions as Intelligence work, naval art, or legal duties. Radar specialists, as opposed to the ordinary special branch officers whose naval training consisted principally of squad drill and instruction in disciplinary organization, went straight from university to the Royal Navy. Later in the war, candidates were first given a course in radio at the University of Toronto, and then went to "St. Hyacinthe" for further instruction.³⁸

It was because of the great development of electrical equipment in Canadian ships that the electrical branch proper was established in April 1943, although the R.C.N. had had electrical engineers since December 1942. The instruction of electrical branch officers included disciplinary training and an "acquaintanceship" course in the torpedo school at Halifax; after which more advanced training was obtained at R.N. asdic and torpedo schools, or in the A/S school at "Cornwallis." Some officers were sent to frigates for a period of three months to gain sea experience.³⁹

Electrical branch officers were also obtained by promotion from the lower deck after intensive instruction. When first formed, the electrical branch had not been made responsible for the technical maintenance of the varied electrical gear used at sea, which was still entrusted to the specialist executive officer who was assisted by special branch officers, electrical officers, ratings with non-substantive rates in the branch, and artificers of various types. During the war the Royal Navy never realized its plans for an electrical branch responsible especially for the maintenance of all electrical gear at sea; but the Canadian navy implemented this scheme in one department, that of radar. In the summer of 1944 the electrical radar officer was created; an arrangement which made a distinction between electrical branch officers who were expert in radio, and others who specialized, for example, in low power. After the war this differentiation between types was not considered necessary, and the specialist radar officer was replaced by an electrical officer capable of dealing with all equipment.⁴⁰

³⁸ Sec. N.B. to C.O.A.C., Feb. 17, 1942, N.S. 21-44-2; D.S.D. to D. of T., Apr. 12, 1943, N.S. 1052-2-1 (2).

³⁹ Interview with El. Cdr. J. Deane, R.C.N.V.R., Dec. 1945; D.E.F. to C.N.F.C., Mar. 10, 1944, N.S. 1-64-1.

⁴⁰ Naval Order 3731, June 21, 1944. An important exception was H.M.S. *Puncher* which was manned by Canadians. Being an aircraft carrier and thus having no torpedo officer, the electrical officer on board assumed a rôle similar to that given to him after the end of the war when the Phillips Report was implemented.

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The duties of the medical officer included the examining of recruits, draftees, men under detention or slated for promotion to commissioned or warrant rank, and generally the health of naval personnel in ships and shore establishments. He periodically surveyed conditions of living quarters, and the state of food and water supplies.⁴¹ At sea, during the greater part of the war, medical officers were carried as part of the complement in ships of the destroyer type and larger, while the others carried naval surgeons only when they were senior officers' ships. In the last year of hostilities, however, a coastal escort group ordinarily carried one M.O., a mid-ocean group two, and a support group three. Few merchant ships other than liners carried doctors; but in convoy a warship's doctor was sent across to any merchant ship that seriously needed him.⁴²

The naval medical course lasted from three to six months, and sometimes took the form of a senior residency in some large teaching hospital or a post-graduate course at a university.⁴³ There was also a certain amount of instruction in the organization and conventions of the navy. Forty naval surgeons received, in addition, special training in chemical warfare at the army's training centre at Suffield, Alberta,⁴⁴ and various short courses were given during the war in other subjects of interest to the medical officer. In January 1945 the numbers of officers in the non-executive branches were:

	Accountant	Engineer	Special Branch	Electrical	Medical
R.C.N.	31	63		2	1
R.C.N.V.R.	460	386	751	430	386
R.C.N.R.	33	144		1	

(Statistics obtained from Directorate of Personnel Records, N.S.H.Q.)

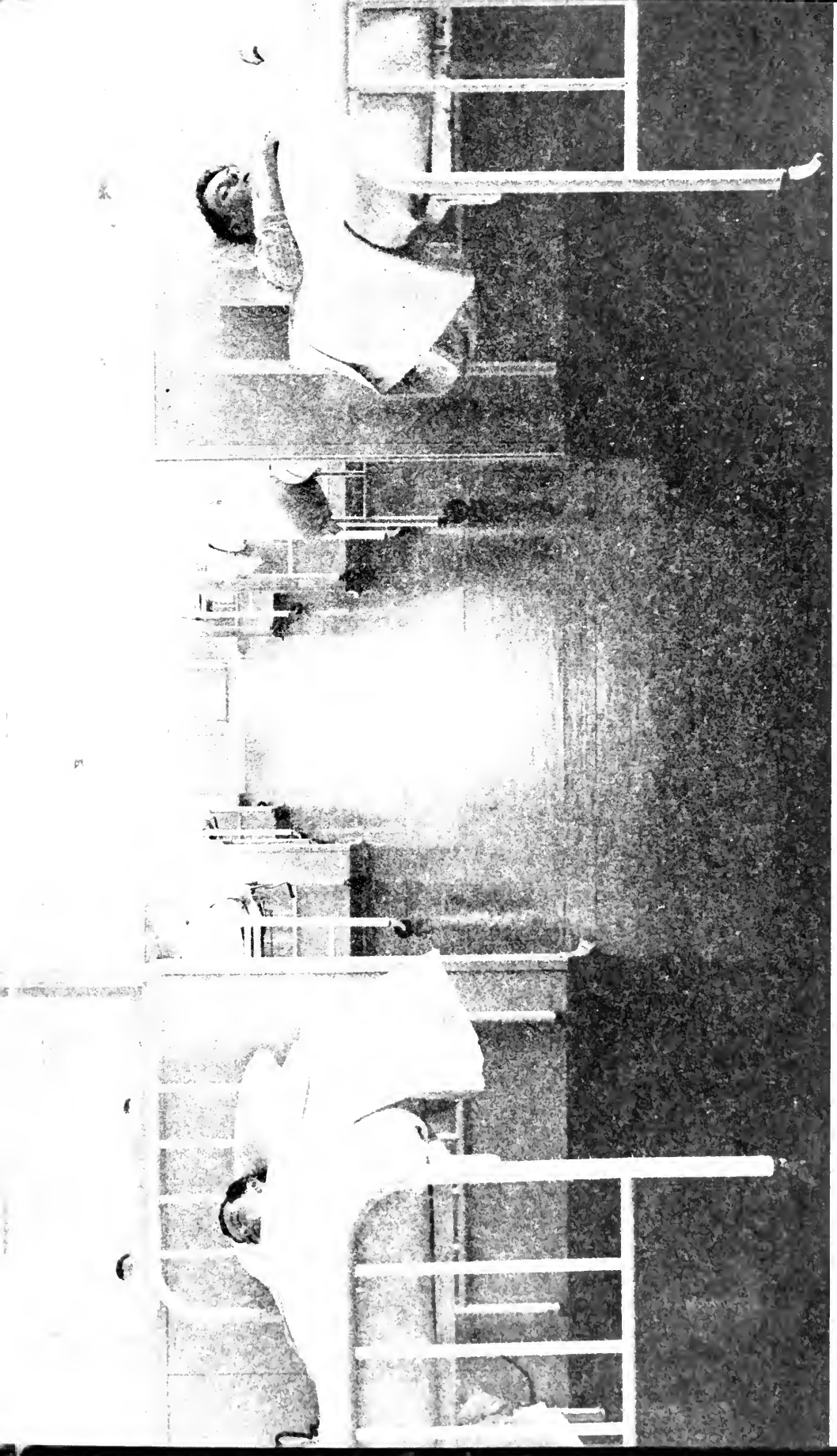
NOTE: This table does not include warrant officers.

⁴¹ See *K.R.C.N.*, ch. 39, sec. 1.

⁴² Interview with Sg. Capt. D. W. Johnstone, O.B.E., R.C.N.V.R., Jan. 1946.

⁴³ M.D.G. to Dr. C. E. Dolman, Oct. 24, 1944, N.S. 4943-100 (2).

⁴⁴ M.D.G. to Sg. Lieut. D. Bonnycastle, R.C.N.V.R., July 31, 1943, N.S. 4923-1.



Ratings' ward, R.C.N. Hospital, H.M.C.S., "Cornwallis"

PERSONNEL AND TRAINING OFFICERS

Selection and Training of Permanent-Force Officers

In May 1922 the Royal Naval College of Canada was closed, and for the next twenty years the training of the Dominion's professional naval officers was carried out in the Royal Navy. The reduction in naval strength during the 1920's made a separate Canadian institution impracticable, and the small need of officers for a minor force was satisfied by periodically sending a handful of candidates to the United Kingdom as "special entry" cadets.⁴⁵ This policy persisted until the fall of 1942, when the training of naval cadets was resumed at the Royal Canadian Naval College.

Britain's future naval officers entered upon their careers during the Second World War in several ways. Some entered the naval college at Dartmouth as thirteen-year-old boys; some came to the navy as special entries from private schools or from the merchant-service training schools; and a small number were promoted from the lower deck. During 1939-40, of 258 newly-created executive officers, 100 had been at Dartmouth, 100 had been special entries, 14 had come from the merchant service, and 44 had started on the lower deck.⁴⁶

Candidates for Canada's permanent force from 1922 to 1942 were all of special entry type, a few of whom had transferred from the training schools of the British merchant service. In 1941, ratings of the permanent navy were given the same opportunity as those of the reserves to obtain commissions. The men approved by a Fleet Selection Board were sent to the United Kingdom for an eight months' course at the R.N. Barracks at Portsmouth, followed by a final selection board held by the C. in C., Portsmouth. Actually only a few Canadian ratings were recommended during the war for the Upper Yardmen's Course, as the selection scheme was called in the Royal Navy.⁴⁷

Until the opening of the new naval college at "Royal Roads", most Canadian cadets had been the products of the nation's high schools or private schools, or in some cases of the Royal Military College at Kingston. From 1938 to 1941 forty-five cadets were accepted for training with the Royal Navy.⁴⁸ They were required to be not less than seventeen nor

⁴⁵ "Special entry" referred to cadets who did not enter the Royal Navy through Dartmouth, but who entered later in life, generally from the British public schools.

⁴⁶ A.R.O., C.W. 21317, 1944.

⁴⁷ D.N.P. to D.C.N.S., Jan. 9, 1941, N.S. 1012-5-43 (1); interview with Wt.-Ofcr. J. W. Buckingham, "Cornwallis", Nov. 23, 1944.

⁴⁸ See *Annual Reports*, 1939-42.

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more than twenty years old on joining the British Service, and were sent directly to the training ship, H.M.S. *Erebus*, where they were organized into two classes according to educational standing, paymaster cadets being instructed separately. The more advanced class completed the course in twelve months, and the other required sixteen. Toward the end of this phase of training, cadets were permitted to volunteer for the engineering branch, and if selected were sent as midshipmen to the Royal Naval Engineering College at Keyham to study for four years. Executive and paymaster cadets, also as midshipmen, served for two years and four months (two years for paymaster) in ships and establishments of the Royal Navy before being promoted to acting sub-lieutenants. At this point the executive officer went ashore for fifteen months' special training in all departments of his branch.

An official prospectus declared:

. . . that an intelligent youth of strong character and good power of command may reach the rank of Sub-Lieutenant at 3 years, Lieutenant at 4 years 1 month, Lieutenant Commander at 12 years 1 month, Commander at about 17 years and Captain at about 23 years from date of entry as a Naval Cadet.⁴⁹

With the expansion of the Canadian navy, it was proposed in August 1940 to re-establish a naval college in the Dominion. There was a great need for trained junior officers, and it was argued that complete reliance on the Royal Navy produced an insufficient number of officers at a cost of approximately \$110,000 a year.⁵⁰ To accommodate the college it was decided to take over the Dunsmuir estate near Victoria, B.C. Its opening, however, was to wait until the training of reserve officers had been placed on a sound footing, for the navy had too few instructors to offer both forms of training at once.⁵¹

The two principal models studied were the Royal Naval College at Dartmouth, and the United States Naval Academy at Annapolis. By the fall of 1940 the authorities had decided that the British school provided the better guide, principally because of the close similarity of Canadian naval organization to that of the Royal Navy, and also because the system of training at Annapolis was felt to be unsuitable in some important respects. For example, the American method of producing an officer who was knowledgeable in all departments of naval

⁴⁹ *Particulars of Entry of Officers in the Royal Canadian Navy* (Ottawa 1941), p. 11.

⁵⁰ Minutes of Meeting held in the office of the Minister, Aug. 28, 1940, N.S. 425-1-1 (1).

⁵¹ D.C.N.S. to C.N.S., Jan. 9, 1941, *ibid.* Authority to re-establish the college was granted by P.C. 27 960, D.c. 10, 1941.

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warfare was considered less desirable than the early specialization of the British.⁵² Dartmouth accordingly became the pattern for the new college, and a close relationship developed. Annapolis, however, had its influence on the growth of the Canadian school, where certain of the American practices were introduced.

The grounds of the college covered about six hundred acres, and accommodation for living and work provided self-sufficiency and a high degree of comfort. The college, however, lacked a training ship which could carry an entire class, and because of more pressing operational requirements this deficiency was not remedied until after the war. The course was to last for two years,⁵³ and was to provide a general education in the sciences, humanities, and technical naval subjects. A graduate of the naval college was not to be obliged to enter the navy, except in time of war when he would be required to join either the permanent or the reserve force. During the early period of the college's existence, 27 candidates for the R.C.N. were obtained in the first year, and 29 in each of the second and third years.⁵⁴ When Canada acquired cruisers some midshipmen did sea time in them. In peace-time the cadet would be free to return to civil life; or he might enter the merchant service, his time at the college being considered equivalent to one year at sea.

The curriculum consisted of mathematics, physics, chemistry, English, history, and a modern language, as well as naval instruction in pilotage, navigation, seamanship, gunnery, underwater warfare, engineering, signals, and squad drill. Brief courses were also offered in other subjects such as economics, naval strategy, and musical appreciation. Future accountant officers spent a part of their second year in preparing for their special duties, and omitted physics, mechanics, chemistry, and navigation. Candidates for the engineering branch took calculus, and other cadets who were sufficiently interested might also study this subject.⁵⁵ Naval instruction and the extra-curricular courses were patterned on the corresponding activities at Dartmouth. Naval subjects were taught by carefully-chosen specialist officers, and scholastic

⁵² D.C.N.S. to C.N.S., Sept. 30, 1940, N.S. 425-1-1 (1).

⁵³ During the college's first year the senior class was necessarily entered in a one-year course.

⁵⁴ Interview with Instr. Cdr. K.G.B. Ketchum, R.C.N.V.R., Dir. of Studies, "Royal Roads", Jan. 1945.

⁵⁵ *Prospectus, Royal Canadian Naval College, 1945-46*; interview with D.N.E., Feb. 1946.

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subjects by hand-picked instructor officers. The commanding officer at "Royal Roads" was a man of long experience in boys' schools.

Certain of the Annapolis methods were adopted by the college. Despite the fact that during the war the U.S. naval academy handled several thousand students a year, its individual classes had not consisted of more than fifteen students.⁵⁶ "Royal Roads" contained about a hundred cadets, and also divided its student body into small classes. The American recitation method was adopted as it encouraged self-reliance. The naval academy's method of teaching foreign languages, which emphasized conversational knowledge, was also followed at "Royal Roads."⁵⁷

The internal disciplinary organization at the R.C.N. college was modelled on that of Dartmouth,⁵⁸ cadet captains being appointed to take charge of their fellows, and punishment by caning being administered for serious misdemeanours. The principal games at the college were British rugby, and association football. The use of dormitories as sleeping quarters, rather than more private accommodation, was typical of an English school. The payment of fees was also a Dartmouth practice, although the financial conditions of entry changed considerably at "Royal Roads" during the Second World War. Annapolis charged no fees, nor did the Royal Australian Naval College do so except when a former student had failed to follow the naval profession. Scholarships and other forms of financial aid were made available to Canadian cadets, but not to the same extent as in Great Britain. Almost fifty per cent of Dartmouth entries after 1940 were scholarship students, and the amount of fees payable was assessed on the basis of the parents' net income. If this fell below £300 a year no fee was demanded; above that sum the charge was graduated on a fixed scale.⁵⁹

After the end of the Second World War the Naval Service undertook a new experiment in selecting permanent-force officers. Twenty-five youths were sent aboard H.M.C.S. *Uganda* for a year, and those who proved themselves during that time were promoted to midshipmen. They had not been as carefully selected as the special entry cadets of the Royal

⁵⁶ Dir. of Studies, "Royal Roads" to C.N.P., June 5, 1942 (D.N.E. records).

⁵⁷ Interview with Instr. Lieut. J. S. M. Langlois, R.C.N.V.R., History and Language Instructor, "Royal Roads", Jan. 1945.

⁵⁸ Interview with Capt. J. M. Grant, Jan. 1945.

⁵⁹ A.R.O., C.W. 4994/1944.

Navy, but the educational requirements were high.⁶⁰ Mere residence on the lower deck did not necessarily fit a man for officer's rank; but if he had been carefully chosen at the start, being an ordinary seaman for a limited period was a valuable experience. This was especially true for Canadian society where class divisions were less obvious than in Britain, and where it was therefore more important that an officer should have an intimate acquaintance with the life of the men under his command.

One problem encountered by the naval college in the selection of cadets was the distinctive schooling that prevailed in the Province of Quebec, which placed an unfortunate obstacle in the way of French-Canadian youths who might wish to join the permanent force. The tests set by the Naval Service stressed mathematics and the sciences, while the typical curriculum in French Canada's secondary schools was classical in content. The period of secondary schooling lasted for six years, and graduates of the French schools were consequently too old to satisfy the entrance requirements of the college. A solution was found for this part of the problem at the end of the war when the age limit was raised.⁶¹

Operational Training

The training of officers and ratings, particularly in the reserves, was far from complete when they left their respective schools. Before actually going to sea, instruction and experience had to be obtained in working as a team, and ships had to learn to co-operate and function harmoniously as a group. This schooling was provided for new-construction vessels, and ships proceeding from refit, by the operational training centres at Halifax, Bermuda, and to a limited extent St. John's; but even after having completed a "work-up" it was not considered that a ship's company had reached the peak of its efficiency. At least six months of operational experience and further instruction was required before that point would have been reached.⁶²

Operational training in Halifax was not fully organized until May 1942. At first no shore facilities or operational-training staff had existed, and the work-up was brief and

⁶⁰ Naval Order 5324, Oct. 31, 1945.

⁶¹ Interview with Instr. Lieut. Langlois, Jan. 1945 and Jan. 1946.

⁶² Capt. (D), Halifax to C. in C., C.N.A., Feb. 17, 1944, N.S. 18970-300 (1). This account will not deal with similar training of Canadian ships based on the United Kingdom.

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hurried, for ships were urgently needed. During 1941, however, with the arrival of new-construction corvettes and mine-sweepers, training activities became more extensive and the outlines of an organization appeared. In April a signal school for officers and ratings was started aboard H.M.C.S. *Venture*, the depot ship of the Commander in Charge, Halifax. The dockyard schools began to offer various brief courses, and sea exercises were held in minesweeping, and also in A/S, a submarine being now available.

In September 1941 the training of corvettes and destroyers was placed under Captain (D), and supervised by specially assigned officers—an A/S officer, a boatswain (A/S), and a gunner (T).⁶³ This staff was not large enough, however, and in May 1942 when Halifax had become the principal base for the newly-created Western Local Escort Force, a drastic reorganization was effected. Captain (D) now became responsible for the working-up of all vessels, from M.L.'s to destroyers, and the training staff was headed by a training commander, and was composed of specialists in gunnery, torpedo, A/S, and radar. A comprehensive scheme of training was thus established, and by the end of the year training time had been more than doubled. During lay-over periods, ships' companies made use of training facilities ashore where instruction was available in A/S, radar, signals, and gunnery.

In February 1943, Captain (D) established the first course for commanding officers, and a total of 209 officers were trained. A year later a first lieutenants' course two weeks in length was started, and five courses were held with forty-three officers in all under instruction.⁶⁴ The purpose of this training for the captains and executive officers of escort ships was to offset the necessarily limited experience that officers had had in positions of responsibility.

Two training devices which were developed at this time deserve to be mentioned: the night escort teacher and the tactical table. The night escort teacher was an incomplete but important answer to the lack of co-ordination in the fighting efficiency of Canada's escort ships during the first years of the war. As Captain (D)'s Training Commander put it:

While each department of the ship may function correctly by itself, it is found that when all departments are required to work together

⁶³ A/S school to C.O. "Stadacona", Oct. 29, 1941, N.S. 1000-5-13 (3).

⁶⁴ Capt. (D), Halifax to Sec. N.B., Nov. 7, 1945, N.S. 1440-1.

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particularly at night under conditions of stress, the whole fails to function with the requisite precision and effect.⁶⁵

The night escort teacher was evolved to remedy this situation by exercising full night-action procedure under the most realistic conditions possible on shore. Plans for its construction were prepared in June 1942, and it went into operation during September.

In its final form this trainer drilled the entire fighting crew. Fundamentally it was an adaptation of the Admiralty night lookout teacher, which simulated the sea's horizon at dusk, and made use of ships' models for exercise in recognition; but the night escort teacher's artificial horizon had a sweep of 360° instead of the original 180°. The building that housed this training device was a kind of amphitheatre, at the centre of which was a ship's bridge where the captain, control officers, signalmen, lookouts, and so on were stationed. To the bridge, from the various departments of the "ship", came information originating with the trainer's staff in the form of several standard exercises, part of which were sent to the bridge by way of the A S attack teacher and the asdic team, the radar trainer, V S, and R T. The gunnery and depth-charge parties were exercised by closing up on the 4-inch gun and depth-charge driller. The work of each principal department was watched closely by a member of the trainer's staff, and analyzed at the end of a simulated run. Before the end of the hostilities, about 370 different ships had been trained in the Halifax action room during a total of 1,746 runs, in which a large proportion of all the personnel serving afloat had participated.⁶⁶

Unlike most of the important training devices used in the Naval Service, the night escort teacher was born in Canadian rather than in British minds. Using components which already existed, ingenious officers on the training staff of Captain (D) in Halifax developed this teacher. In March 1943 the Atlantic Convoy Conference pointed out that the action room was not a substitute for sea training, but that it was "complementary to it and as such of considerable value." Both the R.N. and the U.S.N. adopted this trainer. The Admiralty built teachers in Liverpool and Londonderry, and

⁶⁵ "Report on Night Escort Teacher" by Cdr. J. C. Hibbard, R.C.N., Oct. 20, 1942, N.S. 1046-2-18 (I).

⁶⁶ Capt. (D), Halifax to Sec. N.B., Nov. 7, 1945, N.S. 1110-1.

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by the end of the war was planning to build additional ones at Malta and Gibraltar and in Australia.⁶⁷

The tactical table, first developed and used in Liverpool early in 1942, dealt with the specific problems of convoys and escorts under modern war conditions, and took into account all the factors involved in a typical encounter with the enemy, such as directional W/T, aircraft sightings, radar, asdic, darkness, fog, radar-equipped submarines, and so on. By the fall of 1943 air force crews were receiving two days of instruction on the tactical table, for the report of the Atlantic Convoy Conference had emphasized the fact that co-operation between air and surface forces was inadequate; and a year later a joint training arrangement was established by which air-force personnel were given a still greater insight into naval problems and methods.

Captain (D)'s shore facilities underwent the same vicissitudes as did the non-operational training schools. There was a shortage of qualified instructor ratings, and there were the usual deficiencies in training gear and accommodation. Inadequate space for radar training remained a problem throughout the war. In the absence of A S training equipment, a system of asdic-team training was inaugurated in January 1944. New-construction ships and ships refitting, in which asdic sets of type 144 145 were installed, sent their commanding officers, A S control officers, and asdic ratings, to "Cornwallis" where the proper equipment existed.⁶⁸

Sea training for Canadian naval ships took place at St. Margaret's Bay and Pictou, where the weather, particularly in winter, was a serious drawback to proper instruction. In January 1943 it had been suggested that new-construction ships should work-up at Bermuda; but as the harbour facilities there were not as good as those in Halifax,⁶⁹ nothing was done until January 1944, when weather conditions were so severe that a group of five ships proceeded to Bermuda for fourteen days' training. An agreement was made soon afterwards whereby the British would lend their base intact to the Canadian navy. In August the new Canadian sea-training base was commissioned as H.M.C.S. "Somers Isles", and by May 1945 a total of 119 R.C.N. ships had undergone training

⁶⁷ Report of Atlantic Convoy Conf.; interview with Lieut. Butler, R.N.V.R., Staff of D.N.T., Admiralty, June 1945.

⁶⁸ D.W.T. to Sec. N.B., Jan. 20, 1944, N.S. 1046-2-1 (3).

⁶⁹ D.O.D. to C.N.S., Feb. 20, 1943, N.S. 18970-300 (1).

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there.⁷⁰ This provided substantial relief to the overburdened facilities and personnel at Halifax.

A further reduction in Captain (D)'s training functions came with the establishment of a separate organization for M.L.'s. Special instruction was needed for all personnel destined for M.L.'s, and group training was imperative. A committee of investigation reported that it would be unwise to place these small ships, with their distinctive limitations and abilities, under the same training command as corvettes and destroyers.⁷¹ In the spring of 1943, therefore, a special authority, Captain (M.L.), was set up. Pre-operational courses were arranged for officers, coxswains, asdic ratings, seamen torpedomen, radar operators, and motor mechanics. Some of this training was given in the dockyard, and some was provided on board the Captain (M.L.'s) ship, H.M.C.S. *Venture*.

Captain (D) Halifax had thus ended his training programme for M.L.'s, new-construction ships, and vessels proceeding from refit. For ships of the Western Local Escort Force, however, limited sea training was continued whenever possible; and in July 1944 a special training ship, H.M.C.S. *Rosthern*, was acquired. This ship was also used for navigation courses and ship-handling exercises in the command.⁷² After July the operational training centre was concerned largely with harbour work-ups, and a ten-days' programme was laid down for new-construction ships and vessels under refit.

During the last year of the Atlantic war, equipment for operational training was increased substantially, while accommodation was improved and new courses were introduced. The gear of the various schools and the action rooms had been brought up to date; but radar instruction continued to be severely handicapped by lack of space. Harbour drills in HF DF began in November 1944, and a course in damage control on board H.M.C.S. *St. Clair* was started a month later; finally, in the fall of 1944, Captain (D) took charge of minesweeping training in order to co-ordinate instruction with working-up programmes and operational requirements.⁷³

Although the establishing of the Bermuda base lightened the burden of responsibility which had been placed upon

⁷⁰ War Diaries, "Somers Isles", *passim*, N.S. 1115-112 162 (1).

⁷¹ "Report of Committee on Motor Launches", Feb. 10, 1943, N.S. 1057-27-1

⁷² Capt. (D) Halifax to C. in C., C.N.A., July 11, 1944, N.S. 1145-102 4 (1).

⁷³ C. in C., C.N.A. to Sec. N.B., Aug. 9, 1944, N.S. 4923-1 (1).

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Captain (D) and his staff, there were times when the Halifax facilities were still overtaxed. December 1944 was such a time, the demands of new construction and of refits having reached a new height. When these requirements had been met, it was found that the training time left for operational ships was negligible.⁷⁴

Operational training at St. John's, Newfoundland, never attained the proportions that it did in Halifax. The latter was responsible for the work-ups of ships newly built in Canada and ships under refit, while Londonderry undertook most of the harbour training for the mid-ocean escort groups when these began to operate early in 1942. Nevertheless an operational centre did come into being, but only very gradually, so that a large part of its most elaborate equipment had not begun to function until shortly before the end of the war. The Canadian navy had come to St. John's in May 1941, with the establishment of the Newfoundland Escort Force. At that time facilities for harbour training did not exist, beyond the slight provision made by the depot ship H.M.S. *Forth*. In August a mobile asdic training unit (M. A. S.T.U. No. 11) arrived from Great Britain, housed in a converted double-decker bus; and for the next three years it assumed most of the burden of operational training at St. John's. Such sea training as was carried out by the Newfoundland command began early in 1942. H.M.C.S. *Chambly* was the training ship allotted to the Mid-Ocean Escort Force, and exercises were arranged in Conception Bay. Ships under training were also exercised in manoeuvres, and were sometimes used for additional protection to convoys near Newfoundland. Brief A.S. exercises and gun shoots were carried out in the Bay and outside St. John's, but satisfactory asdic conditions were so rare that the training submarine was removed in the fall of 1944. In that area, generally speaking, fog, ice, and winter cold, made sea exercises of any kind hazardous and unsatisfactory.⁷⁵

During 1942-43 new training equipment for harbour drill was introduced. A portable spotting table and a night lookout teacher were installed, and a trailer with type 271 radar was available for training operators.⁷⁶ At the same time two more attack teachers, a mass procedure-teacher, and a depth-charge

⁷⁴ Capt. (D), Halifax to C. in C., C.N.A., Jan. 8, 1945, N.S. 1445-102 4 (1).

⁷⁵ F.O.N.F. to Sec. N.B., July 27, 1945, N.S. 1440-1.

⁷⁶ *Ibid.*

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driller, were brought into use, and in June 1943 a signal training centre was established in the barracks where instruction was provided for signalmen and coders.⁷⁷

The year 1944 saw the introduction of a new and elaborate night escort teacher with a revolving horizon, a dome teacher, a new spotting table, and several guns. The signal school undertook harbour exercises in W T, HF DF, and R T. Most important, a systematic programme for harbour drill was first laid down during the summer. Three days' training were given during a layover, in which time the different departments of the ship might be exercised ashore in various routines.⁷⁸

The deficiencies of St. John's as an operational training base were offset by the shore facilities of Londonderry and Liverpool, and the sea-training organization at Tobermory. This last had been made available to R.C.N. ships for the first time in the autumn of 1941, while most of the harbour training for the mid-ocean escorts was borne by Londonderry during the lean years at St. John's, the Irish base providing the necessary tactical training for which St. John's had no tactical unit. The effect of this training on the operational efficiency of Canada's warships cannot be precisely measured. There is no doubt, however, that the improvement in facilities for operational training helped to produce greater efficiency in the Canadian escort groups after the beginning of 1943.⁷⁹

⁷⁷ Interview with Sig. Boatswain Wolf, R.N., R.C.N.B., St. John's, Nfld., Dec. 1944.

⁷⁸ Interview with Lieut.-Cdr. A. F. Pickard, O.B.E., R.C.N.R., O. in C. Tactical Training Centre, St. John's, Nfld., Dec. 1944.

⁷⁹ The benefits of operational training were apt to be reduced as a result of continual drafting of personnel which impeded the growth of a team spirit in the ships. Rapid naval expansion was responsible for this frequent drafting, but the latter years of the war brought an improvement in drafting practices. [See D.W.T. to D D.W.T., Sept. 30, 1943, N.S. 1070-2-2 (1)].

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Recruiting

NOWHERE did the changes resulting from the technical revolution show more clearly during the Second World War than in recruiting. Although it had once been enough for the fighting man to possess little more than physical fitness, the capable handling of complicated equipment now demanded either the necessary skill, or the aptitude and intelligence to absorb highly specialized training. Recruiting therefore became increasingly selective, and armed Services took on the appearance of giant employment agencies seeking to place myriads of men in the positions best suited to their capacities.

The First World War had shown that men who were emotionally unfit for the strict discipline of military life, or who broke down under stress of combat, were a source of unproductive expense to their governments and a danger to their companions. Efficiency and economy therefore suggested an attempt, by employing psychologists and psychiatrists, to detect such defects at the point of entry.

Although the modern State looked upon all male citizens of suitable age as potential members of the forces, some persons were excluded for reasons other than physical or mental inadequacy. The recruiting policy of the Canadian navy maintained that applicants for entry whose parents lived in territories under enemy control were undesirable, while the loyalty of those born in Canada of naturalized parents was determined by the R.C.M.P. Negroes were not entered in the navy until February 1943, when the enlistment of male British subjects of that race was permitted.¹ Before that time it had been assumed that the confined quarters characteristic of a small-ship navy made the close association of negroes and whites impracticable. Nor had the recruiting

¹ D. Sec. N.B. to Sec. Min., Feb. 13, 1943, attached to Naval Board Minutes, Jan. 3, 1943.

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of British Columbia Indians been encouraged, although an unsuccessful attempt was made to obtain a single crew of them for the Fishermen's Reserve.² Canadian-born Japanese were not employed by the navy during the war; but had the Pacific Operations not ended so abruptly, Nisei would probably have been recruited for special duties.³

Aside from these minor restrictions, the navy was free to search for its manpower throughout the Canadian community. In the beginning a total strength of 5,000 was planned for March 1940, and of 7,000 for March 1941, while all reserves in excess of 4,500 were to be sent to the Royal Navy.⁴ On September 1, 1939, there were available 1,986 members of the permanent force, and 1,929 officers and ratings in the two reserves. In the light of contemplated requirements, only the trained reserves and members of the permanent navy were called on, as it was not yet time to enlist large numbers of men who were entirely unacquainted with naval life. Officers and ratings who had retired from the British and Canadian navies were also brought back for temporary duties during hostilities; but the accepted method of recruiting for the lower deck of the permanent force—shipping to the coast without further delay boys who had been vouched for by the local clergyman or other prominent citizens—was stopped in June 1941.⁵ As the Director of Naval Personnel pointed out:

Reports from both coasts tend to show that these boys and Ordinary Seamen as a group are inferior mentally and physically to the R.C.N.V.R. recruit. In short we are recruiting an inferior type for the permanent force. This is particularly true since the commencement of hostilities.⁶

The old system of enlistment having been abandoned, ratings entered as recruits for the volunteer reserve, and after a successful probationary period they were eligible for transfer to the permanent navy. In May 1944, however, direct entry was resumed; and by June of the following year the total strength of the permanent force was 4,450, of whom 614 possessed a temporary status. The number of volunteer reservists who transferred to the R.C.N. was kept to a minimum;⁷ and from May 1945 to the end of hostilities there were very few direct entries.

² C.O.P.C. to Sec. N.B., Apr. 27, 1942, N.S. 126-6-2.

³ A.C.N.S. to C.N.S., Mar. 3, 1945, N.S. 14600-37 (1).

⁴ Chiefs of Staff to Min. (Nat. Def.), Sept. 17, 1939, N.S. 1014-1-3 (1).

⁵ N. Sec. to C.O.'s of Divisions, June 11, 1941, N.S. 62-19-1 (2).

⁶ D.N.P. to C.N.S., May 22, 1941, N.S. 62-21-1 (7).

⁷ N. Sec. to C.O.A.C., Jan. 27, 1941, N.S. 1-24-1 (4).

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Recruiting for the Royal Canadian Naval Reserve was more satisfactory than the old-style enlistment for continuous service, since it was concerned almost entirely with personnel of the merchant service. These men constituted a reserve of 66 officers and 196 ratings on September 1, 1939, and by 1943 their numbers had risen to a peak strength of some 6,000. Enlistment was handled through registrars of the naval reserve at Halifax, Charlottetown, Quebec, Montreal, Vancouver, and Prince Rupert, who referred applications to "Naden" on the west coast or "Stadacona" on the east. The Maritime Provinces, especially Nova Scotia, were the principal source of recruits from the merchant marine, while the rest of Canada was to provide personnel for the volunteer reserve.⁸ The policy neglected the experienced men working on the Great Lakes, but this was rectified in some measure by two recruiting trips during 1940 and 1941 to the lake ports in search of professional seamen and engineers.⁹ The results were substantial, and it was decided to enter further R.C.N.R. recruits through the R.C.N.V.R. Divisions. The naval reserve registrars would thenceforth merely provide information, while medical examinations, attestations, and drafts to the coast, would be arranged at the V.R. headquarters, which in this way became the principal recruiting centres for the navy.¹⁰

Recruits at the Divisions were drawn chiefly from the urban population during 1939 and 1940, and no recruiting drives were conducted in rural areas. But in 1940 the Naval Service began to raise its assessment of future needs. The estimate of September 1939 for a strength of 5,000 was periodically raised, until by July 1940 an over-all figure of 15,000 was laid down. February of that year had seen the strength of the R.C.N.V.R. exceed that of the permanent force for the first time, and by January 1941 the navy consisted of roughly 15,000 persons, about 8,000 of whom were volunteer reservists.¹¹ Expansion was well under way, and since the R.C.N.V.R. was to bear the brunt of growing enlistment, a re-organization of recruiting machinery at the Divisions was necessary.

The Dominion was therefore divided into areas, one for each of the twenty V.R. Divisions, and recruiting tours in

⁸ N. Sec. to C.O., R.C.N.B., Halifax, June 10, 1940, N.S. 113-2-1.

⁹ Interview with Lieut.-Cdr. (E) J. A. Reader, R.C.N.R., F.E.O. to C.O.N.D., Toronto, Jan. 1945; D.N.P. to C.N.S., Feb. 6, 1941, N.S. 62-21-5.

¹⁰ N. Sec. to R.C.N.R. Registrars, Aug. 12, 1940, N.S. 123-3-1.

¹¹ Statistics from D. of P. records.

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these districts were arranged. It was ordered that fifty per cent of the recruits should be out-of-town residents, even though they might be unable to attend evening drills at the Division. Finally, for the first time, specially-trained officers were appointed to N.S.H.Q. and to the Divisions for recruiting duties.¹² This innovation was desirable, for the recruiting officer in the Canadian navy had been carrying greater responsibilities than had his counterparts in the British and American navies.

The first special recruiting course was given at Halifax, early in 1941, to twenty members of the current officers' training class. Having studied the contents of the "Recruiting Manual" and the functions of the navy's various departments, they were then sent to the Divisions. Unfortunately the desired continuity in recruiting was not secured until early in 1943, when naval officers who were veterans of the First World War began to be used. These were given a course similar to that of 1941, and were instructed in the methods of the army's Directorate of Personnel Selection.¹³

Qualifications for recruits were becoming more rigid, and directives to this effect had been included in the "Recruiting Manual", which was being constantly revised. The adoption of an intelligence test was a further aid to efficient recruiting. A minimum of grade eight in the Canadian public schools had been the only educational requirement necessary for entry, but in March 1942 the navy began to apply the army's "M" test, which was regarded as a more reliable index to a man's ability to learn. After the establishment of the naval Directorate of Personnel Selection in the fall of 1943, a new criterion, the "R" test, also borrowed from the army, was used as well. What effect this had, however, was never carefully investigated, and statistics of discharges showed no appreciable differences after the introduction of this test.¹⁴

Immediately after the outbreak of war the Canadian Psychological Association had offered its services, and arrangements were made to conduct experimental testing in the three Services. The navy was interested in methods that would grade candidates on entry, select men for specialization, and assist in the appointment of officer candidates; and in the

¹² D.N.P. to C.N.S., Jan. 1, 1941, N.S. 30-8-27.

¹³ Interview with Cdr. M. B. O'Reilly, R.C.N.V.R., Chief Recruiting Officer, and Lieut. Cdr. D. C. Mackintosh, R.C.N.V.R., Assistant Recruiting Officer, Toronto, Jan. 1945.

¹⁴ See table of statistics for discharged personnel drawn up by D. of P. records, N.S. 4142-7 (1).

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spring of 1940 the Divisions at Montreal, Toronto, Winnipeg, and Vancouver, used the tests with considerable success. In April the Joint Service Committee on Testing recommended the creation of a Psychological Section which would administer the tests and be under the Director General of Medical Services.¹⁵ Only the air force, however, accepted this proposal. It has been suggested that the joint-Service plans came to nothing because of the sudden death of the Minister, Norman Rogers, who had taken a special interest in the question, and also because of the indifference with which the Medical Services regarded the work of psychologists.¹⁶ Whatever the explanation, not much was done along these lines in the navy for another three years. Britain also had done little to modify existing methods of personnel selection during the early years of the war; but by 1941 the failure rate in naval schools led to the establishment of the Senior Psychologist's department,¹⁷ and the Canadian army in Britain soon followed suit.

Meanwhile the Canadian navy's schools, especially in the signals branch, complained of unsuitable selection, and the commanding officer of "St. Hyacinthe" suggested that some psychological test be used to weed out the below-average recruits.¹⁸ The "M" test was accordingly introduced, but was not seriously regarded. Other proposals were put forward, and one of them resulted in the training of fifty medical officers in the army's selection methods. These suggestions led to the establishment of a Directorate of Personnel Selection.

Another aspect of selection in recruiting was the work of the medical officer, who assessed the physical and psychological suitability of the recruit. Various standards of physical fitness were laid down according to the individual requirements of each branch. Eyesight, including colour vision, for example, was extremely important for executive watchkeeping officers, signalmen, seaman lookouts, and others; in fact the largest number of rejections was caused by imperfect eyesight. Standards differed between the reserves and the permanent force, the latter requiring superior qualifications. If necessary the medical officer also assessed the emotional make-up of the recruit. Psychiatrists were not employed to examine men at the point of enlistment as was done in the United States Navy,

¹⁵ Minutes of Joint Service Cttee. on Testing, Apr. 1940, N.S. 21-1-31 (1).

¹⁶ Draft entitled "Personnel Selection in the Canadian Army", by Major Humphrey Carver; minute to D.N.P., unsigned, Nov. 19, 1941, *ibid.*

¹⁷ Report of the Admiralty's Selection Test Cttee., May 1941, N.S. 4520-23 (1).

¹⁸ C.O. "St. Hyacinthe" to C.O.A.C., Nov. 4, 1941, N.S. 21-25-1 (1).

but recruiting and medical officers were both to some extent familiar with the symptoms of emotional instability. The time allotted for examination was often too short, however, and recruits of psychopathic tendency might easily avoid detection.¹⁹ In the Canadian navy, about three per cent of all rejections on entry were for psychiatric reasons. Comparison is possible with the American army and navy, where the proportion of similar rejections was thirteen per cent.²⁰

The special rôles of the Royal Canadian Sea Cadets and of the University Naval Training Divisions deserve mention, for both organizations constituted a form of recruiting. The Sea Cadets had been in existence before the war, but the navy did not take over their training and administration from the Navy League of Canada until 1941. The R.C.S.C. had 23 corps in June 1941, and by the end of the war there were 92 with a total enrolment of about 15,000. Boys of fifteen to eighteen years old attended drills and lectures twice a week, and spent two weeks at summer camp. The sea cadet movement served several purposes. Youths were provided with organized recreation and were made familiar with naval life, and the sea cadets provided a large pool of potential sailors. From June 1943 to the end of the war, 1,818 cadets joined the navy.²¹

The University Naval Training Divisions were organized in 1943, when university students were granted exemption from military call-up if they attended 110 hours of training per academic year in a C.O.T.C. or in one of the regular militia units. The air force had fallen into line with the army, and being anxious to obtain its share of men in science courses, the navy followed suit. Naval training was provided in fifteen universities, each of which was situated near a reserve Division, which supplied the instructional staff for the general training during the year. In the spring, a two-weeks' course was taken at either coast, and certain third-year students in science and engineering were selected to train for an entire summer with the navy, ashore or afloat. The U.N.T.D.'s sent 554 officers and men on active service, and helped to satisfy the demands of a highly technical war.²²

¹⁹ See W. H. Dunn, "The Psychopath in the Armed Forces", in W. S. Pugh (ed.), *War Medicine* (New York 1942).

²⁰ Percentages from M.D.G.'s records, and from George K. Pratt, *Soldier to Citizen* (New York 1944), p. 15.

²¹ Statistics obtained from D.N.R.; interview with Cdr. F. M. Jeffrey, O.B.E., R.C.N.V.R., Staff Officer Sea Cadets to C.O.N.D., Oct. 1944.

²² D.T.N.A. to D.N.P., Dec. 31, 1942, N.S. 103-2-1 (3); personnel total from D.N.R. records.

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There were temporary shortages in certain specialties, but in general the flow of men was adequate compared to that in the other Services. Accordingly the navy never used publicity to the same extent as did the army and the air force, and when these two Services pooled their recruiting facilities late in 1943, the navy simply referred its rejections to the Joint Enlistment Centres.²³ Approximately 100,000 men were attested in the Canadian navy during the Second World War. The greatest number actually borne at any one time was that of January 1945, when 87,141 officers and men were serving not counting some 5,300 women in the W.R.C.N.S. This number almost equalled the pre-war establishment of the Royal Navy. The total had developed from 15,000 in January 1941 to about 28,000 a year later, reaching 48,693 in January 1943, and 71,549 in January 1944. Of the total for January 1945, approximately 78,000 belonged to the R.C.N.V.R., 5,300 to the R.C.N.R., and 4,384 to the R.C.N.

Statistics on recruiting show that the tendency was to draw heavily on the urban population, each Division, as might be expected, obtaining a disproportionately large number of recruits from the city in which it was located. Seventy-seven per cent of "Discovery's" intake had been living in Vancouver, seventy-three per cent of "York's" in Toronto, and seventy per cent of "Donnacona's" in Montreal. These three Divisions together accounted for a substantial proportion of the navy's entire enlistment, and only a few of the Divisions recruited fifty per cent or more of their men from outside their respective cities. The statistics for civilian occupations of naval personnel also suggest that the navy's recruiting was highly urbanized.²⁴

The distribution of naval enlistment by Provinces is shown in the following table:

²³ Sec. N.B. to C.O.R.D., Nov. 5, 1943, N.S. 1280-235 (1).

²⁴ Statistics obtained from D.P.R. records.

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TOTAL ENLISTMENT TO AUGUST 15, 1945

Exclusive of the W.R.C.N.S.

(D. of P. records)

Province	Male Pop. (18-45)	Officers	Men	Total
Prince Edward Island	19,000	57	1,337	1,394
Nova Scotia	123,000	632	6,353	6,985
New Brunswick	94,100	168	2,542	2,710
Quebec	699,000	1,294	11,135	12,429
Ontario	830,000	2,331	38,869	41,200
Manitoba	159,000	287	7,464	7,751
Saskatchewan	191,000	191	6,310	6,501
Alberta	178,000	226	7,367	7,593
British Columbia	181,000	1,143	11,280	12,423
Others		292	410	702
TOTAL	2,474,100	6,621	93,067	99,688

Initial Training

Training in the Canadian navy during the Second World War fell into three stages: initial, advanced, and operational. The first was for all ratings: it helped the recruit in adapting himself to living as a member of a large group, and made him physically fit for strenuous duties, but did not prepare him for immediate draft to sea. This training phase evolved slowly. In 1939 and 1940 the R.C.N.V.R. Divisions provided training which was of a limited nature and little more than a continuation of the V.R. peace-time routine. There were evening classes in such subjects as V S or W T, and squad drill, but such activities were modest. Buildings and grounds were unsuitable, there were no proper drill halls, and the Divisions were short of both training equipment and instructors.

The primary rôle of the Division, however, was to serve as a recruiting centre, since actual training was concentrated on the coasts and a more ambitious initial-training programme was not yet envisaged. Once Canada was committed to its policy of naval expansion, however, Halifax and Esquimalt were soon overcrowded; and by April 1940 the Naval Staff began to discuss the possibility of establishing inland training centres. Since it was still too much a time of scarcity, however, a thorough programme of initial training was not arranged until February 1941.²⁵

²⁵ C.N.S. to D. Min., Sept. 23, 1940, N.S. 114-1-8 (1); Naval Staff Minutes, Apr. 29, 1940, N.S. 1078-3-3 (1).

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A new course, generally eight weeks in length, was developed at each of the Reserve Divisions. A detailed syllabus was laid down which was later elaborated into the "Reserve Divisions Training Manual." Recruits had formerly arrived in Halifax and Esquimalt with little instruction, and it was expected that the new scheme would obviate some of the preliminary work at the coasts. The new course included only elementary subjects designed to inculcate the language, discipline, and basic procedures of the navy, and for this reason special stress was laid on rifle and squad drill. V/S and W/T were not taught, more than half the instruction time being devoted to seamanship, including naval dress, slinging hammocks, "parts of ship", simple knots, and boat pulling. Some instruction was also given in English, arithmetic, and current social and political problems.

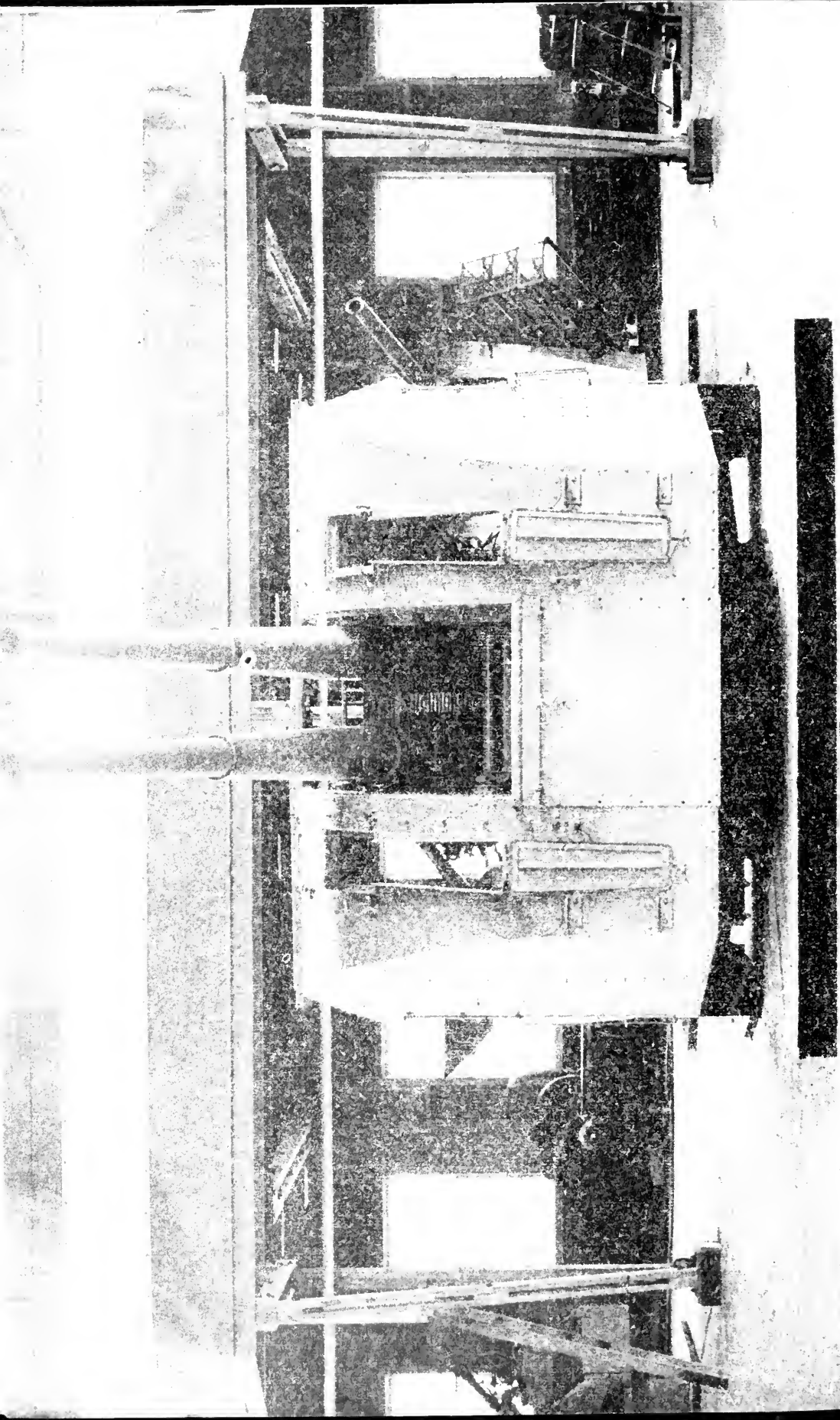
The inauguration of initial training was soon followed by plans for re-housing the Divisions. It was proposed to construct permanent government-owned headquarters, standardized in two sizes according to the population of the community. The shortage of building materials and labour had become so acute, however, that new construction in many places had to be postponed.²⁶ Accommodation for the R.C.N.V.R. continued, as it had since the beginning, to be acquired and improved piecemeal. Nevertheless seven projects of new construction were begun during the war, large buildings were leased or bought, and by the end of hostilities all but the Toronto Division had been housed in new quarters. The accommodation thus acquired was far superior to the pre-war establishments, and such newly-constructed headquarters as those of H.M.C.S. "Carleton" and H.M.C.S. "Discovery" were a far cry from the penitentiary-like barracks of an earlier day.²⁷

The potentialities of the building programme were only gradually realized. The Naval Service recognized that new-entry ratings would receive the full benefit of their stay at the R.C.N.V.R. headquarters only if they were continually under naval discipline.²⁸ When initial training had begun in February 1941, most of the trainees had necessarily been on "lodging and compensation"; but by January 1943 it was estimated that 2,254 of the 3,790 ratings under training at the

²⁶ D. Min. to C.N.E.S., June 8, 1942, N.S. 114-1-8 (1).

²⁷ For details of V.R. accommodation see App. VII. Total cost of construction at Divisions was roughly \$2,100,000.

²⁸ D.T.N.A., D.M.N.A. and D.R.D. to C.N.P., Mar. 13, 1942, N.S. 112-1-1 (6).



Bridge and gun position for training, H.M.C.S. "Carleton", Ottawa

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Divisions could be accommodated; and about a year later 3,180 of 4,265 trainees were being victualled and lodged within the Divisional establishments.²⁹

Training was also hampered for some time by a shortage of qualified instructors who had been to sea. Inexperienced ratings had therefore to be employed at reserve Divisions after some attempt had been made to acquaint them with teaching methods. Sea experience was not as important for initial training, however, as it was for the more technical subjects offered on the coasts.

The first course for the training of Divisional instructors was begun at Halifax in August 1941. A year later all training officers at the V.R. headquarters were also briefly indoctrinated in the elements of teaching, and because Halifax was no longer able to spare instructional personnel, instructor-ratings were selected from eligible new-entry trainees. These were given a twelve-weeks' course at H.M.C.S. "York", which became the permanent source of instructors for the Divisional programme.

One of the problems of the R.C.N.V.R. Division grew out of the fact that Canada is a country of two languages. The Naval Service was theoretically open to all citizens, but the English language presented a barrier to many French Canadians who wished to join. In the interest of operational efficiency the R.C.N. had to employ a common language; and since the great majority of its members were English speaking, and its traditions were British, that language was English. Canadians speaking only French, however, were recruited, but inadequate knowledge of English produced a high percentage of failures among French recruits. The best way of handling this problem seemed to be to ensure that French-Canadian ratings had a sufficient grasp of English before they came to Halifax. In the summer of 1941 an English course was therefore established at H.M.C.S. "Montcalm"; but no real progress was made until two years later, when the school was transferred to H.M.C.S. "Prevost" in London, Ont., where the naval schoolmasters were professional language teachers and ratings were quartered with English-speaking families in the city. The course included squad drill and lectures on naval subjects, and at the end of three months the rating returned to his Division for initial training. In January 1945, when the

²⁹ C.O.R.D. to Sec. N.B., Jan. 30, 1943, N.S. 114-1-S (2); memo. by D. of P., Apr. 5, 1944, N.S. 1700-170 (1).

V.R. Divisions had reduced their activities, the English-language school was moved to H.M.C.S. "Cornwallis."³⁰

The initial training programme may be compared with its counterparts in the British and American navies. These two great organizations made no provision for the teaching of English and arithmetic in their new-entry courses. They both confined initial training to a few centres, whereas in Canada the policy had been to spread it over almost a score of Divisions. In this way, the Divisions were undoubtedly fulfilling the original purpose of the R.C.N.V.R. by strengthening a naval tradition which had formerly been weak; and by doing so during war-time, they were paving the way for a similar rôle in time of peace. Plans were announced in November 1945 for a single post-war reserve to be known as the R.C.N. (R) which would take the place of all previous reserves. Its complement was to be 18,000, and it was expected that four new Divisions would be created in addition to the nineteen already in existence.³¹ This was sufficient evidence of the growth of interest in the navy throughout the Dominion.

Problems of Classification

The problems that appeared in recruiting and in the initial stage of training, appeared also and were critically important in the field of advanced naval instruction. During this period a sailor became competent in the specialized duties that he was to perform at sea and on shore, and it was imperative that personnel should be properly allocated, and that suitable accommodation, adequate instructors, and modern training equipment, should be provided. It took time to realize these essential requirements, however, and the Royal Navy was heavily relied on at the start of hostilities. Although complete self-sufficiency had not been realized even at the end of the war, there was a steady movement in that direction.

By VJ-day ratings in the R.C.N. had been divided into twenty-five classes employed on shore and afloat, and within these there were further subdivisions.³² The duties of most main branches were obvious from their titles, such as stoker,

³⁰ Minute, unsigned, n.d., N.S. 112-1-42; interview with Lieut. K. Glashan, R.C.N.V.R., schoolmaster at "Prevost", Jan. 1945.

³¹ Sec. Memo., No. 277, Nov. 1, 1945. C.O. "St. Hyacinthe" to Sec. N.B., Apr. 12, 1944, N.S. 4340-15 (1) contains the most trenchant criticism of the educational programme at the Divisions, and Sec. N.B. to C.O.'s "Stadacona", "Cornwallis", and "St. Hyacinthe", Mar. 28, 1944, *ibid.*, presents the official position.

³² See *K.R.C.N.*, chs. 8 and 9.

shipwright, or plumber. Each branch was graded into what were known as "substantive ratings." In the seaman branch they were ordinary, able, and leading seaman, petty officer, and chief petty officer. In the other branches there were corresponding titles which almost always incorporated the terms leading, petty officer, and chief petty officer in the ratings corresponding to those grades in the seaman branch. In addition, many branches, more particularly the seaman branch, were further subdivided into sections specializing in such matters as gunnery or torpedo (seaman branch), diving (several branches), and shorthand-typing (writer branch). In these specialties men held various classifications and grades which were known as "non-substantive ratings."

The organization of the lower deck, and especially its distribution of functions and responsibilities, revealed serious shortcomings during the Second World War. These resulted from the greatly increased use of electrical gear in naval warfare. Specialist maintainers began to appear in the various fields—*asdic*, radio, and the already existing electrical artificers. Certain fundamentals being common to the instruction of each of these ratings, their separate training involved a wasteful repetition in several schools, and no clear distinction was made between the new artificer and the seaman specialist who used the equipment. This was the criticism of British naval organization made by the Phillips Report in 1944 which recommended the creation of an electrical branch whose members would act as maintainers of electrical equipment, the operators being responsible, apart from their primary function, only for the simpler routines of care and adjustment. The torpedo branch, deprived of its electrical party, would be joined with *asdic*. This reorganization was too revolutionary to be effected during hostilities, and the new branch was not instituted until January 1946. The R.C.N., keeping a close eye on British developments, followed the example of the R.N., and the increasing complexity of modern life won another victory, the long-suffering seaman being compelled to surrender one more department of naval society to the realm of the mysterious.³³

Barracks and Schools

The provision of schools and barracks for advanced training during the Second World War was complicated by

³³ The first important surrender had taken place when the engine-room and executive branches were created.

the inadequacies of the Halifax dockyard and of the city itself. Less than a mile long, and about five hundred feet wide, the dockyard was incapable of any major expansion, hemmed in as it was by the Halifax Shipyards, the Canadian National Railway freight yards, and the Harbour Board docks. This area had been ample for the needs of the small pre-war navy; but a force of many times that size, concentrating its activities in the Atlantic, made numerous unforeseen demands. As conditions became worse, training was gradually separated from maintenance and operation, and instructional facilities and accommodation were transferred to the heights overlooking the harbour. Moreover as the Battle of the Atlantic thrust ever greater responsibilities upon the R.C.N., and therefore upon Halifax itself, many training activities had to be removed from the city altogether. The signal school was sent to St. Hyacinthe, a great centre was set up at Deep Brook, N.S., and schools were built and enlarged on the west coast.

Early in the war the barracks in the dockyard became congested, and additional accommodation was set up in the north end of the yard. In April 1940, only 556 out of 1,394 trainees had been housed in the barracks, but the first of the new buildings provided accommodation for a further 400. This paved the way for the beginning of the new-entries' school, which developed so greatly that the Industrial Building at the Exhibition Grounds was taken over in July for the training of signalmen and stokers.³⁴ This was the first move beyond the confines of the dockyard, now called "Stadacona I", while the newly-acquired building was known as "Stadacona II."

The latter's commissioning relieved congestion for a while, but within a month the numbers at the Exhibition Grounds had tripled. The winter of 1940-41 brought additional complications. Fire destroyed three blocks in the dockyard, and the shortage of accommodation provoked by the delayed delivery of corvettes was accentuated.³⁵ Makeshift accommodations were found in the city, and drafting from the Divisions was stopped temporarily; meanwhile negotiations were begun for acquiring the army's Wellington (later Nelson) Barracks, a forbidding nineteenth-century structure overlooking the harbour.

³⁴ X.O., R.C.N.B., Halifax to C.O., R.C.N.B., Halifax, July 1, 1940, N.S. 1000-5-13 (1). The Industrial Building at the Exhibition Grounds was also known as the Forum.

³⁵ C.O. "Stadacona" to C.O.A.C., Sept. 16, 1940, N.S. 1000-5-13 (1); C.O., R.C.N.B., Halifax to C.O.A.C., Jan. 9, 1941, N.S. 1000-5-13 (2).

PERSONNEL AND TRAINING - RATINGS

By the middle of 1941 three new blocks adjacent to the Nelson Barracks had been completed, and it was proposed to erect a number of spacious modern buildings to house the technical schools which, except for the torpedo school at Esquimalt, had been accommodated until now in crowded buildings of poor construction. This was the most ambitious shore project ever undertaken by the Naval Service, and many difficulties soon arose. It had been planned to complete some of the buildings by the end of 1941;³⁶ but this expectation fell short of realization by a year.

In April 1942 it was decided that a major transfer of training facilities from Halifax was necessary; and the administration of all naval schools in the city was therefore placed in the hands of a newly-commissioned training establishment, H.M.C.S. "Cornwallis", which was to leave Halifax as soon as a suitable location had been found.³⁷ Increased operational commitments now involved more training activities and ship-repair work. The dockyard consequently required a complement of 5,330; and "Cornwallis", using the schools in the most efficient fashion, would have a complement of 3,253. Further expansion of these two activities would probably raise the total to between ten and twelve thousand, and it was thought that this concentration would be too great. It was also considered unwise to rely too heavily upon "lodging and compensation" as a means of housing personnel. The only solution, therefore, was the transfer of "Cornwallis." A variety of sites were considered, and in June 1942 the Naval Board finally chose Deep Brook, N.S., as the eventual location. Deep Brook possessed certain drawbacks, such as the high tides which would make boat work difficult; but in spite of this it was considered the best available site.³⁸ A ceiling cost of \$15,000,000 was set, based on an estimated cost of \$1,500 per man for an establishment that would house ten thousand.

The contract was undertaken by the Dominion Construction Co.; an advance party proceeded to "Cornwallis" in January 1943; and the first buildings were completed in April. They were built to air force standards, and were constructed on a temporary basis. The departments which made the move from Halifax were the gunnery school, the asdic school, new-

³⁶ C. B. Dolphin to W. L. Fraser, Mar. 3, 1941, N.S. 59-8-3 (1).

³⁷ Projects Cttee. Minutes, Apr. 23, 1942, N.S. 1078-3-12; Naval Board Minutes, Mar. 23, 1942.

³⁸ Projects Cttee. Minutes, Apr. 23, 1942; Halifax Planning Cttee. Minutes, Apr. 7, 1942; N.S. 1078-3-10 (1); Naval Board Minutes, June 15, 1942.

entry torpedomen, new-entry stokers, seamen, and such miscellaneous classes as those for writers, cooks, and physical-training instructors. The facilities of the Halifax dockyard were thus left free for the operational requirements of Captain (D). Advanced courses for S/T and E.R. ratings were held in the Nelson Barracks, and also instruction for D.E.M.S. ratings. The new A S and signals building was converted to house the large Halifax complement of the W.R.C.N.S.

The establishment of H.M.C.S. "Cornwallis" not only eased the pressure in Halifax, but also relieved "Naden" on the west coast of almost its entire responsibility for training.³⁹ Having lacked instructional facilities and accommodation for a considerable part of the war, the navy was now confronted with a surplus. This disparity no doubt resulted from the fact that it had not been practicable to plan far in advance during the earliest stage of the conflict.

It had been accepted from the start that "Naden" would do a considerable part of the training. In March 1940 the west-coast authorities drew up a three to five-year building programme which would provide signal, gas, gunnery, and asdic schools, as well as barracks accommodation. This scheme was rejected, however, on the ground that it was too ambitious.⁴⁰

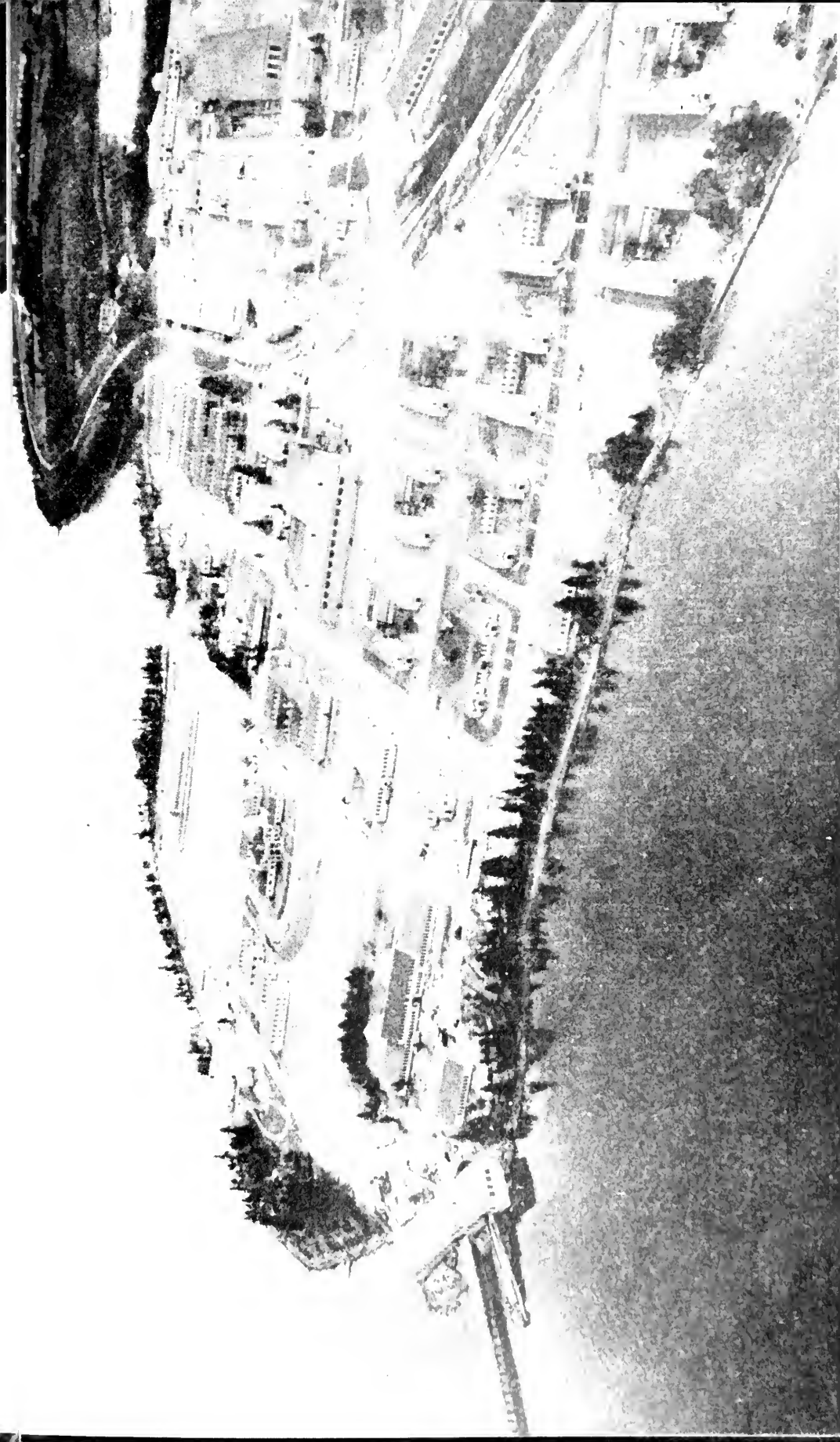
Despite the building of the new entries' block at "Naden" in the first year of the war, there was a shortage of accommodation for some eight hundred men in August 1940, which was relieved by the provision during 1941 of a permanent petty officers' block and three temporary buildings for ratings. But a year later, throughout the Esquimalt area, about twelve hundred men were without naval accommodation and living on "lodging and compensation."⁴¹ Some reduction was obtained in this figure by the completion of "Givenchy" barracks in the dockyard early in 1942; but the difficulty remained as long as training continued in full swing.

By the end of hostilities, however, schools were more spacious, and in general far more suitable for effective instruction than they had been during most of the war. Although "St. Hyacinthe" and "Cornwallis" were temporary establishments, permanent modern buildings had been constructed

³⁹ Had the Canadian navy taken part in the Pacific campaign, the west-coast schools would have been put to more use.

⁴⁰ C.N.S. to D. Min., July 12, 1940, N.S. 96-8-38 (1).

⁴¹ Pacific Coast Planning Cttee. Minutes, Dec. 8, 1942, N.S. 1279-30 (1).



H.M.C.S. "Cornwallis", Deep Brook, N.S.

PERSONNEL AND TRAINING - RATINGS

in Halifax and Esquimalt. Excluding equipment and fittings, the cost of construction at these four places was: H.M.C.S. "Cornwallis", roughly \$9,000,000; H.M.C.S. "St. Hyacinthe", \$1,700,365; Nelson Barracks, about \$7,000,000; and H.M.C.S. "Naden", \$1,474,374.⁴²

Seamanship

Seamanship training at the coasts included the inculcation of naval tradition and discipline, sufficient technical knowledge to qualify a man for advancement after a period at sea, and the background for one of the non-substantive ratings in the seaman or signal branches. In the barracks a seaman performed duties corresponding as far as possible to upper-deck duties in a ship. He was assigned to one of the divisions, which were designated by the usual names, forecastle, fore top, etc., and each division had a "part of ship" (arbitrarily selected parts of the barracks) assigned to it for cleaning and maintenance. The hands were "told off" by the executive officer, as in a ship, for duty either in special parties or "with part of ship." Certain ratings would be given special duties such as messenger, boats' crew, and telephone watchkeeper, and would then be exempt from most of the musters at which work was allocated. From time to time there would be undertakings calling for "all hands", such as painting and storing. When a man became an able seaman his duties did not alter appreciably, but he was expected to carry them out more capably, to stiffen the efficiency of the group in which he was working, and possibly to take charge of small groups of ordinary seamen. On going to sea there were other duties to be learned: standing watches as "special duty men", such as look-out or helmsmen, which had to be performed in addition to any work with part of ship.

At sea the duties of seamen lacking non-substantive ratings were to provide the loading numbers for guns, and to serve as lookouts, bridge and signal-office messengers, helmsmen, or telegraphists. At any time they might be called upon to work anchors and cables, to stream or recover paravanes, or in emergency to oil ship at sea, prepare tows, act as boarding party, and fight fires. A seaman's life was rigorous and often boring, but there was opportunity for initiative and change of task.⁴³

⁴² Figures obtained from C.F.O. (N).

⁴³ "S.P. Bulletin", n.d., *Naval Rates* (Ottawa 1944), p. 162. This manual was prepared by the D.P.S.

NAVAL SERVICE OF CANADA

In new-entry courses for seamen, emphasis was placed on the practical side of seamanship, and additional subjects such as gunnery and under-water warfare were examined. Before the Divisions had begun their systematic training programme, the seamanship course had lasted some six weeks; this was increased to ten weeks at the end of 1941, and so it remained for the rest of the war. In June 1944, however, special provision was made for above-average ratings to do the course in seven weeks.⁴⁴ The normal course comprised four weeks of gunnery, two of torpedo-work, three of seamanship, and one aboard a training ship. In seamanship, practical instruction was given in rigging, boat-work, semaphore, morse, damage control, and the duties of lookout and quartermaster.

The new-entry school was established in May 1940, and took in about three hundred men;⁴⁵ but its training equipment was scanty, and its facilities were meagre, being limited to one room in the Halifax dockyard. Partial relief came in October 1941 with the transfer to Nelson Barracks, and some valuable training equipment was acquired, such as a night lookout room and a model of a corvette's forecabin. Ship training also got under way in a rudimentary fashion early in 1941, and by May 1942 had developed into a short, intensive, and well-organized course.⁴⁶

While the seamanship school remained in Halifax its classrooms were scattered, and concentration within one building was not attained until the move to Deep Brook. A separate class-room for each subject was then obtained, and a store of instructional equipment, especially for life-saving, damage control, and fire-fighting, was built up. A ship's water-tight bulkhead was also installed in the school in order to show the several kinds of water-tight doors; and full-scale examples of shored-up damaged ships' sides were constructed as well.⁴⁷ The currents and tides in the Annapolis Basin were the major drawback in the "Cornwallis" school. The tides required a long jetty and a runway to get boats into the water, and bad weather frequently forced them to be brought ashore.⁴⁸ In this

⁴⁴ C.N.S. to D. Min., July 15, 1940, N.S. 112-1-1 (6); N. Sec. to C.O., R.C.N.B., Halifax, July 16, 1941, *ibid.*; Sec. N.B. to C.O.R.D., June 29, 1944, N.S. 4525-14 (1).

⁴⁵ C.O. "Stadacona" to N. Sec., May 10, 1940, N.S. 21-3-1 (1).

⁴⁶ Interview with Lieut.-Cdr. A. H. Baker, R.C.N., Dec. 1944; Monthly Training Report, "Cornwallis", June 15, 1942, N.S. 1000-5-13 (11).

⁴⁷ O. i. c., Seamanship School, "Cornwallis" to C.O. "Cornwallis", July 16, 1945, N.S. 1440-1 (1).

⁴⁸ Interview with Bos'n J. R. A. Zanelli, R.C.N., Seamanship School, "Cornwallis", Nov. 1944.

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respect facilities for seamanship training were superior at "Naden."

H.M.C.S. "Naden" did not reach a flourishing state until the new building was completed in January 1943; and like so much of the new construction there, its utility was short-lived, for training was stopped during the same year. "Naden" had discharged its special function, however, in providing new-entry instruction for all permanent-force ratings qualifying for able seamen. This special training had lapsed in 1941 when lower-deck entry into the permanent force had ceased.

The "Naden" and "Cornwallis" schools were primarily training centres for new entries. Higher substantive ratings, until 1943, were obtained by sitting before a squadron board; but the latter did not enforce adequate and uniform standards, and a special school was subsequently established in the Halifax dockyard for leading seamen, petty officers, and warrant officers.

Advancement in substantive ratings during the war proved faster than in non-substantive, which sometimes produced anomalous situations aboard ships. At action stations a second-class gunnery rating who was an able seaman would give orders to a third-class gunnery rating who was a leading seaman; but in scrubbing decks the positions were reversed.⁴⁹ The principal difficulty lay in sparing men from sea to undergo non-substantive courses; and the policy gradually developed of sending third-class gunnery ratings to specialized courses on completion of their seamanship training.

A S

A knowledge of seamanship, a grasp of underwater tactics and sea conditions, and an acute sense of hearing, were needed for success with asdic devices, for these demanded a skill greater than that required by any other mechanism. There were four asdic ratings: the anti-submarine artificer, the submarine detector, the higher submarine detector, and the submarine detector instructor. The first worked on shore installing, maintaining, and repairing equipment. The submarine detector operated the ship-borne asdic set which located U-boats in the vicinity by means of reflected water-borne sound-waves. He also performed minor maintenance

⁴⁹ Interview with Pay Lieut.-Cdr. P. M. Nicholson, R.C.N.V.R., R.C.N. Depot, Halifax, Dec. 1944.

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under the supervision of the higher submarine detector, who was maintenance expert and senior operator on board ship. The submarine detector instructor, as his title implies, was responsible for the teaching of ratings ashore.⁵⁰

These four A S courses differed only in emphasis. The theories of sound and electricity, operational procedure, and practical work-shop routine, were the general subjects. The time devoted to A S training became increasingly longer as new requirements and higher standards developed, although from January to July 1943 when S D's were scarce, the seven weeks' course was reduced to four.⁵¹

In September 1939 the navy had no training facilities for A S ratings and officers, nor did they appear until several months after the outbreak of war. The first A/S school in the Canadian navy was a small frame structure in the Halifax dockyard, containing only an office, a classroom, and a small amount of equipment. It was badly lit, overcrowded, and a fire hazard. Extensions were added from time to time, and this emergency accommodation carried the burden of training for several years.

The establishment of an A S training centre at "Naden" brought great improvement to the branch. Ratings were being qualified early in 1942, and the school provided adequate space and lighting for equipment and pupils. On the east coast, however, suitable conditions were not obtained until training was moved to "Cornwallis", where it was housed in what was termed the finest anti-submarine school building in the British Empire. Since H.M.S. "Osprey", the senior asdic training establishment of the Royal Navy, had not been designed originally as a naval school, this description was probably correct.

Few Canadian ratings had qualified for A S duties before the war. Six had been trained as submarine detectors in 1938, and these were studying for advancement when war came. Assistance was therefore obtained from the Royal Navy, and Lieut. (A S) J. W. White, R.N. and P.O. Cheeseman, with assistance from Cdr. A. R. Pressey, R.C.N., were largely responsible for the successful beginnings of asdic training. The first class of submarine detectors in Canada began in March 1940, and the first class of higher submarine detectors

⁵⁰ *Naval Rates*, p. 7.

⁵¹ Monthly Training Report, "Cornwallis", July 1943, N.S. 21-1-36 (4).

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in May 1941. When the original course for instructors started in February 1943, the school had been in charge of Canadian officers for over a year, and the teaching personnel was adequate to train the highest ratings.

Naval training during the second great conflict of the twentieth century required the use of a large variety of practice models, and in A S there were two especially important devices of this sort: the attack teacher and the mass procedure-teacher. The first provided for a full-scale attack, artificially reproducing a moving submarine, the sweep of the asdic operator, and the echo when contact was made. The mass procedure-teacher permitted the instruction of a dozen ratings at once in the classification and location of echoes, the apparatus consisting of headphones and bearing indicators controlled by the instructor's master set.

Apart from these devices, base equipment was scarce, as were ships and submarines for sea training. Instruction was of the greatest value when it most closely resembled the actual pursuit of a submarine, but this required specially-allocated training ships and "tame" submarines, or towing-vessels and targets as a second best. It was also necessary that the coastal waters should not be too rough, or seriously affected by temperature gradients which impeded underwater detection.

During a considerable part of the war the Canadian navy possessed few of these requisites. No training ship was assigned to A S instruction until August 1941, while weather and asdic conditions on the east coast tended to be unreliable. The navy, having no submarine service, was entirely dependent upon other navies for "tame" submarines. A Dutch submarine on the east coast and an American one on the west were available from time to time for brief periods of training; but such arrangements were always unsatisfactory, and in November 1940 experiments with towed targets were begun.⁵²

It was this aspect of asdic training which was emphasized in the report of the Allied Anti-Submarine Survey Board. From March to September 1943 the board had visited the principal allied training centres and bases, and as a result it stressed the extreme importance of sea training, and urged the R.C.N. to increase its supply of submarines and training devices such as the towed target, in order to meet effectively the heavy manning commitments for new construction. The

⁵² D.A S to D.C.N.S., Nov. 27, 1940, N.S. 1046-2-1 (1).

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U.S. and British navies, however, were equally pressed for submarines, and Canada secured only one where two were wanted. An ambitious programme for building towing vessels and targets was therefore substituted, and with the new "virtual target" this form of asdic training became more valuable. The report of the board indicated, however, that A/S instruction was overcoming many of its problems. The new schools at "Naden" and "Cornwallis" permitted additional equipment to be used, and made possible an increased output of personnel. The west coast had begun to qualify submarine detectors and higher submarine detectors in 1942, and during the following year produced as many submarine detectors as the east coast, and a third as many higher submarine detectors.⁵³ The necessary increased production of trained asdic personnel during the period from November 1942 to November 1943, when the schools carried their greatest burden, was successfully achieved.

During 1940 and 1941, owing to the lack of effective criteria for selection, the abler ratings had volunteered for gunnery and torpedo ratings, and the A S branch was left with inferior men. Expedients were therefore devised to ensure that submarine detectors, since they were the potential higher ratings, should be carefully selected. A/S training was given a priority in drafting, and beginning in the spring of 1941 six classes were held at the University of Toronto under the supervision of faculty members, who chose ratings newly recruited at the Toronto Division. The course was eventually abandoned because it was too theoretical, but a number of intelligent men had been secured for asdic duties.⁵⁴ A similar course was also conducted for a time at the Westdale Technical School in Hamilton. These measures, together with the introduction of selection techniques at "Cornwallis", left their mark, and after the middle of 1941 the high failure rate diminished considerably.⁵⁵

Asdic equipment underwent radical changes during the war, and it was imperative for schools to be equipped with the

⁵³ Naval Staff Minutes, June 3, 1943; Sec. N.B. to C.O. "Cornwallis", Apr. 19, 1943, N.S. 21-22-2 (3); See App. VIII.

⁵⁴ Interview with Lieut.-Cdr. (A S) J. B. Keachie, R.C.N.V.R., Staff A/S Officer to D.W.T., Nov. 1944; minutes of meeting on recruiting and training of A S personnel, Jan. 10, 1942, N.S. 21-22-2 (2).

⁵⁵ O. in C., A S school, "Cornwallis" to C.O. "Cornwallis", July 16, 1945, N.S. 1440-1 (1). The R.C.N. Medical Research Unit also perfected tests for hearing and ability to detect changes in sound frequency. This work was begun in May 1941, and was taken over by the R.N. and U.S.N. It was not until July 1943, however, that the tests were made compulsory before a rating took an A S course.

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most up-to-date sets. Trained ratings had also to be drafted ashore from time to time to learn the revised methods. In January 1944 the asdic school and training ships were given a priority in equipment over new-construction vessels and those undergoing refit. During 1943 the manning depot in Halifax had established the policy of sending higher submarine detectors and submarine detectors directly from sea-going ships to "Cornwallis" for a refresher course, and new construction was manned with a minimum of fifty per cent of such ratings.

Another difficulty, however, still existed. Similar measures had not been taken with ships based on British ports, and R.N. authorities had pointed out that the performance of higher submarine detectors with the new equipment was not satisfactory. To remedy this defect the replacement pool of A S ratings at "Niobe" was increased, and the men were sent to the R.N. schools.⁵⁶

These were the last serious problems in A S training. At the peak of Canada's naval strength the A S branch possessed 30 S D instructors, 418 higher S D's, and 1,670 S D's, as well as 140 of the last with probationary rating. There were also 14 chief A S artificers and 166 junior artificers, making a total of about 2,400 ratings in the A S branch.⁵⁷

Gunnery

The gunnery branch was subject to the same fundamental difficulties as marked the course of all instructional activities in the R.C.N. for some time after 1939, namely lack of equipment and accommodation. The principal gunnery ratings, except for the gunnery lieutenant's writer, fell into the conventional classes of operation and maintenance. Among the former there was a further distinction between men who served in naval vessels, and D.F.M.S. ratings who assisted in manning the guns of defensively-equipped merchant ships. The D.F.M.S. rating qualified for the non-substantive rating of seaman gunner (D.F.M.S.), or ordinary seaman (D.F.M.S.). Leading seamen (D.F.M.S.) and higher ratings also instructed on shore.⁵⁸

⁵⁶ Sec. N.B. to R.C.N. Depot, Halifax, Mar. 23, 1944, N.S. 1046-2-30 (1).

⁵⁷ Statistics obtained from D.P.R. The peak of the navy's strength was reached in Jan. 1945.

⁵⁸ *Naval Rates*, p. 32.

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Gunnery duties in a naval vessel were more specialized than those in a merchant ship. All close-range weapons were manned and fired by anti-aircraft (A.A.) ratings, who were divided into first, second, and third classes. The basic course comprised squad drill, land fighting, ammunition, aircraft recognition, and drill and stripping of A.A. guns. Advanced ratings were also taught the theory of fire control, and the special applications of radar to Bofors and Pom-Pom Directors. On the guns, junior A.A. ratings acted as layers, trainers, lookouts, or loading numbers, with senior ratings in charge.⁵⁹

The main armament of the Canadian warship, as distinguished from the close-range weapons, was manned by ratings known as control (C.R.), layer (L.R.), and quarters (Q.R.) ratings—first, second, and third class. The control rating was principally concerned with the operation of range-finders, the first class rating actually directing fire by such means as spotting the fall of shot rather than acting as range-taker. The layer rating was responsible for the movements of the gun as it was brought to bear upon the target, and the quarters rating, as Q.R.3, was in charge of the stowage of all ammunition and its supply to the guns in action. Q.R.2's were employed as breechworkers and captains of the gun, correctly loading and laying the weapon, and Q.R.1's were in charge of certain 6-inch turrets, and second in command of others.⁶⁰

The three ratings were also instructed in squad drill, land fighting, and general gunnery, as well as in their own specialties. The control rating was taught the fundamentals of optics and fire control; the layer rating studied gun-mechanisms and mountings, and was drilled in laying and training; and the quarters rating was made familiar with the kinds of ammunition, hydraulics, breeches and mountings, and the principles of fire control, direction-finding, and sighting.

One other rating concerned with gunnery was the ordnance artificer, senior ratings of which branch sometimes instructed on shore. The O.A. was responsible for the maintenance of all guns, as well as range-finders, directors, sights, range clocks, and barrage-control instruments. He was also trained in mechanical drawing.⁶¹

⁵⁹ *Ibid.*, p. 103. See A.F.O. 1678, July 14, 1938, for a more precise description of the duties of an anti-aircraft gunnery rating.

⁶⁰ See A.F.O. 1678, July 14, 1938, for further details.

⁶¹ *Naval Rates*, pp. 119-120.



Anti-aircraft gun drill, H.M.C.S. Cornwallis

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Apart from its own specialties, the gunnery school was responsible for the parade-ground training of the whole navy, and the elementary gunnery instruction given to new entries. The need for space and accommodation was therefore imperative. At the start of the war the school had been housed in a former Y.M.C.A. hut of the First World War, a flimsy, inflammable building, and in October 1940 it was decided to combine the gunnery and torpedo schools in the Nelson Barracks.⁶² Naval expansion, however, exceeded the capacities of the new buildings, but H.M.C. Gunnery School was not moved out of the dockyard until it was transferred to "Cornwallis." At H.M.C.S. "Naden" the same difficulties existed. Facilities proved so inadequate that all qualifying for non-substantive gunnery ratings was stopped in January 1942.

Improved accommodation and modern equipment were slow in appearing. One model of each principal type of gun in the navy was available at Halifax. It was difficult, however, to fit one gun into the various training schedules of, for example, those who wanted to strip it and those who wished to drill on it. More guns were obtained later on, when a separate battery was established, and at times some were borrowed from ships under refit. When the school was moved to "Cornwallis", the outfit of guns for training purposes was brought into line with the armament of most Canadian ships other than cruisers and aircraft carriers.⁶³

Throughout the war, ships came before schools in the allocation of gunnery appliances, and resort was had to warships in harbour for assistance in training. It was not until 1944 that all second and third-class ratings, with the exception of layer ratings, second class, who required a firing ship fitted with a director, could be trained by means of school equipment alone. By the end of 1941, however, instruction for all ratings except Q.R.2 and A.A.1 had been made available.⁶⁴

Model training devices were gradually introduced into the gunnery school, increasing the effectiveness of instruction and becoming progressively more elaborate. By August 1940 a spotting table and a shooting teacher had been obtained, and by March 1941 the R.Y.P.A. (Roll, Yaw, Pitch and Alter

⁶² A D. Min. to D. Min., P.W., Oct. 29, 1940, N.S. 50-S-3 (1).

⁶³ Interview with Cd. Gr. A. Harwood, Nov. 1944.

⁶⁴ O. in C. "Cornwallis" gunnery school to C.O. "Cornwallis", July 16, 1945, N.S. 1440-1 (1). Courses for first-class anti-aircraft ratings were not given in Canada during the war.

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Course) equipment was in operation. The spotting table simulated the fall of shot around an enemy vessel, and permitted gunnery classes to learn the correct orders employed in straddling a hostile ship. The shooting teacher instructed men in laying and training on a moving target. The R.Y.P.A., also a shooting teacher, provided a stationary target, and an entire platform, on which was mounted gun, director and air rifle, heaved in order to familiarize the trainee with the effect on aim of a moving ship. A battle teacher was installed at "Cornwallis" in 1945. It provided a practical demonstration of night action in a modern destroyer, and consisted of a 4.7-inch loader mounted on a destroyer gun platform, with director instruments worked electrically, and errors in laying and training automatically recorded. The ship's roll, the flash of guns, the bursting of enemy shells, and the sound and feel of wind and spray, were all effectively reproduced.⁶⁵

Training devices and instruction for A.A. gunnery appeared slowly. When the R.C.N. had followed the British navy in the latter's re-organization of gunnery ratings in 1938, no provision had been made for an anti-aircraft rating. In 1940, however, for the new-construction ships, Canadian personnel were sent to England to qualify for A.A. ratings (second and third class), in order to form a nucleus capable of establishing training in Canada.⁶⁶ By the spring of 1941 a course had begun in Halifax, and the Heaton-Delamere trainer, an ineffective and costly machine, was the first close-range training device used. This was soon superseded by the Admiralty dome teacher. The latter threw the image of a diving aircraft upon a dome-like ceiling, and produced the sound of the plane's motors. Aim was indicated by a spot of light on the ceiling, visible only to the instructor. The dome teachers proved so valuable that they were installed throughout the Empire.

Until relatively late in the war, teachers of aircraft recognition were few and equipment was outmoded. In October 1943 the first step toward improvement was taken when naval personnel attended a course in recognition at one of the air force schools. These in turn trained others, and three extra days were added to all A.A. courses for the teaching of both aircraft and ship recognition. Modern training equipment was

⁶⁵ This description of the principal training devices in the gunnery school was obtained from O. in C. "Cornwallis" gunnery school to C.O. "Cornwallis", July 16, 1945, N.S. 1440-1(1).

⁶⁶ N. Sec. to C.O.A.C., Mar. 27, 1940, N.S. 4900-946 2-2 (1).

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acquired, such as the flash projector, and training in instant identification was given by throwing the silhouette of a plane onto a screen for as short a time as one-fiftieth of a second.⁶⁷

D.E.M.S. training, concerned principally with gunnery, was provided for merchant seamen as well as naval ratings. The organization of D.E.M.S. was established at the start of the war in major British and Canadian ports. Special Canadian instructional centres were opened at Halifax, Montreal, Sydney, Saint John, Vancouver, and St. John's, Newfoundland. Lack of equipment and a shortage of qualified instructors delayed the installation of these schools; but by the summer of 1943 all were under way, except the one in St. John's which did not take shape until the following year. The problem of lack of interest on the part of the seamen during the first eighteen months was partially solved by the granting of a gratuity of two dollars to each man who qualified for a D.E.-M.S. rating.⁶⁸

Most centres had the use of a dome teacher, a gun battery for low-angle firing, and an outdoor range for trap shooting and firing with Oerlikon and .5-inch Colts at drogue targets, while Halifax and Montreal possessed miniature tracer firing ranges for exercises with fast-moving targets. Merchant seamen took the general course, and had to re-qualify every four months. Each merchant ship was also supposed to carry two machine gunners who had passed a special A.A. course; and all the seamen took a two-day gas course. The D.E.M.S. centre also provided instruction for men of the Royal Artillery Maritime Regiment, and, of course, for the naval ratings assigned to D.E.M.S. duties.

Late in 1943 the complement of naval D.E.M.S. personnel was augmented, and training was put on a systematic footing. Special gunnery instruction was given for three weeks at "Cornwallis", and for one week at Halifax where the ratings could become acquainted with merchant ships. Some sixteen hundred D.E.M.S. personnel were produced during the Second World War, and in general the centres at Halifax and Vancouver ranked next to certain ports in the United Kingdom, Gibraltar, and Bombay, in the number of seamen instructed.⁶⁹

⁶⁷ O. in C. "Cornwallis" gunnery school to C.O. "Cornwallis", July 16, 1945, N.S. 1440-1 (1).

⁶⁸ N. Sec. to C.O., R.C.N.B., Halifax, July 7, 1941, N.S. 1027-14-1 (1); N.S.H.Q. to Admiralty (signal), Aug. 28, 1942, N.S. 1027-14-1 (2).

⁶⁹ Naval Staff Minutes, Aug. 16, 1943; memo. by D. D.E.M.S., July 6, 1943, N.S. 1027-14-1 (3).

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At the peak of the navy's strength, in January 1945, the gunnery branch of the lower deck was composed of 99 control ratings, 924 layer ratings, 1,445 quarters ratings, 2,284 anti-aircraft ratings, 396 artificers, and about 570 D.E.M.S. personnel. Together these made a total of roughly 5,800 men.⁷⁰

Communications

Communications or signal training developed greatly during the Second World War. While the old methods such as V/S were retained, new equipment led to increasingly varied specialties and types of training. The V/S and W/T branches each included six grades: ordinary signalman and ordinary telegraphist, signalman (trained operator) and telegraphist (trained operator), leading signalman and leading telegraphist, yeoman of signals and P.O. telegraphist, chief yeoman of signals and C.P.O. telegraphist. Certain requirements involving length of service and special courses were necessary for advancement.

Instruction given to ordinary signalmen was the basis for training throughout the branch, so that advanced ratings simply made a more intensive study of the fundamental teachings. The syllabuses of all grades were thus concerned with such matters as fleet work (shapes, colours, and uses of flags), fundamental tactics, coding, morse, semaphore, and telephone. A leading signalman qualified for V/S third class, and a yeoman for V/S second class.

The basic course which was given to the telegraphist included such subjects as mathematics, radio theory, the operating procedure of wireless equipment, simple repairs, and morse and semaphore. This prepared him to receive and transmit continuous-wave and radio-telephone signals, to correct confidential books, and to handle the daily maintenance of his set. The P.O. telegraphist supervised the W/T department and the coders as well. The coder branch corresponded to that of telegraphist and signalman, with the exception that it lacked the class of trained operator. Coders took only one course; this involved the structure of specialized naval systems of coding, cyphering based upon the use of numerals, type-writing, and teletyping. One rating in the telegraphist branch was known as telegraphist (special operator). His work was that of receiving operator, and he was concerned with the

⁷⁰ Statistics obtained from D.P.R.

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correlation of submarine movements and the interpretation of enemy code messages.

Finally, the communications branch contained the various radar ratings. They were classified as R.D.F. (radio direction finder, later radar), first, second, and third class, until January 1945 when they were divided into radar control and radar plot ratings, with the same grading into classes. The radar operator worked a high frequency electronic beam which produced echoes shown on the instrument's screen. These were caused by the beam's striking an object on the surface of the sea or in the air, and being reflected from it. The nature, distance, and bearing of the object were interpreted from the echo.

Both the control and the plot rating were also concerned with operational procedure. The former was a member of the gunnery branch, and his instruction included a course in fire-control instruments. At sea he was responsible for manning the instruments that sent radar-derived information to the guns. The plot rating received all his instruction in the signal school. He was trained in navigation and plotting, both of which were employed in determining the course and speed of surface and air craft. In March 1943 the radio artificer was created so as to relieve the control and plot rating of maintenance. He was given an intensive training in radio theory, general workshop practice, and maintenance of radar and W/T equipment.

Courses in the communications branch, like all technical instruction, tended to increase in length during the war. The early teaching for V/S third class was completed in twenty-two days,⁷¹ while at the end of hostilities it took nine weeks. The radio artificer's course lasted nearly a year. Nevertheless, until the closing years of the war, the persistent problems of war-time training—inadequate accommodation, lack of instructors and equipment, and poor initial selection—dogged the signals branch perhaps more than any other department of training. It was especially unfortunate regarding suitable barrack and school space. Signal training had first been located in the R.C.N.V.R. quarters in the Halifax dockyard, and then in the Exhibition Grounds. The army, however, had pressed for the return of the latter site before a permanent signal school was ready, and in October 1941 communications train-

⁷¹"Stadacona" to N.S.H.Q. (signal), Oct. 23, 1940, N.S. 21-25-3 (2).

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ing was transferred to yet another temporary location at St. Hyacinthe, P.Q., leaving its recently-initiated radar school in Halifax for lack of room. The radar school was shifted about from one location to another, and it was not until August 1943 that it finally moved to St. Hyacinthe.⁷²

On the west coast it had been obvious at an early stage in the war that training facilities were inadequate. Space for lecture rooms and equipment was insufficient; and a new building was proposed in September 1940.⁷³ It was completed in May 1942, but because equipment and instructors were not available little use was made of it, and the training which qualified ratings for non-substantive ratings up to V/S 3 stopped in the fall of 1942.

Training at Halifax for the V/S 3 and W/T 3 ratings was begun in the fall of 1940; and instruction for V/S 2 and W/T 2 a year later. The coders, who had hitherto not existed in the Canadian navy, were instituted as a part of the communications branch in the spring of 1941.⁷⁴ In February 1943 the Admiralty's Director of Signals declared that the Royal Navy was ready to accept R.C.N. standards in V/S and W/T up to third class ratings, and that once signal equipment specially ordered from England had been installed in Canada, examination results for any grade of W/T rating would be accepted.⁷⁵ This condition was met at "St. Hyacinthe" at the beginning of 1944, by which time accommodation for the equipment was ready.

Since the start of the war, effective training in the signals branch had been made difficult by poor selection of recruits, but by 1944 improvements had been made in this field as well. In December 1940 an educational standard for V/S and W/T had been established, namely that ratings should have had at least two years of high school. Later, in 1941, it was laid down that until ratings could read morse at twelve words per minute they were not to join a regular class; and in V/S, if a pupil was still unsuitable after five weeks of training, he lost his non-substantive rating.⁷⁶ These reforms, however, had not yet met the problem of inadequate initial selection. In

⁷² Interview with El. Lieut.-Cdr. (R) C. W. Warner, R.C.N.V.R., formerly O. in C., Halifax radar school, Jan. 1945.

⁷³ N. Supt., Dockyard, Esquimalt to N. Sec., Sept. 27, 1940, N.S. 96-8-9 (1).

⁷⁴ Monthly Training Reports, Halifax, *passim*, N.S. 1000-5-13.

⁷⁵ D.S.D. to V.C.N.S., Feb. 15, 1943, N.S. 21-25-3 (6).

⁷⁶ N. Sec. to C.O., Toronto Div., Dec. 28, 1940, N.S. 114-1-40 (1); N. Sec. to C.O., R.C.-N.B., Halifax, Sept. 9, 1941, N.S. 21-25-1 (1).

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November 1941 "St. Hyacinthe" complained that 17½ per cent of its trainees were failing their courses, and it was suggested that some psychological test be used to weed out unsuitable candidates at the very start, in the Divisions, but nothing was done along this line.⁷⁷ With the advent of selection techniques in 1944, the dissatisfaction with personnel became negligible.

Similar and more serious problems had been encountered in radar training. When it had been proposed to introduce radar into the R.C.N. early in 1941, there had been no one in the Service acquainted with the mysterious device, and for some months responsibility for radar training policy fell to the A/S branch.⁷⁸ The latter's Director formulated the first training programme, which included an introductory course in electricity at the University of Western Ontario, and instruction in operational procedure at Halifax. Fifty-nine ratings were selected by the university through the London Division, and at least twelve of the fifty-nine were considered unsuitable when the course came to an end. This theoretical course was not repeated.

Inadequate selection persisted when radar instruction got under way in Halifax in August 1941. Recruits were new-entry seamen, and for the most part they constituted what was left over after the gunnery, torpedo, and asdic branches had made their selection. They had low academic qualifications and low learning ability. There was a shortage of instructors, and a minimum of actual instruction. The demand for operators was so imperative, however, that men had to be passed whom the radar school knew to be poor, and complaints came in from sea about the inefficiency of the radar ratings.⁷⁹ During the spring of 1944, however, there was a marked improvement when operators began to be trained at H.M.C.S. "St. Hyacinthe."

The early history of radio artificer training was also complicated by defective selection. A start was made toward the end of 1942, when recruiting for the new rating was begun from the ranks of radar and W/T operators who had worked in maintenance. The facilities of the Universities of Alberta and New Brunswick were used to provide a course in radio

⁷⁷ C.O., "St. Hyacinthe" to C.O.A.C., Nov. 4, 1941, N.S. 21-25-1 (1).

⁷⁸ Interview with Cdr. A. R. Pressey, July 1945.

⁷⁹ C.O., "St. Hyacinthe" to Sec. N.B., Apr. 19, 1944, N.S. 1052-2-1 (4); Capt. (D), Nfld., to F.O.N.F., Feb. 23, 1944, N.S. 1052-2-1 (3).

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theory, and the remainder of the instruction was taken at "St. Hyacinthe." In March 1944 the whole of the training was transferred to "St. Hyacinthe", as the university staff was hampered by not having been told, for security reasons, the service applications of radar. To meet requirements some five hundred artificers had to be trained, and instruction was carried on in day and night shifts.

Instruction at the signal school lacked sea training because St. Hyacinthe lay far inland. Training devices that simulated actual operational conditions were therefore all the more important. W/T instruction was given in receiving offices which allowed sixty to eighty operators to train at one time on naval traffic frequencies under the reception conditions met with in ships. R/T training cabinets allowed interference to be injected into radio-telephone messages, so that V/S and W/T ratings had realistic practice. The pupil's recorded words were played back to him so that he could hear his own mistakes. Masts and bridges were set up on the "St. Hyacinthe" parade ground to facilitate exercises in visual signalling; a rolling bridge was constructed so that men could learn to make or receive signals under heavy motion; and ship models fitted with signal lights were operated by trainees, who exchanged messages between ships exactly as it was done at sea. In training radar operators, echoes of various types of moving target were accurately reproduced, and a trainer was devised that could change the strength of the echo, range of detection, and width of beam, to suit the characteristics of the radar set being used.⁸⁰ Most of these devices were not obtained until after the signal school had moved to St. Hyacinthe.

At the peak of the navy's strength the communications branch contained about 9,300 ratings. Of these, 2,338 were signalmen, roughly 3,200 telegraphists, about 1,000 coders, 2,200 radar operators, and 399 radio artificers.

Torpedo

The development of torpedo instruction and its attendant difficulties during the Second World War paralleled that of training in the other principal branches of the R.C.N. The special obstacles in the way of efficient training in the branch

⁸⁰ Information on training devices was obtained from signal school, "St. Hyacinthe". In the spring of 1945, a "mock-up" of a cruiser's action information organization was completed at the signal school, and training was given to radar plot ratings, signalmen, and officers.

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derived from the traditional duties of the torpedoman. He was responsible for maintaining a large part of the ship's electrical gear, and great development in this equipment after 1939 proved a heavy burden. Apart from radar, asdic, W/T, and certain engine-room responsibilities, the torpedo branch had charge of electrical equipment in ships of all types. It was also responsible for explosives other than those required for gunnery, such as torpedoes, mines, depth charges, and demolition charges; and for the maintenance and adjustment of paravanes, other anti-mining devices, and anti-submarine weapons.

Non-substantive torpedo ratings were divided into seamen torpedomen (S.T.), leading torpedomen (L.T.O.), leading torpedomen (Low Power), torpedo gunner's mate (T.G.M.), and the electrical artificer (E.A.). The first four ratings were related and constituted a hierarchy in which the T.G.M. was the senior because of longest service and the increasingly difficult courses that he had passed.⁸¹

In all ships the S.T. was employed in the simple routines involved in the care and maintenance of electrical equipment, he carried out switchboard and telephone watchkeeping duties, and in destroyers and cruisers he assisted in the maintenance of torpedoes under the supervision of the T.G.M. In destroyers and smaller ships he was also concerned with depth-charge fitting and maintenance, and might be a member of the electrical damage-control party, torpedo-tube crew and control party, or A/S weapons crew.

The duties of the leading torpedoman were classified as executive, electrical, torpedo, and A/S. In frigates and corvettes he was senior torpedo and electrical rating, and in larger ships he was in charge of a group of S.T.'s. He carried out electrical maintenance, turning over the more technical repairs to the E.A. who was solely responsible for the gyro compass, logs, and plotters. The L.T.O. was "number one" of the torpedo-tube crew, and assisted in routine maintenance. He took care of D/C's and hedgehog, and of certain parts of the minesweeping equipment. The L.T.O. (Low Power) was a specialist in low power and fire control circuits and equipment. The T.G.M. was in charge of L.T.O.'s and S.T.'s, and he therefore required a more advanced knowledge of all electrical gear. He was also concerned with the final adjust-

⁸¹ Two other torpedo ratings require mention: the torpedo lieutenant's writer, and the electrician who was converted into an electrical artificer later in the war.

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ment of torpedoes and tubes, and frequently acted as instructor for the lower ratings at sea and on shore.

The fundamental training in the torpedo branch took seven weeks, and covered the elementary theory of electricity and its various uses aboard ship; the S.T. having already as a new-entry seaman acquired a working knowledge of the depth charge, the remainder of the course was devoted to torpedoes and torpedo tubes. The L.T.O. and the T.G.M. covered the same ground but much more fully, and both received instruction in mining and degaussing. The T.G.M. was taught more mathematics and electrical theory than the other two ratings.

The electrical artificer's previous experience determined his training. If he had been a fitter or turner or an instrument man in civilian life, his naval instruction as E.A. fifth class emphasized such matters as electrical theory, practical mathematics, and torpedo equipment. If he had transferred from the stoker branch, he took a machinist's course as well, and if he was an electrician he took just the machine-shop training.

The original torpedo school in the Halifax dockyard was poorly housed in 1937, when it consisted of two wooden buildings which had been used as storehouses. They were heated with small stoves, and were so crowded that different classes interfered with one another. Few improvements were made until the new torpedo school in Nelson Barracks was opened in 1943.⁸² On the west coast torpedo training had not fared so badly, as a suitable school had been set up in 1929.

Training gear was acquired even more slowly than accommodation. In the early years of the war the school functioned with scanty and obsolete equipment such as torpedoes of the previous war, a set of tubes from H.M.C.S. *Aurora*, and a single Sperry compass. During 1943, however, the supply of gyro equipment had been increased, and the standard of instruction in that subject had proved excellent. A hedgehog mounting had been installed in order to train L.T.O.'s, and dummy depth-charge gear had been set up in "Cornwallis" for new entries.⁸³ During 1944, moreover, demonstration gear for practical work in high and low-power installations began to arrive at the school, and modern torpedo tubes were obtained for instructional purposes. In June 1944 N.S.H.Q.

⁸² Interview with Gnr. (T) J. Mason, R.C.N., instructor in Halifax torpedo school, Nov. 1944.

⁸³ *Ibid.*; interview with El. Cdr. J. Deane, R.C.N., D.L.P., Feb. 1946. The hedgehog installed in Halifax did not fire as did the model set up in "Cornwallis" in 1945.

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reported that although considerable improvement had been made, the torpedo school should place more emphasis upon the practical aspects of its instruction, especially with respect to the electrical installations in small ships.⁸⁴

Despite these difficulties, courses for L.T.O.'s, S.T.'s, and E.A.'s, began during the first months of the war, and the qualifying of T.G.M.'s was started early in 1941. The supply of leading torpedomen, however, continued to present a special problem in Halifax throughout the greater part of the war, as it was difficult to get men back from sea to qualify. Ships' captains were not eager to send good ratings away, and the men themselves did not want to leave the sea for irksome barracks routine and school. Remedies were therefore sought in a more careful selection of S.T.'s, and in the provision of a social and sporting club for torpedomen which would make shore life more pleasant. By the end of 1944 the benefits of this policy had become apparent.⁸⁵

The west-coast torpedo school closed late in 1943, because of lack of higher ratings to serve as instructors. This establishment had trained S.T.'s and L.T.O.'s. Its instructional equipment had been sufficient for the training of these ratings, especially as classes had been small and special attention had been paid to the individual. With the closing of the school all instructors and a large part of the equipment were removed to the east coast.⁸⁶

Because of the increasing scarcity of skilled artisans to be drawn from the civilian population, the supply of electrical artificers also presented a problem. By the end of 1941 the navy saw that it must create its own supply of E.A.'s; and electricians were therefore recruited and sent to the Hamilton Technical Institute for a course in machine-shop work. Some of the men also went to Brooklyn, N.Y., for training in the maintenance and installing of the Sperry gyro compass. E.A.'s were also obtained through the War Emergency Training Programme at Galt, first used by the navy in September 1941. Primarily devoted to engine-room training, this project also made provision for electrical training by sending some of the men to the University of Alberta. By the spring of 1943, as a result of these expedients, the required number of E.A.'s fifth

⁸⁴ Sec. N.B. to C. in C., C.N.A., June 25, 1944, N.S. 1-35-1 (2).

⁸⁵ Interview with Lieut.-Cdr. (T) J. A. McAvity, R.C.N.V.R., O. in C., Halifax torpedo school, Dec. 1944.

⁸⁶ Interview with Lieut. (T) W. M. Jackson, R.C.N., O. in C., "Naden" torpedo school, Jan. 1945.

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class was achieved, although a shortage of chief E.A.'s remained a problem for the rest of the war.⁸⁷

As the progress of the war made for steady naval expansion and increased specialization of naval activities, the original training programme for torpedomen revealed certain inadequacies, especially in minesweeping. By the middle of 1942 no regular courses had yet been offered to qualify personnel for this work, and in July special training in magnetic minesweeping was therefore begun. Although the newer types of mine were not found off Canadian coasts, instruction in how to deal with them was very desirable against the day when they might appear.⁸⁸

Although anti-gas training was among the many responsibilities of the torpedo school, for some time little more was done than to issue and test anti-gas equipment, and no facilities were made available for simulating the use of lethal gases or for practice in decontamination. In 1944, however, an officer was sent to the R.N. for special training; officers and ratings were sent to Canadian army schools; and plans were drawn up for chemical-warfare centres at Halifax, Esquimalt, and "Cornwallis." The west-coast school never operated during the war, but the east-coast establishments got under way by the end of 1944.⁸⁹

The development of naval weapons and equipment during the Second World War had increased the responsibilities of the torpedo school to such an extent that it was overburdened with different types of instruction, and the tasks of the various training establishments needed re-defining. This was done by the post-war merging of the asdic and torpedo schools and by creating an electrical branch.

Engine Room

The Second World War brought forth so great a demand for skilled tradesmen in the armed Services and in war industry that the community's resources of qualified personnel were soon exhausted. The Canadian Services accordingly created their own supply of artificers by intensive training in civilian

⁸⁷ C.R.O. to D.N.R., Jan. 31, 1942, N.S. 21-3-4 (1); Sec. N.B. to C.O. "Cornwallis", Feb. 8, 1943, N.S. 21-3-1 (2); interview with Cdr. Deane, Feb. 1946.

⁸⁸ Torpedo Officer, "Cornwallis" to C.O. "Cornwallis", July 9, 1942, N.S. 14900-970 160 (1); minute by D.O.R. to A.C.N.S., Nov. 28, 1944, *ibid.*

⁸⁹ O. in C., Halifax torpedo school to C. in C., C.N.A., Mar. 22, 1944, N.S. 4923-1 (2); Naval Board Minutes, Apr. 24, 1944.

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trade schools operated by the various Provincial governments. The extent to which the engine-room branch made use of civilian facilities gave it a special place among naval instructional activities.

There were two distinct classes of engine-room rating—the stoker, and the engine room artificer (E.R.A.). The stokers made up roughly ten per cent of the navy's strength at its peak, and were divided into three groups: steam, motor mechanics (MM), and fire fighters (FF). Although the stoker might tend a coal furnace on shore, in the great majority of Canadian warships he handled oil-fed fires and boilers, and was responsible for oiling and cleaning the main engines and auxiliaries. When he qualified as a leading stoker there was an opportunity for advancement to mechanician, at which point he joined the ranks of the E.R.A.'s who maintained and repaired the engine-room machinery. The fire fighter served on shore and the motor mechanic operated in smaller ships and landing craft.

E.R.A.'s belonged to several trades: fitter and turner, engin smith, boilermaker, coppersmith, welder, draughtsman, moulder, and patternmaker. Their duties on shore and in harbour involved the normal activities of each trade; at sea they were in charge of a watch in the engine room, and remedied ordinary defects in machinery. A chief or senior E.R.A. might be in charge of the machinery in a small ship, manage a dockyard machine shop, or serve as instructor in the mechanical training establishment (M.T.E.).

The courses for E.R.A.'s, designed to meet different types of background, varied considerably. Some entered the Service without any qualifications, and studied at civilian trade schools before taking the advanced naval course. Others were chosen from efficient leading stokers, and took an E.R.A. candidate's course at either a civilian or a naval school. Finally there were those who enlisted as partly or fully qualified personnel, and were given special instruction in marine matters at civilian or Service training centres. In general these courses included elementary mathematics, general science, and workshop practice, and the pupil's efficiency at the conclusion of a course was assessed by means of a standard examination and trade test. The period of instruction was comparatively long. The final step to Chief E.R.A. was attained after passing a special examination and acquiring certain certificates

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The instruction of stokers, mostly provided at naval schools, dealt with boilers, ships' engines, types of fuel, fitting, coppersmithing, moulding, bricklaying, motor repair, machine-shop work, and fire fighting. Different subjects were stressed, depending on whether the stoker was steam, MM, or FF. Promotion was obtained through length of service, specialized training, and examinations, and the highest rating to be obtained in this branch was chief E.R.A. (M).⁹⁰

Space and equipment for engine-room training in the Canadian navy were negligible at the outbreak of war. In Halifax there was practically no advanced training until June 1940, when a school for new-entry stokers was established. The school only began operating systematically, however, when a move was made to the Halifax Forum in the autumn of that year. Training gear remained scanty, and instruction relied for the most part upon diagrams.⁹¹ Some lectures on internal-combustion engines were given at the Nova Scotia Technical College, and at the Pictou Foundry, where instruction for leading stokers and motor mechanics was also provided. Shortly after June 1940, personnel for the M.T.B. flotillas were trained at the Packard Plant in Detroit.⁹² Every opportunity, of course, was taken to send stokers and E.R.A.'s to sea, where they could become acquainted with engine-room machinery in operation.

The extent and nature of training on shore, therefore, were not intended to provide for any considerable growth in naval strength, particularly when such expansion was faced with a dwindling supply of trained civilian personnel. In 1941, plans were made by the navy, together with the other armed Services, for a modern and intensive project for apprentice training, with standardized requirements providing for the greatly increased demands of war. The first step was taken in September 1941, when a class of apprentice artificers was begun at Galt under the Dominion Provincial Youth Training Scheme; and in April 1942 a similar course was started at the Technical College in Calgary for candidates selected from the western Provinces.⁹³ Apprentices were required to be between 17½ and 23 years old, and to have had a minimum education of grade ten, preferably in technical schools. After basic and

⁹⁰ App. to *Second Report, Royal Commission on Veterans' Qualifications*; interview with Lieut. (E) H. Thomas, M.B.E., R.C.N., staff of D.E.P., Jan. 1946.

⁹¹ Interview with Lieut.-Cdr. (E) Nielson, R.C.N.R., Dec. 1944.

⁹² Packard Motor Car Co. to Nat. Def., Oct. 3, 1940, N.S. 21-3-3 (1).

⁹³ Sec. N.B. to C.O. "Naden", Apr. 25, 1942, N.S. 21-3-10.

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advanced courses in civilian schools they took a final period of training at a naval establishment. It was not until January 1941 that the Naval Staff decided to establish a separate school for engine-room ratings in the Nelson Barracks,⁹⁴ and accommodation only became available in 1943. During the time of growth, the west-coast and civilian schools assumed most of the burden.

At the start of the war, training facilities at "Naden" had been considerably better than those on the east coast; equipment and classroom space were available, and the initial lack of instructors in marine engineering was soon remedied by sending men to sea in commercial ships for three or four months. The first course for probationary E.R.A.'s was given on the west coast, and to "Naden" also went the graduates of the apprentice training scheme at Galt.

During 1942 much help was received from civilian schools. In May, the Windsor-Walkerville Vocational School undertook to train probationary E.R.A.'s, and in July the facilities of the four Toronto technical schools were first employed in the instruction of welders, mechanics, motor mechanics, and motor operators.⁹⁵ In 1943 still other courses were given for various specialists as follows: probationary coppersmiths in Toronto; probationary boiler-makers at John Inglis' (Toronto) after twenty-four weeks of preliminary training at the Canadian Locomotive Works, Kingston; stokers (M) for combined Operations at Detroit and Flint, Michigan; M.L. mechanics at the Sterling Engine Works, Buffalo; and mechanics at the Windsor-Walkerville school. This instruction lasted to the end of 1944, gradually diminishing as naval facilities became available. Some 7,700 ratings were trained in the technical schools of the Dominion during the war.⁹⁶

In early 1943 engine-room training establishments were set up in Halifax and at "Cornwallis", and courses for leading stokers, leading stokers (M), E.R.A. apprentices, probationers and mechanics, new entry stokers, motor mechanics, fitters, turners, coppersmiths, and boilermakers, were provided. Both schools had well-equipped establishments, although Halifax had the better gear. Demonstration rooms were built, and models of such items as the Hele-Shaw pump, an oil-fuel unit,

⁹⁴ Naval Staff Minutes, Jan. 14, 1941.

⁹⁵ Sec. N.B. to C.O. "Cornwallis", Feb. 8, 1943, N.S. 21-3-1 (2).

⁹⁶ O. in C., Halifax M.T.E. to Drafting E.O., Oct. 22, 1943, N.S. 21-3-3 (4); statistics obtained from D.E.P.

a water-tube boiler, and a water-gauge glass were provided. In 1944 each school obtained a full-scale corvette engine, and training at "Cornwallis" was further helped when the destroyers *Saguenay* and *Buxton* were assigned to the school for weekly periods of instruction.⁹⁷

The "Naden" school, by comparison, suffered from lack of equipment, and its courses for motor mechanics were stopped in 1944. During that year, however, the school moved to more spacious accommodation, classrooms were obtained, and in 1945 a room for models was installed and a corvette engine was set up. The only remaining lack was that of a suitable training ship, as the steamer *Malaspina* had been taken over by the naval college.⁹⁸

By the end of the war, engine-room training in the R.C.N. had come a long way, with well-equipped trade schools established on both coasts. Much of the navy's success came from the extensive use that was made of civilian school facilities throughout the nation.

Instructors and Instruction

As warfare became more technical, training in the armed Services had to shift its emphasis from the methods of the drill hall to the procedures of modern pedagogy. More attention than ever before was paid to providing skilful instructors and the employment of ingenious training aids. The Service man had to learn his trade with the utmost speed, and the Canadian navy, like those of Great Britain and the United States, applied in part the new methods of instruction.

Among the problems introduced by revising the methods of instruction was that of ensuring a supply of experienced men for teaching duties. The Canadian navy had grown from minute origins, and it took time to give the necessary spell at sea to higher ratings who were to serve as instructors. Moreover, it was not easy to persuade a commanding officer to part with them for shore duties. Reliance had therefore to be placed on older ratings and warrant officers who had fought in the First World War, and upon men who were unfit for sea duty.⁹⁹ This dependence lessened with time, but neither the

⁹⁷ "Cornwallis" M.T.E., Monthly Training Report, Feb. 1943, N.S. 26-1-36 (1); O. in C., "Cornwallis" M.T.E. to C.O. "Cornwallis", July 21, 1945, N.S. 1440-1 (1).

⁹⁸ Lieut.-Cdr. (E) E. W. Wood, to D.E.P., Apr. 24, 1944, N.S. 21-3-2 (9); interview with Lieut.-Cdr. (E) W. Stewart, R.C.N.R., Training Officer, "Naden" M.T.E., Jan. 1945.

⁹⁹ The divisional officers at "Kings" were often without sea experience, particularly in the earlier period.

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Canadian navy nor its British counterpart found any ideal solution for this problem.

Methods of instruction as distinct from the supply of teachers were another affair. Lectures in instructional technique were for a short time made a part of courses for specialist officers, gunner's mates, T.G.M.'s, and S.D.I.'s, and members of the Nova Scotia Technical College were employed as supervisors.¹⁰⁰ In November 1943 a check on the performance of instructors was introduced as a permanent feature of training at H.M.C.S. "Cornwallis." A naval schoolmaster placed at the disposal of the several schools assessed the quality of classroom teaching. Certain common defects were noted: the instructor just back from sea was apt to be too "salty", and to forget that he was talking to raw recruits; there was a tendency to make too little use of the blackboard, for fear that inadequate drawing skill might be revealed; the construction and administration of examinations was sometimes found wanting; and some of the teaching tended to be dull and mechanical.¹⁰¹

In February 1944, a guide to the proper conduct of school tests was distributed to the various training authorities. It warned instructors against trick questions, and laid down rules for the correct distribution of marks. The naval schoolmaster pointed out the weaknesses that he had observed, and general hints were given to instructors in pamphlets and films. The schoolmaster, however, did not possess executive authority to enter schools at will; and some made little use of him. In the spring of 1945 the gunnery school sent an officer to H.M.S. "Excellent" to observe the course given in "Instructional Technique" (I.T.), with the object of ultimately employing similar instruction in Canada.¹⁰² The I.T. course was the largest course of its kind among British naval establishments, and was given at the gunnery school at Whale Island. Before a man might qualify for any first-class non-substantive rating he had to pass the I.T. requirements.

In the Canadian as in the British navy, instructional officers had a traditional and special function. As naval war had become more technical, mathematics and the natural

¹⁰⁰ C.O. "Cornwallis" to Sec. N.B., Oct. 12, 1942, N.S. 21-46-1; A.D. Min. to C.N.S., May 30, 1941, N.S. 21-1-27.

¹⁰¹ Interview with Instr. Lieut. R. N. Ripley, R.C.N.V.R., Supervisor of Instruction, "Cornwallis", Nov. 18, 1944.

¹⁰² Sec. N.B. to C. in C., C.N.A., Feb. 10, 1944, N.S. 4525-1 (1); interview with Instr. Lieut. Ripley, Nov. 1944; Gunnery Conference Minutes, Mar. 14-15, 1945.

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sciences had become more important in Service curricula, and their teaching fell to the schoolmaster. This part of a course was known as "school", and was taught all at once at the beginning, while the more practical aspects of instruction had been left to executive and sea-going personnel. The result was a lack of integration between theory and practice, and the schoolmaster's efforts were apt to be wasted.¹⁰³ There developed a growing tendency, however, to teach "school" concurrently with the applied sections of the course; and at "St. Hyacinthe" the instructor officers demonstrated that they were able to assume responsibility for the entire course. This showed that instructor officers could be given greater responsibility and more opportunity to learn and teach the operational aspects of naval warfare.

The emphasis in modern naval training had been on connecting instruction as closely as possible with the job to be done at sea, eliminating the irrelevant, and making the pertinent obvious by every practicable means. One development of the war was the visual aid, a term which included films, models of equipment, wall charts, and diagrams. The last two received much attention in the Canadian naval schools, especially in the mechanical training establishments and the gunnery schools. Adequate employment of models came gradually; but the proper use of films was never promoted vigorously enough. Although projectors and motion pictures were available to all schools, training officers were not taught to use this type of instruction. The Royal Navy, on the other hand, turned to the United States Navy for guidance, the latter having developed this form of instruction to a high degree.¹⁰⁴ The R.N. duplicated the American audio-visual officer in the form of the visual training officer (V.T.O.), and appointed one to each training establishment.

The film, however, like any other instructional technique, had its limitations. The film's survey of a subject was apt to be too rapid for thorough understanding, and it could be justifiably substituted for actual work with gear only when equipment was lacking. As one British report declared: ". . . most instructional films serve better for introducing a topic and giving a general conspectus . . . than for providing the real meat of a course."¹⁰⁵

¹⁰³ P. E. Vernon and D. Straker, *Training and Selection in the Torpedo Branch of the Royal Navy* (1945), p. 44.

¹⁰⁴ Interview with Instr. Cdr. Clark, R.N., June 1945.

¹⁰⁵ Vernon and Straker, *Torpedo Training in the Royal Navy*, pp. 51-55.

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The really revolutionary training aids used during the Second World War, however, were not the visual aids, but the various mimic-warfare devices used in the different departments of naval instruction. These were employed widely, and as the war progressed they became steadily more realistic. Simulation of actual warfare at sea went so far as to have water thrown on the men in a gunnery battle teacher, or the complex operations of an escort vessel imitated on shore in a night action room. Short of firing live ammunition at naval personnel, few effects were omitted.

The Canadian navy, as has been seen, was within the main stream of development in training. There was, however, lack of a clearly defined policy that could be uniformly applied throughout the Service; and in this respect the American example deserves mention. The Bureau of Naval Personnel at Washington exercised a centralized supervision of training activities in most naval schools; and it applied periodic tests to assess the efficiency of instruction.¹⁰⁶ A similar method was suggested for the R.C.N., but was never adopted. If naval instruction in Canada was in some respects deficient, it should be emphasized that the Canadian and British system possessed an invaluable source of strength. The Royal Canadian Navy, in its instructor officers, had a permanent core of trained teachers whose very presence and example must have influenced the standards of instruction, and who were always close at hand to advise on questions of teaching.

Personnel Selection

In the initial allocation of naval recruits, the use of tests played a very small part. The new testing methods were more important in the selection which took place after the recruiting officer had assigned men to various branches, but even here personnel selection was not as thoroughgoing as in the British and American navies.

Until "Cornwallis" was established, men had been obtained for non-substantive training in gunnery, torpedo, asdic, and communications, by being recommended from sea, or, as became the general practice, by taking up the special instruction immediately after the new entry seaman's course. Ratings were permitted to volunteer, but if not enough did so they

¹⁰⁶ Interview with Lieut. Greer, U.S.N.R., Instructor Training Officer, 13th Naval District, Feb. 1945; O.S.R.D. Report, No. 5520, Aug. 1945.

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were detailed for a specific course. Examination of a rating's aptitude and intelligence was for the most part brief and rudimentary, consisting of little more than an interview with his divisional officer. In October 1941, however, the gunnery school began to apply an intelligence test, taken from an American magazine, to ratings who were being "classed up" for gunnery courses; and this test proved useful as a means of predicting failures.¹⁰⁷

After "Cornwallis" got under way, all new entry seamen were given tests in elementary mathematics, English, ability to co-ordinate, elementary principles of physics, and visual-recall. These were administered by a schoolmaster, and the results, together with the "M" test score and school grade, were used in allocating a rating. For example, a knowledge of physical principles and a high "M" test score were emphasized for asdic entries, and the visual-recall test was given extra weight in selecting radar ratings; the co-ordination test took precedence over the "M" test in the choice of gunnery ratings.¹⁰⁸ Although the schoolmasters had not been especially trained for this work, it was the first attempt to make the procedure of selection more analytical.

In visual signalling, personnel selection authorities also attempted to detect at the start those ratings who would never be able to read morse quickly enough. An effective test was never worked out, but certain requirements of a limited value, such as school grade and "M" test score were laid down. The U.S.N. succeeded in developing a "Speed of Response" test; but after the war, when research in this field was being assessed, the American authorities concluded:

... that a firm distinction should have been drawn, from the very beginning, between performance for a brief period under test conditions, and performance over a lengthy period under ordinary circumstances.

Indeed this criticism was considered applicable to all the tests and procedures used in the classification of American naval personnel. The criteria of validation had been grades in service schools, and it was recognized that these grades emphasized book learning rather than actual ability to perform under operational conditions.¹⁰⁹

¹⁰⁷ C.O. "Stadacona" to N. Sec., Nov. 7, 1941, N.S. 1-8-1 (1).

¹⁰⁸ Interview with Instr. Lieut. C. M. Shipley, R.C.N.V.R., "Cornwallis", Nov. 1944; interview with Lieut. (t) E.D.A. Taylor, O. in C., New Entry Torpedo Training, "Cornwallis", Nov. 1944.

¹⁰⁹ O.S.R.D. Report, No. 6110, Oct. 31, 1945.

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Miscellaneous Training

The training described above includes the major instructional activities in the R.C.N., but does not cover every type of naval employment in which ratings were engaged. The accountant branch, for example, formed a sizable part of the lower-deck population, and included cooks, stewards, supply assistants, and writers. There were also bandsmen, blacksmiths, divers, motor transport drivers, painters, patrolmen, photographers, physical training instructors, regulating personnel, sailmakers, and sick berth attendants. The training of these ratings did not require the elaborate installations which were necessary in the schools; many of these men entered the navy already qualified, and many learned their duties through on-the-job experience.

Training in the accountant branch had started in January 1941 under very unsuitable conditions in the basement of a church in Halifax. In the fall of 1942, part of the training was moved to "Naden", and it only reached its greatest efficiency when the whole school had been transferred to "Cornwallis" early in 1943.¹¹⁰ The cookery school, started in June 1944, gave its trainees two courses: a preliminary one at the Central Technical School in Toronto, followed by a period in a service galley at "Cornwallis." There was a third establishment in Halifax for the instruction of leading, P.O., and warrant cooks.

The training of writers, supply assistants, and stewards, was placed on a sounder footing when a school was started at Deep Brook, and the former one week's course was extended to seven weeks.¹¹¹ Supply assistants were trained for employment in central stores or small-ships' stores, and stewards trained for three weeks, mostly serving in officers' messes.

It was also at "Cornwallis" that the physical and recreational training school came into its own. A spacious gymnasium, special facilities for boxing and fencing, and three large indoor swimming pools, were provided. In addition to its general responsibility for the navy's physical training, the school trained its own instructors in a strenuous three-months' course in which failures were as high as fifty per cent. Candidates were taken directly from the new-entry seaman's course.¹¹²

¹¹⁰ Supply Training Officer to C.O. "Cornwallis", July 20, 1945, N.S. 1440-1 (1).

¹¹¹ *Ibid.*

¹¹² Interview with Lieut.-Cdr. (P. & R.T.) R.F.A. Redmond, R.N., O. in C., P. & R.T. school, "Cornwallis", Nov. 1944.

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The training of sick berth attendants first began in January 1942, in Halifax. Most ratings who had entered before that time had been male nurses, hospital orderlies, or first aid men, and additional instruction for them had been unnecessary. The course was designed to acquaint the rating with the fundamentals of nursing technique, hospital and sick-bay organization, and first aid. Considerable responsibility was placed on the sick berth attendant, especially in ships which did not carry a medical officer.¹¹³

A very obvious general feature of the activities which have been described¹¹⁴ is the growth in productivity and efficiency of training once H.M.C.S. "Cornwallis" had been established. In certain of the lower non-substantive ratings there were more men trained from November 1942 to November 1943 than in the previous three years of the war. This sudden expansion did not apply so obviously to the engine-room branch, as so many of its members had been trained in civilian schools.

"Cornwallis" also produced the first attempt to supervise the quality of advanced instruction, and to allocate personnel to the best advantage. Training equipment became more plentiful, and the asdic school succeeded in keeping abreast of the equipment fitted into Canadian warships.¹¹⁵ The fleet of training vessels, moreover, grew to an impressive size. In the spring of 1941 the imperative need for training ships had been put forward, and by June 1942 there were six ships and a submarine attached to "Cornwallis" in Halifax. When training moved to Deep Brook the number of vessels was increased, and by November 1944 there were twenty in use, most of which were armed yachts and old town-class destroyers. Although the ships were old, the equipment was often up-to-date, particularly the asdic installations.

In July 1945 plans were made to return the schools from "Cornwallis" to Halifax, as Nelson Barracks could easily accommodate the peace-time establishment.¹¹⁶ In roughly six years, the training schools of the R.C.N. had grown from obscure units in the dockyards into large and modern institu-

¹¹³ C.O. "Cornwallis" to Sec. N.B., July 1945, N.S. 1440-1 (1).

¹¹⁴ Certain other training activities were on too small a scale to justify description.

¹¹⁵ Although the ships of the R.N. were in a more fortunate position than those of the R.C.N. with respect to equipment, training in the R.N. was occasionally handicapped by equipment being supplied to the ships before being sent to the schools.

¹¹⁶ Naval Staff Minutes, July 16, 1945.

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tions. Although the Canadian navy had remained comparatively small, by the end of the war it had acquired warships of nearly every principal type except the battleship. A relatively small training organization had therefore to train men, as the schools of the great navies did, to handle very diverse and numerous types of armament and equipment.

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THERE were other distinctive groups within the Naval Service that require separate consideration; especially the Fishermen's Reserve, which had been started before the war, and the Women's Royal Canadian Naval Service. Both of these tended to maintain an existence apart from the rest of the navy; and in fact the Fishermen's Reserve, with its almost separate training organization, and the private ownership of most of its ships, was practically a navy within a navy.

Fishermen's Reserve

The reserve of British Columbia fishermen had been created in 1938 because of the possibility of war in Europe which would probably make it necessary to transfer the few destroyers on the west coast.¹ With the outbreak of hostilities in 1939, the usefulness of the Fishermen's Reserve was apparent; but various complications set in, one of which eventually led to its dissolution.

The status of F.R. officers as compared with those in the other reserves provided the crucial difficulty. Shortly after the war began, the title of skipper was changed to that of coxswain and skipper-coxswain, because the majority of fishermen did not hold the necessary marine certificates. The designation of coxswain was resented, however, for naval usage applied that term to ratings; and the officer of the Fishermen's Reserve considered himself quite as competent as the merchant skipper who held a "coasting ticket." The small fishing boats on the west coast were not operated according to the usual methods of coastal navigation, and dissatisfaction on the part of the fishermen was therefore understandable. The commanding officer of H.M.C.S. "Givenchy" pointed out that:

The men who operate these boats develop a form of 'sixth sense' which enables them to take boats into coves and inlets that under similar

¹ See vol. I, ch. 16.

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conditions the most experienced navigators and even [most] men with coasting certificates would not dream of entering except under the very best of conditions of visibility or weather or in a war-time emergency.²

Unfortunately, such skills were not recognized in the regulations of the Royal Canadian Naval Reserve. Indeed had these regulations been the sole criterion of rank in the Fishermen's Reserve, most of its officers would only have qualified for able-seaman. The title of coxswain was thus adopted, and the fisherman officer lost prestige, with inferior rank, inferior pay, and a strange mixture of petty officer's rig and officer's cap badge for uniform.³ Discontent grew, until in 1942 it was suggested that the reserve should be completely reorganized.

The training and operation of fisherman patrols had been carried on in an atmosphere of resentment. Training had been rudimentary, because of the relatively small amount of fighting equipment carried by the F.R. vessels, and their W/T sets had been operated by V.R. ratings.⁴ Officers and men lived in their own boats; and lectures were given on naval organization, depth charges, and demolition. Instructors were supplied by the western Divisions of the R.C.N.V.R.

Proper training began in August 1941. A month's course was given at William Head, the strength of the reserve rose to 275, and the establishment was then closed. In December recruiting was resumed, five more ships were requisitioned which raised the number of F.R. vessels to twenty-two, and William Head was again opened. Pearl Harbor and the seizure of twenty Japanese fishing boats kept the training centre going until May 1942, by which time the reserve had 48 ships in commission and a complement of 475 officers and ratings.⁵

This spasmodic development did not make for satisfaction on the part of the F.R. personnel. William Head, moreover, had been a quarantine station and had been condemned by a naval medical officer.⁶ Training there had been but an amplified version of the peace-time programme, the only important additions being a signals course and some practical mine-sweeping instruction in a corvette. Accordingly in the autumn of 1942 the re-organization of the Fishermen's Reserve was

² C.O. "Givenchy" to Staff Accountant Officer, "Naden", Mar. 28, 1941 (N.O.I.C. Esquimalt records).

³ Interview with Sub-Lieut. Sherlock, Jan. 1945; C.O. *Nenamook* to C.O. Aux. Vessels, May 21, 1942 (N.O.I.C. Esquimalt records).

⁴ Interview with Lieut.-Cdr. A. M. P. Scaife, R.C.N.V.R., Staff Officer, F.R., Jan. 1945.

⁵ X.O., to C.O., F.R., Sept. 29, 1942 (N.O.I.C. Esquimalt records).

⁶ Interview with Lieut.-Cdr. M. A. W. Bridgman, R.C.N.V.R., X.O. "Naden", Feb. 1945.

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undertaken. William Head was abandoned, and new accommodation was set up on a jetty in the Esquimalt dockyard. A hulk was used for living quarters, and classrooms were built on the jetty. Officers were no longer direct entry, but were products of the lower deck, and both officers and ratings took an eight-weeks' course in squad drill, practical gunnery, signals, and seamanship. Pilotage was also included in the officers' curriculum. By the time "Givenchy II", as the new establishment was named, closed down, about sixty per cent of the reserve had been re-trained.⁷

Pearl Harbor strongly affected the fortunes of the Fishermen's Reserve. Fear of Japanese attack on the west coast suggested the desirability of a local unit for work in combined Operations. In June 1942 the Canadian army agreed to provide landing craft, and a month later C.O.P.C. was authorized to recruit 400 men for the Fishermen's Reserve, who would man 100 of these vessels as mechanics, seamen, and stokers.⁸ This increased the complement of the F.R. to roughly 900. Fraudulent entry was not difficult, however, and the resentment of legitimate members was provoked.

Training for the armed landing craft had to shift for itself. William Head was once more taken over in June 1942, for a year, and in most cases instructors were themselves members of the Fishermen's Reserve. After a three months' course in V/S, carpentry, seamanship, rigging, pilotage, and motor mechanics, an advanced course in combined Operations with the army was taken at Courtenay, beginning in October 1942. Beach landings were practiced, and officers, mostly of the R.C.N.V.R., were trained as flotilla leaders and beach masters. Accommodation was makeshift, however, consisting of bell tents and condemned logging huts.⁹

Expert assistance first appeared in this field when Col. Boyle of Lord Mountbatten's staff helped to establish the operational-training base at Courtenay. He advised that officers should be sent to an American establishment in California to learn the methods of the U.S.N. By the spring of 1944, officers who had been on loan to the R.N. and who had had overseas experience in landing craft were returning

⁷ Interview with Lieut.-Cdr. Scaife, Jan. 1945.

⁸ Naval Board Minutes, June 22, 1942.

⁹ C.O. "Givenchy" to C.O.P.C., July 18, 1942 (N.O.I.C. Esquimalt records); interview with Skipper-Lieut. L. Evans, R.C.N.R., Staff Officer, Combined Ops., C.O.P.C., Jan. 1945.

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to Canada, and were being employed in training F.R. personnel in combined Operations.¹⁰

In October 1943, the participation of the Fishermen's Reserve in west-coast combined Operations activities came to an end. In April of that year 35 of the original 400 volunteered for and were sent to overseas duty; and as there was little further use for the reserve on the west coast, the remainder were offered the alternative of joining the R.C.N.V.R. or the R.C.N.R. or being discharged. A hundred F.R. personnel transferred to general service and proceeded overseas, some returned to west-coast patrols, and the remainder were discharged.¹¹

By 1944 the work of the Fishermen's Reserve was finished. The danger of an attack upon the west coast had long been remote, and the main reason for the patrols had thus been removed. Dissolution began, and by February most of the officers who had preferred to transfer were entered in the R.C.N.V.R., since they did not possess the necessary certificates for the R.C.N.R. Ratings who had rejected further enlistment were gradually discharged during the rest of the year, while most of the F.R. vessels were paid off. The brief career of the Fishermen's Reserve had been troubled, yet it had provided an inexpensive and adequate reconnaissance force while it lasted.

Women's Royal Canadian Naval Service

An obvious feature of the Second World War was the constant demand for manpower. As more and more men went off to battle, women replaced them in many civilian jobs, and the enlistment of women in the military Services followed. This was true of the entire western world, and Canada conformed to the general pattern.

In the spring of 1941, the three Services and the Department of Labour were urged to consider plans for co-ordinating the employment of women in the war effort. Throughout the Dominion various women's auxiliaries and unofficial women's corps had sprung into existence, and it was necessary that some uniformity should be introduced.¹² The outcome was the establishment of a Division of Volunteer Service, which

¹⁰ Interview with Lieut. (S.B.) E. C. O'Neill, R.C.N.V.R., Training Officer, "Giv'ncy III", Jan. 1945.

¹¹ Interview with Lieut.-Cdr. Bridgman, Feb. 1945.

¹² Adjutant-Gen. to Min. (Nat. Def.), Mar. 27, 1941, N.S. 120-3-1.

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registered women volunteers; and it was arranged that the recruiting, training, and organization of any Women's Corps should be undertaken at first by the Department of National War Services. At this time the naval authorities were of the opinion that the manning situation did not require an auxiliary force of women within the Naval Service. These needs could be confined to drivers of cars and trucks, and a maximum of twenty women would suffice.¹³

With the vigorous expansion of the war effort, however, and as the army and the air force went ahead with their own recruiting, the original plan for enlisting women in the navy was revised. In January 1942 the Admiralty was asked for the temporary loan of two qualified officers of the Women's Royal Naval Service, to help in establishing a similar Canadian organization. In the following July the Women's Royal Canadian Naval Service was officially established.¹⁴

Once British assistance had been assured, the naval authorities went forward rapidly with the work of developing the W.R.C.N.S. Three officers of the W.R.N.S. arrived in Canada in May 1942 to advise the Director of Women's Service. The problems were many: accommodation, organization, recruiting, and training. Each of these had to be fitted suitably into a Service which was growing by leaps and bounds; and each involved a period of tutelage by British officers, with complete control by Canadian women as an ultimate aim. The W.R.N.S. officers set out at once to recruit a group of suitable Canadian women who would serve as a nucleus for the new organization. The Director, together with Superintendent Joan Carpenter, W.R.N.S., toured the Dominion interviewing candidates, and sixty-seven were chosen to undergo a probationary course at Kingsmill House, Ottawa, in September.

An initial minimum complement of 150 officers and 2,700 ratings had been laid down in April 1942, and allowance was made for an expansion of a hundred per cent.¹⁵ The women would be given such shore jobs as stenographers, postal clerks, stewards, coders, cooks, motor-transport drivers, and teletype operators.

From the first class there emerged a supply of officers and leading hands who were prepared to take on the task of build-

¹³ Naval Council Minutes, Apr. 29, 1941; Min. to Mr. Justice Davis, May 7, 1944, *ibid.*

¹⁴ P.C. 56 6775, July 31, 1942.

¹⁵ Naval Board Minutes, Apr. 23, 1942.

ing the W.R.C.N.S. Eight probationary officers were appointed to recruiting duties in the various areas across Canada. In the beginning enlistment was carried on by means of a cumbersome division of labour between Ottawa and the local recruiting office, but after December 1942 the enlistment of Wren personnel was integrated with that of the men. By July 1943 the process was complete, and a Wren officer was appointed to the staff of the Commanding Officer Reserve Divisions to supervise recruiting for the women's service.¹⁶

It had been proposed at the start to use Wrens throughout the Dominion and in Newfoundland, and plans had been made to provide accommodation in Ottawa, Esquimalt, Halifax, Sydney, St. John's, and Enfield, N.S.¹⁷ Many complications, however, soon appeared. Wrens were needed elsewhere than in the cities and towns originally suggested. They were needed in the Divisions, in Toronto on the staff of C.O.R.D., in Vancouver, and for special duties in other places. Appropriately situated accommodation, ready for occupation at short notice, was difficult to find, and when buildings were finally acquired they often needed extensive alterations.¹⁸ Moreover in such centres as Halifax, "Cornwallis", "St. Hyacinthe", and St. John's, to name the most important, no ready-made accommodation was available at all, and reliance had to be placed on new construction, either temporary or permanent. In this respect the W.R.C.N.S. had arrived upon the scene at an inauspicious time, and the Wren programme of recruiting and training was consequently held up on two separate occasions—toward the end of 1942, and a year later.

Aside from determining the location of Wren housing there was the question of standards. It was decided to make these equivalent to, if not higher than, those of the other Canadian women's services. The navy therefore assessed the cost of accommodation per girl at \$500 as compared with \$450 in the Women's Army Corps. The maximum housing capacity was in general fixed at 500, with a limit of 1,000 for the unusual requirements of Halifax.¹⁹ No building in Halifax, however, actually exceeded the normal maximum, although the concentration of Wrens at that port was possibly the largest in the Commonwealth. Despite the variety of accommodation for

¹⁶ D.W.S. to C.N.P., Jan. 18, 1943, N.S. 120-2-3 (2); Sec. N.B. to C.O.R.D., June 23, 1943, N.S. 120-2-1.

¹⁷ Naval Board Minutes, Apr. 23, 1942.

¹⁸ Min. to Hon. J. L. Hsley, Oct. 27, 1942, N.S. 120-8-1.

¹⁹ C.N.P. to Sec. N.B., Aug. 28, 1942, *ibid.*

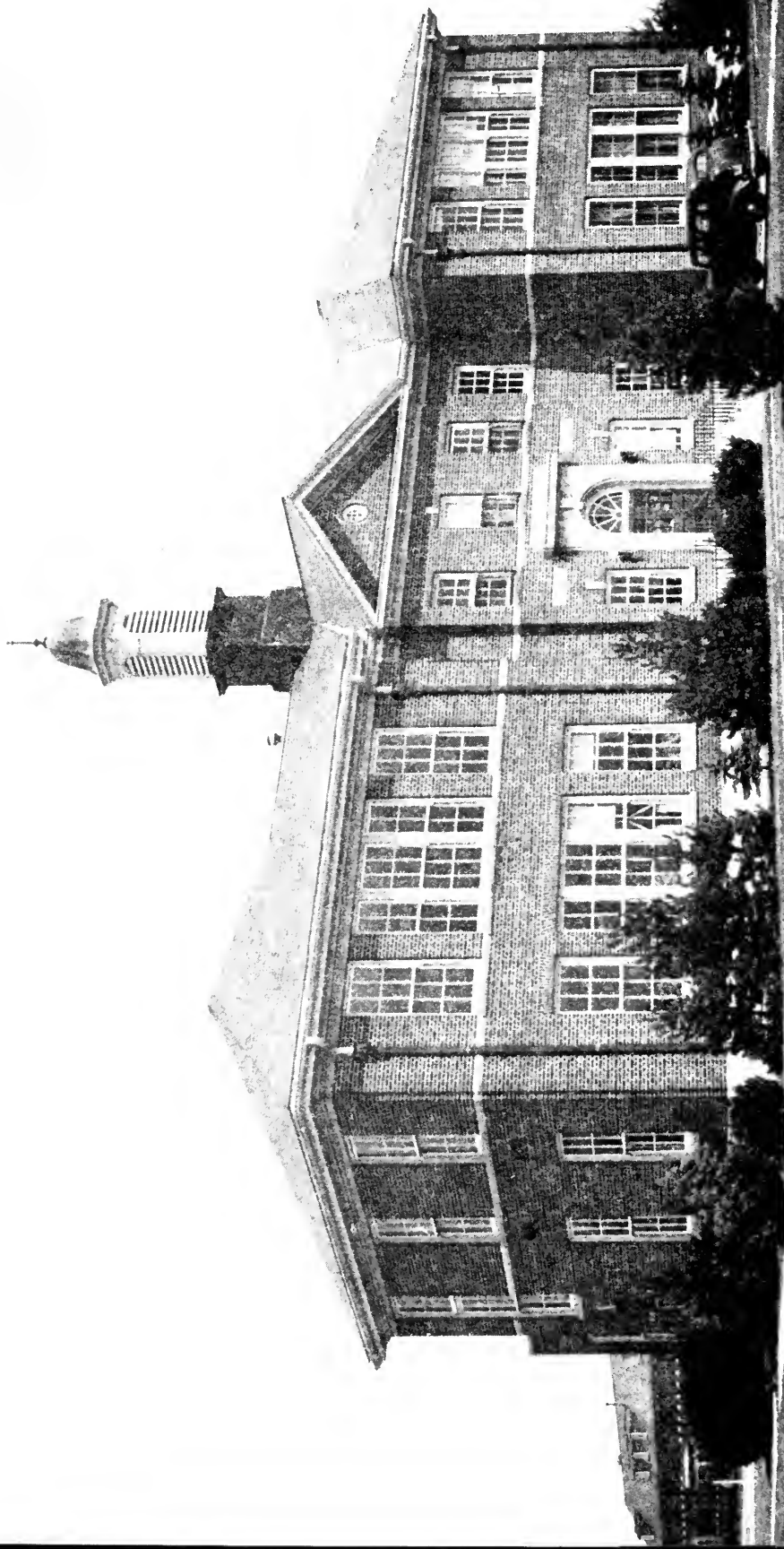
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the W.R.C.N.S., a high level of comfort was maintained. The formulating of standards for Wren housing, moreover, was the first instance of such an approach to naval accommodation ashore; and this concern with greater comfort and more amenities may well have influenced the adopting of a similar policy for the entire navy.

By the end of the war, thirty-nine branches of the Women's Royal Canadian Naval Service had been created. The largest of these were concerned with relatively unspecialized duties: messengers, cooks, messwomen, general duty writers, and wardroom attendants. Unlike members of the W.R.N.S., Canadian women did not undertake such responsibilities as machine maintenance or the operation of harbour craft. They had been willing to do so, and the achievements of the British women indicate that they would have been successful; but the shortage of manpower was not as acute for the Canadian as for the Royal Navy, and the W.R.C.N.S., therefore, did not have to release men for sea duty to the same extent as did the mother organization.

W.R.C.N.S. personnel occupied positions for which civil servants were no longer available;²⁰ and as the navy expanded, the Wrens became an important means of filling new requirements such as those of the library service and the dietitian branch. The existence of the W.R.C.N.S. establishments in itself created extra administrative and domestic work, and the Wrens also discharged a large number of responsibilities which were more closely associated with the war at sea. For example they served as assistants in the operational training centres at Halifax and St. John's; some helped to operate the spotting table for gunnery training; some took part in the complex activities necessary to run the night escort teacher; and others kept accurate records of the progress of tactical games. Wrens also manned special wireless and loran shore stations, usually in remote and lonely parts of the coast; they kept operational plots of the war at sea; and others with V/S training manned and operated base signal towers. Because the Wrens were doing types of work that had hitherto been a male monopoly, they as women were put on their mettle to an unusual extent, and they earned a reputation for conscientious efficiency which can scarcely be exaggerated.

²⁰ This practice was not encouraged, however, every effort being made to place civilians in civil-service positions.



Classroom building, H.M.C.S. "Conestoga", Galt, Ont.

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A number of the duties performed by Wrens required no training beyond that which could be obtained while on the job. All personnel however received basic training, a considerable proportion took advanced instruction before proceeding to their assignments, and those who were selected as officers underwent special schooling to fit them for positions of authority. Once the training programme got under way and Canadian women were capable of taking charge, the British officers returned to England.

The basic training centre, H.M.C.S. "Conestoga", was established at Galt, Ont., where the first class was started in October 1942. Like training at the Divisions, the principal purpose of instruction at Galt was to effect the transition from civilian to Service life in the shortest possible time. The Wrens' three weeks' course chiefly consisted of physical training, parade ground drill, and lectures on naval customs and traditions. Like the British women, but unlike the male personnel of the Canadian navy, all but a few members of the W.R.C.N.S. began their careers in the ranks and passed through H.M.C.S. "Conestoga".

As in the case of men promoted from the lower deck, Wrens selected for commissions had to appear before an interviewing board of senior officers, which in this case was composed of officers of both sexes. After January 1944, however, the boards at Ottawa, Halifax, and St. John's, included a personnel selection officer, and considerable unanimity appeared regarding the qualifications of candidates.²¹

Twenty-one classes for officers were trained during the war, the first of these being held at Hardy House, Ottawa, in February 1943. What had started as a two weeks' course was lengthened to five weeks, and the curriculum included such subjects as the organization, customs, and history of the navy, and instruction and practice in the "power of command." Like the basic instruction at Galt, the officers' training at Hardy House did not try to make the candidate familiar with any specialized employment.

H.M.C.S. "Cornwallis" and "St. Hyacinthe" eventually provided most of the advanced instruction for both officers and ratings. Until these establishments were equipped to receive Wrens, however, specialized training was given at

²¹ Interview with Capt. A. H. G. Sinclair, O.B.E., D.W.R.C.N.S., Feb. 1946.

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Galt, at Holwood House in Toronto, and at Scarborough, Ottawa, and Halifax. In May 1943 courses were started at "Cornwallis" for writers and supply assistants, and later for cooks, wardroom assistants, sick berth attendants, laundresses, M/T drivers, and photographers. In June "St. Hyacinthe" started to train coders, visual signallers, teletype operators, switchboard and radar operators, and telegraphists. Wrens proved apt pupils, even in communications which men seemed to find relatively difficult. The instructors in W/T and teletype at "St. Hyacinthe", and in accountancy and cookery at "Cornwallis", were themselves W.R.C.N.S. personnel, and several other subjects involving less specialized instruction were also taught by Wrens.²²

The total enlistment in the W.R.C.N.S. was approximately 6,500 by April 1945. The principal recruiting areas were Ontario, British Columbia, and Quebec. The proportion of women to men among all the recruits from the prairie Provinces exceeded the national average, while the corresponding ratio from the Maritimes fell below it. The largest number of Wrens, officers and ratings, borne at any one time was 5,893, over 1,000 of whom served overseas. Five hundred and three Wrens were sent to Great Britain and stationed at Londonderry, H.M.C.S. "Niobe" in Scotland, and London, with a few in Plymouth. Five hundred and sixty-eight members of the W.R.C.N.S. were also sent to Newfoundland, and about 50 to New York and Washington.²³ Roughly one-sixth of the Women's Royal Canadian Naval Service, therefore, served outside of Canada.

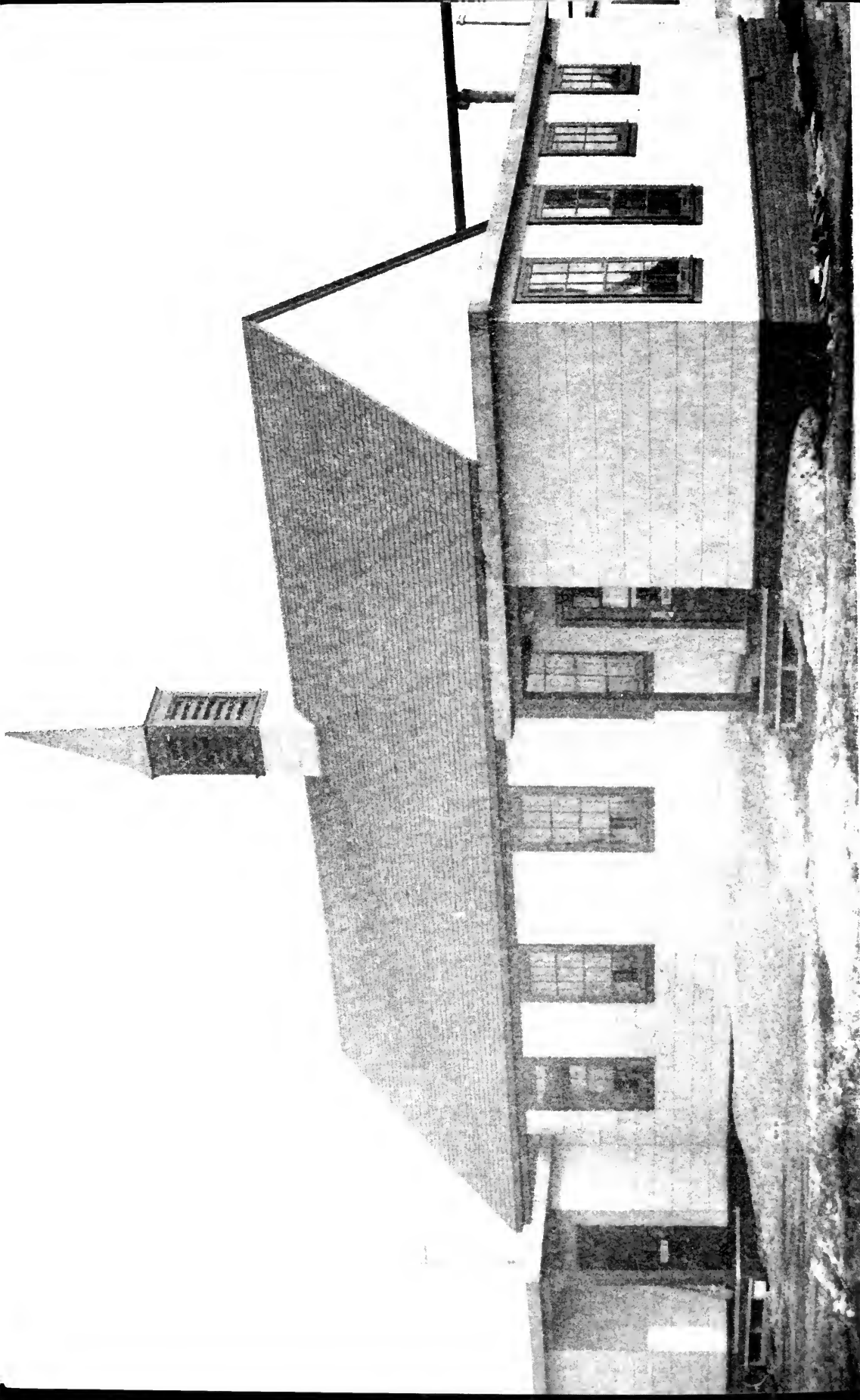
The Chaplain Service

During the Second World War the work of the naval chaplains carried on a tradition as old as the standing navy itself. The problem of providing chaplains in the R.N. had been simplified by the existence of an established church in England; the many denominations of equal status in Canada made the problem more difficult.²⁴ The first naval chaplains were appointed in January 1941; before that they had been army chaplains wearing naval chaplains' uniforms. During the war about twenty-five per cent of the naval personnel was

²² *Ibid.*

²³ Statistics obtained from D.P.R., and from Naval Personnel Statistics, Admiralty.

²⁴ "There being no established Church of Canada, the question of the appointment of Chaplains is complicated. Accommodation does not admit of the appointment of more than one Chaplain to any ship." [*Jellicoe Report*, I, p. 31].



View of School U. M. C. St. Hyacinthe

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Roman Catholic, practically all of the remainder being classified as Protestant. Chaplains were provided on the basis of one for every 1,000 Protestants in the Service, and one for every 500 Roman Catholics. At the peak, 53 full-time and 20 part-time Protestant chaplains were serving, and 30 full-time and 17 part-time Roman Catholic chaplains. When the Service had reached its greatest strength, the Protestant denominations were represented by 22 Church of England, 17 United Church, 8 Presbyterian, 3 Baptist, and 3 Lutheran chaplains.²⁵ Possessing no actual rank, the chaplains wore uniforms and were treated as officers. Their indeterminate status enabled them to meet officers and ratings alike as clergymen, rather than as superiors or subordinates in the naval sense.

The places of worship built for the shore establishments were oblong structures, divided by a partition so as to provide a Roman Catholic and a Protestant chapel in the same building. The two chapels could be converted into one at any time by folding back the partition. Sea-going personnel were less well provided for, since few Canadian warships were large enough to carry a chaplain. In the smaller ships, however, on Sunday mornings when the operational situation permitted, the commanding officer read extracts from the book provided by the Naval Chaplains' Service, and the Roman Catholics held a prayer service conducted by one of their own faith. In Canadian warships having a complement of four hundred men or more, a chaplain was carried, and during the latter part of the war, as far as possible, a chaplain accompanied each escort or other group of ships. In the course of hostilities, two chaplains, both of whom were Roman Catholics, received operational awards.

Morale and Welfare

Few words had so wide a circulation during the Second World War as "morale". As a well-known British psychiatrist put it:

The enthusiasm and sense of easy conviction . . . have been less marked in this war than they were in the last war. Twenty years of industrial and social difficulty, of international crises, and disillusionment no doubt provide the major explanation for this. Ideologies are not easy things to explain, and yet this war has had to be fought on a much more

²⁵ Information obtained from senior Protestant and Roman Catholic chaplains.

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rational, unemotional basis, and that greatest of all psychological problems, the morale of an army, has consequently been very much in our minds.²⁶

This statement was as true in Canada as it was in Great Britain, and the army's Directorate of Personnel Selection, which had by far the greatest number of Canadians pass through its hands during the war, came to about the same conclusions.²⁷

Attempts to strengthen morale during hostilities extended into every department of military society, and this made for an elaborate paternalism such as few modern communities have witnessed in time of peace. It began with the day of a man's enlistment, and reached a peak during his training when he was faced with the difficult problems of adjustment. Once he had entered upon his duties as a fighting man it was more difficult to provide the same facilities, but the extent to which morale-building activities were promoted, even under operational conditions, was without precedent in the history of war. Among navies, the American led the way in this new endeavour, most of Canada's achievement in this field appearing only in the late years of the war.

The senior psychiatrist in the Naval Service was a persistent advocate of some mechanism which would provide a "more radical elimination of the psychologically unfit." It was in the nature of things that there should be a number of discontented persons in the navy. The civilian supply of professional cooks, for example, was extremely limited, and the recruiting authorities were compelled to use men who were not suited to such duties. Similarly, in the case of stewards, many ratings were employed who had never before been called upon to act as servants, and who found the work distasteful.

The most important part of the curriculum during initial instruction at the Divisions was squad drill. The need for this was dictated by more than tradition. No other means had been devised that would so quickly inculcate the habit of automatic obedience; once this was achieved, there was less danger that a man would stop to think when given an order in action, at a time when too much thought and hesitation might bring on the paralysis of fear. Parade-square drill, moreover, was a valuable means of creating a corporate unity, and provided the recruit with a new group attachment in place of

²⁶ J. W. Rees, *The Shaping of Psychiatry by War* (New York 1945), pp. 16-17.

²⁷ Carver, "Personnel Selection in the Canadian Army", p. 310.

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that with which he had severed connection on joining the navy. Two psychiatrists of the American Army Air Force concluded from their experience that the most important factor in morale was this largely unconscious, but nevertheless compelling, need to identify oneself with a group.²⁸ If automatic obedience is essential in warfare, however, it must not be cultivated exclusively; for the highly technical nature of modern war, especially at sea, requires much initiative and self-reliance even from the lowest rating. The advanced training of a naval rating provided for this need to an increasingly effective degree.

Because Canadian sailors came for the most part from urban communities, they were accustomed to a life which offered a considerable measure of material comfort and a wide variety of recreation to offset the daily routine in office or factory. In March 1943 the Naval Service made a comprehensive investigation of living standards in naval barracks, and it was found that wide variation in living quarters had arisen from the lack of an authorized norm. Comparison with Admiralty standards, and with those of the Canadian army and air force, disclosed that many of the navy's barracks were below the minimum adopted by any of these Services. Apart from lack of space they were deficient in natural and artificial light, and the same quarters were used both for eating and sleeping.²⁹

These conditions, however, did not prevail everywhere. "Cornwallis" had been built to air force standards, and "Givenchy" and the Reserve Divisions provided superior accommodation. The investigation of March 1943 led to the adopting of a standard barrack-plan which was followed at "Avalon" and Sydney.³⁰ Separate cafeterias and reading and writing rooms were provided for, and in the older establishments at Halifax and in "Naden" the mess decks were removed and cafeterias were installed. By the end of the war, therefore, the standards of naval accommodation had vastly improved.

Early in 1943 the Director of Organization made a survey of naval recreational facilities, and recommended that special buildings should be constructed for these activities.³¹ At "Cornwallis" a recreational building was set up containing

²⁸ R. R. Grinker and J. P. Spiegel, *Men under Stress* (Philadelphia 1915), pp. 39-40.

²⁹ D. Org. to C.N.P., Mar. 17, 1943, N.S. 14-1-9.

³⁰ Interview with Cdr. (S.B.) J. B. Roper, R.C.N.V.R., Oct. 1915. "A standard officers' barracks was built in "St. Hyacinthe."

³¹ D. Org. to C.N.P., Feb. 28, 1943, N.S. 14-1-24.

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among other things a cinema, bowling alleys, and a library. An indoor hockey arena, a gymnasium, and swimming pools, were also added. Recreational services were provided at most of the other Canadian naval establishments, and there were several organizations such as the Y.M.C.A., the Canadian Legion, the Knights of Columbus, and the Salvation Army, which throughout the war ran hostels, recreation halls, canteens, clubrooms, and seamen's institutes.³² In December 1942 a Directorate of Special Services was established at N.S.H.Q., to supervise Service and civilian recreational facilities for naval personnel, and the growth of the Canadian navy was such that by the end of the war this new department had extended its activities overseas.

Provision for the leisure time and morale of the navy's men and women was also afforded by other agencies. The Royal Canadian Naval Film Society, for example, supplied films and projectors to shore establishments and sea-going ships. With the aid of Auxiliary Services, which had also lent projectors to ships, 190 H.M.C. ships were using the society's films by June 1945. On shore at the end of the Battle of the Atlantic, the society was operating ten theatres at naval establishments, and it was estimated that motion pictures had been presented to a total audience of three-and-a-half million men and women.³³

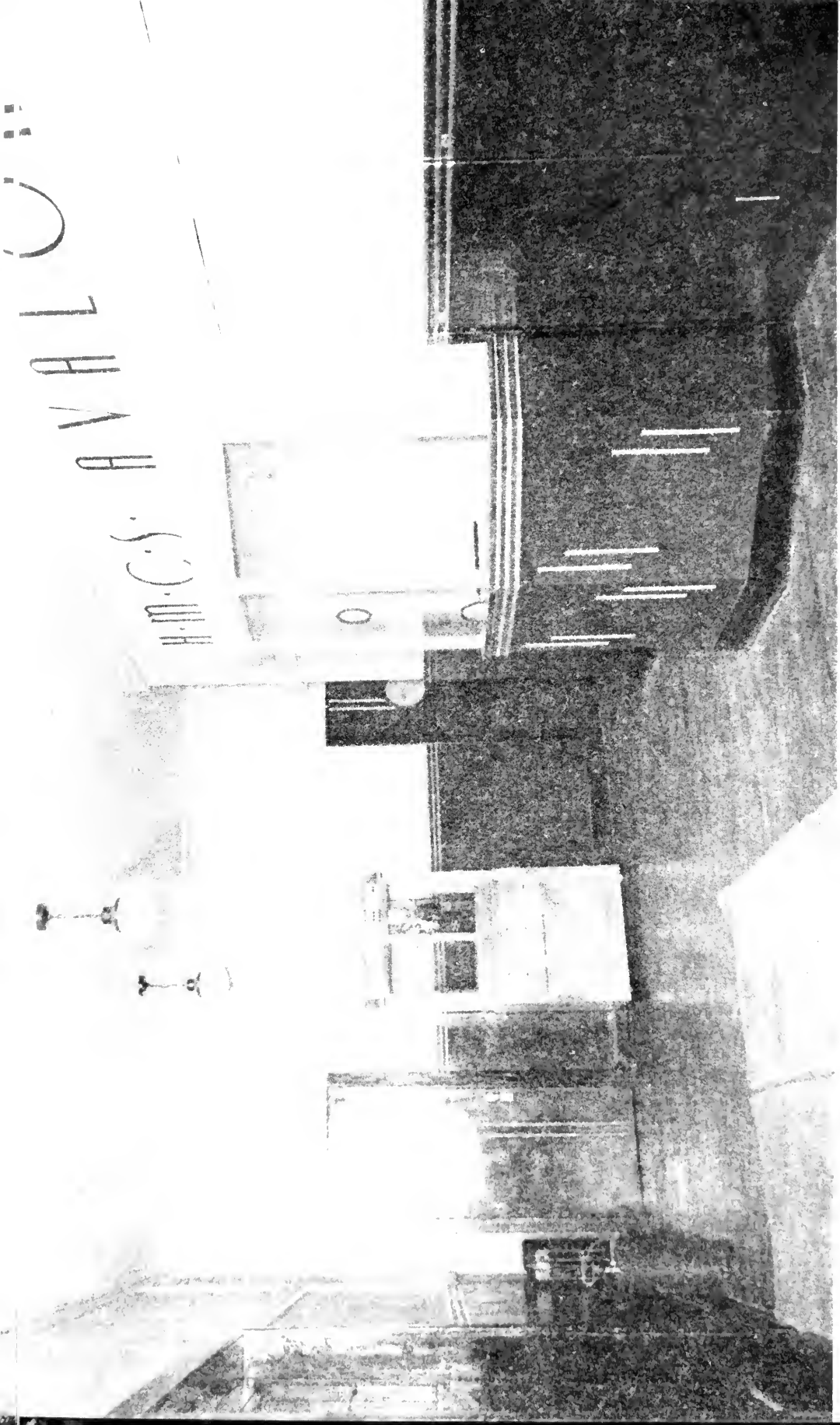
Early in 1943 an examination was made of the library facilities available to men and women serving in the Atlantic Command.³⁴ Public libraries on the east coast were few in number. The Canadian Legion, the Naval Reading Service, and the I.O.D.E., supplied books for the navy; but something more was needed, and the existing base libraries were also inadequate. The upshot of this survey was the establishment of the Naval Library Service, which began to operate towards the end of 1943. It organized base libraries in all the principal R.C.N. establishments in Canada, Newfoundland, and the United Kingdom, and provided ships with an adequate supply of books. Trained librarians³⁵ recruited by the W.R.C.N.S. planned the building of book collections; current periodicals and magazines were supplied; and in some establishments a library of musical recordings was obtained and musical-

³² Memo. by D.S.S., n.d., N.S. 30-16-1 (2).

³³ "Third and Final Wartime Annual Report of the Royal Canadian Naval Film Society."

³⁴ Spec. Services Officer to D.S.S., Feb. 15, 1943, N.S. 1700-194 (1).

³⁵ Of a complement of 40 in the Library Service, 19 had degrees in Library Science, and all but 5 had had experience in libraries.



Entrance to R.C.N. theatre, H.M.C.S. "Avaton"

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appreciation periods were arranged. During 1944 about 265,000 books were circulated ashore and afloat, and roughly 374,000 during 1945.³⁶ The library of a major establishment such as "Cornwallis" compared very favourably with the reading facilities of a large Ontario town, and naval personnel had access to a wide variety of literature which might reach all the way from Santayana's *The Life of Reason* to a manual on naval training or the latest detective novel.

For the men and women who wished to continue an interrupted education, there were the correspondence courses of the Canadian Legion Educational Service.³⁷ Naval schoolmasters were on hand to supervise and give advice. Special classes were arranged in many establishments including those at St. John's and Londonderry, and the teachers were as a rule provided by the Canadian Legion. Aboard ships of the mid-ocean groups, special ratings appointed by educational officers ashore helped those taking the correspondence courses, and facilities were also made available for work in the handicrafts. In addition to the Canadian Legion Educational Service, there were the navy's educational tests which had been used in peace-time as qualification for advancement.

Discussion groups were promoted which permitted naval personnel to keep abreast of current affairs. This practice developed earlier and received more official encouragement in the armed Services of Great Britain, Germany, and Russia, than in those of Canada and the United States. At "Cornwallis" an hour a week of the new-entry seamanship course was set aside for this instruction,³⁸ and elsewhere these activities were put on a voluntary footing; in some places they met with considerable success, while in others they were received with little enthusiasm. The North American is less politicized than the European, and the uncertain results of this innovation were perhaps inevitable.

The problem of morale in sea-going ships was necessarily different from that on shore. Wherever he may ply his trade the lot of the fighting man is hard, and at its worst life aboard an escort ship in the north Atlantic was stern. The sailor was not faced with the eternal mud or dust of land-fighting; he probably obtained leave more frequently than the infantry-

³⁶ Lieut. E. F. G. Gaskell to Exec. Asst. to Min., Mar. 29, 1945, N.S. 1700-194 (1).

³⁷ Correspondence courses with universities were also arranged through the C.L.E.S.

³⁸ Interview with Instr. Lieut. C. M. Shipley, R.C.N.V.R., schoolmaster at "Cornwallis", Nov. 1944.

man, and was able to spend it in more attractive places; and both food and warmth were generally obtained more easily at sea. On the other hand, the sailor had to endure extremely confined living quarters, the lack of suitable washing facilities, and the physical discomfort of rough seas. Seventy-five per cent of the psychiatric casualties in the Royal Navy during the Second World War occurred among men serving in small ships.³⁹

According to a comprehensive report drawn up by a commanding officer of a mid-ocean escort group during 1943, the factors which influenced morale at sea ranged from the warmth of issue-clothing to the state of recreational facilities ashore and the leadership abilities of ships' officers. It was only the last of these, however, which ever provoked open disaffection aboard a Canadian warship. There were three such episodes during the war. These incidents were "sit-down" strikes in which large sections of the ships' companies refused to perform their usual duties. A board of enquiry found that in one case it had been the harsh and capricious discipline enforced by the captain which had brought about the demonstration. A badge had been removed from the shirt of a German prisoner while it was being washed in the ship's laundry, and since no one admitted to the theft, the entire ship's company was denied leave. It had also been a practice of the captain to stop the leave of all members of one mess for one day when any member of that mess had exceeded his own leave. There had been occasions, moreover, when the commanding officer had assumed threatening attitudes to the ratings which at times took the form of physical violence. The board of enquiry removed the officer from his ship, and there was no further trouble with the crew. In another ship the mass refusal of duty was attributed to the slackness of the original commanding officer and first lieutenant of the ship, and to tactless handling of the crew by the new executive officer. In the third instance the ratings lost faith in the competence of certain of their superiors, particularly the first lieutenant. When it became known that this officer was to take the ship to sea because the captain was hospitalized ashore, a considerable part of the crew took matters into their own hands. These three incidents revealed the fundamental importance of selecting officers carefully, and help to explain why the prob-

³⁹ Lord Moran, *Anatomy of Courage* (London 1945), p. 101.

lems of selection and training were constantly under discussion during the war.

The other factors in morale, with the exception of recreational facilities ashore, did not prod the ratings into illegal actions, although they did occasionally arouse complaints, most of which were met by improvements. The ratings' clothing, for example, was subject during the war to a large number of alterations, some of them undiscerned by the rating himself, but all of them making for additional comfort or durability. Three additional widths were introduced into the size of Service shoes, the range in size of uniforms was extended, and clothing in general was made more attractive in appearance, while considerable pains were taken to provide the Wrens with good-looking as well as hard-wearing outfits.⁴⁰

Lifesaving equipment also underwent frequent alterations as naval authorities profited from the hard-earned experience of the war at sea. Special skids were devised for the ready release of floats and rafts, scramble nets were lengthened to reach well below the surface of the water, and the inflatable rubber life-belt was replaced by the merchant service life-saving jacket which was equipped with a waterproof torch and with means of securing the wearer to a float or raft.⁴¹ When the *Athabaskan* was sunk in April 1944, no survivor wore the old type of life preserver, and according to one observer the saving of life was largely owing to the new life jacket.⁴² Further improvements in this life jacket were made, and the torpedoing of H.M.C.S. *Clayoquot* in December 1944 proved its efficacy. Only personnel without life jackets were injured by underwater blast, while other members of the crew who were at the same distance from the explosion were protected by the special attachments of the jacket.⁴³

The equipment, however, had its drawbacks. It was bulky and cumbersome, especially in such confined quarters as an engine room, and therefore stokers, E.R.A.'s, and boats' crews, wore the old inflatable belts even after the new jacket was issued. In 1945 new equipment was devised for use in the Pacific by all personnel; it combined the security of the jacket with the compactness of the belt. One danger for which no life-saving invention provided protection was that caused by

⁴⁰ Interview with Capt. Sinclair, D.W.R.C.N.S., Feb. 1946.

⁴¹ Naval Staff Minutes, Dec. 3, 1942; Naval Order 2531, Jan. 30, 1943; Sec. N.B. to Capt. (D) Nfld., Dec. 7, 1942, N.S. 11156-353 17 (1).

⁴² C.N.M.O. to Sec. N.B., July 20, 1944, N.S. 813-82-1 (4).

⁴³ Sg. Cdr. W. C. Mackenzie to P.M.O., Halifax, Mar. 6, 1945, N.S. 6851-190 (1).

the paralysing cold of the North Atlantic waters. When the temperature of the sea dropped below 45°F., a man in the water would probably die within two hours from exposure and shock if not picked up, even though wearing the life-saving jacket. An answer to this problem was found in the R.C.A.F. Ditching Suit, but the navy had not adopted it when hostilities ended.⁴⁴

The quality and amount of food served aboard Canadian warships received constant attention from the autumn of 1941 until the end of the war. In February 1945 a final investigation was made; dietary conditions were found to be generally satisfactory, and in some respects superior to the high standards prescribed by the National Research Council of the United States. Some changes were adopted, however, including a supply of fresh milk sufficient to last two or three days out of harbour, more fruit juices, and better storage facilities for bread and vegetables.

The fighting efficiency of a ship, though it could not be measured, was very important for the morale of her crew. If a vessel were badly armed, or dependent upon obsolete weapons for her protection:

Men faced with such a realization may be expected to lose pride in their own ships, and to regard the better equipped ships as their inevitable superiors.⁴⁵

As the war progressed the R.C.N. paid increasing attention to this aspect of morale-building.

Bases for Canadian ships offered few opportunities for leisure and recreation to sea-going personnel until comparatively late in the war. In June 1943 the feelings of the mid-ocean rating concerning the bases which he frequented were described as follows:

. . . he has very little to bolster his moral except the satisfaction that he is doing the most important job that can be given to anybody in the R.C.N. On the other hand he compares his lot with a pal who is also at sea but in the Western Local Escort Force. His pal gets to Halifax, New York and Boston all the time, while he himself sees nothing but St. John's, N.F. and Londonderry—two of the world's grimmest ports from a sailor's point of view. Then when he gets to Londonderry he compares his lot with an R.N. rating who goes on leave every time back, and actually gets home, with transportation paid four times a year. The comparison in either case is discouraging. It wouldn't be so bad if the R.C.N. had a good recreation

⁴⁴ "Report of Cold Weather Trials of Protective Equipment", R.C.N. Medical Research Division, 1945.

⁴⁵ C.O. *Assiniboine* to Capt. (D) Nfld., Aug. 9, 1943, N.S. 1057-3-24 (1).

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centre at St. John's, N.F. and Londonderry, such as the Americans have, but the Canadian rating is left to find his own fun wherever he can, without even the efforts of a special service officer on his behalf.⁴⁶

This deficiency was later met, in Londonderry, by the appointment of a special-services officer to the staff of Commodore (D), the establishment of a Canadian hostel in the city, and the opening of a rest camp about forty miles away from the base. The camp began to operate in June 1944, and provided three days' recreation for a ship's company during a normal layover.⁴⁷ By the middle of 1943 an effort was being made to provide recreational facilities in St. John's. The Red Triangle Club, the Caribou Hut, and the Knights of Columbus Hostel, as well as a number of smaller centres such as the Terra Nova Club, were started, and a rest camp near the city and a steam laundry were in operation.⁴⁸ The recreational centres did not fully meet the need, however, particularly after corresponding American facilities in St. John's had set a very high standard. Extra accommodation had been under discussion since the autumn of 1942, but difficulties regarding a site kept recurring until, in September 1944, it was decided that the recreation centre was no longer necessary in view of the imminent end of the European war.

The provision of morale services in Halifax, the most important naval base in Canada, was complicated by the conditions which prevailed there. In comparison with central Canada, the Maritime Provinces had played a secondary rôle in the industrial revolution; and their leading city was largely outside the main stream of urban development. Its theatres and restaurants were few, its municipal library was small, and the war had brought a tremendous influx of Service and civilian personnel. From 1939 to 1943 only 776 living units were created to meet a war-time increase in population of some 55,000. The inevitable congestion and strain upon public utilities of all kinds were described in July 1943 as ". . . dangerous . . . no stretch of the imagination could picture the situation without actually seeing it", and the Naval Service had contributed largely to this state of affairs. It was estimated in mid-1943 that naval personnel living in and out of barracks together with their dependents amounted to 16,629 persons. Living quarters were very expensive, and occasion-

⁴⁶ C.O. *Restigouche* to Capt. (D) Nfld., June 1, 1943, *ibid.*

⁴⁷ Interview with Lieut. (S.B.) W. J. O'Connor, R.C.N.V.R., Spec. Services Officer at Londonderry, Sept. 1944.

⁴⁸ F.O.N.F. records, 9765-10276; F.O.N.F. to Sec. N.B., Sept. 27, 1943, N.S. 1057-3-24 (1).

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ally a whole family was to be found cooking, eating, and sleeping, in one room.⁴⁹

Improvements were made, but it is questionable whether or not the general picture was radically changed during the war. The three large restaurants in Halifax were always overcrowded; the hostels and recreational services, in spite of the considerable activities of the auxiliary services and private persons, solved the problem only in part; and the "Stadacona" wet canteen was the only one in Halifax available to the thousands of ratings stationed there.

The official report attributed the VE-day riots of May 7-8, 1945, to "... failure on the part of the Naval Command in Halifax to plan for their personnel", with a view to keeping them off the streets.⁵⁰ Had the navy's men and women been denied leave during the victory celebrations, the riots probably would not have occurred; had the naval authorities taken prompt and energetic measures, the disturbance might have been quelled at the start; but it is also likely that the unusual conditions prevailing in the city throughout the war were the principal cause of the trouble.

During the two days in question about 13,000 officers and ratings were in the area, some 9,000 of whom were ashore on leave.⁵¹ The disturbances happened mainly within the downtown area of Halifax. On the evening of May 7, naval ratings interfered with street-cars, and looted four liquor stores of half their stocks. Once the sailors had started breaking in, civilians soon followed their example. The naval shore patrol and the city police had found the situation impossible to control, and had been compelled to allow matters to take their own course. The following afternoon, leave having been granted to celebrate VE-day, another street-car was taken over near the "Stadacona" canteen, a mob soon collected, and in a short time a brewery and several more liquor stores had been looted. By mid-afternoon shop windows throughout the downtown district were being smashed, mainly by naval ratings, with civilians taking part in the theft of goods. By 2100 the riots in Halifax had waned, although across the harbour in Dartmouth similar disturbances involving naval personnel did not stop until 2230. It was estimated that about a million dollars'

⁴⁹ C.O. "Stadacona" to Sec. N.B., Mar. 22, 1942, N.S. 30-1-27 (1).

⁵⁰ *Report on the Halifax Disorders, May 7-8, 1945* (Ottawa 1945), p. 5.

⁵¹ Naval Board of Enquiry, VE-Day Riots, N.S., T.S. 11155-112/1 (3).

worth of damage was inflicted on civilian property during the two days.⁵²

Generalizations

Dependence upon the Royal Navy had been a major factor in the development of Canada's naval training. In 1919 Admiral Jellicoe had recommended that:

... the Royal Canadian Navy and the Royal Navy should hold themselves in the very closest relationship. The ships should be of similar types, the personnel actuated by the same motives, trained on the same lines, imbued with the same traditions, governed by a practically common discipline and aiming at the same high standard of efficiency.⁵³

These principles were acted upon to a very large extent during the Second World War; nevertheless there was a steadily growing tendency for naval training in Canada to become self-reliant.

The extent of British influence, however, was revealed in many ways. Handbooks on the use of equipment and manuals of instruction were, with few exceptions, British or derived from the literature of the Royal Navy. Instructors, both rating and officer, were also obtained from the British in considerable numbers. When "Cornwallis" was established, the training commander of the whole centre as well as the commanding officers of almost every school, were on loan from the R.N.; throughout the field of advanced training officers of the Royal Navy occupied important positions; and in developing the operational training centres they played a significant part. The reasons for this are easily discovered. Before 1939 the R.C.N. had been too small to require an elaborate training programme, and the need for naval apparatus had been so limited that Canadian industry had not been induced to manufacture it. When war came, and with it unprecedented expansion, the Canadian navy had therefore to make heavy demands for R.N. assistance. Moreover the Naval Service had possessed few permanent-force officers, and had lacked trained specialists in the reserves. The handful of professional officers who possessed seniority and specialist qualifications had necessarily to be employed in an executive capacity. The result was a marked shortage of officers of lieutenant-commander's rank who could fill the essential technical positions at N.S.H.Q., in the commands, and in the schools.⁵⁴

⁵² *Ibid.*, *passim*.

⁵³ *Jellicoe Report*, I, p. 28.

⁵⁴ Sec. C.N.M.O. to Sec. N.B., July 17, 1944, N.S. 4425-15 (1).

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During the war, an ever-increasing number of permanent-force as well as reserve officers were trained in the technical schools of the Royal Navy. They became available for specialist appointments in the Canadian Service, and the need for R.N. personnel was reduced. Their experience, however, both at sea and in administrative posts, was relatively small, and by the conclusion of hostilities some British aid was still found necessary.

Before the war, facilities for advanced training in the Canadian navy had been negligible; but by the end of hostilities provision had been made for the specialized instruction of all ratings and of certain types of officer, in ships smaller than cruisers. In July 1945 the Naval Staff announced that the advanced training of ratings would continue in Canada; but that long-course officers, including gunners and gunners (T), and boatswains (A S), would qualify in the schools of the Royal Navy. Training in cruiser equipment, however, would be given on board one of the Canadian cruisers whenever these ships put into Halifax.⁵⁵

Compared with the close association of the R.C.N. and the R.N., the relations between the Canadian and American Services were not intimate. Training authorities in Canada kept an eye upon U.S.N. instructional methods, but American practices were often adopted by the R.C.N. only after they had been accepted by the British. The popular belief that Canada serves as an interpreter between the great English-speaking Powers was hardly borne out in the field of naval training. Toward the end of the war, however, Canadian naval schools showed an increasing tendency to refer directly to American methods. Had the Canadian fleet entered the Pacific campaign, this tendency would undoubtedly have increased.

By the end of the war the United States Navy was by far the largest in the world, its complement having reached the staggering total of about 3,500,000, while the Royal Navy numbered 855,500.⁵⁶ Supported by the manpower and resources of an immense nation, the American navy was able to organize its schools very efficiently. Its great supply of manpower also made possible a distinctive practice—pre-commissioning training. The nucleus crew of a destroyer escort, for example, eight officers and seventy ratings, were trained as a

⁵⁵ Naval Staff Minutes, July 16, 1945.

⁵⁶ The United States maintained no independent air Service, and the U.S.N. complement included a considerable proportion of the American air forces.

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unit for eight weeks. A month before commissioning, the commanding officer and such other officers as were needed, proceeded to the building yard for duties connected with fitting out the ship, while the remainder received an additional month of training. There a full ship's company was built about the nucleus; three weeks were spent in training individual ratings, and one week in operational training. This method gave the officers and men an earlier opportunity of learning to work as a team. Neither the R.N. nor the R.C.N. possessed the surplus personnel for pre-commissioning training of this sort.

The imperfections which have been noted in the training of Canada's naval personnel could not have been easily avoided. Planned expansion played only a small rôle for a considerable part of the war, and uncertainty was thus communicated to every branch of the Service. The establishment and management of schools, moreover, were novel enterprises. The Royal Canadian Navy was the smallest Service of a small nation which in time of peace had given little thought to preparations for war.

MERCHANT SHIPPING AND TRADE—I

ALTHOUGH naval forces have occasionally lent support to land Operations near the shore, as they did so often and so effectively during the Second World War, nine-tenths of all naval warfare has been waged in order to secure the use of the seas to friendly shipping while denying it to that of the enemy. This aim has seldom been completely achieved, even through great naval superiority; but given fair success, the results have usually been very weighty and sometimes decisive. For in time of war, the power to move land forces across the water from one shore to another has often either neutralized superior land forces, or enabled a largely unpredictable and therefore doubly-effective blow to be struck; while the ability to transport supplies across the seas has nourished, sometimes prodigiously, the war-making strength of that belligerent who possessed it.

In the two great wars of the twentieth century, particularly the second of them, the sustaining power to be derived from ships sailing the seas was more important than it had been in almost any previous conflict. The resources of most of the earth were available to those who could use the oceans, and the new world was able to redress the balance of the old by supplying combatants and the products of field and factory.

A weaker navy has usually attempted to destroy as many of its opponent's merchant ships as possible by commerce raiding. The principal weapon employed for this purpose was in sailing days the frigate, later the cruiser, and later still the submarine reinforced in the Second World War by the bomber. Three forms of close defence against raiders have been used: patrolling of the trade routes; dispersed routeing on the high seas, combined with the patrolling of those focal areas, particularly the waters near terminal ports, where dispersal necessarily gives place to concentration; and the escorted convoy.

Of these measures the patrolling of trade routes has probably been the least successful. Independent sailings on diverse routes afforded considerable protection in blue water, because of the immense size of the oceans and larger seas; while the patrolling of focal areas protected the shipping in those waters where it was most easily found by enemy raiders, and where, as a result, the chances of finding and destroying such raiders were also increased. Convoys greatly reduced the raider's chance of finding anything to capture or destroy. Should he discover a convoy, he had found many ships to attack instead of only one; but this disadvantage, inherent in the convoy system, could be largely offset by the use of escorts. Although there were never enough warships to escort every individual merchantman, it was usually possible to provide a warship, or several of them, to accompany each convoy.

The device of sailing merchantmen in a group accompanied by armed escorts, in time of war, goes back to ancient times, and was a normal procedure during the naval wars of the seventeenth and eighteenth centuries.¹ During the First World War, however, the Admiralty was so reluctant for various reasons to institute convoys, that only in 1917 when the U-boat campaign actually seemed to spell certain defeat if it were not quickly checked, was this important step taken. The results were good,² and when the Second World War began, shipping on the more important and vulnerable routes was immediately placed in convoy. As in the previous war, individual sailings on dispersed routes and the patrolling of focal waters were also resorted to extensively.

Unlike all other types of raider, the submarine had to be countered by a ship wholly different in kind from herself, for in her peculiar case like was no cure for like. In the wars of 1914-18 and 1939-45 the neutralizing and ultimate defeat of the submarine required an expenditure of effort, materials, and manpower, fantastically out of proportion to the cost to the enemy of constructing and maintaining his undersea fleet. Before neither war had the Germans made adequate preparations for a large-scale submarine campaign against shipping.

¹ A certain convoy in the Napoleonic Wars is recorded as having consisted of no less than a thousand sail. [Sir John Ross, *Memoirs and Correspondence of Admiral Lord de Saumarez* (London 1838), II, p. 214].

² After the gradual introduction of convoys which began in May 1917, allied shipping losses during the remainder of the year, in gross tons, declined as follows: Apr., 881,027; June, 687,507; Aug., 511,730; Oct., 458,558; Dec., 399,111. [Table in C. Ernest Fayle, *Seaborne Trade* (London 1924), III, p. 465].

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In the years preceding 1914 the capabilities of the submarine had been mere guesswork, and the weapon had everywhere been thought of as one for use against warships. After 1933, however, the German authorities had plenty of information and experience to draw upon, but for reasons not all of which are clear as yet, they treated the submarine arm as a foster child. Had they diverted to it a considerably larger proportion of all their warlike preparations, they could have provided themselves with several hundred U-boats instead of the sixty-five with which they actually entered the war. But dazzled by the anticipated rewards of *Blitzkrieg*, and blind to the experience of earlier wars, the Germans failed to exploit the submarine fully as a means of victory over the sea power that stubbornly barred them from world domination.

In each war the German U-boat offensive had a three-fold effect: it caused a heavy loss of life, shipping, and supplies; it forced the diversion of vast amounts of materials and manpower in order to combat it; and wholly apart from the actual sinkings of ships, it caused a serious disruption of trade. For the Second World War, the loss of shipping can be given in round figures. From the night of September 3, 1939, when the *Athenia* was torpedoed, until May 8, 1945, U-boats accounted for 14,554,000 gross tons of shipping sunk,³ and some 4,000,000 gross tons estimated as damaged. To reckon fully the cost to the allies of the materials and effort required to meet the U-boat menace, would entail the consideration of many correlated activities such as land installations, merchantship defensive equipment, harbour defences, and air-patrol and bombings, as well as purely naval undertakings. However, an indication of the naval effort alone can be found in the expansion of the Royal Canadian Navy to a force of nearly 400 warships, over 400 auxiliary craft, and almost 100,000 men and women. Only a small proportion of these were employed in surface Operations of the old type, or in landing Operations, minesweeping, or anti-aircraft, the great majority being preoccupied with the suppression of undersea attacks.

The third effect of the submarine campaign—the disruption of trade—was literally incalculable in cost. The general disorganization of sea-borne trade was, of course, by no means entirely due to submarine attacks. Conditions imposed by the war itself, such as the transporting of troops and military sup-

³“Statistical Summary of War on British, Allied and Neutral Shipping”, Trade Division, Admiralty, July 1, 1945, p. 1, N.S. 1960-13 (1).

plies in unprecedented quantities, the shifting theatres of war, and the ever-changing demands of battle fronts thousands of miles from the source of supply, placed a burden on merchant shipping which was serious enough in itself. The need to protect this shipping from submarine attack, however, had an even greater effect.

Although the convoy system was magnificently successful, it was expensive. It greatly reduced the number of sinkings, but it also reduced the effectiveness of each ship, a fact which in itself greatly augmented the need for new ships. This was additional, moreover, to the very large number of extra vessels which total warfare would have called for in any case. Fortunately, however, the reduction of virtually all peace-time trade to the bare necessities of life released whole fleets of ships for military use; by September 1943 new construction had replaced all losses;⁴ and after that date the excess of tonnage over the peace-time figures grew phenomenally. Yet even in April 1945, when this excess amounted to 19,134,000 gross tons, or nearly as much again as the whole British merchant marine of 1939, there was still an acute world shortage of shipping.⁵

The paradox of the convoy system was that it cost shipping to save ships, since every two ships in convoy cost the equivalent in shipping delays of nearly one whole vessel. This loss, and those caused by action, "in-port" delays, and acquisition for army use, added up to a cost in "ship-days" which was, from the beginning of the war, dangerously high. That it was not higher was owing to the operation of a vast system of transportation control that stretched far inland from every allied port in the world, co-ordinating the work of supply, land transportation, loading, ship construction and repair, and protection, with the single aim of using to the best advantage every ton of shipping that could be found, built, or salvaged. The convoys which arrived at their destinations, some battered and others unscathed, were evidence not only of the vigilance of the warships escorting them, but also of the widespread and correlated efforts that had brought the convoys themselves into being.

The growth of the Dominion as a producer through the twentieth century to 1939 was impressive enough in itself; but it remained for the statistics of the Second World War to

⁴ *Ibid.*, p. 13.

⁵ *Ibid.*

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reveal the abundant power of response to emergency that the country's economy possessed. Fed by a vast stock of raw materials, stimulated by unprecedented demands, and in many cases guided by the advanced techniques of the United States, Canada's industry quickly developed into a very powerful instrument of war. A picture of this development is afforded by the following table:⁶

	Gross Value of Production of Merchandise	Total Value of Exports	Value of Exports less those to U.S.
	(in millions of dollars)		
1900.....	481.0		
1918 (Peak year of World War I.).....	3227.4		
1929 (Peak peace- time year.).....	3883.4		
1939.....	3474.7	924.9	544.5
1943.....	8732.9	2971.5	1822.3

Between 1939 and 1943 the production of the Dominion, measured in dollars, more than doubled, while the total of all her exports including the sea-borne ones was trebled. As a result, the capacity of the country's inland transport and sea-board ports, never fully employed in peace-time, was stretched until the most ambitious dreams of the railroad builders or Maritimers of by-gone days had been surpassed. Before the end of 1943 the main arteries of trade, already constricted because of various war-time conditions, were frequently on the verge of becoming choked.

Inland Trade Channels

It is obvious that sea-borne trade channels are largely dependent on inland routes, and this fact has perhaps had greater significance for Canada than for any other great exporting country. The concentration of grain production in the prairie Provinces, and of industry in the Great Lakes peninsula, on the shores of Lake Ontario, the upper St. Lawrence and the Saguenay, and in the Vancouver area, has created the problem of transporting most Canadian commodities hundreds of miles before they can be shipped to overseas markets. The advantage held by the products of the Vancouver area was, of course, offset with relation to the European or African theatres of war by the long ocean route that they had to traverse.

⁶ Based on tables in *The Canada Year Book*, 1940, p. 397, and 1945, p. 381.

From the day when Jacques Cartier sailed up the St. Lawrence River in search of the elusive passage to the East, Canada's economic development has been inextricably entwined with the growth of inland channels of trade and her ability to carry goods to and from the seaboard. The fur trade, which led the *coureurs-de-bois* far into the interior in their search for pelts, established the various inland waterways of the country, by far the most important of which was the system of the Great Lakes and the St. Lawrence. By the middle of the nineteenth century the railways, which had at first been links in this system or tributaries to it, had found their own way to ice-free sea ports at Portland in Maine, Halifax, and Saint John. The Canadian Pacific Railway, completed in 1885, not only opened up the trackless west beyond the lakes, but bound the growing colonies of Assiniboia and British Columbia to the older settlements in the east and provided the first outlet to the Pacific at Vancouver. The boom that followed produced two more transcontinental lines, the Grand Trunk Pacific which crossed the Dominion from Quebec to Prince Rupert, and the Canadian Northern. Owing to the First World War and the absence of the expected spate of immigrants, these two systems fell upon evil times, and were taken over by the government to be merged in 1923 into the single Canadian National Railways system.⁷

In 1939, with 42,000 miles of railway track, Canada ranked fourth among the nations of the world in respect to track mileage, and second in mileage per head.⁸ The country had paid dearly for the optimism of the early 1900's, but the 1940's proved that peace-time liabilities could become war-time assets. In all, the Dominion had five clearly-defined channels of transportation to the sea. In the west the Canadian Pacific line to Vancouver, and the Canadian National lines to Vancouver and Prince Rupert, provided a fairly large part of the western Provinces with two routes to year-round seaports. In the east the St. Lawrence, backed by two Canadian National lines and the Canadian Pacific Railway as well as the Great Lakes waterway, constituted a broad thoroughfare during eight months of the year, while the Canadian National, terminating at Halifax and Portland, Me., and the Canadian Pacific terminating at Saint John, N.B., provided two more channels for external trade, usable the year round.

⁷ For a full account of the development of Canada's transportation system, see G. P. de F. Glazebrook, *A History of Transportation in Canada* (Toronto 1938).

⁸ *Canada Year Book*, 1940, p. 638.

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There were two possible alternatives to these routes. The Hudson Bay Railway provided the shortest connection between the prairies and salt water; but its value in war was impaired by the short season of its accessibility by sea, and the difficulty of protecting the ocean routes to and from it, isolated as these were from the patrolled areas of the North-west Atlantic. The other possibility was to direct Canadian produce through American channels and ports. During the war the great network of railways in the United States, the American Great Lakes ports, and the Erie canals to the Hudson, offered excellent facilities for the transport of goods that could not be handled through Canadian channels, at a time when the primary consideration was to get the materials of war to the battle fronts with the minimum of delay. The importance of this outlet is shown by the percentage of Canadian exports shipped through the United States to overseas destinations, which increased from 14.4% in 1940 to 43% in 1943.⁹

Seaports

In peace-time the ports which served as the principal outlets for Canada's inland trade channels to export markets were probably adequate, but those into the Atlantic could be counted on one hand, and those into the Pacific on one finger. For the Atlantic there were Montreal, Halifax, Saint John, N.B., Quebec, Three Rivers and, accounting for a small volume, Sorel. For the Pacific there was Vancouver, and Prince Rupert which handled very little. In addition to these there were fine ports of varying size and degrees of accessibility, which together accounted for a large volume of coastal trade, and many of which were used for loading for export the products of their respective hinterlands. Sydney, N.S., for instance, and the various lumber and pulp ports of the Gulf of St. Lawrence, as well as Victoria and Port Alberni on the west coast, must be included when the total of Canadian exports or coastal trade is being made up. Yet for handling any sizeable quantity of the Dominion's inland produce on its way to foreign markets, they had neither the necessary port facilities nor the inland communications.¹⁰

The factors to be considered when discussing the capacity of a port are numerous and diverse. It is therefore impossible

⁹ *Ibid.*, 1945, p. 505.

¹⁰ See App. IX for table showing capacity of principal loading ports as of Dec. 31, 1944.

to say, for example, that this port can handle so many ships and that one so many more. Berths are constructed for specialized purposes: to load grain, or coal, or general cargo; to pipe oil; or to embark passengers. They are of different lengths, and have varying depths of water alongside. To fill any one port to its absolute capacity is therefore a most difficult task.

In war-time this problem became extraordinarily complex. Added to the pressure built up by expanding production, at a time when available tonnage was rapidly decreasing, there were the dislocations caused by submarine warfare. Man-power shrank, yet the need for repairs was tremendously increased by ships damaged in action or driven beyond the endurance of their over-aged parts. The demands of the battle fronts were ever changing; large drafts of troops had to be handled; and the convoy system caused the volume of shipping to ebb and flow inordinately. The facilities of the ports, therefore, were far more heavily taxed than they would have been by an equal amount of peace-time traffic.

More than half of Canada's eastern harbour facilities for exporting were situated in the St. Lawrence. Considered in relation to the country's inland transportation channels and her industrial centres the figures in Appendix IX underline the geographic significance of the river as a funnel to half of North America, and as far as grain at least was concerned, a cornucopia of supplies for Europe.

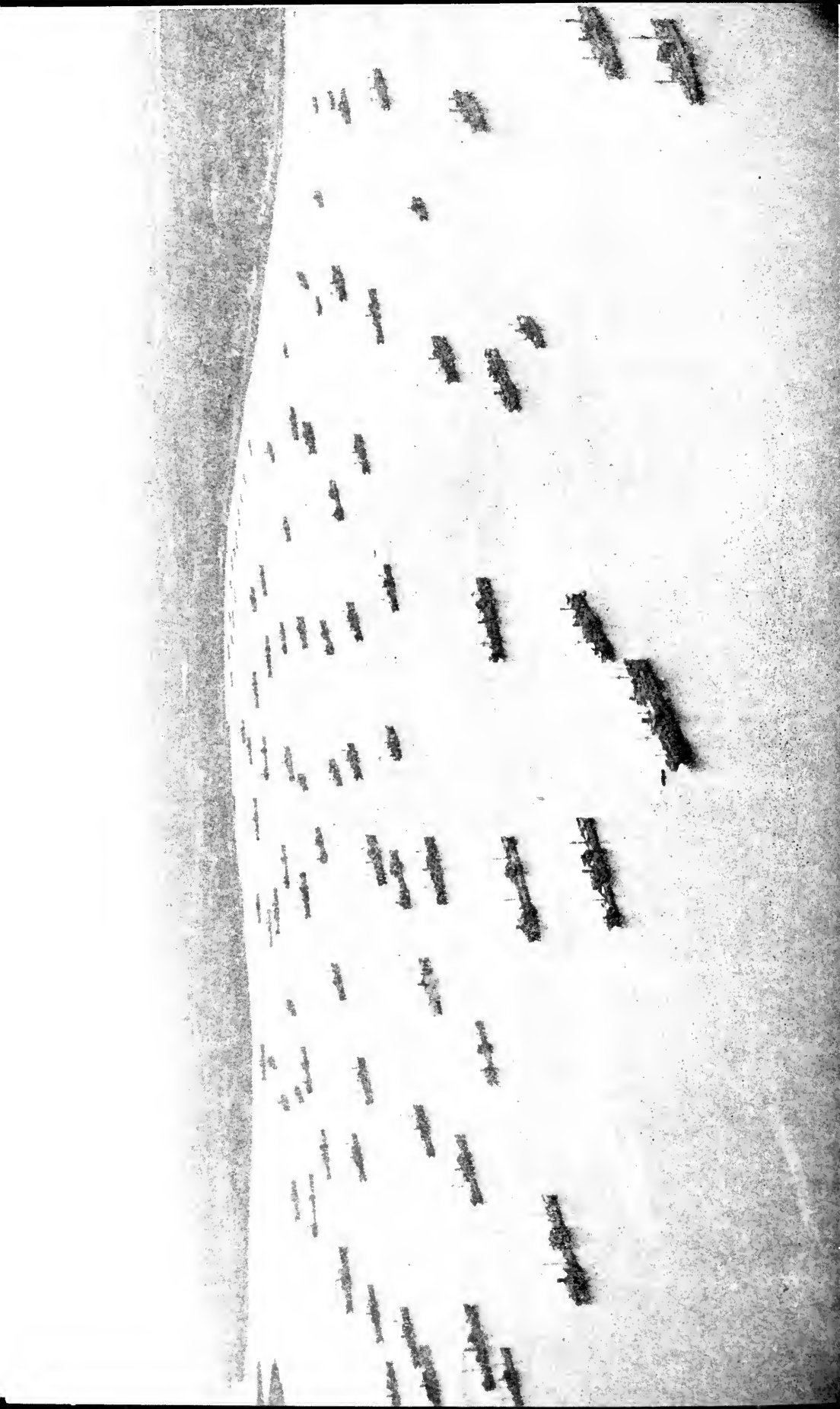
The importance of the St. Lawrence, however, was by no means entirely due to its key position in external trade. To the tourist who in his pre-war leisure sailed the eight hundred miles from the sea to Montreal, the lower reaches of the river may have appeared as nearly unsettled and untouched as they did to Cartier. A few villages marked by their glistening spires may have caught his eye after the pilot had come aboard at Father Point, and as the river narrowed he probably noticed the bustling coasters and tiny motor vessels which had inherited some of the trade, as well as the name, of their forerunners the *bateaux*. But until Quebec was in sight there was little to be seen from the deck of a liner which would suggest that this river was a street as well as a highway; that in and out of its small ports and tributaries there was circulating a coastal trade amounting to about 5,000,000 tons yearly; or that the empire of the St. Lawrence was built on industrial as well as commercial foundations.

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The raw and unfinished products had to be moved mainly by water. Cape Breton coal from Sydney to Montreal; American coal from the lakes to the Gulf; bauxite, fluorspar, and cryolite for the insatiable crucibles of Arvida; pulpwood, pulp, and newsprint, for the presses of a continent; timber, pit-props, railroad ties, and aluminum, for the home and fighting fronts; oil, gasoline, food, and essentials for the producers themselves—all these had to be carried over the broad waters of this great flood, which is re-born each year in the spring freshets beyond distant Lake Nipigon.

In war-time the disadvantages of the St. Lawrence were two-fold. The extra distance of water carriage for goods from Montreal became a liability instead of an asset, when ships, not costs, were in question. To a great extent this drawback was offset by the efficiency and elasticity of the larger St. Lawrence ports. With the greatest despatch repairs were effected, ballast discharged, and bunkers acquired, in these ports whose modern and extensive installations and abundant supply of skilled labour reduced loading time to a minimum. Certain types of vessel which loaded in Montreal during 1940-41 in three or four days, required from ten to fourteen days to "turn around" in Halifax or Saint John, N.B., later in the war. In other words, while the St. Lawrence remained free of submarines, and if ships could detach from or join convoys without proceeding to Halifax, the time lost in navigating the St. Lawrence was more than regained by rapid loading and servicing.

The greatest disadvantage of the river during the war, however, was the vulnerable position of its whole estuary. The presence of a submarine in the Gulf automatically added 1,000 miles of convoy lanes to the already heavy commitments of the navy, and rendered several of the smaller river ports unsafe. These outports served a vital need in loading the timber and pulp drawn from their immediate regions at a time when these products were in precariously short supply. Several of them, such as Clarke City, Ste. Anne des Monts, Petite Vallée, and Mont Louis, had wharves or anchorages so exposed to attack that it was deemed advisable, should the submarine threat materialize, to deny their use to the larger vessels. In this event their products would be moved in small craft to other less vulnerable ports. Apart from the seasonal "freeze-up" therefore, the chief flaws in the St. Lawrence were directly attributable to actual or threatened submarine attack.



Ships assembled for convoy in Bedford Basin

MERCHANT SHIPPING AND TRADE—I

It will be shown that U-boat activity in the Gulf in 1942 created a condition which to an almost disastrous extent cancelled out the St. Lawrence, threw a staggering burden upon Halifax and Saint John, N.B., and necessitated the diversion of many exports to American outlets.

Substituting for the St. Lawrence in winter, and complementing it in summer, were the two ice-free ports of Halifax and Saint John, N.B., and the American outlet of the old Grand Trunk Railway, Portland, Me. In peace-time, isolated from the producing centres of Canada and by-passed by most of her external trade, Halifax to most Canadians lay almost out of sight over the horizon, to be thrust into view each year by winter frosts, or less frequently by the eruption of political campaigns or freight-rate controversies. In war-time, on the other hand, the "Eastern Canadian Port" at once assumed the utmost importance. With its strategic position in the Atlantic, its extensive harbour facilities, and its unrivalled anchorage, Halifax served in war as three ports in one. The principal naval base of the Dominion was also an important convoy-assembly port, and a loading and embarkation point for overseas passage. "Troopers", whose voyages at sea were required to be as short as possible, for reasons of economy and safety were sailed principally from Halifax, which was incidentally the only Canadian east-coast harbour able to berth the largest passenger liners. The long rail-haul to the port was offset by the advantage of proximity to the convoy routes of the North Atlantic, and it was found that certain types of vessel, such as the small refrigerator ships and the "MAC"¹¹ grainships and tankers, could be "turned around" after their arrival in time to catch the next convoy back to the United Kingdom.

This abundance of advantages, however, militated against the use of the port to its fullest capacity as an outlet for Canadian produce. Naval demands swallowed up space and labour; the passage of troops had a paralysing effect on freight-car traffic, sometimes tying up the tracks and marshalling yards for days; the requirements of ships assembling for convoy or taking refuge from storm or attack were a constant drain on resources; while even the "MAC" grainships created difficulty because, owing to their bulk, they monopolized double berths for loading. Probably the greatest obstacle to continued efficiency, however, was the lack of skilled dockside labour. The stevedores in Halifax, like those in Saint John, N.B.,

¹¹ Merchant-ship Aircraft Carriers.

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were accustomed to return to their farms or fishing boats for seven months of the year, leaving most of the docks to the seagulls and the summer tourists; so that when in 1942 and 1943 much of the St. Lawrence trade was thrust upon the Maritime ports, the supply of longshoremen, already curtailed by other war conditions, became critically short. Owing to this and other causes, when trade in the St. Lawrence was reduced to a trickle in 1943 in anticipation of intensified U-boat attacks, the Maritime ports during that year loaded only ninety-four overseas vessels in excess of the number that had been loaded in 1941 when the St. Lawrence had been unrestricted.¹²

Saint John, N.B., suffered like Halifax from an acute labour shortage, particularly in the summer months; but it was comparatively free from the war-time responsibilities which preoccupied the latter port. Connected with the interior by a much shorter railway line¹³ which was seldom encumbered by troop movements,¹⁴ Saint John was an ideal outlet for goods destined for the Mediterranean or southern Atlantic points. Coastal routes, which were unconvoyed during most of the war, gave it ready access to the great American convoy-assembly ports of New York and Norfolk. Neither a naval base of great importance, a port of refuge, nor a convoy-assembly port, the whole of its facilities, many of which had been renewed and modernized after a fire in 1931, could be employed for the purpose of loading cargo vessels.

On the debit side, Saint John's difficulties were typical of all organizations required to perform war-time tasks beyond the scope of their peace-time design. A harbour of limited area, with a difficult entrance, heavy tides, and no suitable anchorage, when employed to capacity it became particularly liable to congestion, which caused a rapid decline in efficiency. The sudden and intermittent instituting of convoys due to recurring submarine threats would sometimes delay departures of loaded ships, and render the port incapable of accepting further incoming traffic. On such occasions it was necessary to divert inward-bound vessels to Digby, N.S., which lies facing Saint John across the Bay of Fundy, there to discharge ballast

¹² Figures supplied by B.M.W.T.R., Montreal.

¹³ Montreal to Halifax (C.N.R.), 840 mi.; Montreal to Saint John, N.B. (C.P.R.), 481 mi.

¹⁴ After the entry of the U.S. into the war on December 7, 1941, the C.P.R., whose line passed through Maine, carried troops to Saint John whence they were taken by C.N.R. to Halifax via Moncton. However, this movement was not heavy enough to prejudice freight carriage, and it did not tend to congest the marshalling yards in Saint John to the same extent as embarkation drafts congested those at Halifax.

and await their turn. Despite these disadvantages and its more limited berthing capacity, during most of the war Saint John could accommodate at loading berths some 20 ships at once as against about 12 for Halifax.¹⁵

Since 1859, when with the opening of the Victoria Bridge over the St. Lawrence the Grand Trunk Railway had obtained a through route to Portland, Me., this American port had been closely linked to Canadian external trade, an affiliation that was further strengthened by the completion in November 1941 of the Portland-Montreal pipe line. In addition to a number of oil and coal discharging and bunkering berths, Portland contained piers for loading some seven ships, including two grain berths operated by the Grand Trunk Railway. In 1940 and 1941 respectively, 22 and 38 ships were loaded with Canadian produce for overseas trade,¹⁶ after which the British traffic of the port, due to complications of lend-lease operations, came under the allocation policy of the representative of the British Ministry of War Transport in the United States.

The significance of the smaller timber and pulp ports in the St. Lawrence during the war has already been mentioned. The following figures showing the comparative importance of the east-coast ports give the net tonnage of shipping arriving at them in 1944, for those ports that received over 50,000 net tons of shipping during the year. Also shown are the commodities imported or exported with which the smaller ports were most concerned:¹⁷

Port	Export	Import	Net Tonnage of Shipping Arrived
Montreal, P.Q. (Port of trans-shipment)			3,914,892
Halifax, N.S.			2,543,642
Saint John, N.B.			2,165,647
Quebec, P.Q.			1,774,697
Three Rivers, P.Q.			1,731,118
Sydney, N.S.	Coal	Iron ore	1,623,677
Port Alfred, P.Q.		Coal, bauxite	773,350
Digby, N.S.	Gypsum		678,331
North Sydney, N.S.	Coal		371,179
Sorel, P.Q.	Wheat		322,657

¹⁵ These figures are based on the practical experience of the B.M.W.T.R. during the war, and refer to ships loading for overseas destinations.

¹⁶ Figures supplied by B.M.W.T.R., Montreal. The use of Portland as a Canadian outlet was arranged between the B.M.W.T. representatives in the U.S. and Canada. [B.M.W.T.R., N.Y. to C.N.S., Dec. 18, 1939, N.S. 1013-8-13 (4)].

¹⁷ *Shipping Report*, year ending Dec. 31, 1944, Dom. Bureau of Statistics (Ottawa 1945).

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Port	Export	Import	Net Tonnage of Shipping Arrived
Baie Comeau, P.Q.	Paper		202,739
Louisbourg, N.S.	Coal		167,343
Rimouski, P.Q.	Timber		105,265
Chicoutimi, P.Q.		Coal	82,474
Windsor, N.S.	Gypsum		75,891
Walton, N.S.	Gypsum		61,540
Matane, P.Q.	Timber		56,607
Chatham, N.B.	Lumber		54,898
St. Jean, P.Q.	Timber		50,271

To these should be added the Newfoundland ports of St. John's, Wabana, Corner Brook, Botwood, Port aux Basques, and others, all of which handled a considerable export or import trade as well as a large port-to-port coastal trade.

In addition to handling the impressive tonnage indicated in the above list, Sydney, N.S., because of its strategic position at the mouth of the St. Lawrence and its magnificent anchorage, served throughout the war, except in winter, as an assembly port for ocean as well as coastal convoys. On one occasion in November 1940, when the accumulation of ships preparing to sail in convoys was joined by an HX¹⁸ convoy taking refuge, the harbour was crammed with no less than 127 ocean-going vessels.¹⁹ Despite the fluctuations caused by frequent changes in the allocation of overseas shipping to loading ports and by the vagaries of submarine warfare, and despite the limited character of its port facilities, Sydney maintained an enviable record in servicing and dispatching shipping, which reflected considerable credit upon the naval control and port authorities concerned.

The volume of shipping handled by all these Atlantic ports deserves a more exhaustive survey than is possible here, if only to illustrate the need for the extensive coastal-convoy system that had to be established early in 1942. In some cases the war-time importance of the products handled entailed more elaborate protective measures than the tonnage figures seemed to justify. However, when it is realized that because of the bulk commodities involved and the complete isolation of many of the ports in question the only effective means of transport was by water, the necessity for preserving these channels of trade becomes self-evident.

¹⁸ The trade convoys that operated in the Western Atlantic, with their letter-designations and other details, are given in Apps. X and XI.

¹⁹ "Outline History of Trade Division, N.S.H.Q., Ottawa, 1939-1945", Mar. 1946 (D.T.D. records), p. 18. This outline was prepared by Capt. E. S. Brand, R.C.N.

The west-coast ports were another asset that, like the St. Lawrence ports, could not be fully exploited during the Second World War. In many respects the potential capacity of the west coast to handle ocean-going vessels was equal if not superior, in winter-time at least, to that of the eastern ports. The effects on British Columbia of the opening of the Panama Canal in 1914 had been delayed by the First World War, but the surplus of shipping that emerged from that war quickly brought to the trade of the Province all the advantages of the short-cut to Europe. Like a plant which had long awaited the sun the area burgeoned and flourished under the stimulus of the brisk and expanding trade. The best of the fine natural harbours grew into thriving ports, and the railways which had been built in a previous era began at last to fulfil their promise. The shipment of bulk commodities such as grain and lumber was particularly favoured, since the rail lines to Vancouver tapped the fertile belts of Alberta and Saskatchewan as far east as Moose Jaw, and timber from the rich Pacific slope could be cut close by such ports as Chemainus, New Westminster, Port Alberni and Victoria.

As the trade expanded so did the Province. Colonization centring around the natural harbours fostered the coastal trade particularly, for in British Columbia the lines of interior communication, except in the southernmost area, were few and circuitous, while the coast is endowed with many navigable inlets and protected sea-ways. Vancouver, as the hub of the coastal system and the principal Canadian outlet to the Pacific, collected toll from the whole Province; for every new settlement or enterprise that sprang up increased the traffic of that magnificent harbour. Within the span of a generation the city grew to be Canada's third metropolis, its second greatest port, and the largest grain port on the Pacific coast of North America. Its size, its modern construction, and its large anchorages, made it a thoroughly efficient port second in Canada only to Montreal, but with its year-round effectiveness potentially capable of handling an even larger traffic.

The preponderance of port and loading facilities at Vancouver relegated all the other British Columbia harbours to positions of comparatively minor importance. The majority of them were engaged in handling local traffic, and like the lesser ports in the east in exporting the products of their own hinterlands. Only Prince Rupert, and New Westminster which is close by and complementary to Vancouver, loaded any

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volume of non-local export cargoes. The former came into prominence after the war had spread to the Pacific, when along with its sub-port, Port Edward, it was developed as an American army base and staging point for the movement of troops and supplies to the Alaskan theatre. Between them these two ports were eventually capable of berthing approximately ten Liberty-type ships and three or four smaller ocean-going vessels.²⁰ They had excellent railway connections with the interior and could have handled a considerable export trade; but their geographic position put them at a disadvantage as compared to Vancouver save for the Alaska-bound traffic.

While the various coastal ports were overshadowed by Vancouver, it should be remembered that they fulfilled a vital function in the life of the Province and in the movement of its valuable produce. The net tonnage of all the ships that arrived at British Columbia ports in coastal trade during 1944 was nearly twice that of similarly-engaged ships arriving at ports in the Maritimes and Quebec.²¹ Had the submarines intensified their attacks in Pacific coastal waters, and had they ventured into the treacherous tide currents inside the islands, the protection of a large and essential coastal trade would have been as imperative in the Pacific as it proved to be in the Atlantic.

For export trade, however, it is obvious that all the west-coast ports were at a hopeless disadvantage during the war years. The rail haul from the far west to the Atlantic was a costly yet necessary alternative to their use for loading cargoes for the important European and North African areas. It was not until 1944, when shipping difficulties had diminished and Canadian-registered vessels had been assigned to the west-coast service, that an appreciable quantity of exports to the Old World was loaded in Pacific ports. At the same time the volume of traffic to the Japanese war areas was expanding steadily, and it was expected that in the latter half of 1945 this increase, augmented further by the inclusion of American cargoes proceeding through Vancouver, would be sufficient to employ British Columbia's loading facilities almost to capacity. The Japanese capitulation, however, came some time before the peak had been reached, so that at no period of the war were the port installations of the west coast fully used.

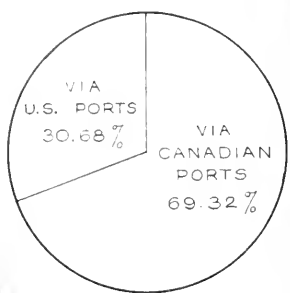
²⁰ "Summary of Canadian Port Facilities" (D.T.D. records).

²¹ N.S., 2,474,584 tons; N.B., 1,132,230; P.E.I., 33,328; P.Q., 6,014,215; B.C., 18,272,902 tons. [*Shipping Report*, 1944, Dom. Bureau of Statistics, pp. 4-9].

ANALYSIS OF
CANADIAN SEA-BORNE EXPORT TRADE - 1944

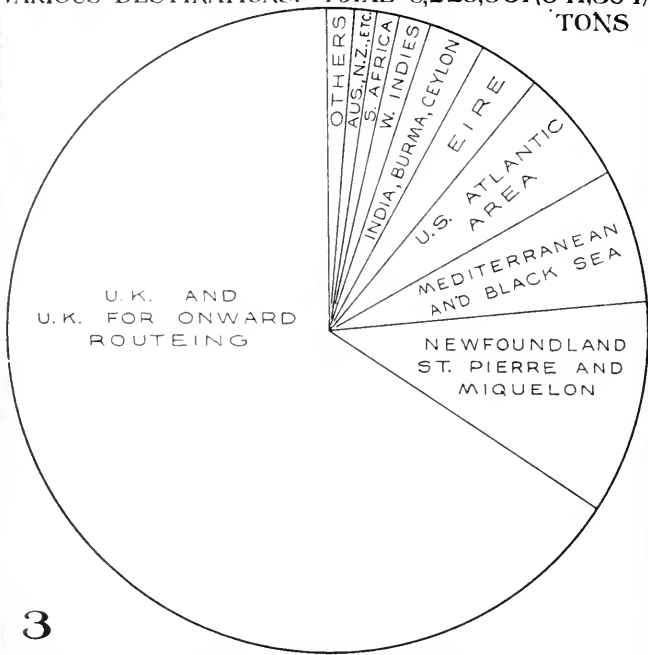
Based on statistics in "Shipping Report, Year Ended Dec. 31, 1944" - Dominion Bureau of Statistics, Ottawa, 1945

VOLUME EXPORTED
 VIA CANADIAN
 AND U.S. PORTS



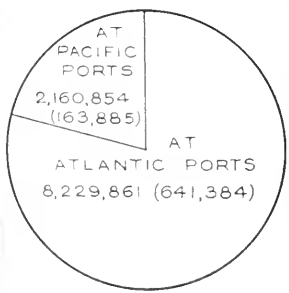
1

CARGOES LOADED AT CANADIAN ATLANTIC PORTS FOR
 VARIOUS DESTINATIONS. TOTAL 8,229,861 (641,384)
 TONS



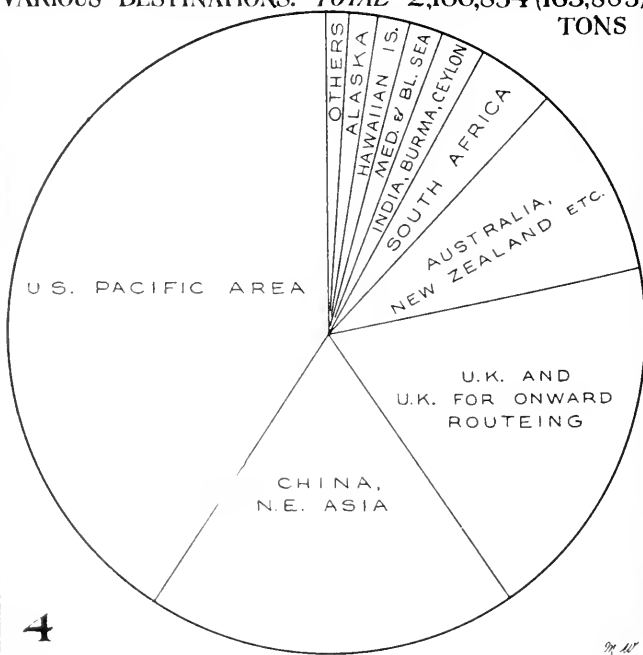
3

DEADWEIGHT (AND
 MEASURED) TONNAGE
 OF CARGOES
 LOADED AT
 CANADIAN ATLANTIC
 AND PACIFIC PORTS



2

CARGOES LOADED AT CANADIAN PACIFIC PORTS FOR
 VARIOUS DESTINATIONS. TOTAL 2,160,854 (163,885)
 TONS



4

Ocean and Coastal Trade Routes

The comparative volumes of Canadian exports from the point of view of loading areas and destinations in 1944, which was the peak full year of the war, are shown in the diagrams on Plate XII. From these can be deduced the approximate importance of the respective ocean trade routes in the whole picture of Canadian sea-borne exports. It should be kept in mind, however, that if Canadian cargoes exported from United States ports had been included, the proportions given for trade to the Mediterranean, Africa, and the Far East, would have been larger.

Owing to the fact that the great circle tracks from Europe and from the Mediterranean converge in an area not far south of Cape Race, Newfoundland, Canada is ideally situated in relation to the main trade routes of the North Atlantic. In peace-time the most heavily travelled of these routes—those to the United Kingdom—are like two tightly-woven ropes, one from the north of Ireland and one from the Fastnet Rocks, knotted together at about 45° N. 51° W. From here many untravelling strands of varying thickness stretch into the numerous loading ports that serrate the shore-line of the Atlantic from Newfoundland to Norfolk.

In war the concentration of so many routes at a single focal point simplified the problem of convoy from Cape Race eastward, but it was obviously impossible to provide escort for every strand that stretched from the knot westward. Termini were therefore established from and to which sections of ocean convoys sailed, and those ships that loaded at ports other than termini were usually required to proceed by coastal convoy or independently coastwise between assembly and loading ports. The terminal points of the convoys plying between the United Kingdom and North America were, for the most part, New York, Halifax, Sydney, and St. John's, Newfoundland.²² The assembly points for Mediterranean-bound convoys were limited to Norfolk and New York.

The establishment of convoys thus created artificial trade routes that required consideration in the choice of loading ports. As an example, for a 10-knot ship in peace-time, Montreal is twelve hours closer to Liverpool, and one hour closer to Gibraltar, than is New York. Under complete convoy

²² Sections of early HX convoys assembled at Bermuda. Special slow and small-craft convoys occasionally assembled at Charleston, S.C. Sections of trooper and CU convoys were sometimes assembled in Boston.

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restrictions, however, the same ship sailing from Montreal was from 1 to 3 days farther from Liverpool and 10 to 12 days farther from Gibraltar than a similar ship sailing from New York. A 10-knot vessel loading in a Chesapeake Bay port was 3 or 4 days closer to the Mediterranean by convoy than was a similar ship loading in Halifax. Yet Halifax is eight hundred miles nearer to Gibraltar than is Baltimore. It is perhaps significant that in 1944 Baltimore loaded 270,877 tons of Canadian goods for overseas destinations, ranking in this respect second only to New York among American ports.²³

The influence exercised by these artificial trade channels on the internal flow of trade is indicated in the following figures, which show the value of Canadian exports in 1943 to countries in the Middle East and eastern theatres of war, and the percentage of that volume that was exported via United States ports:²⁴

	Millions of Dollars	Per cent via U.S. Ports
British East Africa	18.7	95.5
British India	134.6	83.2
Egypt	188.7	78.9
French Africa	71.3	*
Iraq	22.0	95.4
Russia	55.6	74.0

* Figures not available—probably over 75%

The convoy routes as established, while extremely important, were by no means the only factor influencing the choice of a loading port. The age-old dominion of supply and demand over the movements of trade had been abrogated during hostilities, and shipping which had been keenly sensitive in normal times to the fluctuations of commerce, no longer followed its usual tendency to seek trade where it was heaviest. Instead it proceeded under orders dictated by operational necessity, while trade, regardless of costs, went wherever it could find shipping. Canada's output of war material, although great, was small when compared with that of the United States, and so it transpired that as the war went on and the volume of production increased, the Dominion was obliged to direct its exports through channels established principally for the purpose of handling American produce. The need to expedite the "turn-around" of ever-scarce shipping, and to conserve

²³ Survey made by Canadian Transport Controller, May 29, 1945.

²⁴ *Canada Year Book*, 1945, pp. 497-505.

escorts, sometimes rendered it impossible to make the best use of the Canadian loading ports.

In the Pacific the question of ocean routes presented a different picture. There were no convoys to speak of, and there was only one loading port of any size to consider, namely Vancouver. Until shipping had become more plentiful towards the end of the war, little of it could be spared to make the trip from the west coast to Europe, and priority cargoes such as lumber had to be sent by rail across the continent to the Atlantic ports. For those ships that made the trip from Vancouver into the Atlantic the usual procedure was to sail to Panama, picking up oil bunkers there or at Aruba or Curaçao. Ships bound for Capetown or beyond occasionally essayed the difficult Magellan route, bunkering first at Talara. By this means the fogs and storms of Tierra del Fuego could be substituted, with doubtful advantage, for the more dangerous waters of the equatorial Atlantic or the delays involved in sailing with the Caribbean and Recife convoys.

For passage across the Pacific the two prime considerations were bunkers, which were usually taken on, inbound or outbound, at San Pedro, Calif.,²⁵ and the changing theatres of conflict in the western part of that ocean. The real obstacle in the matter of Canadian exports to the Pacific was the scarcity of shipping. Not only did Vancouver and Prince Rupert lack advantage in distance from all except the Alaskan theatres, but Canadian and British bottoms were also extremely scarce. For this reason a considerable amount of Dominion exports to the Pacific areas was loaded at American ports. This practice was further encouraged by the fact that a large quantity of these exports, being automotive equipment, originated in the Great Lakes Peninsula area, which for westward movement was best served by American railways.

The size and importance of the Canadian coastal trade, and a few of its trends, have been mentioned in connection with the subsidiary coastal ports. The total volume of that trade is indicated by the net tonnage of ships that arrived and departed in purely Canadian movements in 1944, which amounted to 85,405,136 tons.²⁶ This figure, of course, included Great Lakes traffic and numerous port-to-port and "shuttle" movements, and excluded the coastal trade with ports in

²⁵ This was owing to the difficulty of shipping oil to Vancouver. A large majority of vessels operating in the Pacific were oil-burners.

²⁶ *Shipping Report, 1944*, Dom. Bureau of Statistics, p. 3.

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Newfoundland, the United States, the West Indies, and Alaska. It is probably safe to say, however, that the volume of Canada's coastal trade was twice that of her overseas trade.

In the Pacific, thanks to the protected inshore passages and the absence of a serious submarine threat, coastal shipping was unmolested and comparatively unrestricted. In the St. Lawrence and the Atlantic the small coaster and *bateau* traffic fared nearly as well. The coastal routes followed by the larger vessels, however, came under attack in 1942 and held the sporadic attention of submarine commanders from then until the last days of the war. To protect these routes certain coastal convoys were instituted which, as the American system developed, were integrated in a series of convoys that eventually stretched from Recife to St. John's, Newfoundland; a series which in turn was correlated with the ocean-convoy cycles.

Coastal trade suffered less when the ships were sailed in convoy than did overseas trade, for coastal convoys were tailored to fit local conditions on established and comparatively unchanging trade routes. These convoys often included ships hastening to overseas convoy-assembly ports, and others engaged in coastwise shuttle services.

Probably the most essential of the coastal routes that were subject to attack from time to time were the Wabana to Sydney ore-trade route, the Halifax to Caribbean and Gulf of Mexico tanker routes, and the supply route to the great air station at Goose Bay in Labrador. There were also important movements up and down the St. Lawrence, and between Halifax and Newfoundland, Sydney, and Saint John respectively, as well as the Sydney to Port aux Basques ferry route which proved so disastrously vulnerable. As there was no practical means of substituting land transport for most of these convoys, their suspension or elimination could only be considered in the event of the complete absence of submarines in the areas through which they were routed.

War-time Shipping Controls

 In 1939-40, therefore, the following situation prevailed. At Canada's disposal were three transcontinental railway systems and a waterway reaching into the heart of the continent. The outlets to these internal routes, for the purpose of export to Europe and Africa, were limited to two ice-free

harbours and the ample but extremely vulnerable facilities of the St. Lawrence. In addition there were the numerous rail connections and seaboard ports of the United States. At the same time the volume of production was increasing at a tremendous rate, and shipping was acutely scarce due to losses, to increased military demands, and to the necessity for convoy. The most advantageous employment of all the available means of transport both on land and afloat, and the protection of those means of transport which might be in jeopardy, were a *sine qua non* of success in total war.

The lessons of 1914-18 had not been forgotten, however, and before the outbreak of hostilities the first steps had been taken toward the ultimate acquisition or control by the government of all transportation facilities. The primary need was to ensure the safety of shipping on the high seas. As early as August 1938 the Admiralty had published revised instructions regarding the naval control of merchant shipping in the event of war, and on April 20, 1939, this publication was brought into force.²⁷ On August 21 naval control service officers and reporting officers whose duty it was to implement these instructions were placed at short notice, and on August 26 the following signal was broadcast to all British merchant shipping:

Admiralty has assumed control of the sailing and routing of British Merchant ships. Organization for official wireless messages in Admiralty Notices to Mariners No. 3 (3a) is now in force.²⁸

At the same time the waiting N.C.S.O.'s and R.O.'s received the signalled code word "funnel", indicating that merchant shipping was now under naval control. The first signal exercising this control soon followed, in which ships at sea were warned not to proceed to German ports, and if in the Baltic were instructed to "make every endeavour to reach the North Sea."²⁹

In Canada on the same day, August 26, 1939, an Order in Council was passed bringing all Canadian-registered vessels under similar naval control, and establishing the Royal Canadian Navy, in effect, as the executive of the government to control the movement of Canadian shipping.³⁰ The organization and functioning of naval control will be dealt

²⁷ C.B. 3000A (38); A.M. 540A, Apr. 20, 1939.

²⁸ Admiralty lettered message "A" over G.B.M.S.

²⁹ Admiralty lettered message "D", Aug. 26, 1939.

³⁰ P.C. 2412, Aug. 26, 1939.

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with later, but it should be made clear that N.S.H.Q. was the shipping Intelligence centre for the Admiralty, for an area which included all waters touching Canada and the United States except those of the Atlantic south of Savannah. The Admiralty "funnel" signal and the Order in Council gave the R.C.N. control of all Canadian and other Commonwealth shipping in all ports within that area. The next step was to establish complete control over the employment of shipping.

The policy of requisition had been gradually and at times painfully evolved by the British in the war of 1914-18. The story of shipping in that war had shown that in the face of increasing demands and dwindling tonnage half-measures were futile. The attempts to license certain ships for particular voyages, to control rates on government cargoes, and to requisition some ships but not others, were all eventually proved to be unfair and ineffective. On the other hand, the complete control of all means of transport guaranteed fair rates, equal remuneration for ship-owners, an even spread of war risks and insurance rates, over-all efficiency in tonnage-employment, expeditious transfer of shipping from one trade or area to another, and close integration with the policies affecting other government interests such as supply and labour. In 1939 the Board of Trade in the United Kingdom was given the right to grant or refuse voyage licenses for all ships registered in Britain. On October 20, 1939, the Ministry of Shipping assumed full power of requisition over all British-registered tonnage, and from this moment the Ministry assumed many of the functions and responsibilities of ownership.

Even an abridged account of the world-wide activities of the Ministry of Shipping, which on May 10, 1941, was merged with the Ministry of Transport to form the Ministry of War Transport, would require a volume in itself, and the influence of this agency on almost every aspect of the war was immense. As far as shipping was concerned, the Ministry of War Transport consisted of a body of ship-owners, managers, and agents, pooling their wide experience in one great effort, and this fact was proof of Britain's belief that here, above all, was a task for trained professionals. The feeling was well-founded, for probably in no other branch of war activity was a difficult duty better discharged.

In Canada, just before the outbreak of hostilities, Sir Edward Beatty, President of the Canadian Pacific Railway, had offered his and his company's services as agents of the

Ministry.³¹ In October 1939 the first intimation of his appointment as the Ministry's representative in Canada and of that of Sir Ashley Sparks in the United States, was received by N.S.H.Q. in an Admiralty signal which asked for the navy's co-operation in preparing ships for convoy.³² The office of the Ministry's representative in Canada was established in Montreal, and agents were at first appointed at Halifax, Saint John, N.B., Portland, Me., and Vancouver, and in July 1940 at Sydney, N.S.

The representative was primarily charged with the task of allocating cargoes to British ships, as these were made available by the Ministry in London. Yet the responsibilities that accompanied the handling of shipping in the capacity of quasi-owners soon became almost as manifold in Canada as in England. Virtually all cargoes loaded for overseas destinations came under the allocation policy of the Ministry of War Transport Representative, and the servicing, bunkering, repairing, and manning, of all British and British-managed ships automatically fell to his lot.

With the increase in Canadian output, the duties of the Ministry's representative became steadily more onerous and complex. Beginning in 1939 with a part-time staff of employees of the Canadian Pacific Railway Co., the head office in Montreal was employing a full-time staff of 170 in 1943, and of 238 in 1944. From the beginning of the war the British had been time-chartering neutral vessels wherever these could be found, and after the collapse of western Europe in 1940 practically all Norwegian, Dutch, Greek, and French ships that escaped the clutches of Germany, were requisitioned by their respective governments-in-exile. These governments in turn chartered their vessels to the British Government, reinforcing the depleted ranks of the British merchant marine, and bringing more ships and problems within the scope of the Ministry's representatives in Canada.

In 1943 it was agreed that vessels of the fast-increasing Canadian merchant marine which were placed in overseas service by the Canadian Shipping Board, should be operated as far as cargo policy was concerned as units in the Ministry's

³¹ Throughout this chapter and the next the "Ministry", the "Ministry of Shipping", and the "Ministry of War Transport" (B.M.W.T.), are to all intents and purposes the same agency. The B.M.W.T. assumed the functions of the M. of S., and the organizations and duties of the representatives in the U.S. and Canada (B.M.W.T.R.'s) were in no way affected by the change in title.

³² A.M. 1334/1/10/39, N.S. 1013-8-13.

pool. This was a logical step, and also a definite indication of the influential position occupied by the Ministry in Canadian external trade. Since the earliest days of the war it had been obvious that the authority responsible for expediting both the "turn-around" of shipping and the loading of exports must also have a vital interest in the fields of ship-repairs, stevedoring, manning, new construction, and improvement of harbour facilities. As the machinery of export was gradually assembled, it became apparent that the crank-shaft which absorbed, regulated, and transmitted the power impulses, was being forged in the office of the Ministry of War Transport's Representative.

That such extensive influence in the war-time transportation policy of Canada should be controlled by the agent of an external government was perhaps regrettable; but few if any unfortunate results of this condition could be charged to the office of the representative in Canada. Most of the personnel of the office were Canadians, or British of long residence in Canada, and their experience and that of the Britons appointed to the office was as much an advantage to Canada as it was to the United Kingdom. The position of the representative, nevertheless, was anomalous from the start. In England the Ministry was the executive and voice of the government in all matters pertaining to transportation. In Canada the Ministry's representative, even though responsible for the functioning of overseas shipping, was only able to advise or request. In a co-operation built on common respect, and with a single aim, the office of the representative worked hand-in-glove with the Canadian Transport Controller, the Canadian Shipping Board, and the navy; but no amount of co-operation could produce either the unified control or the authoritative decisions that were possible in England.

The apparent reluctance of the Canadian Government to establish an over-all control was probably owing to a number of causes, such as interdepartmental jealousies, a desire not to interfere with the Ministry of War Transport, and a general "let-sleeping-dogs-lie" attitude. The creation of a Canadian Ministry of War Transport similar to that in the United Kingdom, would have invaded the domains of the departments of Transport, Trade and Commerce, and Munitions and Supply; but the authority and uniformity of policy so obtained might have been worth the upheaval.

Owing to this lack of a supreme transport command, the task of obtaining and reconciling the opinions of the Ministry's representative, the Canadian Shipping Board, and the Transport Controller, occasionally fell upon the navy in the person of the Director of Trade Division, and ultimately upon the Chief of the Naval Staff. Thus it was not unusual for policy, which should have been the concern of the highest levels of government Departments, to be formulated on a basis of compromise between the requirements of lower agencies and the existing stipulations of naval organization. It must be admitted, however, that owing to the capabilities of the men involved this method usually gave good results.

In Canada the ultimate control of merchant-shipping employment had been foreshadowed in the Defence of Canada Regulations; and on September 5, 1939, the first step toward that end was taken with the creation of the Ship Licensing Board. According to the relevant Order in Council:

. . . no British ship registered in Canada, whose gross tonnage exceeds 500 tons, shall proceed to sea on any voyage from a port in Canada to a port outside of Canada or vice versa, or from a port outside of Canada to any other port outside of Canada, except under the authority of and in accordance with a licence . . .³³

By granting or refusing licences it was possible to ensure that Canadian-registered shipping, at least, would be employed in essential trade.

There followed a short period of readjustment and stock-taking, during which it became clear that the requisitioning powers assumed by the Ministry of Shipping in the United Kingdom were creating a serious situation for Canadian exporters. This was owing to many causes, underlying which was the fact that Canada's merchant marine, consisting principally of "lakers", was wholly inadequate for the purpose of overseas trade. In 1939, in fact, there had been registered in Canada only forty-one ocean-going ships of over a thousand tons, totalling about 290,000 dead-weight tons.³⁴

Up to this time most Canadian sea-borne trade had been carried by British-owned and registered ships, by Canadian-owned vessels (such as the east-coast gypsum carriers) registered in England, and by foreign-flag ships, principally Norwegian. The first two classes of vessel came automatically under the requisitioning policy of the Ministry of Shipping in

³³ P.C. 2524, Sept. 5, 1939.

³⁴ Figures supplied by C.S.B.

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the United Kingdom, and were therefore obliged to carry cargoes according to British priority stipulations. The foreign-flag vessels, unrestricted and in great demand, were free not only to raise their rates exorbitantly, but to refuse to sail in any but supposedly safe waters.

The Ship Licensing Board could merely direct the few Canadian-registered vessels into essential employment. The representative of the Ministry of Shipping of the United Kingdom, appointed without consultation with the Canadian Government, was the agent of the British Government and as such had prior obligations to British interests. An organization was required to carry on controls, to make official representation on behalf of Canadian exporters to the Ministry of Shipping, and to procure, where possible, additional shipping space. To discharge this difficult assignment the government in December 1939 established the Canadian Shipping Board. Created under the provisions of the War Measures Act, the Board was given specific powers for the following purposes: to carry out the functions of the former Ship Licensing Board; to deal with applications for transportation of materials by sea between Canadian ports, or between Canadian ports and other countries; to recommend measures to assist in procuring ocean transport for Canadian export trade; to keep in contact with the Ministry of Shipping in order to secure the co-operation of United Kingdom authorities towards meeting the requirements of Canadian export trade; and to exercise such powers of control over shipping as had been given to the Minister of Transport under the Defence of Canada Regulations.³⁵

This last provision equipped the Board with the necessary "teeth" with which to impose, by order, strict control over any Canadian ship in the following matters:

(a) the trades in which the ship may be engaged and the voyages which may be undertaken by the ship; (b) the classes of cargoes or passengers which may be carried in the ship; and (c) the chartering of the ship, and the terms and conditions upon which cargoes or passengers may be carried in the ship.³⁶

Unlike the Ministry of Shipping in the United Kingdom, the Canadian Shipping Board was never granted the power to requisition. This authority was given to the Ministers of the defence Services, who used it for the purpose of acquiring

³⁵ P.C. 4251, Dec. 20, 1939, amended by P.C. 6785, July 31, 1942.

³⁶ Defence of Canada Regulations, No. 44.

vessels, mostly small craft, for the use of the navy, army, or air force. The Canadian Shipping Board would have had little use for the power to requisition, however, since the more effective units of the dry-cargo fleet of 1939 were already owned by the Crown in the corporate person of the Canadian National Steamships Co., while all vessels built for Canadian use during the war were assigned to the Park Steamship Co., a Crown corporation. The only other ship-owner of importance was the Imperial Oil Co., whose tankers had formed a large part of the Canadian ocean-going merchant fleet in 1939. Since these vessels were already employed in an essential trade and remained so throughout the war, there was no need for coercion.

As constituted the Board was small and flexible, with a membership which was admirably suited for presenting the opinions of those Departments or government agencies interested in shipping matters. In addition to the chairman, who was the Deputy Minister of Trade and Commerce, the members of the Board were the Director of Shipping who later became chairman, the Transport Controller, and representatives from the Naval Service and the Departments of External Affairs, Transport, National Revenue, and Trade and Commerce. Representatives of the Board were established in London and Washington for liaison with the Ministry of Shipping, the United States Maritime Commission, and the War Shipping Administration. Agents were also appointed in Bombay, Vancouver, Halifax, and Saint John, N.B. The execution of the Board's policies was put in the hands of the Director of Shipping, Mr. A. L. W. MacCallum, whose services had been lent by the Shipping Federation of Canada, Inc. The director was assisted in the various activities of the Board by unsalaried technical advisers who were themselves men of wide experience in shipping matters.

On January 2, 1940, the Board started to carry out the tasks specified in the Order in Council. Control of the employment of Canadian-registered ships was eventually extended, by a Board order, to include ships of a hundred tons and over, and the work of the now defunct Ship Licensing Board was assigned to the Ship Licensing Committee of the Canadian Shipping Board. By further orders the chartering or purchasing of Canadian-registered vessels was brought under strict surveillance. Beyond this there was little that could be done respecting Canadian-registered ships until more tonnage

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could be acquired. By the end of 1940, however, seizures in prize of enemy and of French, Danish, and Finnish vessels, and a few purchases, had increased the shipping under the Board's control by some 100,000 dead-weight tons. In 1941, the Board in its capacity of adviser on "specific measures designed to assist in providing ocean transport", recommended a programme of shipbuilding.³⁷

In the meantime arrangements were made to ensure the continuance of the Nova Scotia-to-United States gypsum trade, the Wabana-to-Sydney ore movement, and the Sydney coal trade, all of which had been dependent upon British-registered shipping. An understanding was also reached which removed the possibility of competitive bidding between the Board and the Ministry for neutral shipping space.³⁸

During 1942 the first products of the Canadian shipbuilding programme inaugurated during the previous year were launched. All the earlier vessels built under this programme were to have been transferred to the United Kingdom, but at the Board's recommendation ten were withheld to be placed on Canadian registry. This marked the resurrection of the Dominion merchant marine, and the beginning of a growth which was ultimately to bring the total number of ships under the Board's direct control to over two hundred, with a total of over 1,500,000 dead-weight tons.

As the tonnage increased so did the Board's duties and problems. A policy of cargo allocation was difficult to evolve, owing to the predominant position in this field of the British Ministry of War Transport. The export of Canadian produce was governed by the established priority machinery of the various Commonwealth governments to whom the shipments were consigned, or in the case of military supplies on a basis determined by the combined Chiefs of Staff and Canadian military authorities. The sensible course was to leave the allocating of outbound cargoes to the Ministry, and at a meeting between the representatives of the Board and the Ministry, held in Montreal on October 21, 1943, a working agreement along these lines was reached.

The Board after consultation with the Ministry was to allocate vessels to such trades as seemed advisable. Requests

³⁷ P.C. 4251, para. 3 (1) c. Apart from recommending the inauguration of a shipbuilding programme, the C.S.B. was never concerned with ship production. This was the responsibility of Wartime Merchant Shipping Ltd., a Crown company.

³⁸ C.S.B. minutes, Jan. 29, 1940, *sq.* (D.T.D. records).

by the Ministry for switches of Canadian ships from one trade to another, or for additional emergency tonnage, were to receive full consideration from the Board, and any switches intended by the Board were to be made after due warning to the Ministry. All Canadian vessels would be "loaded outwards from North America in accordance with the appropriate area priority programme", and it was "recognized that the vessel tonnage controlled by the C.S.B. may be regarded as operating primarily in association with the M.W.T. tonnage pool in the matter of outbound cargo."³⁹ Under this arrangement the relative responsibilities of the Ministry and the Board in respect to cargo allocations to Canadian shipping was fairly clear cut. In the coastal services the employment of Canadian vessels was entirely in the hands of the Board, although it was necessary to adjust the projected programmes to the operations of vessels not under the Board's control.

Most of the remaining problems that faced the Board were created, in large part, by the lack of a central authority to control Canadian merchant-marine policy. The new vessels as they were delivered were assigned to the Park Steamship Co., the government's agent responsible for all matters pertaining to ownership, including those concerned with maintenance, supply, repairs, bunkering, and similar services. The ships were then allocated by the company to private firms who were responsible for their general operation in such trades, and for loading them with such cargoes, as might be prescribed or obtained for them by the Canadian Shipping Board. This body exercised its advisory functions in such a way as to offset, to a great extent, the ill effects of divided authority. With the active support of the naval authorities, the Board dealt with shipping problems which it could not solve by fiat, by the slower expedient of recommendation. In all trade policy, however, the Board, by reason of its specific duties and powers, was preoccupied with the growth and employment of the Canadian merchant marine. A detailed appreciation of the whole problem of export trade in relation to the three main phases of its movement—internal transportation, port handling, and overseas shipping—was never attempted.

Probably the most clearly-defined prerogatives exercised by any government agency in matters related to trade were

³⁹ Memo. of meeting between representatives of the B.M.W.T. and C.S.B., Montreal, Oct. 21, 1943, annex to C.S.B. minutes, Oct. 29, 1943, *ibid.*

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those of the Canadian Transport Controller,⁴⁰ whose powers included the authority:

(a) To charter, hire, lease or borrow any Transport Facilities or equipment (b) To charter, hire, lease, borrow or requisition or take possession of any space on any Transport Facilities or equipment; (c) . . . [and] any storage facilities, buildings or land⁴¹

He was also to "co-operate with the Canadian Representative of the British Ministry of War Transport and with the Director of the Office of Defence Transportation of the United States of America"

In the matter of sea transport, the Transport Controller confined his activities principally to the question of integrating land and coastal facilities in the common effort, and to the solution of particular logistic problems such as the maintenance of a supply route to the great air station at Goose Bay in Labrador. In this instance the Transport Controller, having obtained the required ships from the Shipping Board, arranged with the navy for the organization of the special convoys as they were needed.

The primary task of the Transport Controller, however, was to provide land transport for a steadily-increasing domestic and export trade in the face of numerous obstacles peculiar to a country of vast distances and sparse population. For example, the great manufacturing centres of Ontario were over a thousand miles from the Maritime ports; Halifax was approached from the west by a single-track railway; and timber from British Columbia had to be shipped by rail across the continent to loading ports. Moreover the volume of traffic grew by leaps and bounds: passenger miles increased in round numbers from 1,750,000,000 in 1939 to 6,500,000,000 in 1943, and freight-ton miles from 31,500,000,000 in 1939 to 64,000,000,000 in 1943. By the last-mentioned year the produce of industry, having far outstripped the shipping space available, had to be stored in places that could be easily reached from both the factories and the ports.⁴²

These and other difficulties were successfully and quickly surmounted, for the Transport Controller's work in connection with land transport was not complicated by warfare, convoys,

⁴⁰ Established by P.C. 3677, Nov. 15, 1939.

⁴¹ P.C. 4487, June 9, 1942.

⁴² *Canada Year Book*, 1945, pp. 660-661. Huge out-door storage dumps for specially protected and packed mechanized equipment were established at eighteen points easily accessible from the factories but close to rapid transport to the loading ports.

or divided control. Solidly established in the field of land transportation, the Transport Controller was also in a unique position with regard to related agencies. As a member of various government boards, which included the Canadian Shipping Board, the Wartime Industries Control Board, the Shipping Priorities Committee, and the board of the Representative of the Ministry of War Transport of the United Kingdom in Canada, he was able to act as his own liaison officer and observer. Through these memberships the Transport Controller was afforded, as well as a valuable insight into the operation of these agencies, an opportunity to establish co-operative policies, and when necessary to exercise considerable influence.

The relationship which he was able to maintain with the Office of Defence Transportation of the United States was also most valuable, and in 1942 certain powers were delegated by the O.D.T. to the Transport Controller to enable him to facilitate the movement of outbound Canadian cargoes to United States loading ports. From 1942 to 1944, therefore, when increases in war-time production and the partial paralysis of the St. Lawrence left Canada with insufficient port facilities, it was possible to arrange with the minimum of delay that large quantities of Canadian exports should be carried to American outlets. In 1943 this traffic, exclusive of grain, amounted to 2,694,034 tons.⁴³

As the war progressed, the contribution made by the Transport Controller toward the expeditious movement of supplies and personnel to the seaboard became more and more valuable; but like the Canadian Shipping Board and the Representative of the Ministry of War Transport of the United Kingdom, the Transport Controller was confined too closely to a particular field to allow him to control, or even to survey, the whole picture of Canadian external trade.

⁴³ Survey made by Canadian Transport Controller, 1944.

MERCHANT SHIPPING AND TRADE—II

Naval Control

The control by the Navy of mercantile shipping movements in war-time is exercised through the Naval Control Service, under the supervision of local naval authorities, and the ideal aimed at is adequate protection, coupled with a minimum of trade dislocation.¹

THE clearly defined duties of the Naval Control Service in war-time were those of routeing merchant ships, reporting shipping movements, and organizing convoys. In addition the N.C.S. acted as the liaison between the various civil agencies controlling the employment of shipping and the naval operational authorities determining its movement, from which it is apparent that the relationship of the navy to the different agencies controlling transportation and supply resembled that of the rim of a wheel to its spokes. Binding the spokes together at their outer extremities, the rim defines their limits and transmits their thrust.

In carrying out this function, the navy found that the task of moving supplies was more than the mere control and protection of merchant ships at sea. The need for Security obliged the Service to assume the duty of reporting and promulgating information regarding sailing and arrival dates, and many other details concerning merchant vessels. The responsibility of preparing ships for convoy, and the questions of repair, manning, discipline, port control, restricting certain cargoes, and forming trade policy, usually fell within the navy's spheres of interest.

The Admiralty's world-wide shipping Intelligence organization consisted of a number of areas, each with its Intelligence centre. The reporting officers in each area supplied their centres with specific reports, of which the significant ones were passed on to the Admiralty. Publications and instructions issued by the Admiralty were disseminated by the Intelligence

¹ "Mercantile Convoy Instructions" (C.B. 04024 (43), art. 20).

centres to their reporting officers, and by them to the masters of ships and others who required the information. The Ottawa area, which covered the great supply centres of the western world, and which included at first a powerful neutral and later an even more powerful ally, developed along lines that were in some respects unique.² In trade matters the Ottawa area acted as an instrument of the Royal Canadian Navy, an agent of the Admiralty, and unofficially as a link between London and Washington.

The administration of the Ottawa reporting area was the responsibility of the Director of Naval Intelligence³ who derived his authority from the C.N.S. At the outbreak of the Second World War this post was filled, as it had been for many years, by an R.N. commander on loan to the R.C.N. His war-time agents in Canadian ports were Naval Control Service Officers, who were Canadian naval officers, and unpaid reporting officers who were usually civilian customs officials. In the United States the situation was different. Naval officers were appointed as consular shipping advisers (C.S.A.'s), being mainly selected from retired R.N. and R.N.R. officers living in the United States, and were attached to the staffs of the British consuls in the principal ports of that country. These officers, who did not wear uniform until the United States entered the war, were at first under the authority of C. in C., Atlantic and West Indies Station, but received their operating instructions from N.S.H.Q. In January 1940, however, they were placed wholly within the jurisdiction of N.S.H.Q.⁴ In February the C.S.A.'s at Jacksonville, New Orleans, and Galveston, who had hitherto been within the Jamaica Intelligence area, were added to the Ottawa area, since the ports in which they were situated were within the field of British merchant-ship organization operated by the representative of the Ministry of War Transport in New York.⁵

In June 1939 Cdr. E. S. Brand, R.N., had been appointed D.N.I. at N.S.H.Q., in the normal course of periodic changes

² The Ottawa Intelligence Area did not develop strictly for "Intelligence" purposes in the Service sense of the word, but rather as an organization for the control and reporting of Commonwealth shipping. Apart from reporting the occasional movements of ships operated by potential enemies (the S.S. *Bremen* was so reported in Aug.-Sept. 1939), the reporting officers in the area restricted their activities to matters related to British-managed vessels.

³ The D.N.I. became Director of Naval Intelligence and Trade on the outbreak of war. Early in 1942 separate divisions were established for Intelligence and Trade, the former head of the joint division becoming head of the Trade Division. The divisions were recombined under the same officer as director in 1945.

⁴ "Outline History of Trade Division", p. 11.

⁵ C. in C., A.W.I. 1231/10.2/40, N.S. 1013-8-13 (4).

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in appointments. The experience and ability of this officer were to prove extremely valuable. In a report on the functioning of the British Trade Organization in the North American area made in the summer of 1943, Paymaster Rear Admiral Sir Eldon Manisty, whose experience in trade matters was probably second to none, remarked that:

. . . N.S.H.Q. has been the basis of the organization and has been the source from which the whole mechanism derived its impetus. This mechanism seems to have worked so smoothly that it has been accepted as being almost automatic.⁶

On August 22, 1939, those officers detailed for Naval Control Service duties were warned that they should be prepared to take up their appointments at immediate notice. On the same day all Canadian reporting officers were supplied with coding and de-coding tables to enable them to report shipping movements if necessary. On August 28 the Naval Distributing Authority left Ottawa, taking with him the confidential books required by the consular shipping advisers who had been appointed to the principal ports in the United States. On September 3 the war telegram was despatched and reporting officers were instructed to "commence war reporting."⁷

Before the war the civilian reporting officers had been in receipt of books of instructions issued periodically by the Admiralty, the most important of which, from the point of view of the officers in the Ottawa area, dealt with the procedure to be followed in the event of war. These memoranda,⁸ which had been revised in 1938, contained the basic principles of naval control, and provided reporting officers with sufficient guidance to enable them, in the event of war, to maintain control of the movement of shipping until Naval Control Service officers had taken over or the C.S.A.'s had reached their posts in neutral countries. The elaborate and diverse duties of Naval Control Service officers were eventually set out in "Naval Control Service Instructions" (N.C.S.I.),⁹ to which amendments were made throughout the war as conditions demanded. The responsibility of the N.C.S.O. regarding the forming and despatching of convoys was outlined in "Mercantile Convoy Instructions" (M.C.I.).¹⁰

⁶ Report of Sir Eldon Manisty, 1943.

⁷ N.S.H.Q. 0208 3/9/39, N.S. 1013-8-13 (3).

⁸ C.B. 3000A (38); N.I. (S), 1939; N.I. (U), 1938.

⁹ C.B. 03050.

¹⁰ C.B. 04024.

Although numerous other responsibilities were added as the war progressed, the basic duties of the Naval Control Service were the routing of merchant vessels in accordance with the requirements of naval operational authorities, and the reporting of shipping movements. The problem of routing was, in essence, to provide each master with the safest possible route to his destination. The presence of mines, allied or enemy; the possibility of submarine, surface, or air attack; the risk of collision on lanes or approaches crowded with blacked-out, silent ships and convoys; as well as the usual hazards of weather, ice, and shoals—all these dangers had to be carefully considered. Then the length of the proposed route, with its deviations away from danger, had to be nicely balanced against the urgent need for economy in shipping time, the importance of the cargo, and the bunker-capacity of the ship in question. The Admiralty did not exaggerate in observing that “the work of a Routing Officer is highly responsible, requiring great accuracy and a lively imagination.”¹¹

The problem of reporting shipping movements was simpler than that of routing, but as the war progressed and local conditions varied, this duty became steadily more complex. However, the universal method of reporting, known as the “vescar” system (commonly referred to as the “vesca” system) remained fundamentally the same throughout the war. By the vesca system, Reporting or Naval Control Service Officers were required to signal each day the arrivals and departures of British (and eventually all allied and neutral) ships at or from their ports. The vesca signal was addressed to the Admiralty and repeated to the Intelligence centre in whose area the officer reporting was situated. Should a vessel be sailing from one Intelligence area to a port in another area, the Intelligence centre of the area in which the port of departure was located signalled what was known as an “inter-station vesca” to the area or areas through which and to which the vessel was to sail. In this signal and in the regular departure vesca, provision was made to include the route issued to the ship and the estimated time of arrival at its destination. The operational authorities in the areas concerned were therefore able to effect a diversion of the ship if necessary, and officials at the port of destination could be warned of the impending arrival of the vessel in question. The departure vesca became more and more elaborate as the war progressed. In its most

¹¹ N.C.S.I., art. 1.

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advanced form it contained, in addition to the original data, information concerning the speed of advance, re-coding tables and "Q" messages held, W/T equipment and operators carried, and bunker and repair requirements. The route and much of the information was eventually separated from the departure vesca and signalled some time before the actual sailing of a ship, so that the operational authorities could, if expedient, effect a diversion with the minimum of delay. Ships which sailed or arrived in convoys were not reported by vesca signals, but by convoy sailing and arrival telegrams. These were similar in many respects to vesca signals, but dealt with groups of ships and special convoy details, and were addressed direct from the assembly port to the interested naval operational authorities, as well as to the Admiralty and the Intelligence centres concerned.

The determination of the enemy to employ unrestricted submarine attacks, so forcefully demonstrated on the first day of war by the sinking of the *Athenia*, left the Commonwealth navies with no alternative but to resort to the convoying of ships to and from the United Kingdom. Apart from a few ships that came through the Panama Canal and were collected in convoys at Kingston, Jamaica, these early convoys, the first of which, HX-1, sailed on September 16, were assembled at Halifax. They included all ships bound for the United Kingdom whose speed was between nine and fifteen knots, and unarmed vessels of over fifteen knots. Other vessels, including all ships sailing to destinations outside Britain, were able to proceed independently for some months after the beginning of the war.

The initiation of convoys was the first of a series of circumstances that eventually led the navy far into realms of trade organization and control in which it had hitherto had only an academic interest. The convoy system was fraught with innumerable difficulties for the steamship operator. Delays were a serious matter, and still more serious when they entailed missing a convoy.¹² To prepare a ship for sailing was of course the operator's responsibility, but in order to make the most of the ship's time in the loading port and to avoid despatching her to the assembly port too soon, he was obliged to find out from naval officials the most suitable time for the vessel's departure. Moreover the officials at the assembly port, both civil and naval, needed information regarding

¹² The earlier HX convoys sailed every eight days.

possible convoy-joiners and the supplies they might require before they could sail.

As a result of the complications arising out of the institution of convoys, on October 1, 1939, the Admiralty signalled to N.S.H.Q. that it was "... very necessary to institute at the earliest possible moment a system which will allow the most economical use of merchant shipping and avoid all unnecessary delay. . ."¹³ Naming Sir Ashley Sparks, New York, and the Canadian Pacific Railway Co.,¹⁴ Montreal, as the Board of Trade representatives in the United States and Canada respectively, the Admiralty suggested that departures of ships from loading ports should be arranged in conjunction with these representatives. In compliance with this request a memorandum was immediately despatched by D.N.I. to N.C.S.O.'s and C.S.A.'s on the east coast,¹⁵ instructing them to sail ships for convoy so as to arrive at Halifax not later than 0800 of the day before the convoy's departure, and informing them of the projected sailing dates for future convoys. At the same time N.C.S.O.'s and C.S.A.'s were instructed to give warning of ships that would be sailing for inclusion in convoys, by adding a list of such vessels to their daily vesca signal to Ottawa under the heading "Intended Sailings." This memorandum marked the inauguration of a policy of close co-operation with the Ministry of War Transport (of which the Board of Trade and Ministry of Shipping were forerunners) of the United Kingdom, and presaged a series of publications outlining that policy and a special type of signal implementing it.

From this time on the co-operation between the navy and the Ministry's representatives in Canada and the United States became closer as it became more essential. The two publications that dealt with "Co-operation with British Ministry of Shipping [or War Transport] Organization" in Canada and the United States respectively,¹⁶ both of which grew out of the original memorandum of October 3, 1939, embodied the principles adopted by the Naval Control Service to facilitate the efficient employment of British shipping. Part of the growth and importance of this co-operation was indicated by the development of the "Intended Sailings" telegrams, which were soon divorced from the vesca signals

¹³ Admiralty Message, Oct. 1, 1939.

¹⁴ This signal named the C.P.R. as representative, but actually Sir Edward Beatty, president of the C.P.R., was the appointed representative.

¹⁵ D.N.I. memo., Oct. 3, 1939, N.S. 1013-8-13 (3).

¹⁶ "Memorandum C.M.S.C." and "Memorandum C.M.S.A.," N.S. 1013-9-13 (4).

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and given the code name "future." Ultimately "future" contained a possible twenty-six items of information regarding individual ships that were sailing to the great assembly ports from loading points throughout the "Ottawa" area. This information not only enabled the Ministry's agents to prepare for the arrival of a ship at the assembly port, and to accumulate stores, bunkers, "top-off" cargoes, and the like, but was also of vital interest to naval authorities who were organizing convoys, preparing advance convoy-sailing telegrams, and endeavouring to foresee unusual demands on port facilities.

The general problem of integrating the related activities of the navy and the Ministry with regard to merchant shipping was constantly under review. A visit to Ottawa by Sir Ashley Sparks on November 9, 1939,¹⁷ served to clarify the situation, and on November 16 the first issues of Memoranda C.M.S.A. and C.M.S.C. were despatched to C.S.A.'s and N.C.S.O.'s. In addition to the stipulations regarding co-operation between C.S.A.'s or N.C.S.O.'s and the port representatives of the Ministry, provision was made to ensure that the Ministry's representatives in New York and Montreal should receive, direct from the ports in their respective areas, reports of arrivals and "desirable sailing dates" (D.S.D.)¹⁸ of ships in which they were interested.

For the sake of Security it was imperative that all unofficial channels of communication dealing with merchant shipping should be blocked at their source. The navy, as the recipient of the vesca signal and of a growing volume of other confidential shipping intelligence, had become the sole repository for a steady flow of information which required rapid promulgation to the proper authorities. The Ministry organizations on this continent, consisting chiefly of men widely experienced in merchant shipping, were in the best position to decide what information should be divulged, and to whom. It was therefore agreed that besides the information supplied direct by C.S.A.'s and N.C.S.O.'s, the Ministry's representatives in New York and Montreal should receive from N.S.H.Q. periodic summaries of the movements of all shipping in which they were interested. In time these summaries, which were

¹⁷"Outline History of Trade Division", p. 10.

¹⁸ For Security reasons the actual convoy sailing dates were not divulged, but a D.S.D. was arrived at by the N.C.S.O. or C.S.A. on the basis of his knowledge of such dates, and the time that the ship would spend while proceeding to the assembly port and awaiting convoy. The D.S.D. information enabled the Ministry to arrange their loading programmes to the best advantage of the ships and cargoes concerned.

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despatched several times a day, were reporting a total of about twelve hundred ship movements each week.

As an integral part of the vesca and inter-station vesca system, N.S.H.Q. already had certain obligations in the promulgation of shipping information to port authorities within the area, and to Intelligence centres of other areas. The summaries to the Ministry were the first of many measures adopted during the war to ensure that authorities outside the peace-time Intelligence organization received information which was of vital interest to them. On different occasions, and sometimes for periods extending over years, N.S.H.Q. supplied a variety of shipping information to the Admiralty, the Navy Department in Washington, several foreign trade missions, the Canadian Shipping Board, the Park Steamship Co., the Canadian Oil Controller, numerous naval operational authorities, Canadian customs officials, post office authorities, and to the army, the air force, and other Departments interested in individual shipping movements of one sort or another. To achieve accuracy in these reports it was necessary to create in N.S.H.Q. a special organization to collect, correlate, and promulgate, the several hundred reports that were received each day. An elaborate ships' card-index system was introduced which made it possible not only to keep track of all vessels in the "Ottawa" area, but also to detect errors and coding corruptions in the signals received and to maintain a close surveillance over the reports being signalled by N.C.S.O.'s and C.S.A.'s in the area. Working in co-ordination with this unit were a plotting room, a section to deal with convoy cycles and organization, and a statistical section. Together they provided a complete picture of the trade situation within the "Ottawa" area.

In the breathing space afforded by the comparatively slack winter season of 1939-40 and the absence of U-boats in the Western Atlantic, preparations for more intensified warfare were pressed forward. Orders had been placed for escorts; an assortment of yachts which had been acquired were being armed; and from the trade point of view organizations interested in merchant shipping were being consolidated. The Naval Control Service was rapidly gaining valuable experience, and the numerous and complex instructions concerning their work, which had hitherto reached N.C.S.O.'s and C.S.A.'s in the form of memoranda and signals, were assembled and classified in a number of special publications prepared by the

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Trade Division at N.S.H.Q.¹⁹ The expert knowledge of convoy preparation gained by the naval control staff in Halifax was utilized in organizing special sections of HX convoys at Bermuda. These consisted of ships that had come through the Panama Canal and from American ports south of Norfolk, but they were abandoned in July 1941 owing to a shortage of escorts.²⁰

The fast HX Convoys (HXF) which had included only unarmed vessels of 15 knots and over were discontinued in February 1940. The slow sections which were for ships of between 9 and 15 knots were the only transatlantic trade convoys in operation, and ships of under 9 knots as well as those of over 15 were obliged to proceed independently. In order to accommodate the slower ships and those ships on the border-line of 9 knots which sometimes delayed the HX convoys, slow convoys (SC) for ships of from 7.5 to 9 knots were inaugurated in August 1940.²¹ These were assembled at Sydney, where in spite of inadequate port facilities a most creditable effort was made to expedite the dispatch of vessels which seemed for the most part to be of the willing but ailing type.

It was just as well that U-boats did not appear in the Western Atlantic during the remainder of 1940; for the naval-construction programme had not yet borne fruit, the majority of the acquired yachts were still unarmed, and the invasion threat to England had necessitated the transfer of 4 of Canada's 7 destroyers to duty overseas. Practically the only measure that could be adopted for the protection of cargo vessels was to institute evasive routing in the form of diversified routes in the St. Lawrence and the Halifax approaches. Apart from this restriction the movement of merchant shipping not engaged in the United Kingdom trade was unhampered.

U-boat warfare had not yet seriously complicated trade movement from Canadian ports, but other conditions had certainly done so. By the middle of the summer of 1940, "in-port" delays, particularly in Halifax, had assumed alarming proportions. At one period no less than eighty-seven ships were listed on the N.S.H.Q. Trade Division chart as having missed convoy in Halifax.²² These delays were caused by two

¹⁹ "Ottawa Routing Summary" (O.R.S.); "Communications, Coding and Cyphering Arrangements" (C.C.O.); "Convoy Programme" (C.V.P.); C.M.S.A. and C.M.S.C.

²⁰ The last Bermuda section, BHX-137, sailed on July 4, 1941.

²¹ SC-1 sailed from Sydney, Aug. 15, 1940.

²² "Outline History of Trade Division", p. 19.

basic factors: overburdened port facilities, and "crew trouble." The war-induced shortage of dockside labour, bunkers, berthing and loading equipment, and especially of repair facilities, had become so acute during the summer that the government realized that drastic action was needed. Accordingly on November 27, 1940, Mr. D. B. Carswell was appointed Controller of Ship Construction and Repairs,²³ with sweeping powers over the equipment and personnel concerned and even over the actual ships in need of repair. He was aided in this work by an advisory committee which included representatives of the navy, the Ministry of Shipping of the United Kingdom, the Canadian Shipping Board, the Department of Transport, and the Admiralty. Steps were immediately taken to increase and improve dockyard equipment and accommodation, and to adjust the whole repair and construction industry to war tempo.

If the ships were feeling the stresses and strains of war, so too were the men who ran them. Even in the general suffering and gloom of 1940 the life of merchant seamen was singularly miserable and empty of hope. When it is realized that on the un-uniformed shoulders of one of the most uncomfortable and badly paid professions in the world had been thrust a war-time task perhaps more vital and hazardous than any other,²⁴ that the chances of survival from a torpedoed and sinking ship were small, and that nearly every port and town of consequence had recreational facilities and accommodation for the uniformed man, but little for the merchant mariner, it is hardly surprising that there was an alarming increase in those incidents commonly referred to as "crew trouble." Malcontents, deserters, or merely revellers overstaying their shore leave, could cause a ship to be delayed sufficiently to miss a convoy and lose at least a week's ship time. Even a few such delays—and at this time they were many—were sufficient to hamper the war effort as effectively as a well-aimed torpedo. The attempts to overcome this serious difficulty were characteristic of a democracy. One, an official measure, stopped short of out-and-out coercion, and was only partly effective. The other, an unofficial measure contrived simply on the basis

²³ P.C. 6797, Nov. 27, 1940.

²⁴ 1064 Canadian merchant seamen were lost in the Second World War, of which 390 were from Canadian-registered vessels. [Information supplied by Dept. of Transport, Ottawa]. Between Sept. 3, 1939 and May 8, 1945, 31,132 seamen lost their lives in the British merchant marine alone. [Trade Division, Admiralty, Summary, p. 28].

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of a sympathetic approach to the problem, though not a complete solution was remarkably successful.

The official action took the form of an Order in Council which provided that:

... any alien seaman ... who deserts or is absent without leave in Canada from a ship on which he is employed, or refuses to sail on such ship or any other ship sailing from Canada on which he has been offered employment, or is reported by the master or agent of the ship for refusing to perform his regular duties ... or ... for inducing or attempting to induce other alien seamen to interfere in any way with the proper operation of the ship on which they are employed may, by order, be detained at an Immigration Station for the duration of the present war, or until provision may be made for his deportation, or until he is ready and willing and actually proceeds to serve on a ship sailing from Canada.²⁵

The order did not affect Canadian or British seamen, and did not allow for the fact that habitual trouble-makers who elected to return to sea would probably soon be back at work causing disaffection among their new crew-mates.

The unofficial method of dealing with crew problems grew out of a particular function of the Naval Control Service. The invasion threat to England prompted the Admiralty to request in June 1940 that all ships bound to the United Kingdom should be searched for evidence of preparations for sabotage. In compliance with this request the Naval Control Service in Halifax organized boarding parties of naval officers and ratings who inspected all shipping destined for the United Kingdom. The officer in charge of these parties, Lieut. E. F. B. Watt, R.C.N.V.R., quickly realized that the contacts with the ships' crews which were afforded by this work offered an unusual opportunity for solving some of the ubiquitous crew problems. It was all too clear that something was needed to strengthen a morale which was cracking under the cumulative effects of mounting shipping losses, German successes in war and propaganda, the occupation of the homelands of many of the seamen, and the oppressions of ship-board life.

The members of the boarding parties were carefully chosen, and were instructed in the rudiments of investigation and psychology; it was not long before their natural ability and sympathy had established them as welcome visitors aboard most merchant ships. Rumours and propaganda were fought by means of authentic facts and news. Discomfort and discontent were ameliorated by dispensing woollens, magazines,

²⁵ P.C. 4751, Sept. 12, 1940.

cigarettes, and games, which were supplied by various organizations which agreed that the Boarding Service was best qualified to effect an equitable distribution. Disputes and injustice were often dispelled by a quiet exercise of the authority implicit in the King's uniform and in a positive personality.

Throughout the war, in Halifax alone, the service carried out over 20,000 boardings, and distributed 78,000 ditty bags, four million cigarettes, a million magazines, 11,000 fur vests, and 35,000 bundles of woollens. The achievements of the Halifax boarding parties were so impressive that it was decided in the spring of 1941 to establish similar parties at Sydney, Montreal, and Saint John, N.B. In December of the same year the service was extended to St. John's, Newfoundland, and in the following spring to Quebec. A year later boarding parties were established at Vancouver and Victoria, and in the following summer at Prince Rupert. The key personnel in all these parties had originally gained their experience in the Halifax Boarding Service.²⁶ There can be no doubt that this remarkable effort assisted in solving a host of problems in the face of which a whole volume of statutes would have been ineffective, and in ensuring that hundreds of individual ships sailed without unnecessary delay. Moreover it is probable that by its presence and interest, and by its reports and representations to higher authorities, the Naval Boarding Service helped to avert an even more serious situation.

Some of the success achieved by the Boarding Service was, however, indirectly attributable to the existence of the Order in Council which has been mentioned. If the order was less than an iron hand concealed within the boarding party's velvet glove, it could be drastically used on occasion, and in the natural course of events the application of "on-the-spot" arbitration, backed by legal authority, became part and parcel of the Boarding Service's work. It was only logical that the machinery which was finally evolved to deal with the merchant-seaman problem should incorporate and extend the best features both of the original Order in Council and of boarding-party procedure.

By the end of 1940 it had been realized by port authorities, and probably by certain elements among the seamen also, that the Order in Council was largely a bluff. The virus of

²⁶ Report of S. O. Merchant Seamen (D.T.D. records).

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crew trouble had at first been checked, but by no means extirpated, and by the end of the year there were indications that the continual transfer of the disaffected from one ship to another was spreading trouble instead of confining it. In January 1941, various problems related to certain alien groups in Canada had prompted the government to form an "Interdepartmental Committee to Discuss Questions Relating to 'Allied' Armed Forces in Canada and Alien Seamen." At the first meeting of this committee, held on January 21, D.N.I., who was a member, seized the opportunity to point out the shortcomings of the original Order in Council, and the need for a more comprehensive policy in dealing with all merchant seamen, good or bad.

As a result the general merchant-service problem was dealt with by a special subcommittee consisting of D.N.I., and of representatives of the Canadian Shipping Board, the Royal Canadian Mounted Police, and the Departments of External Affairs, Labour, and Mines and Resources (Immigration Branch). After considerable discussion of the many problems relative to merchant seamen of all nationalities, "alien" and otherwise, the subcommittee made recommendations covering all these matters.²⁷ Briefly it proposed that "manning pools" should be established to provide seamen with "on-shore" accommodation and pay, and ship masters and agents with a ready supply of labour; that adequate recreational facilities should be provided; that a Director of Merchant Seamen should be appointed; and that certain steps should be taken to deal with recalcitrant or deserting seamen. These last recommendations were embodied in the Merchant Seaman Order of 1941, which had been drafted by the subcommittee in collaboration with the Judge Advocate General and the Department of Justice.

The order²⁸ originally passed on April 4, 1941, and restated in its final form on December 19, 1942,²⁹ authorized committees of investigation to deal with refractory seamen. Each committee was to consist of a naval officer and an R.C.M.P. officer, both nominated by the Minister of Justice, and was

²⁷ Minutes of meeting of an Interdepartmental Committee to discuss questions relating to "allied" armed forces in Canada and "alien seamen", Ottawa, Jan. 21, 1941, N.S. 1037-28-4 (1).

²⁸ P.C. 2385, Apr. 4, 1941.

²⁹ P C 11397, Dec. 19, 1942.

empowered to remove from any merchant ship³⁰ in a Canadian port any crew member who in the committee's opinion was causing or likely to cause delay to his ship. A committee might take affidavits,³¹ and might then send the offender before a board of inquiry consisting of a naval officer, and one official from each of the Departments of Transport and of Mines and Resources (Immigration Branch), nominated by the Minister of Justice. The board had the power to detain an offender for a preliminary period of not more than three months, at the end of which time the case was to be reviewed by the same or a similar board. After considering the offender's conduct and attitude the board could release him to a ship or a "manning pool", or detain him for a further period not exceeding six months.

The order was administered by the Minister of National Defence for Naval Services, and in practice it was an invariable rule that the naval representative on the Committee of Investigation was a Boarding Service officer. This was an ideal arrangement, since the boarding officer with his party could perform his normal duties of building up morale and investigating and righting minor grievances, and when necessary he could transform himself into a fair imitation of a grand jury by the simple expedient of calling a nominated R.C.M.P. officer. Thus formal authority was easily available, and its latent presence often sufficed to discourage the run-of-the-mill mischief-makers, particularly those who specialized in creating trouble at the last minute before a ship was due to sail in convoy. It should be emphasized, however, that this authority was applied sparingly and only as a last resort. It was fully realized that the lot of the merchant seaman was hard, and that the Merchant Seaman Order was designed not only as a deterrent to trouble-makers, but also to protect the ninety-five per cent or more of the seamen who wanted to "get on with the job."

Meanwhile the recommendations of the subcommittee which were aimed at removing the main cause of crew trouble

³⁰ Except U.S. or Japanese [P.C. 5088, July 10, 1941]. The exception of Japanese vessels was made so that there should be no coercion of seamen refusing to sail in Japanese ships for ideological (or simply logical) reasons. The question arose in a letter from A. Under Sec. of State to A./D. Min., May 3, 1941 [N.S. 1037-28-4 (2)], referring to a Greek ship bound for Japan. This was dealt with by special instructions to Committees of Investigation and Boards of Inquiry [memo. J.A.G. to D.N.I., May 6, 1941, *ibid.*]; but the avoidance of similar situations on Japanese ships was guaranteed by the Order in Council.

³¹ There already existed machinery for dealing with offending seamen in the Canada Shipping Act. However this entailed civil court action and the presence of witnesses, with consequent delays to the ships of the seamen involved.

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were implemented on May 19, 1941, in an Order in Council which established the office of Director of Merchant Seamen.³² The appointment of Mr. Arthur Randles to this post on June 3 was soon followed by a marked decline in the incidence of crew trouble, and a steady improvement in the merchant seaman's lot. Under his direction, manning pools for British and Canadian seamen were established in Halifax, Montreal, Saint John, N.B., and Vancouver, where men could be lodged, fed, paid, and medically attended, between voyages.³³ Allied governments were encouraged to create their own pools, which would be under the authority but not the administration of the Director of Merchant Seamen. A seaman's training school was established at Hubbards, N.S., and an engineer training school at Prescott, Ont. To provide adequate recreational facilities, merchant navy clubs were opened in all the principal Canadian ports by various organizations, which received financial assistance in their work from the government as well as from private sources.

These measures, along with improvements in pay and general living conditions, served to complete the metamorphosis of the merchant seaman from the "forgotten man" to a human being whose health and existence were recognized to be of vital importance in prosecuting the war. It was a source of much satisfaction that the navy, which was making every endeavour to protect the seaman's life, should also have helped to improve his lot.³⁴

Besides reducing crew trouble, the pools and training schools fulfilled another purpose of particular importance to the Dominion. The revival of the Canadian merchant marine between 1942 and 1945 increased the country's ocean-going shipping to over five times its pre-war tonnage. The task of manning this new fleet with seamen, stokers, engineers, and wireless operators, fell to the lot of the Director of Merchant Seamen. In his report for the year 1943-44³⁵ this official was

³² P.C. 14/3550, May 19, 1941.

³³ The pool in Montreal had been established by the B.M.W.T.R. to accommodate British crews awaiting re-construction ships. It was taken over by the D.M.S., and operated for British and Canadian seamen in the same way as the other pools.

³⁴ The navy, as a repository for shipping information, was able to contribute further to the improvement of the morale of merchant seamen in July 1943, when N.C.S. created a mail-forwarding service for Canadian merchant seamen. Known as "Box 9000", this organization, which was under N.C.S.O., Montreal (later another office was opened in Vancouver), forwarded mail to intercept ships all over the world. In Montreal it handled on the average 35,000 letters, 600 parcels, and 150 telegrams, a month. [Historical Survey, N.C.S.O., Montreal, N.S. 1440-127 (1)].

³⁵ In *Report of the Department of Transport, 1943-44*.

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able to state that no less than eighty-one additional ships had been manned, that 5,755 Canadian officers and men had been placed aboard vessels, and that during the year in question the manning pools at Halifax, Montreal, Vancouver, and Saint John, had allotted 399,446 beds and served 1,376,976 meals.

Canadian-American Collaboration

In the summer of 1940 the first United States naval attaché to Canada, Capt. O. M. Read, U.S.N., was posted to Ottawa. As a result of Capt. Read's interest in the functions of Trade Division and the organization of trade, Capt. M. K. Metcalf, U.S.N., who had been assigned by the Navy Department in Washington to review the whole question of trade protection, visited Ottawa and Halifax in the spring of 1941. This visit marked the beginning of a mutually beneficial relationship between Trade Division and the Convoy and Routeing Section of the Navy Department, of which Capt. Metcalf was director throughout the war. An officer from the division was attached to Capt. Metcalf's staff, and an American naval officer held a similar post in Trade Division. Moreover, U.S.N. officers posted to the principal United States ports as Port Directors were instructed to establish contact with the Consular Shipping Advisers, in order to become familiar with the work that might be required of them if the United States should become a belligerent.

The wisdom of these early moves toward collaboration was vindicated by the entry of that country into the war in December 1941. By that time the channels for co-operation between Ottawa and Washington had already been established, and the C.S.A.'s, who now emerged as uniformed naval officers under the title of British Routeing Officers, shortly afterwards changed to that of British Routeing Liaison Officers (B.R.L.O.'s), immediately joined forces with the Port Directors and in most cases moved to adjoining offices. As had been anticipated, the United States Navy Department soon required merchant-shipping information to enable a plot to be maintained. At that time this Intelligence could most readily be supplied by Ottawa, and in order that world-wide reports might be provided, vesca signals from all British Intelligence areas were addressed to N.S.H.Q. as well as to the Admiralty. The information thus accumulated was relayed to Washington in a succession of daily summaries known as the "Chat-

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fold" series.³⁶ As the Washington organization expanded sufficiently to receive direct reports, these summaries gradually diminished until they were discontinued in July 1942.

In the meantime the good results of close collaboration had also been visible in the speed and ease with which the British-American policy of divided responsibility for the control and protection of merchant shipping had been formulated. This policy covered all areas in which the United States and Britain had an interest, and the preliminary clarification of numerous questions within the Ottawa Intelligence area, which fell wholly within the United States area of strategic control, helped considerably in the drawing up of the general agreement. The areas of strategic control had been established in April 1941, so that the problems at issue related to the defining of the authority of British and American officials within those areas, and the transfer of responsibility from the British Naval Control Service within the American areas to the United States Navy.

A meeting held in Washington between representatives of the Navy Department and the Admiralty, at which D.N.I., Ottawa, was present, produced a tentative agreement which was submitted for approval on February 14, and within a few days both the Navy Department and the Admiralty approved the draft except for some minor points.³⁷ The clarification of these, and the gradual transfer of responsibility from the British Naval Control Service organization within the United States areas to the American authorities, were effected during the spring, and on July 1, 1942, the pact which was known as the "British-United States Routeing Agreement" (B.U.S.R.A.) was declared to be fully in force.³⁸

By its provisions the United States assumed control of shipping within the United States areas of strategic control, except that:

In the Dominion of Canada and British possessions in the United States strategic area, the United States will use as their agents the personnel of the British Naval Control Service Organization for the direct delivery of routeing instructions to vessels in these areas.³⁹

The agreement also provided for the presence of British naval officers within the American areas for liaison purposes in

³⁶ So named after a code address of D.N.I. previously used by C.S.A.'s.

³⁷ Memo by V Chief of Naval Operations, Navy Dept., Washington, Apr. 13, 1942, N.S. 11875-130 (1).

³⁸ Connav. 1945/1/7 '42, *ibid.*

³⁹ B.U.S.R.A., para. D (c).

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connection with British shipping, and similarly of United States naval officers in British areas. The "merco" system, which was the American method of reporting the movements of shipping, was co-ordinated with its British counterpart, the "vesca" system, and the addressing procedure of each was so arranged that both Washington and London received without duplication all reports from either system, while N.S.H.Q. received reports pertinent to movements in the "Ottawa" area. Since coastal movements were not included in these signals, such movements of British ships in American waters were reported by B.R.L.O.'s to N.S.H.Q., where they were summarized daily for the Admiralty under the code word "AmPLY."

Toward the end of the war, in order to reduce transatlantic W/T traffic, it was arranged that merco reports of movements in the west Atlantic should be summarized by N.S.H.Q. for the Admiralty, instead of being despatched by the originating ports direct to London. These reports, which came from places as far south as Punta Arenas, dealt with a total of some 165 ship movements each day. Meanwhile a similar system had been inaugurated in the Pacific, whereby all movements in that ocean were summarized by the Commander Western Sea Frontier, an American authority stationed in San Francisco. These refinements of the B.U.S.R.A. arrangements, effected with a minimum of discussion, exemplify the flexibility of practically all the Anglo-American naval agreements made during the war years.

Submarine Offensive in the West Atlantic

During the first half of 1942, the feeling that victory had been brought much nearer by the entry of the United States into the war was modified by the course of events. Before Pearl Harbor the U-boats had for the most part carefully refrained from raising an issue with the United States; but soon after that incident they moved in upon the promising coastal and Caribbean steamship lanes. The fruit was easily picked, for the U.S.N. could spare few warships for the Atlantic theatre, and the toll in ships, supplies, and lives, mounted prodigiously. By March the monthly total of shipping sunk within the United States strategic area north of the equator and west of 40° W. was 483,779 gross tons. In May the total reached 553,721 tons, and in June 535,792 tons.⁴⁰ The need

⁴⁰ Report No. 50, merchant shipping casualties, D.T.D., Dec. 28, 1942, N.S. 1048-47-5.

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for coastal convoys was obvious; but escort vessels were exceedingly scarce and the area to be covered was enormous.

The first Canadian coastal convoy was inaugurated between St. John's, Newfoundland, and Sydney, N.S., on February 28, and the Halifax-Boston convoys (XB-BX) were started on March 18. During the next few weeks the various convoys that eventually covered the main coastal routes were instituted, and the navy found itself with commitments which were almost beyond the capacity of its available escort craft.⁴¹ Meanwhile the United States Navy had decided not to institute any regular system of coastal convoys until there were sufficient escorts to protect the whole network adequately. The establishing of comprehensive American schedules was accordingly postponed until the end of August, although preliminary convoys were running between Norfolk and Key West from mid-May until August, and between Key West and Aruba and Trinidad during July and August. In the meantime the losses had been so disastrous off the American coast, and in the Caribbean,⁴² that trade in these areas was approaching a standstill and Canada was faced with an acute shortage of oil. To ensure the supply of this particularly vital commodity, the R.C.N. established special tanker convoys between Halifax and Trinidad (HT-TH), and later between Halifax and Aruba (HA-AH). The first of these sailed from Halifax on May 22, and in the seven south-bound and six north-bound convoys that were conducted before they were abandoned in September, 120 tankers were escorted without a single loss.

From then until the end of the war this traffic proceeded in the regular American coastal convoys, all of which had been inaugurated by September 15, 1942. The heart of the American system was New York, from which arteries stretched to Galveston via Key West, and to Panama or Trinidad via Guantánamo, Cuba. There were also numerous "feeder" and special convoys, and in July 1943 the system was extended by the establishment of a route between Rio de Janeiro and Trinidad. Following the institution of the American system, New York became the chief assembly port for HX convoys on September 17, and for SC convoys on September 19. Sections were sailed from Halifax to join HX convoys, and from Halifax and Sydney to join the SC convoys. As a result the BX con-

⁴¹ Lists of coastal convoys are given in Apps. X and XI.

⁴² Among these were the C.N.S. *Lady Hawkins* on Jan. 19, and *Lady Drake* on May 5. From the former, 250 lives were lost.

voys decreased in importance, but they continued to function for the benefit of the not inconsiderable coastal traffic plying between the United States and Canada or Newfoundland.

Late in 1942 "Operation Torch" opened the North African ports to shipping, and created a heavy demand for military supplies. These were transported in regular American-controlled convoys (UG-GU), the first of which sailed for the Mediterranean from Norfolk on December 13, 1942. In the spring of 1943, a further transatlantic schedule was established for the benefit of fast tankers which loaded in the Caribbean for the United Kingdom. The first of these (CU-UC) convoys sailed from Curaçao on March 20 with 9 ships, and the second on May 12 with 12 ships.⁴³ As the new tankers came forward, however, the cycle was closed in and the convoys were enlarged until, by the middle of 1944, there were four of these convoys sailing every month, each containing from 30 to 40 ships. This growth was partly caused by the removal of the assembly point to New York in November 1943, and the admittance to the convoys of a limited number of fast dry-cargo vessels.

The establishment of convoys on all the principal trade routes of the Western Atlantic created a number of problems that had never arisen while convoying had been limited to two transatlantic schedules and two assembly ports. The complex organization of Canadian, British, and American escort groups which efficiency demanded, was only one of the problems needing continuous attention. It was also necessary to draw up convoy schedules that would assure the best available protection commensurate with the traffic on each trade route; to integrate the schedules with escort "lay-over" periods; to reconcile coastal-trade requirements with those of shipping proceeding over coastal routes to ocean convoy assembly ports; and to co-ordinate coastal convoy schedules, not only with sailing dates of east-bound convoys, but also with arrival dates of west-bound ones.

Almost all these points came under consideration at the Atlantic Convoy Conference held in Washington from March 1 to 12, 1943, between American, British, and Canadian naval and air authorities.⁴⁴ At this time it was decided that HX-ON and SC-ONS convoys would be the responsibility of the R.N. and R.C.N.; while convoys to the Mediterranean and North

⁴³ Small convoys of tankers were started between Aruba and Dakar (OT-TO) in Feb. 1943, and abandoned in June 1944.

⁴⁴ See ch. 14.

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African ports, and the Sydney-Greenland convoys, would be operated by the U.S.N. The question of the control of convoys and independents was thoroughly explored, and more clear-cut definitions of areas and limits of command were evolved. The Canadian naval authority at Halifax was designated as Commander in Chief, Canadian North-west Atlantic Command, and was in effect authorized to deal directly with his British counterpart, C. in C., Western Approaches. One of the decisions that resulted from the discussion of convoy integration and escort allocation was to reinstate Halifax as the assembly port for SC convoys, and to co-ordinate the sailings of BX-~~XB~~ convoys with the SC-ONS schedule in order to accommodate the ships loading in American ports for the slower convoys to the United Kingdom.⁴⁵

The organizing of practically all coastal and ocean convoys within a single plan made constant attention essential, for as the conditions in different areas altered, changes often had to be made in the convoys. Any drastic change in one convoy cycle frequently made it necessary to revise the schedules of all the connecting convoys, and sometimes of all the related convoys as well. From the point of view of trade the persistent effort to keep the various convoys properly correlated with one another was of inestimable value, for it kept the time lost in awaiting convoy connections to an absolute minimum, and made it possible to predict the normal progress of a ship, from port to port, from the completion of its loading right through to its final destination.⁴⁶ It was not possible, however, to adjust the convoy schedules for all trade routes, with the result that those movements which, so to speak, proceeded across or against the organized flow suffered many delays. A 10-knot ship, for instance, proceeding entirely in convoy from Quebec to Gibraltar, required a month to complete the trip, as against two weeks for a voyage to Liverpool; although the last-mentioned port, in terms of distance, is only one day's steaming time closer to Quebec than is Gibraltar.

Even for the vessels proceeding with the organized flow, however, the time lost in convoy was serious enough to make

⁴⁵ "Report of Atlantic Convoy Conference, Washington, D.C., Mar. 1-12, 1943", N.S., T.S. 11270-128 (1), *passim*.

⁴⁶ A 9-knot vessel, for instance, which had completed loading in Cartagena for the U.K. on Aug. 1, 1943, would have proceeded as follows: Aug. 2, sl. Trinidad (TAG-76); Aug. 7, arr. Guantánamo, join ships from Panama which arrived in ZG-39 the day before; Aug. 7, sl. Guantánamo (GN-76); Aug. 15, arr. New York; Aug. 16, sl. N.Y.; Aug. 16-17, arr. Boston; Aug. 17, sl. Boston (BX-69); Aug. 19, arr. Halifax; Aug. 21, sl. Halifax (SC-140); Sept. 5, arr. Mersey.

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it very desirable that individual coastal convoys should be suspended whenever the submarines permitted. The science of U-boat tracking had steadily improved, until it was possible to declare with reasonable certainty that certain areas did or did not contain submarines. To take advantage of this fact, and to facilitate the promulgation of decisions respecting the suspension or reinstatement of convoys, a method known as the "cancon" system was devised and put into effect in April 1944. By this system all Canadian Atlantic waters were divided into lettered areas. A daily review of the submarine situation enabled the Operational Intelligence Centre in Ottawa to decide what areas should be considered safe, probably safe, or dangerous, and therefore respectively classified as "open", "restricted", or "closed."⁴⁷ Under the scheme, merchant ships of under 15 knots could sail independently through "open" areas, and through "restricted" areas also if the wait for a convoy would entail a delay of more than forty-eight hours. In "closed" areas they sailed only in convoy.

This clear-cut system so facilitated the utilization of U-boat tracking information that the Commander of the Eastern Sea Frontier, the American area immediately south of the Canadian zone, adopted the plan in 1945 when he established the "eastcon" system to cover the waters under his command lying north of the Cape Cod Canal. By these means both operational and naval-control authorities could tell by a glance at their "cancon" charts whether it was necessary to sail ships in convoy in their areas, and other officials interested in sailing a vessel through or into the various "cancon" or "eastcon" areas could plan or route her movements according to the most recent information.

The increase in the number and variety of convoys necessitated by the U-boat offensive of 1942 brought a corresponding increase in the number of assembly ports and additional duties for the Naval Control Service. The trials and tribulations that had been the lot of Halifax and Sydney since the early days of the war were now multiplied, and were visited to a smaller degree upon Quebec, Saint John, Corner Brook, Goose Bay, and other ports at which coastal convoys were assembled from time to time. The routine procedures for sailing coastal and ocean convoys were generally identical. Once the projected starters had been listed, it was the concern of the B.M.W.T. or the C.S.B. port representatives and the

⁴⁷ Two further classifications, "full open" and "stopped", were never used.

Naval Control staff to keep each ship under consideration regarding her prospects of being ready, her emergency requirements, and the factors governing her location in the convoy. On the day before the convoy sailed the final briefing of the ships' officers was made at what was called the "Convoy Conference."

To this meeting were summoned the masters of all merchant ships slated to sail with the projected convoy, occasionally the chief engineers, and perhaps some other members of the ships' companies as well.⁴⁸ Ordinarily the meeting was in charge of the senior N.C.S.O., with the senior officer of the escort group, the convoy commodore, the port representative of the British Ministry of War Transport, and the superintendent of pilots present. For the most part, those who occupied the seats at these conferences were elderly, weatherbeaten, unequivocal-looking men of many nations, each of them hall-marked by an exacting guild and the unchallenged ruler of a floating kingdom. Routine instructions including such matters as convoy discipline, communications, planned and emergency changes of course, and stragglers' routes, were handed out and gone over point by point, and any matters requiring special attention were explained or emphasized. Masters and others were invited to ask questions, or to bring forward any problems that they might have, and both the senior officer of the escort and the commodore generally added a few words to what the N.C.S.O. had said. As the war passed from novelty to routine, there came a time when most of those who attended such a conference were past-masters in the art of handling a ship in convoy, and the task of those responsible for the convoy conferences was simplified by the fact that a mere word to the wise was often sufficient. It was the urbane custom to wrap the affairs of life and death which formed the subject-matter of these meetings in a garment of jest.⁴⁹

⁴⁸ Earlier in the war the ship's W/T operator attended these conferences. Later, however, as W/T instructions and procedure became more complex and specialized, separate meetings were customarily held at which were present the W/T operators from the N.C.S. staff.

⁴⁹ The expedient is a very old one. In 204 B.C. Publius Cornelius Scipio, about to transport an army from Sicily to Africa, held a convoy conference which Livy describes as follows: "When all had now embarked, he [Scipio] sent boats around to take off the pilots, the masters, and two soldiers from each ship, who were to assemble in the forum to receive their instructions. When they had come together . . . he told them that he himself and Lucius Scipio would protect the transports with twenty war vessels on the right wing; while C. Laellius, the prefect of the fleet, with M. Porcius Cato the quaestor, would keep guard with the same number of ships on the left wing. At night each of the warships would show a single light, each of the transports two, and the commander's ship three. He instructed the pilots to make for Emporia . . . The following day, with the help of the gods, they were to weigh anchor at a given signal." [Livy *History of Rome* XXIX. 25].



Convoy conference at Halifax

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The sea-going formation of a convoy embodied the final labours of the Naval Control Service organization in its efforts to expedite the movement of shipping. The allocation of positions in convoy was an exacting science, requiring judgment, experience, and an extensive knowledge of ships and their masters. Convoys were divided into columns, the depth of which was usually about a quarter of the width or front of the convoy.⁵⁰ The column and position in it that each ship occupied were determined by a number of factors. A slow vessel was kept forward so that a change in position could be effected by the ship's dropping back. Conversely, the ships with a margin of speed were usually placed toward the rear. On the other hand, ships such as motor vessels with inconvenient "critical" speeds, which might be unable to keep their stations, were placed in the rear where they would create the least trouble. Ships whose masters were convoy veterans usually occupied the van, and rescue ships—those gallant little vessels specially equipped for dealing with survivors and captained by the most experienced seamen—were stationed in the rear of one of the centre columns. "MAC" ships were placed within a "box" of untenanted positions to allow room for flying manoeuvres, and escort oilers were strategically placed so as to be easily reached by the naval craft. Ships carrying gasoline or explosives were herded into inside positions, and those vessels that would be required to break off before the convoy finally dispersed were stationed on the pertinent wing. The commodore and the vice- and rear-commodores were placed in the most suitable positions for commanding the whole or sections of the convoy.

The convoy commodore was in some respects the sea-going counterpart of the N.C.S.O., in that his chief concern was for merchant shipping and his particular function the control and organization of that shipping according to the precepts of the naval operational authorities. His charges were a heterogeneous collection of all shapes, sizes, and temperaments, and of many tongues and speeds. His responsibilities included the re-organizing of the convoy in the light of changed conditions or instructions;⁵¹ the discipline and general conduct of the ships in that convoy; and deciding

⁵⁰ In the North Atlantic convoys the usual distance between columns was 1000 yards, and between ships in columns 600 yards.

⁵¹ Changes of destination were signalled from shore, and it was necessary to re-sort the convoy so that ships detaching could do so in fog or darkness with the minimum risk of collision.

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whether to leave a straggler to its fate, whether to order a hazardous emergency turn in the face of apparent danger, when to detach vessels, and when to disperse the convoy.

In coastal convoys the commodore was the most experienced or reliable master in the group. In the ocean convoys the position was usually held by a retired R.N. officer of high rank, or a retired senior merchant marine captain. Judging from the performances and endurance of these remarkable men, the shelves on which they had unwillingly been stored away in the days before the war must have been unusually free from dust. Answering the call of the sea and what they chose to term the call of duty, they came from their villas, their desks, and their families, to a life of discomfort, uncertainty, and grim responsibility. Their average age was about fifty-five; in the earlier days of the war it had been over sixty. They spent approximately 125 days a year at sea, and they were in the centre of the heaviest action. Over twenty of them lost their lives, and many no doubt found that white hairs and lines of worry had vastly multiplied during their years of extra service.

They held the rank of Commodore, R.N.R., and shipped aboard the most suitable vessel in the convoy, taking with them a naval staff of several signalmen and a telegraphist. In the larger convoys the commodore was assisted by vice- and rear-commodores, who were usually experienced masters of ships in the convoy, while the very large North Atlantic convoys sometimes sailed with additional R.N.R. vice-commodores. While the commodore was the undisputed leader of the merchant ships in the convoy, the command was exercised in the last resort by the Senior Officer Escorts. Generally speaking the S.O. Escorts confined his control of the merchant vessels to suggestions and requests to the commodore, and to relaying to him the various instructions received from shore authorities. In every convoy that sailed with an R.N.R. commodore, the S.O. Escorts had under his command an officer of much higher rank who was probably old enough to be his father.⁵²

The St. Lawrence Problem

The R.C.N.'s lack of escort reserves in 1942 was made apparent in the St. Lawrence River and the Gulf. On May 12

⁵² British Ministry of Information, *Merchantmen at War* (London 1944), *passim*.

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the Dutch S.S. *Leto* and the British S.S. *Nicoya* were sunk in an area west of Anticosti Island. During the ensuing months a succession of losses occurred which did not end until October 16, and in this period two escort craft and seventeen more merchantmen were sent to the bottom, one so far up the river that it was just north-east of Father Point.⁵³ The enemy had at last found Canada's most vulnerable spot. Why he had failed to exploit this weakness earlier in the war is not yet entirely clear, for there could hardly have been a more fruitful return for so small an expenditure in any other area open to the submarine. The conditions of which a submarine offensive could take advantage were tempting: the St. Lawrence was a highway thronged with a heavy and essential coastal trade, of which a considerable quantity was carried by a fleet of small unprotected craft that would have been an easy mark for shellfire and for the psychological effect of sporadic surface attack; more than half the country's harbour facilities concerned with the Atlantic export trade lay within the river; there was a vital timber trade that could only be moved by sea, frequently from exposed ports; the water conditions of the Gulf and river made anti-submarine Operations extremely difficult; the navy, whose escorts were already committed to other areas, was unable to undertake a heavy convoying programme; the political repercussions that might have resulted from a continuous U-boat offensive were probably worth exploiting; and in the event of a Canadian defeat in the St. Lawrence, the diversion of exports to other ports would have disrupted and retarded the general movement of trade.

The results that might have been achieved if the river had been subjected to persistent attack can be judged by the effects of this one season of continuous U-boat activity. In the light of later events it is evident that Canada, in a sense, was defeated in the St. Lawrence in 1942. The submarine offensive in the river was never whole-heartedly resumed; but the damage had been done, and for the rest of the war the Dominion's external trade continued to suffer from the effects of the depredations of two or three submarines during the summer of 1942.

Early in September the government decided to close the St. Lawrence to overseas shipping,⁵⁴ thus tacitly admitting a

⁵³ Minutes, St. Lawrence Operations Conference, Ottawa, Feb. 22-24, 1943, App. H. (D.T.D. records).

⁵⁴ N.S.H.Q. to Admiralty (signal) Sept. 9, 1942.

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defeat which had in reality been inflicted earlier in the summer. Even though escort craft were withdrawn from other areas, it had only been possible to institute a series of lightly-protected convoys between Quebec and Sydney (QS-SQ). These were supplemented, when it became necessary to transport supplies to Goose Bay, by the special convoys between Quebec and Labrador (LN-NL). Owing to the fact that there were no regular Sydney sections for ON or HX convoys, ships of from 10 to 15 knots loading in the river were forced to proceed between Halifax and their loading ports in the coastal convoys. Since QS-SQ convoys were integrated with the SC schedule, the time lost by the "liner" cargo vessels in travelling in and awaiting connections with coastal convoys made the use of the river ports by the faster ships prohibitively uneconomical in ship-time.

The resulting gradual diversion of export trade away from the river, together with a general slowing up of traffic and a natural reluctance to use the St. Lawrence when it could be avoided, had combined to bring about a sharp decline in river loadings for overseas destinations. This was clearly reflected in the year's total of cargoes loaded for foreign trade in Quebec ports, a total which amounted to only 2,249,926 deadweight tons as compared to 4,822,100 similarly loaded in 1941. In 1942, moreover, the general export trade of the country had shown a forty-five per cent increase over that of 1941.⁵⁵ Under these circumstances, and in view of the fact that winter was but two months away, the government's decision to close the river to overseas shipping was probably wise. It would appear, however, that the state of mind created by the defeat of 1942 lingered until the conclusion of the war with Germany, so that it was not until the summer of 1945 that the St. Lawrence finally regained its full share of the overseas trade.

The tendency to reduce the river traffic to the essential coastal trades and timber exports was clearly indicated in the early months of 1943, when the future use of the river came under consideration. The basic problem was the movement of trade in general and the exporting of supplies in particular. The agencies most interested were the navy and the British Ministry of War Transport, and to a smaller extent the Canadian Shipping Board and the Transport Controller. The representative of the Ministry, having to choose between an

⁵⁵ *Canada Year Book*, 1943-44, pp. 623 and 463.

uncertain and time-consuming convoy service in the St. Lawrence and the theoretical advantages of the Maritime ports, and apparently overlooking the limitations of those ports and the portents of a tremendous increase in production for export, agreed to the exclusion from the river of all overseas shipping except timber ships.⁵⁶ The Canadian Shipping Board was pre-occupied with the coastal trade in the river, which had to be maintained, while the Transport Controller was apparently not consulted officially, although it fell to his lot to ensure that the goods diverted to the Maritime ports reached there by rail.

The last word rested with the navy, the only agency having the authority to make such a decision. At no time during the war was the need for a single authoritative controlling body in trade organization so clearly shown, for the navy naturally considered the whole question from the operational point of view. On February 22-24, 1943, the St. Lawrence Operations Conference was held at N.S.H.Q. under the auspices of the Director of Operations Division. Present at this conference were the D.O.D., the Chiefs of Staff to C.O.A.C. and F.O.N.F., and the N.O.I.C.'s Quebec, Gaspé, and Sydney. Other officers were also present for special discussions. From the beginning it was agreed that: "Shipping in the Gulf of St. Lawrence [was] to be limited to essential coastwise movements",⁵⁷ and working on this premise, the conference devoted itself to questions which were chiefly related to the allocation and disposition of available naval craft. As this was an operational conference the rapid movement of cargoes was not very searchingly considered, yet even if it had been, the decision to restrict the use of the St. Lawrence might still have been taken. For it had not then been fully realized that the Maritime ports could not assume the burden of the St. Lawrence, and it was impossible to foresee that the U-boat offensive of 1942 would not be renewed.

In the light of later events, however, the decision to close the river to the bulk of overseas shipping was unfortunate. It proved to be physically impossible for Saint John and Halifax to absorb, in addition to the traffic which they ordinarily received, even half the customary trade of Montreal. The Maritime ports became congested and inefficient, and the

⁵⁶ This agreement was reported by D.N.I. at the St. Lawrence Operations Conference, Feb. 1943 [Minutes, App. A.]; but the reasons here assigned for this decision are offered as probabilities only, the documentation being inconclusive.

⁵⁷ Minutes, St. Lawrence Operations Conference, 1943.

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overseas traffic that they could not handle had to be diverted to American points, including even such ports as New Orleans, Galveston, and Savannah. The decline in cargoes loaded for overseas resulting from the restrictions placed upon the St. Lawrence is shown in the following table, which gives the number of ships and the deadweight cargo loaded at Canadian Atlantic ports for overseas destinations, 1940-45.⁵⁸

Year	Maritime Ports	St. Lawrence Ports	Total	Total D/Wt. tons of cargo
1940	771	596	1367	7,552,346
1941	735	704	1439	7,634,668
1942	869	278	1147	5,647,426
1943	835	178*	1013	5,648,761
1944	624	346	970	5,906,349
1945	667	754	1421	9,080,611

*Chiefly timber ships and new construction launched at the river yards.

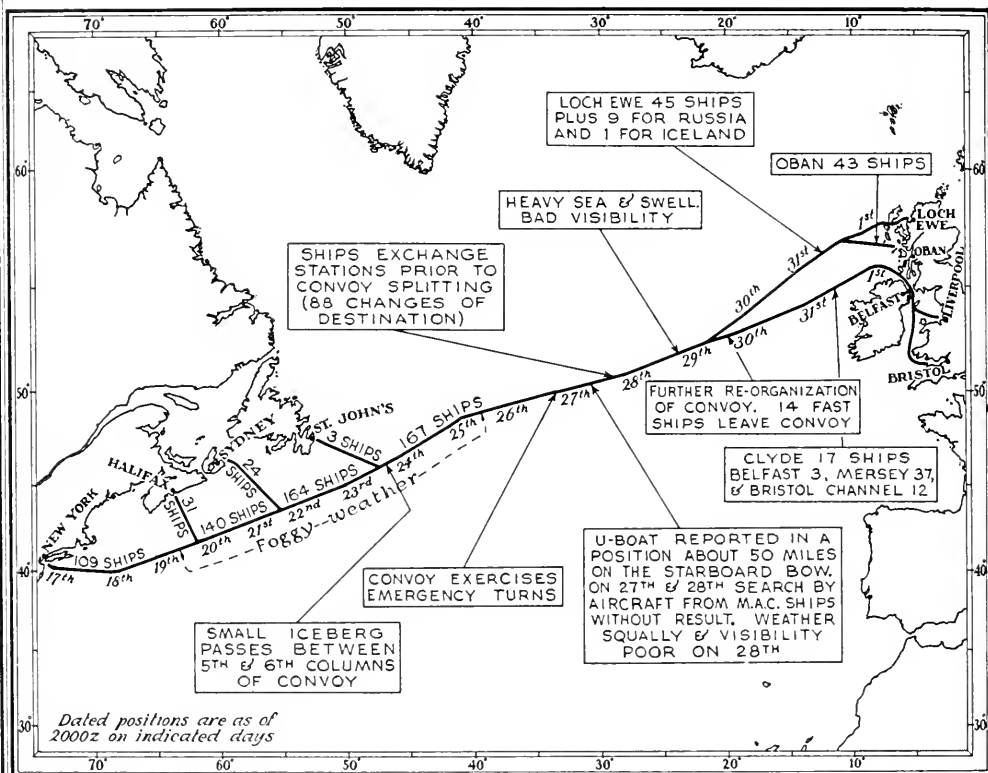
The realization that the Maritime ports were inadequate for the expanding export trade came during the summer of 1943, and since the submarine attacks had not been resumed, an increase was permitted over the twelve timber ships already allowed to load in the river each month. By this time, however, the majority of Montreal's trained stevedores had found employment elsewhere, so that full advantage of the respite could not be taken. In the following winter plans were again drawn up for the protection of shipping in the river during the summer of 1944.

These plans included the operation of Sydney sections for the HX and ON convoys, which meant that ships of from 10 to 15 knots could regularly make use of the river ports without losing time in going to and from Halifax. The largest number of ships that could be escorted down the river was set at forty-eight a month.⁵⁹ Soon, however, the production of supplies and the demands of the new fronts in Europe had reached such a peak that it became obvious that not only the Maritime ports, but probably the railways also, would be unable to handle enough export traffic. By the middle of 1944, moreover, the demand for Canadian wheat had increased to a point where the economies in ship-time and in railway haulage that could be achieved by loading grain in Montreal,

⁵⁸ Figures supplied by B.M.W.T.R., Montreal. "Overseas" destinations here are transatlantic or transpacific. The Maritime ports at the same time handled a large export trade to Newfoundland, U.S., Caribbean, and South American ports.

⁵⁹ N.S. 8280-166/16 (1), *passim*.

CONVOY HXS-300



LARGEST NORTH ATLANTIC TRADE CONVOY OF SECOND WORLD WAR

Sailed New York July 17, 1944 . Arrived Mersey August 3, 1944

Escort: one frigate and six corvettes of the RCN

TOTAL MERCHANT SHIPS	167 (INCLUDING 4 M.A.C. SHIPS—1 NON-OPERATIONAL)		
BRITISH	50	FOR U.K.	157
U.S.	75	FOR RUSSIA	9
OTHER ALLIES	39	FOR ICELAND	1
NEUTRAL	3		

Convoy in 19 columns covered area of about 30 square miles

CARGO CARRIED TO U.K.			
	TONS		TONS
GRAIN	84,561	MOLASSES	37,500
SUGAR	84,948	IRON AND STEEL	36,705
OTHER FOODSTUFFS	47,167	OTHER GENERAL CARGO	80,699
LUMBER	35,588	VEHICLES AND TANKS	53,490
OIL	307,874	OTHER MILITARY EQUIPMENT	251,297
TOTAL		1,019,829 TONS	

COMMODORE SIR A.T. TILLARD, K.B.E., D.S.O.

CASUALTIES-----NONE
 SHIPS RETURNING-----NONE
 STRAGGLERS-----1 (ARRIVED AUGUST 5)

could not be ignored. In the absence of submarine attacks, and therefore of river convoys, the British Ministry of War Transport gradually advanced the number of vessels proceeding to river ports from 60 to 70 a month.

The full realization that there was no adequate substitute for Montreal came in August, when owing to the suspected presence of a submarine in the Gulf the navy reinstated convoys, and demanded that the quota of ships should be reduced to 40 a month. Late in August 1944 the Department of Trade and Commerce emphasized the difficulties which would arise in moving grain and supplying railway cars, if traffic were to be diverted once more from Montreal to the Maritime ports.⁶⁰ The Naval Service agreed that the risk of conducting larger and more lightly protected convoys should be accepted, and the quota of ships to be escorted down the river was set at sixty a month. It was not until the summer of 1945, however, that Montreal could fully demonstrate its efficiency in loading. In August that port alone loaded about 705,000 deadweight tons for other than Canadian destinations. In 1943 the total for August, the port's best month, had been 244,000 tons, and in November 1944, the best month of that year, 373,000 tons. The corresponding totals for Halifax and Saint John respectively in June 1943, their best month in that year, were 376,000 and 333,000 tons.⁶¹

The Pacific

Until Japan entered the war, the movement of Canadian trade in the Pacific had remained comparatively unaffected, except by repercussions from the Battle of the Atlantic. Naval control had been established in August 1939, but the only important factor in the movement of merchant shipping to be considered had been the possibility of surface raiders. Standard routes had been prepared and issued to deep-sea vessels, and the vesca system had been adopted for reporting their movements. Even after the spread of hostilities to the Pacific the effect on trade movement, in coastal waters at any rate, was negligible compared with the situation in the Atlantic. Regular trade convoys out of Canadian Pacific ports were never instituted; the ports themselves never approached con-

⁶⁰ A/D. Min., Trade and Commerce, to D.T.D., Aug. 28, 1944, N.S. 8280-166-16.

⁶¹ Statistical summary of port loadings (D.T.D. records).

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gestion; there was only one torpedoing in the Canadian zone;⁶² and there was hardly any serious crew trouble.

The work of the Naval Control Service on the west coast developed in such a way as to differentiate their duties from those of the east-coast organization. The need for air and surface patrols, and consequently for accurate shipping plots, required the maintenance of an extensive organization to report the very heavy coastal traffic. This burden of "out-port" reporting was assumed by customs officials, who like their colleagues in the smaller eastern Canadian ports, cheerfully and energetically discharged their duties without additional pay. These officials, and the N.C.S.O.'s who were established in Vancouver, Victoria, and eventually Prince Rupert, were so far from Ottawa that it was considered expedient to knit them together into a group under C.O.P.C., administered by an S.O. (Trade). The S.O.(T) received his instructions through D.T.D., Ottawa, but was allowed considerable latitude in adapting them to the needs of the west-coast area.

After Pearl Harbor the waters of the Pacific came within the United States area of strategic control, and Canadian N.C.S. officers were therefore instructed to conform to American routeing policy, which was promulgated in "Mercantile Pacific Routeing Instructions" (M.P.R.I.) and "Mercantile Pacific Coastwise Routeing Instructions" (M.P.C.R.I.). In March 1944, when all Pacific shipping movements were summarized by C.W.S.F., the American authority at San Francisco, even the vesca system was abandoned on the west coast, and N.C.S.O.'s reported merchant-vessel movements by the merco system. These developments, however, had little effect on the actual movements of the ships. Apart from carefully obeying route instructions, and maintaining Security measures such as black-out and radio silence, they proceeded about their business unhindered until they entered the Atlantic or the danger zones of the western Pacific.

External trade on the west coast, in fact, suffered less from war-time circumstances in the Pacific and the depredations of Japanese submarines than from conditions in the Atlantic and the successes of the U-boats. The steady withdrawal of ships from Pacific routes to replace losses and carry the in-

⁶² On June 20, 1942, the *Fort Camosun* (BR. 7126 G.R.T.) was torpedoed and shelled by an enemy submarine off Cape Flattery, but she was towed into Esquimalt and repaired. (D.T.D. records).

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creased traffic of the Atlantic, the need for the utmost economy of ship time regardless of expense, and the preponderance of war-time demands in the European theatre, caused a steady decline in cargo shipments from British Columbia ports to overseas destinations until 1944, when increased shipping facilities, and traffic to the Japanese theatre, brought an improvement. These trends are indicated in the following table:⁶³

Cargoes loaded in B.C. ports by vessels in foreign service

Year	Tons weight	Tons measurement
1941	2,279,800	534,340
1942	1,743,212	73,131
1943	1,518,639	187,404
1944	2,160,090	163,885

In addition to the above tonnage of cargoes lifted at British Columbia ports for foreign destinations, there was a heavy shipment of American military supplies through Prince Rupert and Port Edward. These ports had been specially developed after Pearl Harbor as American army bases for the movement of material and personnel into the Alaskan theatre. By the spring of 1943 this traffic warranted the introduction of the Naval Control Service to cope with the numerous routeing and reporting problems. In July of the same year the Naval Boarding Service was also extended to these ports, where it was able to carry out its important duties to the satisfaction of the Canadian and American authorities concerned. In all, during the war years, Prince Rupert and Port Edward loaded outbound more than a million tons of American military supplies, and embarked over seventy thousand troops and passengers.⁶⁴

The Relaxation of War-time Controls

To dismantle an extensive and complex establishment without creating chaos requires as much patience and planning as does its creation. If the edifice is not to collapse, many bricks must be removed before the keystone can be withdrawn. The organization of merchant-shipping controls had been painstakingly created as each emergency arose, and it was necessary to be very careful that as each regulation was lifted no important control was left without adequate support.

⁶³ *Canada Year Book*, 1943-44, p. 623; 1945, p. 697; and "Shipping Report, 1944", Dom. Bureau of Statistics.

⁶⁴ Historical Survey, N.C.S.O. Prince Rupert, N.S. 1410-127 (1).

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Plans for the gradual dissolution of shipping controls had therefore been made months before the war ended, and the last restrictions on shipping were not removed until more than a year after the last torpedo had been fired.

As early as September 5, 1944, the C. in C., U.S. Fleet proposed a conference of United States, British, and Canadian naval authorities to draw up tentative plans for "Shipping Control subsequent to the cessation of European hostilities."⁶⁵ On October 12, officers from the B.A.D. representing the Admiralty, and D.T.D. with an officer from N.M.C.S. staff representing N.S.H.Q., met in Washington with Com. 10th Fleet C. and R. and other United States officials to discuss specific questions affecting the relaxation of shipping controls. The conference was primarily interested in facilitating the intensified movement of supplies to the Pacific theatres as soon as the European conflict had been terminated, and it concentrated on the question of "combat" and "non-combat" areas and the relative controls and security measures required in those areas.⁶⁶

The non-combat areas were designated as:

North Atlantic Ocean, including Caribbean Sea and Gulf of Mexico, Arctic Ocean, Baltic and North Seas, Mediterranean, Black and Red Seas, South Atlantic Ocean east of 74° West to longitude of Capetown. North and South Pacific east of 82° West.⁶⁷

The combat areas were all those not specified as non-combat, and the ports of Capetown, Aden, and Balboa, were to be considered as within the combat area. All ships except troopers were to sail independently within the non-combat areas, under simplified naval route instructions, and movements of ships not proceeding through or into the combat area were to be reported over naval communication lines, but in plain language. Black-out and zig-zagging were to be discontinued unless otherwise ordered by area operational authorities, and ship-to-shore radio communication was to be permitted through navally operated or controlled channels. So that no confusion might arise, a series of identical signals, to be despatched by the Admiralty and C. in C. U.S. Fleet, when the occasion arose, were agreed upon. These signals, which numbered ten altogether under the code numbers SDG 1 to

⁶⁵ C. in C., U.S. Fleet and C.N.O. to N.S.H.Q., Sept. 5, 1944, N.S. 1822-8 (1).

⁶⁶ Minutes of Conference on "Merchant Ship Control After Cessation of Hostilities with Germany", Washington, Oct., 12, 1944, *ibid.*

⁶⁷ Report of conference, para. 2 (a), *ibid.*

9,⁶⁸ were to be broadcast to ships and authorities so as to ensure uniform action in the relaxation of controls. Comprehensive instructions for new routeing and reporting procedure were promulgated and were to be brought into force by SDG-6, while trade convoys in the non-combat areas were to be abandoned on receipt of SDG-7. The opportunity afforded by these decisions to draw up new procedures well in advance was not ignored, and a completely new Ottawa Routeing Summary, known as the "Icebox", was prepared during the winter, and its implications were discussed and explained at the annual conference of east-coast N.C.S.O.'s held in Ottawa in March 1945.⁶⁹

With the cessation of hostilities in Europe the change-over to peace-time conditions in the non-combat areas was begun, and on May 29 trade convoys were abandoned and the instructions SDG-6 were brought into force, greatly simplifying the routeing and reporting of ships in the non-combat areas. The new procedures had barely been established, however, when the Japanese capitulation on August 15, 1945, soon made it possible to declare the combat areas as non-combat, and to extend the relaxation of controls to the Pacific and Indian Ocean theatres.

It had been agreed at the Washington Conference of October 1944, which drew up the SDG procedure, that a second conference should be held six months after the collapse of Germany. The conference accordingly met again on September 4, 1945, to review SDG procedures and consider the final abandonment of naval control. It was obvious, however, that despite the lifting of security measures, naval control could not be completely relaxed at once. Ships had to be routed so as to avoid the vast mine-fields that littered every one of the seven seas; peace-time organizations which had partially dissolved during the war years were not yet in a position to assume responsibility for shipping movements; and regulations governing the employment of shipping were still in force. The established authority of the navy was needed to enforce these regulations, so as to expedite the movement of supplies to the liberated areas and the return of troops and equipment to home bases. Huge fleets of cargo ships were now owned by government agencies such as the Ministry of War Transport in the United Kingdom, the Maritime Com-

⁶⁸ There was a signal designated SDG-7A as well as one numbered SDG 7.

⁶⁹ "Outline History of Trade Division", p. 52.

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mission in the United States, and the Park Steamship Co. in Canada, and if the established means of control were abandoned, new ones would have to be set up to handle state-owned shipping.

The conference therefore agreed that modified naval control should be maintained until the end of 1945, and that during the remaining weeks every effort should be made to help in transferring responsibility to the civil agencies and operators who would have to assume complete control of shipping at the beginning of 1946. Shipping movements continued to be reported in condensed vesca or merco signals until the end of the year, but the information promulgated by N.S.H.Q. to the Ministry, the Canadian Shipping Board, and others, was steadily curtailed as the various agencies re-established their own communications systems.⁷⁰

Routeing by naval authorities could be ended more rapidly, however, especially in areas free from mines. Routeing of merchant ships within the American Atlantic coastal areas was discontinued on September 11,⁷¹ and on October 1 the masters of vessels sailing from Canadian ports to transatlantic destinations were required to determine their own routes in the light of instructions contained in Northern Europe Coastal Route Instructions (N.E.C.R.I.).⁷² Similar publications were prepared for other areas, and by December the routeing duties of the N.C.S.O. consisted of ensuring that the master of a departing ship received the latest issue and amendments of those publications which he would need for his voyage. The boarding service branch of the naval control organization, which had carried out no less than 50,000 boardings in the ports of the Dominion, had been disbanded early in the fall.

On January 1, 1946, therefore, when reporting ceased and the issuing of routeing publications was entrusted to port customs officials, the Naval Control Service in Canada terminated its period of war-time duty, and the navy's enlarged concern with merchant shipping ceased. This did not mean that the merchant navy had wholly returned to its

⁷⁰ Lloyd's agents of course had not been reporting shipping movements since early in the war, and it was not until December 1945 that they had all been re-established or replaced; with the result that the large summary of West Atlantic shipping movements despatched daily by N.S.H.Q. to Admiralty was maintained until December to fill the gap, and during that month as a secondary source of information and corroboration of the re-created Lloyd's system.

⁷¹ Cominch C. and R. 071502/9/45.

⁷² N.S.H.Q. 252038 9/45.

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peace-time habits. The government agencies that controlled the employment of shipping continued to exercise a diminishing authority, especially over those ships employed in carrying food to hunger-stricken areas, and those engaged in the work of repatriation. An agreement reached in the summer of 1944 by the chief maritime nations had resulted in the pooling of certain tonnages from each country, under organizations established in London and Washington, to ensure the most efficient employment of shipping for essential needs. By the fall of 1946 the last of these commitments had been discharged, and all shipping may be said to have returned to normal peace-time conditions.

CHAPTER 14

THE CREATION OF THE CANADIAN NORTH-WEST ATLANTIC COMMAND

IN the spring of 1943 the Royal Canadian Navy was made responsible for a key command which included parts of the most important convoy routes in the world and an area in which a large number of British and allied warships habitually operated. This command carried with it a much wider responsibility than had ever before been entrusted to a Canadian Service, and the steps which led to its creation will therefore be recounted in some detail.

From the Canadian point of view there were three distinct periods in the development of the North Atlantic escort system, the first extending from the declaration of war until the summer of 1941, during which time transatlantic convoys were escorted primarily by battleships, cruisers, or armed merchant cruisers, while destroyers and other craft were used for local protection in Canadian waters and the Western Approaches.

After May 1941, as the U-boat menace spread to the western Atlantic and the threat of surface raiders diminished, corvettes and destroyers as these became available replaced the large ships as ocean escorts.¹ During this second period, which lasted until the closing of the Atlantic Convoy Conference in March 1943, negotiations pertaining to areas and degrees of control took place at various times between the naval staffs of Great Britain, the United States, and Canada. An ambitious shipbuilding programme was carried out in Canada to meet the needs of the Naval Service, and war vessels were also built in the Dominion to the order of the British Admiralty Technical Mission acting on behalf of the navies of Great Britain and the United States.

The United States Navy first came into the operational picture on July 26, 1941, when it began to take over the

¹ "History of North Atlantic Escort Organization, and Canadian Participation Therein", May 1, 1943, prepared by D.P.D., N.S. 1048-48-31 (4).

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protection of all convoys between the United Kingdom and North America, and between Iceland and the American continent. This arrangement was embodied in a defence plan known as W.P.L.-51.² Although the United States had not yet declared war when it was adopted, in actual practice the terms on which American assistance was obtained placed the control of allied escort vessels and merchant shipping in the "Western Atlantic" under the United States Navy, each nation retaining, however, the strategic direction and command of its own forces. This latter condition did not apply where the British, Canadian, or American chiefs of staff concerned had agreed to a joint command. The Western Atlantic Area, which at the time comprised that part of the Atlantic west of Long. 26° W. and extending to the continental shelf, excluded the United States coastal frontiers, the Canadian Coastal Zone, and neutral territorial areas other than Iceland and its surrounding waters. The Western Atlantic Area was under the command and was the strategic responsibility of the Commander in Chief, United States Fleet (COMINCH), who delegated his authority over the northern part of the area to the Commander, Task Force Twenty-Four. Canada was made responsible for the routing and protection of coastwise and independently-routed overseas shipping within the limits of the coastal zones of Canada and Newfoundland.

The duties and degrees of control of C.T.F. 24 were as follows:

TASK FORCE TWENTY-FOUR will:

- (1) exercise coordinating supervision of escort-of-trade-convoy operations in the northern portion of the WESTERN ATLANTIC AREA;
- (2) escort trans-Atlantic trade convoys in accordance with existing agreements and provide practicable patrol plane coverage for such convoys and other movements in the Northern North Atlantic Ocean;
- (3) give protection to other shipping as practicable incidental to movements of units between Cape Cod and Newfoundland;
- (4) maintain the Iceland shuttle service and one mid-ocean escort group;

² *Ibid.* p. 9. The Western Hemisphere Defence Plan No. 4 (W.P.L.-51), which came into effect on July 26, 1941, was an agreement whereby the U.S. Atlantic Fleet would escort convoys of U.S. and Iceland ships including shipping of any other nationality which might join such convoys, between Iceland and U.S. ports and bases. The plan was devised so that the U.S. Navy Department could gradually take over all the convoy escort duty in the north-western Atlantic, firstly by admitting to U.S. convoys shipping of flags other than the U.S. or Iceland, and later by including a U.S. or Icelandic flag ship in all westbound and eastbound British convoys when in the Western Atlantic Area. British escort groups would thus be released for duty elsewhere.

³ Admiral E. J. King, U.S.N.

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- (5) (a) employ the Greenland Patrol in the defense of Greenland and in the protection of shipping proceeding to and from the Greenland area;
- (b) assist U.S. Army aircraft ferry operations by supplying security ships when necessary;
- (6) cooperate with U.S. Army and Canadian Forces in the defense of Newfoundland and in accordance with approved agreements;
- (7) control shipping of Associated Powers calling at Argentina in accordance with instructions issued by the Commander in Chief, U.S. Fleet (Convoy and Routing) to the Commandant, Naval Operating Base, Argentina;
- (8) support operations in the Labrador-Greenland area;
- (9) maintain necessary liaison with the United Kingdom and Canadian authorities;
- (10) maintain service of ice information in the North Atlantic and, in so far as practicable, provide limited surface protection and air coverage for fishing vessels in the vicinity of the Grand Banks;
- (11) assume operational control of weather patrol vessels while at sea enroute to, from and on station;
- (12) use operating bases at Argentina (control station for mid-Ocean escorts); in Ireland, Iceland, Greenland and at Shelburne as necessary; home bases Casco Bay and Boston.⁴

In October 1941 the United States Chief of Naval Operations stated that:

Approximately sixty Royal Canadian Navy and Royal Navy destroyers and corvettes will be engaged in escorting convoys in the WESTERN ATLANTIC AREA under the strategic direction of the United States, in addition to Canadian naval forces required for patrol of Canadian Coastal Zones, under the strategic direction of Canada. Available Canadian aircraft will operate for similar purposes in the Canadian Coastal Zones under the strategic direction of Canada, and outside the Canadian Coastal Zones under the strategic direction of the United States.

But in spite of a steady increase in the number of Canadian ships in the escort groups, the authority of C.T.F. 24, whose command had been set up in Newfoundland, was felt to be gradually overlapping that of the two Canadian coastal commands, C.O.A.C. and F.O.N.F.

As the Operations of the German U-boats spread westward from the European coastal zones all the way across the Atlantic, into the St. Lawrence River and the Gulf, and to the Caribbean and the Gulf of Mexico, the number of vessels assigned to combat them was slowly built up from British, Canadian, and American sources. When the United States entered the war the burden thrown on the already overstrained

⁴ Operation Plan 3-42, promulgated by COMINCH, Dec. 8, 1942, pp. 10-11, N.S. 1048-48-27 (2).

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resources of the British and Canadian navies became even greater, for United States naval units were withdrawn more and more from the North Atlantic to meet the demands of other theatres. By the end of 1942 one American group alone was left in the Mid-Ocean Escort Force, and that group contained only three American ships. The R.C.N. took over the duties of the U.S.N. escort ships as these were withdrawn; and as there were no additional ocean-going vessels to make up the full complement of the depleted groups,⁵ Canada was forced to remove ships from her coastal zones in order to provide sufficient ocean escort forces. The controlling presence of C.T.F. 24 in the North Atlantic began to hinder rather than facilitate the co-operation between the British and Canadian escort forces, since any revision of convoy or escort policy had to be submitted to and decided upon by the American naval authorities, in spite of the fact that the R.N. and the R.C.N. were providing between them 98% of the trade escort forces. Canada, so strongly represented among the naval forces in the northern and western Atlantic, had little say in the strategic or operational control of her own ships.

In the early spring of 1943, just before the Atlantic Convoy Conference, the Western Atlantic Area lay west of a line drawn along the meridian at 10° W. as far south as a point some 160 miles east of Eskifjörður, in Iceland, and thence along a line which in general divided the north and south Atlantic oceans in half.⁶ The United States exercised strategic direction of all forces of the allied nations normally operating in the Western Atlantic Area, while the United Kingdom exercised a similar direction over forces operating in other areas of the Atlantic and over British forces in Iceland. Actual operational control of the Eastern and Western Atlantic Areas rested with the Admiralty and COMINCH respectively, with the exception of the Canadian Coastal Zone and the territorial waters of the South American countries. Escort vessels of the various allied navies could extend their activities into areas other than their own when circumstances demanded it. Any available Canadian aircraft that assisted in the

⁵"Development of Canadian Naval Policy", N.S. 1667-7 (1).

⁶"THE WESTERN ATLANTIC AREA lies west of a line along the meridian of 10° west longitude from the north as far south as latitude 65° north, thence by rhumb line to position 53° north latitude, 26° west longitude, thence south to latitude 43° north, thence west to longitude 40° west, thence south along the meridian of 40° west to latitude 20° north, thence southeast to ASCENSION ISLAND including that ISLAND and its territorial waters, thence southwest to 40° south latitude, 26° west longitude." [Operation Plan 3-42, COMINCH, Dec. 8, 1942, N.S. 1048-48-27 (2)].

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protection of convoys in this area, however, were under the strategic direction of Canada, and the co-ordination of the activities of these with the United States Navy was to be effected through mutual co-operation.⁷

At least eight authorities were involved in anti-submarine escort arrangements in the western Atlantic: COMINCH; the Commander in Chief, Atlantic Fleet; Commander Task Force Twenty-Four; N.S.H.Q.; C.O.A.C.; F.O.N.F.; the United States Army Air Corps; and the Air Officer Commanding Eastern Air Command. With the increase in enemy activity and the expansion of the naval forces of Great Britain, Canada, and the United States, in this theatre and elsewhere, a fear of the conflicting opinions and confusion which might result led to the suggestion that such a complicated chain of command should be simplified.

The idea was born of the disorganization arising from signals originating from the Admiralty, COMINCH, and N.S.H.Q., and going out simultaneously to escort vessels at sea. As the various originators were not limiting their promulgation of signals to ships within their own areas of command, they informed each other first of their intentions, presumably to avoid complications which might result in delays to the final recipients. Although the Admiralty had reduced the time-lag involved in the reception and promulgation of bearings on U-boats obtained by HF DF, there was still a great need to expedite matters. Moreover, the United States Navy Department considered that N.S.H.Q. should originate signals to escorts in Canadian coastal zones only, while COMINCH would confine his to ships outside these zones. Add to all this the fact that N.S.H.Q. considered that the Dominion should have some degree of control, at least over her own naval forces, and it will be seen that some change was needed for an effective prosecution of the naval war in the western Atlantic.

The Director of the Operations Division at Ottawa, Cdr. H. N. Lay, R.C.N., suggested to the Chief of the Naval Staff that some definite re-adjustment of the original arrangements of operational control should be requested. He pointed out that strategic control in the western half of the North Atlantic should remain in the hands of the United States, in view of the universal nature of the war and the consequent

⁷ *Ibid.*

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need for naval forces in all parts of the world, and because the Canadian navy, despite its development, lacked battleships, aircraft carriers, cruisers, and even fleet destroyers. He suggested, nevertheless, that the operational control of convoys and their attendant escorts, and other related matters, should be left to the Canadian Naval Service which was operating a much larger number of escort ships in the area than was the U.S.N., and he recommended that representations to this effect should be made to the appropriate authorities of the United States and the United Kingdom.

On December 1, 1942, therefore, the C.N.S. suggested to COMINCH that an inter-allied conference should be held to discuss the control of escort forces and other subjects pertaining to convoys and escorts in the North Atlantic. He reminded COMINCH, incidentally, that the plotting of U-boat messages had been started at N.S.H.Q. as early as September 1939, and that with the assistance of the R.N. a very elaborate and efficient enemy submarine tracking organization had been built up at Ottawa over the ensuing three years. In February 1942, when N.S.H.Q. at the request of the Admiralty was already promulgating fixes to all naval units in the western Atlantic west of Long. 30° W. and north of Lat. 40° N., the U.S.N. had begun to supply similar information to U.S. ships in the area. This procedure duplicated signals already promulgated by N.S.H.Q., but allied U-boat tracking experts had agreed that until further notice there should be two plotting centres, one at N.S.H.Q. and the other at the Navy Department in Washington. It was pointed out that in all matters of policy the R.C.N. had tried to co-operate with the other two Services to the best of its ability, and it was suggested that it would be to the benefit of all concerned, and more efficient, for the Service with the greatest number of units in any given area to control the direction of such units and the necessary promulgation of information to them. The letter ended by suggesting that: "The question of general operational control of all Trade Convoy escorts, and other units in the North Atlantic . . . be left as at present, pending a general discussion of this subject at a conference of the three Services."

COMINCH replied to C.N.S. on December 17 agreeing that co-operation in the Battle of the Atlantic must be of the highest order. Much of the difficulty arising from duplication of despatches to ships, he maintained, could be overcome by adopting a simple procedure which had been recommended

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by C.T.F. 24 in November 1942.⁸ COMINCH believed that the setting-up of an additional authority at that time would increase the complexities of the Atlantic shipping problem, and that such a step should not be undertaken as yet. He agreed, however, to arrange for a meeting of representatives of the three naval Services as soon as convenient, and Admiral Sir Percy Noble, K.C.B., C.V.O., R.N., head of the British Admiralty Delegation in Washington, concurred in this, suggesting that the availability of escort vessels for the common good should be one of the points raised at the forthcoming discussion.

It is interesting to note that during this correspondence between the Canadian and American authorities, a problem arose which, though bearing directly upon the purpose of the proposed conference, was settled then and there by signal. C.T.F. 24, in his position as absolute controlling authority, had been transferring certain destroyers from one escort force to another where such transfers were necessary for purposes of re-inforcement; but this was done directly by signal addressed to the ships concerned, without the concurrence of N.S.H.Q. On January 1, C.T.F. 24 was requested not to transfer Canadian ships or ships under R.C.N. orders from one command to another without first advising the Canadian authorities of the intended move.⁹

Later in January C.N.S. wrote again to COMINCH stating that there were three points which the Canadian navy would like to take up with the other two Services at the conference. These were the control of H.M.C. ships in the Western Atlantic Area; the position of C.T.F. 24 in relation to the flag officers in command of the Canadian naval commands in the Atlantic, namely C.O.A.C. and F.O.N.F.; and the scale of forces considered desirable by N.S.H.Q. and the Canadian Government for the Western Local Escort Force and for general purposes in the Canadian coastal commands. COMINCH replied definitely agreeing to the conference, and repeating his belief in the need for unified control of forces in the Western Atlantic Area.

⁸ C.T.F. 24 to COMINCH, Nov. 19, 1942, N.S., T.S. 18740-239 3 (1). "(a) Furnish to the escort commander, with utmost dispatch, information of a first sighting report of the convoy and the frequency the enemy used. (b) Similarly furnish subsequent information of enemy transmission concerning the convoy only when the enemy transmits on a different frequency from the last reported to the escort commander."

⁹ N.S.H.Q. to C.T.F. 24, 1634Z 7 43, *ibid.*

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On February 6 COMINCH was informed by C.N.S. that:

In this connection no doubt Admiral Brodeur¹⁰ will have told you that the Canadian Chiefs of Staff are now discussing the appointment of a Canadian Commander-in-Chief for the North-western Atlantic, who will have under his control all Canadian forces which are engaged in anti-submarine warfare. This will mean combining the present commands of C.O.A.C. and F.O.N.F. under one admiral who will also have R.C.A.F. A/S forces under his control.

This suggestion was subsequently accepted by both the British and American authorities, but the actual appointment did not take place until after the conference.

Some days later COMINCH informed C.N.S. that one of the principal causes which had given rise to the recent difficulties was the status of the Canadian naval and air forces in the Nova Scotia and Newfoundland areas. It was his opinion, however, that the basis of all command relationships should be that the United States should retain strategic responsibility in the West Atlantic, this arrangement having been of long standing. He hoped that Canadian naval representatives would be prepared to discuss this question, to the end that they might arrive at a more satisfactory and efficient command relationship.¹¹

Fifty-seven representatives of the various Services of the United States, Great Britain, and Canada, attended the Atlantic Convoy Conference in Washington. The United States Navy delegates numbered thirty-five, headed by Admiral E. J. King (COMINCH); there were ten officers of the United States Army, the senior being Major General C. P. Gross; the War Shipping Administration was represented by Mr. J. E. Cushing; Admiral Sir Percy Noble headed the eight delegates from the Admiralty; the Coastal Command of the Royal Air Force was represented by Air Vice Marshal A. Durston; the Royal Canadian Air Force delegation was headed by Air Marshal N. R. Anderson, Air Staff Member of the Air Council. The five representatives of the Royal Canadian Navy were Rear Admiral V. G. Brodeur of the Canadian Joint Staff; Capt. H. G. De Wolf, Director of Plans Division; Capt. H. N. Lay, Director of Operations Division; Capt. W. B. Creery, Chief of Staff to C.O.A.C.; and Cdr. J. G. MacKinley, Canadian Naval Liaison Officer with COMINCH. Later during the session

¹⁰ Naval Member of the Canadian Joint Staff, Washington, D.C.

¹¹ COMINCH to C.N.S., Feb. 20, 1943, N.S., T.S. 18740-239/3 (1).

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Cdr. J. M. de Marbois and Lieut. J. A. Jarvis joined the Canadian delegation.

The conference opened at 1000 on Monday, March 1, 1943, at the United States Navy Department, with Admiral King in the chair. He made a short speech welcoming the representatives of the various Services, and then outlined the reasons for the conference, mentioning that it was the result of a request from the Chief of the Naval Staff of Canada to discuss command relations in the North Atlantic. After Admiral King had spoken, all the leading representatives addressed the assembly, including Rear Admiral Brodeur.

Admiral Brodeur opened his speech by thanking all concerned for the welcome extended to the Canadian delegates, and affirmed that Canada was represented primarily in order "to assist and help in finding the most permanent solution to the submarine menace first in the Atlantic and elsewhere." Noting that a most important subject, the operational control of the north and north-western Atlantic, had not been included in the agenda, he made the following proposals for inclusion: that a North Atlantic Area should be established and defined as the area north of Lat. 40° N., and that in this area the control of convoys and anti-submarine warfare should be exercised solely by British and Canadian authorities, except for the United States sea frontiers; that the present title of Commanding Officer Atlantic Coast should be changed to that of Commander in Chief, Canadian North-west Atlantic,¹² who would be given general direction of all surface and air forces employed in A S warfare in the north-western Atlantic; and finally, that the control of convoys, promulgation of U-boat information, and the diversion of convoys, should be exercised in the north-western part of the Atlantic by N.S.H.Q., this control as well as that of C. in C., C.N.A. being similar to the control exercised by the Admiralty and C. in C., W.A. in the North Atlantic at the time of speaking. Admiral Brodeur ended his address by explaining that his main reasons for making these proposals were: that Canada was providing a large proportion of escort vessels on North Atlantic convoys, and an even larger proportion of escort aircraft; that the Dominion possessed up-to-date and fully-equipped air and sea bases, and had had three years

¹² The original form of this title, "Commander in Chief, Canadian North West Atlantic" (C. in C., C.N.W.A.), was changed soon after the command had been set up to "Commander in Chief, Canadian North-west Atlantic" (C. in C., C.N.A.), so as to avoid confusion with that of the "Commander in Chief, Western Approaches" (C. in C., W.A.). The later and generally-known form is used throughout this chapter.

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of experience in that highly specialized type of work—escort Operations; and that the Canadian navy was therefore fully qualified to assume responsibility for the control of the western half of the North Atlantic.

A general discussion followed the speeches, and the points to be raised during the session were indicated. These were Russian convoys, convoys available in the Atlantic, routes and their convoy requirements, assignment of convoys, air support including bases and operational control, the establishment of a Combined Area Headquarters for the North-west Atlantic Area, modelled on that which existed at Liverpool, a new CHOP (Change Over Meeting Point) line, the reorganization of convoys into three classes of speed, and, the point of greatest interest to the R.C.N., the operational control of convoys and their escorts in the North-west Atlantic Area and of aircraft in north Atlantic bases. Finally, it was proposed to discuss the creation of a Canadian naval Commander in Chief, who would combine the commands of C.O.A.C. and F.O.N.F. and control all surface and air anti-submarine forces in the area.¹³

The first meeting of the Atlantic Convoy Conference concluded with the appointment of five subcommittees to deal with the points stated above. These subcommittees with their respective Canadian members were: Command Relations, Rear Admiral Brodeur; Convoys and Escorts, Capt. Brand,¹⁴ Capt. Lay, and Capt. De Wolf; Air Support for Atlantic Convoys, Air Vice Marshal Anderson; Training and Material Readiness of Operational Escort Groups, Capt. Creery; Communications and Operational Intelligence, Cdr. de Marbois and Lieut. Jarvis. A further subcommittee was formed to co-ordinate and implement the recommendations of the others.¹⁵

The question of primary interest to the Canadian representatives—that of command relations—was delayed until further notice, as the report on the subject had not been completed when the second and third meetings of the conference took place.

The first problem to be taken up, at the second meeting on March 3, was that of convoys and escorts. The Convoy and

¹³ Weekly Summary of Information, Feb. 19, 1943; Report on the Atlantic Convoy Conference.

¹⁴ Capt. E. S. Brand, D.T.D., N.S.H.Q., who also attended the conference.

¹⁵ Report on the Atlantic Convoy Conference.

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Escort Subcommittee was of the opinion that the existing number of convoys, those on the north Atlantic trade routes being the HX, SC, ONS, and ON,¹⁶ should not be increased, since these established convoys were as many as could be safely handled in view of the number of escorts available. It was agreed that although the routes were to remain unchanged, the Admiralty's proposal that the sailing cycles of HX and SC convoys should be shortened was acceptable. It was recommended that they should be sailed at intervals of 5 and 8 days respectively, the HX beginning about April 30, the SC about March 23. To meet the new sailing cycles, it was considered necessary to enlarge the Mid-Ocean Escort Force from the existing 8 groups to 14 groups, and this could be done by adding 4 Canadian groups which were then doing coastal work and 2 others which had originally been chosen for escorting the UC convoys in more southerly latitudes.

It was proposed to increase the Western Local Escort Force from 8 groups to 11, in order to handle the shorter cycles; and to provide these extra ships, Canada was to request the return of 15 of her corvettes on loan to the R.N., retain 8 British trawlers already serving under Canadian orders, and transfer some of the destroyers operating at the time in the Western Support Force. The recommendations made at the end of the second meeting included the following: that the United Kingdom and Canada should furnish all escort vessels for HX, SC, ON, and ONS convoys; that the United States should make available to Great Britain, until July 1, 1943, one escort group consisting of an auxiliary carrier and five operational destroyers to support the British and Canadian convoy escorts; that the R.N. should maintain two such groups, and Canada one without an aircraft carrier; that the United States should withdraw the remaining American ships on HX, SC, ON, and ONS escort service, as soon as the Admiralty could supply replacement vessels; and that the plan for closing the convoy cycles should become effective by about May 1, 1943.

The British representatives stated that they were very anxious to establish three support forces as soon as the ships could be made available from new construction. These would probably be based in the United Kingdom, Iceland, and Newfoundland. Behind this project was the principle of economy of force, for they felt that greater success in reinforcing threat-

¹⁶ The designations and termini of convoy sequences referred to in this volume are given in Apps. X and XI.

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PROGRAMME FOR NORTH ATLANTIC CONVOYS AS LAID DOWN AT THE WASHINGTON CONFERENCE¹⁷

<i>Convoy</i>	<i>Mid-Ocean Escorts</i>		<i>Western Locals</i>		<i>Boston-Halifax</i>	<i>Newfoundland-Sydney-Greenland</i>
	HX ON	ONS SC	HX ON	ONS SC	BX-XB	SG-GS
Nationality.....	British Canadian		British Canadian		British Canadian	United States
Average Number Ships..	60	60	60	60	30	10
Sailing Interval.....	5 8 days		5 8 days		4 days	18 days
Speed.....	10 7½ knots		10 7½ knots		7½ knots	8 knots
Sailing Time.....	11 12½ days		6 7½ days		2½ days	5 days
Number Groups.....	14		8		3	2
Ships per Group.....	6		4		4	4
Total.....	84		32		12	8
Spares.....	42		8		3	0
Total Escorts.....	126		40		15	8

ened convoys could be achieved in this way than by dividing a similar number of ships among the fourteen mid-ocean escort groups.¹⁸

As far as the discussions on air support concerned Canada, it was pointed out that in spite of the Dominion's responsibility for the A/S air protection in the areas about Newfoundland, Labrador, and eastern Canada, the R.C.A.F. had no very long

¹⁷ Report on the Atlantic Convoy Conference, Mar. 1-12, 1943, N.S., T.S. 11270-128 (1), App. "A" to A.C.C. 2.

¹⁸ Preliminary Report of the Atlantic Convoy Conference (D.O.D. to C.N.S.), Mar. 5, 1943, N.S. 1048-48-129 (1).

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range aircraft. It had, however, about two hundred air crews trained in anti-submarine warfare and familiar with flying conditions in the specified areas. The decision was that Canada should place before the United States Joint Chiefs of Staff the suggestion that long range aircraft might be allotted to the Canadian air force.¹⁹

The subject of the greatest importance to the R.C.N., that of command relations in the North-west Atlantic Area, was dealt with at the fourth meeting of the conference on March 8. The report and recommendations of the subcommittee were accepted by the delegates and forwarded to the appropriate authorities of the governments concerned to act upon should they approve. As mentioned previously, the re-allocation of naval forces in the preceding few months incident to the opening of additional convoy routes and activities in the Mediterranean, had caused the withdrawal of most of the American escort ships from Task Force Twenty-Four. In view of this fact it was appropriate that Great Britain and the Dominion should take complete charge of the northern North Atlantic convoy system, with primary responsibility assumed by the Royal Navy, and that the United States should withdraw from all participation in this command.

The recommendations put forward were that the United Kingdom and Canada should take full charge of the HX, SC, ON, and ONS convoys, between the British Isles and New York and ports north thereof, with the understanding that the United States should retain strategic authority and responsibility throughout the Western Atlantic Area, and that the Admiralty in co-operation with N.S.H.Q. should control and provide protection for the specified convoys. To the east of CHOP, which would be established at about the 47th meridian, the Admiralty would route convoys and control diversions in both directions, while westward from CHOP, N.S.H.Q. would route convoys both ways, obtaining the concurrence of the Commander Eastern Sea Frontier when the routes lay within his area, and would control all diversions except those within the limits of the Eastern Sea Frontier. It was pointed out that the Admiralty, N.S.H.Q., and COMINCH, would have to keep each other informed of all routings and diversions in the Western Atlantic Area. Surface escort ships accompany-

¹⁹ Report on the Atlantic Convoy Conference, A.C.C. 3/1, art. 7.

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ing HX, SC, ON, and ONS convoys, would be under the control of the Admiralty or N.S.H.Q. depending on which area they were in.

It was decided that the responsibility for air coverage of these convoys lay with the United Kingdom to the limit of aircraft range from bases in the British Isles and in Iceland; the Dominion was to be the authority to the limit of aircraft range from bases in Canada, Labrador, and Newfoundland.

As to the actual size of convoys and changes in their sailing cycles, it was suggested that these details should be determined by the Admiralty alone, subject to the concurrence of COMINCH and N.S.H.Q. inasmuch as coastal-convoy schedules might be affected; and Canada and the United Kingdom agreed to bear the joint responsibility for rescue and salvage operations.

It was intended to establish a system of anti-submarine warfare aviation to provide air cover for all shipping within aircraft range in the Labrador-Newfoundland-Canada region. The supreme authority here was to be the C. in C., C.N.A., who would delegate the general operational control to the Canadian A.O.C., Eastern Air Command, and the latter would also be responsible for the air coverage of all United States shipping within range. For this purpose, C. in C., C.N.A. and the A.O.C., Eastern Air Command were to set up a combined headquarters at Halifax to facilitate the co-ordination of all their surface and air anti-submarine forces. In Labrador and Newfoundland the air forces would be under the operational control of the A.O.C., St. John's, subject of course to the higher authority of the C. in C., C.N.A., in co-operation with the N.O.I.C. of that sub-command. American airfields in Greenland were also put at their disposal.

The CHOP line suggested at the conference for all Atlantic shipping was revised to pass through the following points: from the South Pole north on the 26th meridian to Lat. $00^{\circ} 35' N.$, thence to $29^{\circ} N. 47^{\circ} W.$, and then north to Greenland on the 47th meridian. Independent shipping—merchant and troop ships sailing without through escorts—would be routed by the country of departure, while Greenland convoys would be operated and protected through CINCLANT. These latter convoys, while in the Canadian Coastal Zones, would come

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under C. in C., C.N.A. for routing and diversion purposes.²⁰ All convoys and independently-routed shipping between Canada or Newfoundland and the United Kingdom were to remain under the control of the Canadian or British authorities west and east of the CHOP line at the 47th meridian, regardless of the latitude in which they might be sailing.²¹

The discussion on command relations ended by considering the "Torch" Operations and the control of anti-submarine warfare in the north-west Africa area, but Canada was not specifically mentioned in this connection.

The sixth and last meeting of the conference was held on March 12, 1943. Certain modifications to the paper on air support which had been accepted previously were proposed, and were adopted after discussion. N.S.H.Q. and Admiralty representatives made a few suggestions in relation to convoys and escorts, Admiral Brodeur stating that the proposed escort arrangements would require the transfer of so many ships that were being used in coastal-convoy Operations that the Canadian Naval Service had decided to move six minesweepers from the west to the east coast, in order that a sufficient number of east-coast corvettes could be released for service with the support group.

Although the Commander in Chief, Canadian North-west Atlantic was referred to during the Atlantic Convoy Conference, the command had not yet been actually set up, and the authority in the Canadian Coastal Zone was the Commanding Officer Atlantic Coast, Rear Admiral L. W. Murray, R.C.N. Following on N.S.H.Q.'s statement that Canada would be prepared to assume the controlling authority in the Western Atlantic Area on March 31, 1943, it was intended that the title of C. in C., C.N.A. should supersede that of C.O.A.C., Rear Admiral Murray remaining in the new position. In a letter to C.N.S. dated March 18, 1943, COMINCH suggested that the transfer of command from the American to the Canadian authorities should be delayed for a month, until April 30,

²⁰ The limits of the Canadian North-west Atlantic Command are defined by a line joining Cape Murchison in Baffin Land to

Position (A) 63° 15'N. — 64° 00'W. to

Position (B) 47° 00'N. — 47° 00'W. to

Position (C) 43° 00'N. — 49° 00'W. to

Position (D) 42° 00'N. — 65° 00'W. to

Position (E) 43° 00'N. — 67° 00'W. to

Position (F) International Boundary at West Quoddy Head.

[Canadian Naval War Plan, 1944 (C.N.W.-44), N.S. 1650-7 (1)].

²¹ Admiralty to C. in C., C.N.A. etc., 271650Z/10/43.

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since he considered that the proposed date of transfer did not permit of sufficient preparation for the change-over. N.S.H.Q. agreed to this postponement, although the title of C. in C., C.N.A. was actually assumed by Rear Admiral Murray on April 1.²² COMINCH had recommended that the Commander Task Force Twenty-Four, Admiral R. M. Brainard, should be retained for a time in an advisory capacity to the new Commander in Chief, but C.N.S. did not consider this necessary, as the experience of Admiral Murray fully qualified him for the work. He was currently Commanding Officer Atlantic Coast, had served in command of destroyers and with the Royal Navy in British waters as escort commander, and what was perhaps most valuable in view of his new position, he had organized and commanded the Newfoundland Escort Force in 1941.

On April 30, 1943, as a result of the discussions and agreements of the Atlantic Convoy Conference, the Commander in Chief, Canadian North-west Atlantic officially replaced C.T.F. 24 as the operating authority in the North-west Atlantic, and the period of Canada's full responsibility began.²³ This could not have come at a more opportune moment in the war: support groups were being developed as an important supplement to the escort groups, VLR aircraft were being rapidly acquired by the R.C.A.F., converted escort aircraft carriers were coming into service, and the allied navies were gaining the upper hand in the Mediterranean and the Bay of Biscay.

²² N.S.H.Q. to Admiralty, Mar. 30, 1943, N.S. 1700-102/1 (1).

²³ COMINCH to N.S.H.Q., 1251/30/3/43.

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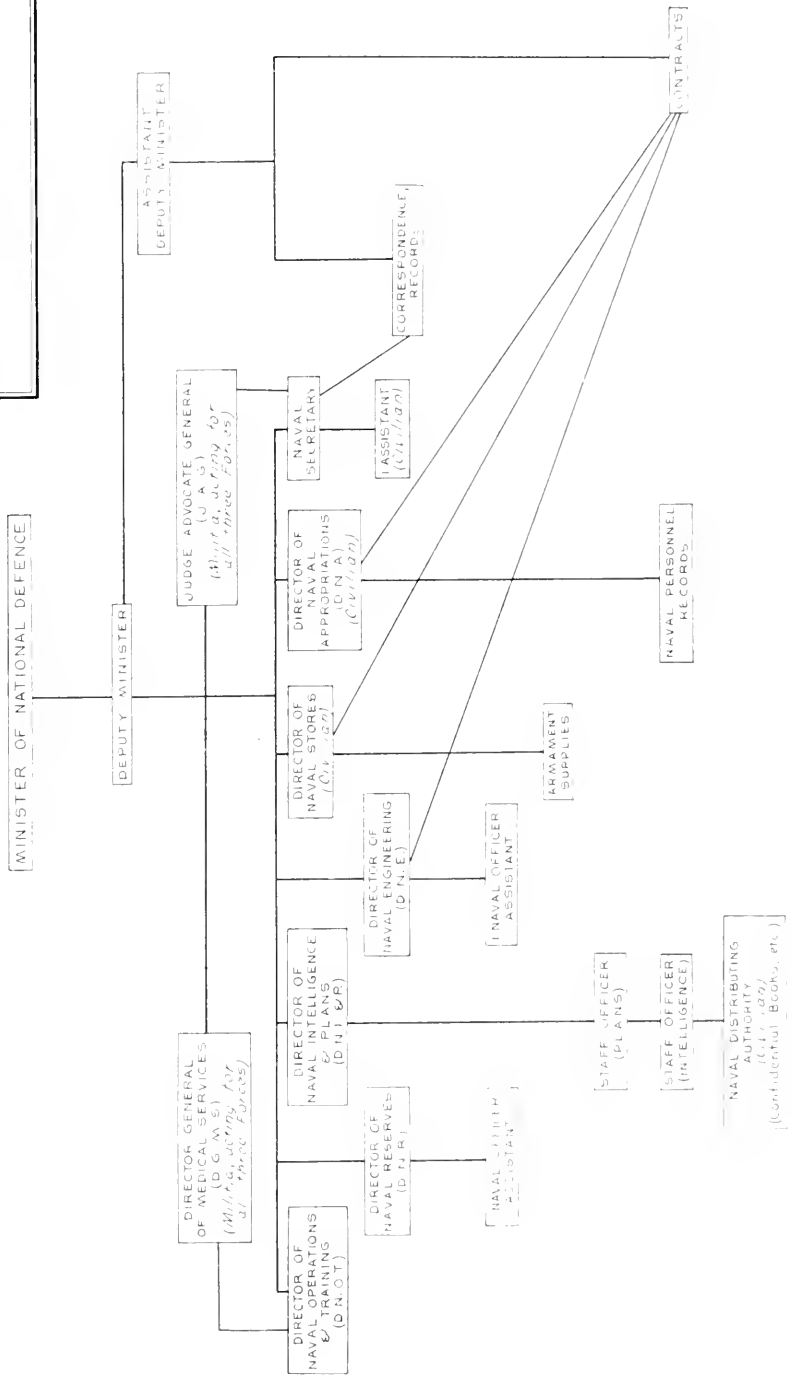
BY the end of the Second World War the organization at N.S.H.Q. was so extensive and complex that a full study of its development would require a volume. All that will be attempted here is a very brief treatment of the expansion and changes in organization caused by the war, and accounts of certain parts of the machine that present features of special interest, or that serve to exemplify the types of problem which had to be met. Complete outlines of the organization, or of parts of it, at suitable times, are presented by means of charts.

It should be remembered that before 1939 the Naval Service was small. In the late summer of 1939 its headquarters organization was as shown in Plate XVI. Headquarters was understaffed at that time, even when allowance is made for the fact that almost all specialized supplies were obtained from Admiralty stocks, and that practically every form of training beyond the elementary stages was carried out in the Royal Navy. The staff was housed on two floors of the Robinson Bldg. in Ottawa. Co-ordination was extremely simple, for in less than a minute the head of a branch could walk to the office of any of his colleagues in order to discuss a problem. Officially, co-ordination below the level of the C.N.S. was the responsibility of the Director of Naval Operations and Training and the Naval Secretary. The latter officer saw all correspondence, and was in a good position to know what the branches were doing and to ensure that they acted harmoniously.

On the outbreak of war in September 1939 there was an immediate and pressing need to expand this small staff. Yet the experienced personnel which could be drawn upon were few, and there was no additional accommodation for them. The reserves were mobilized, and by previous arrangement with the Admiralty all retired R.N. and R.N.R. officers, except one or two already allocated to war appointments in the R.N., were called up for duty with the R.C.N. The officers who were

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Summer of 1939

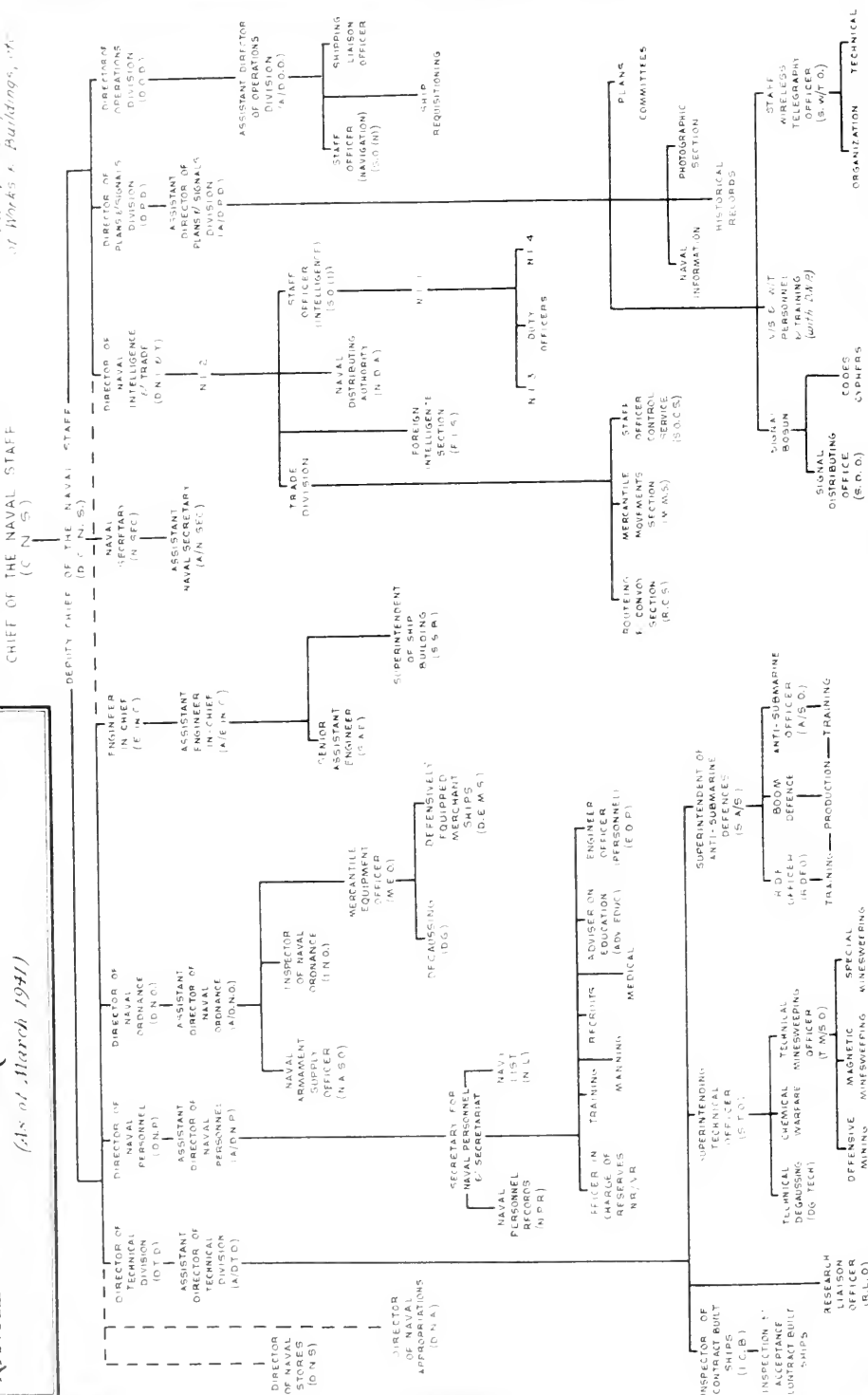
Note: This chart is not a comprehensive record, but was compiled for the history from various sources of information.



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(As of March 1941)

Note: This chart omits reference to the civilian departments of the Navy, the Chief of the Bureau of Naval Works & Buildings, etc.



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on the retired lists of the R.C.N., R.C.N.R., and R.C.N.V.R., were also summoned. These sources, however, barely provided a supply sufficient for the appointments outside N.S.H.Q. which urgently needed to be filled when the order to mobilize came, while service in the reserves did not usually provide the all-round experience, and knowledge of the relationship between the various branches, which were needed by a staff officer at N.S.H.Q. A few of the retired or former officers of the R.N. and the R.N.R., however, were suitable for general or specialized staff duties.

The requirements of the staffs at the coasts were filled before additions were made to N.S.H.Q. Much was left to the initiative of C.O.A.C. and C.O.P.C., to whom the credit was largely owing for the good state of preparedness achieved by their commands at a time when the small staff at N.S.H.Q. was still incapable of coping effectively with the situation.

Until July 1940 the Service remained under the direct authority of the Minister of National Defence. In that month, however, a Minister for the Naval Service was appointed in the person of the Hon. Angus L. Macdonald, who held the position until nearly the end of the war. Nevertheless the Minister of National Defence, although chiefly concerned thenceforth with army affairs, retained his original title and the ultimate authority in all defence matters at the War Cabinet level. Earlier in the war a second Deputy Minister had been appointed to deal principally with naval and air-force matters, and in April 1940 he was relieved of his responsibility for the air force by the appointment of a Deputy Minister for Air.

The Chief of the Naval Staff was in effect a commander in chief, and the whole staff at N.S.H.Q. were extensions of his authority. The tremendous expansion of the Service early in the war soon loaded him with more work than one man could do; for a modern armed Service, especially in war-time, comprises activities more numerous and diverse than are those of most organizations. To co-ordinate and control all these functions for a common end was therefore an exceedingly exacting task. The difficulty was only partly removed by the appointment of a deputy C.N.S. without specialized functions. The required co-ordination at a high level rested with the C.N.S., and in matters of detail and routine with the Naval Secretary's branch. It being war-time, the executive head necessarily became increasingly absorbed in his own specialized functions - strategy and Operations, and higher direction generally - so

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that the part played by the secretariat in keeping the various branches working harmoniously tended to increase. Yet the personnel engaged in carrying out the functions of the C.N.S. and of the Naval Secretary showed no increase that came anywhere near to corresponding with the expansion of the Service as a whole. The Financial Branch also early showed signs of strain. The highest financial officer in the organization was largely occupied with paying the personnel at N.S.H.Q., a duty of which he might well have been relieved at the beginning of the war, as he later was, by the accountant officer and writer staff of a commissioned "ship."

Failure to commission a headquarters "ship" and to expand the secretariat, during the first two years of the war, was largely owing to the scarcity of suitable personnel and to the self-sacrificing policy of giving the outside services a priority in manning. Unfortunate consequences, however, were inevitable. The Naval Secretary was so busy signing letters that he had no time to think about problems of organization. He is stated to have signed personally 1,200 letters in a day, an average of 2 a minute for 10 working hours. It is evident that none of these letters could have received more than a glance, and that in the circumstances the Naval Secretary had no time for the constructive functions of his office.

Eventually the Minister informed the Deputy Minister that the secretariat must be reorganized, a process which entailed much readjustment in the organization of the Department as a whole. Careful thought was given to the problem by naval officers, and by civilian officials, including experienced business men who were brought into the Department as special assistants to the Deputy Minister. The reorganization was carried out, and the framework of the Department after it had been completed late in 1941 was as shown in Plate XVIII.¹ At the same time the reorganization of the Financial Branch was taken in hand by Treasury officials and professional accountants.

Before the Second World War no form of "Board" corresponding to the Lords Commissioners of the Admiralty had ever been included in the Canadian naval organization. During the early months of the war staff meetings were called by the

¹ The organization chart upon which Plate XVIII is based is undated. It appears to refer to the early or summer months of 1942, and is probably the first detailed chart of the new system. Plate XVIII gives a complete picture of the organization at N.S.H.Q., the main outlines of which did not alter greatly during the remainder of the war. It also presents the whole framework of an organization of which only a few selected aspects are dealt with in the text.

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C.N.S. from time to time, but no records of these meetings were kept. In January 1940, on the initiative of the Director of Plans, regular weekly staff meetings became the practice. Agenda for these meetings were circulated in advance, and minutes were kept, D.N.P. acting as secretary until January 1942. In August 1940 a "Naval Council" was constituted by order of the Minister, and began to hold regular meetings. The council consisted of the Minister, the Deputy Minister, the Chief of the Naval Staff, the Deputy Chief of the Naval Staff, and the Director of Naval Intelligence, with the Director of Plans Division as secretary. There is nothing in the minutes concerning changes in the composition of the council, but the lists of those present soon came to include, at most meetings, the Director of Naval Personnel, the Director of Operations, and the Engineer in Chief, and at times other officers as well. Constituted neither by statute nor by Order in Council, the Naval Council as such had no authority. As the Minister was the chairman, however, decisions could be implemented by his authority.

At its first meeting the Naval Council defined its own functions as follows:

To discuss matters of policy affecting the Navy, and to consider matters of administration and procedure which may affect more than one branch, with a view to integrating and making more efficient the activities of the Naval Service.

The council showed, however, an increasing tendency to descend from this high plane to matters of detail, so that often there was insufficient time to consider the larger problems. The same tendency was to appear in the deliberations of the Naval Board and the Naval Staff, which later superseded the Naval Council.

In planning a systematic organization for N.S.H.Q., both the Admiralty and the Australian naval organizations were carefully studied. The result was not an exact copy of either, yet those features of each were adopted which seemed to be the most desirable generally, and the best suited to Canadian conditions. The Naval Council ceased to exist, its functions being divided between the Naval Board and the Naval Staff. A Naval Board was established for the first time, and it was based upon an Order in Council.² Several directors who had been or had virtually become members of the Naval Council were not

² P.C. 485, Jan. 22, 1942.

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included in the Naval Board. The board comprised the Chief of the Naval Staff, the Vice-Chief of the Naval Staff (formerly Deputy C.N.S.), the Chief of Naval Personnel (formerly D.N.P.), the Chief of Naval Engineering and Construction (formerly E. in C.), and the Deputy Minister (financial and civil member). The heads of the main branches received titles which had been altered so as to reflect their authority over the many smaller "directorates" which had developed within various branches.³ The appointment of an officer of the engineering Branch as a member of the board was a departure from the policy and tradition of the Admiralty; but it found a precedent in the Australian naval organization, and seemed to accord with the ever-increasing importance of the technical aspects of Canadian naval activity.⁴

The board as such was advisory and had no authority; the Minister was not a member under the terms of the Order in Council, although in practice he often took the chair at meetings. Consequently the body was not an exact replica of the Board of Admiralty. The C.N.S. had previously been the sole channel between the whole of the purely naval side of the organization and the Minister. This change removed a heavy burden from the shoulders of the C.N.S., and so enabled him to devote more time to affairs of major importance. When the reorganization had been completed a substantial degree of decentralization, with the delegation of both duties and powers, had come to N.S.H.Q. at last; moreover the line between "administration and supply" and "operation" had been more effectively drawn.

At the same time the Naval Staff, whose meetings although regular had previously been informal, was officially established by Naval Order.⁵ This body consisted of the Chief of the Naval Staff, Vice-Chief of the Naval Staff, Director of Naval Intelligence, Director of Plans, Director of Trade Division, Director of Operations Division, and Director of Signal Division. Directors of the Naval Staff formed a Staff Branch under the Vice-Chief of the Naval Staff. The branches other

³ Hereafter the term "branch" will be taken to comprise all the activities coming under a particular member of the Naval Board. Sub-divisions will be referred to as directorates, divisions, or sections.

⁴ After a short lapse at the end of the war this arrangement was adopted as part of the permanent peace-time organization.

⁵ The order laid down that: "... the Naval Staff will consider in detail matters of Naval policy, either originated by it or referred to it by the Naval Board and will submit to the Naval Board proposals *in their complete form*. Its relation to the Naval Board parallels that of the Naval Board to the Minister." For the organization of the Naval Staff see App. XIII.

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than staff, that is to say those of Personnel, Equipment and Supply, and Engineering and Construction, were directed to concern themselves with the provision and maintenance of the men and materials needed for carrying out the policies initiated by the Naval Staff.

By the reorganization the secretariat was redesigned and greatly expanded. The title of Naval Secretary was changed to that of Secretary of the Naval Board. Six deputy secretaries were appointed: one as a general assistant with the title of Deputy Secretary of the Naval Board; four as deputy secretaries for the main branches—Staff, Personnel, Equipment and Supply, and Engineering; and one as Deputy Secretary (Civil), who was a civilian and dealt with matters pertaining to the civilian staff at N.S.H.Q. The deputy secretaries occupied the key positions in the new system, and five of them were responsible both to the Sec. N.B. and to the chiefs of the branches to which they were respectively attached.⁶

The deputy secretaries were authorized, within wide limits of discretion, to sign letters and memoranda "By Order"; provided that such papers conformed to established policy, did not exceed the legal powers of the Department, and were approved by an officer of a standing appropriate to the importance of the subject. A deputy secretary, however, might not be ordered by the chief of his branch to sign a document "By Order", for this phrase invoked the Minister's authority. It was accordingly left to the secretary and his deputies to decide what degree of executive authority they would demand before signing "By Order."

One considerable advantage of the new system was that correspondence was checked by an officer familiar with the nature of the work, technical terms, and type of correspondence, of the branch concerned. As N.S.H.Q. continued to expand, assistants to some of the deputy secretaries were appointed. There were also a number of secretaries to directors, each of whom came to occupy a position between his director and the deputy secretary of his branch similar to that of the deputy

⁶ The order which put the new system into force stated that: "The Secretariat's guiding principles and primary responsibilities may be summarized thus: to keep the whole of the activities of N.S.H.Q. in view; to ensure the carrying out of established policy and to see that commands are kept fully advised of decisions; to ensure the preservation and speedy flow of vital information, thus achieving continuity of effort; to relieve Executive officers of administration, leaving them free to direct."

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secretary between the chief of the branch and the Naval Board, but they were not signing officers.

In the reorganization Central Registry—the filing system and the office for the receipt and despatch of letters—was placed under the direct control of the Sec. N.B., for it was one of the principal means of organizing paper work, which was the secretary's responsibility. It was later put in charge of a special deputy secretary. As far as possible files were issued only to the deputy secretaries of branches, who supervised their circulation among the directorates and sections of the respective branches. A special file room for each branch was maintained to carry out this supervision, and to record the passage of files to and from the branch as a check against the notations of Central Registry. A Deputy Secretary (D.M.), a civilian, was later appointed to assist the Deputy Minister with correspondence that was dealt with in his branch, but which it was desirable that the Sec. N.B. should sign.

Policy at the top level within the Department was greatly influenced and occasionally determined by various councils or committees. Of the most important of these bodies the greater number lay outside the Naval Service and dealt with defence as a whole. The Service, however, was closely linked with them, and they helped to connect it with the other Canadian Services and with those of Great Britain and the United States.⁷

At the various levels at N.S.H.Q. where higher policy was actually carried out, exceedingly numerous and varied activities were being pursued at all times during the Second World War. Reasonable limits of space, however, allow no more than brief descriptions of certain parts of the organization comprised in the branches and directorates, which for one reason or another present features of special interest.

In the administration of personnel, three important innovations were made in the course of the war. The first was the establishing of the depot system for controlling the drafting and advancement of ratings. In the Royal Navy the lower-deck personnel was apportioned approximately equally between the three "home ports", Chatham, Portsmouth, and Devonport, at each of which there was an extensive barracks or depot organization. An officer known as the Drafting Com-

⁷ The titles of the principal councils and committees outside the Naval Service, with a few words of explanation in some cases, are given in App. XIV.

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mander controlled the allocating of ratings to ships manned from the port concerned, the diversion of sufficient numbers of ratings to specialist courses to keep up the required numbers of non-substantive ratings, and the advancements to higher ratings as vacancies occurred, on a strictly-regulated roster system or by length of service qualification for automatic advancements. In the Canadian navy, on the other hand, in peace-time the small complement had permitted these functions to be performed with a minimum of formal organization. Advancements were handled at N.S.H.Q., which also controlled much of the traffic to courses since many of these were held in Great Britain.

As numbers grew in war-time, however, it became clear that N.S.H.Q. was too far away from the personnel involved to carry out the work on a large scale, and the advisability of setting up depots similar to those of the Royal Navy was considered. To set up more than one depot would have entailed certain disadvantages which were apparent in the R.N. system, particularly in the field of advancements in which the depots often got out of step with each other in the matter of the average time required in order to succeed to a certain rating. It would also be undesirable for more than one authority in the Naval Service to negotiate with the schools in Britain for the acceptance of classes, and to arrange for the transatlantic passage of drafts. It was therefore decided that a single depot should be set up, and that it should be placed on the east coast.

An office was accordingly established at Halifax to control 30,000 ratings. The staff proposed consisted of a drafting officer (in charge), an executive assistant, an engineer assistant, and an assistant for miscellaneous branches. The required number of writers, Wrens or other ratings, for clerical duties, was estimated at twenty for a total personnel of 30,000, with a small number additional to handle the advancement section. By January 1945, when the personnel totalled 85,000, the Navy List showed twenty officers under the heading of R.C.N. Depot. At various times sub-depots were set up at Esquimalt and St. John's, Newfoundland, and in Britain. Full and up-to-date personnel records were maintained throughout at N.S.H.Q.

Another establishment not actually at N.S.H.Q. but closely linked with it, and which assumed duties which headquarters had been carrying out, was that of Commanding Of-

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ficer Reserve Divisions. In December 1942 a captain, R.C.-N.V.R., who had been doing duty in Naval Personnel Branch at N.S.H.Q. under the title of Director of Reserve Divisions, was appointed to H.M.C.S. "York" in Toronto, where he continued to perform many of the functions for which he had been responsible at N.S.H.Q., but on his own authority as officer in command of a group instead of in the name of the Department. He took comprehensive control of all Divisional headquarters, including the personnel borne on their books and their recruiting activities, and thus considerably relieved the congestion at N.S.H.Q. The new command maintained close touch with the Naval Personnel Branch, especially concerning recruiting and drafts to service on the coasts and at sea or abroad. Early in 1944 an officer with the title of Chief Staff Officer Reserves was added to N.S.H.Q., and was given a seat on the Naval Board. His principal duties were to advise on all matters pertaining to the welfare of the officers and men of the reserve forces, and to give his attention to appointments, promotions, honours and awards, demobilization, and rehabilitation, as far as these might affect reserve personnel.

The third of the noteworthy innovations in the field of personnel administration was the introduction of Hollerith machines to record details concerning naval personnel. Members of Parliament often asked in the House questions that called for massive statistical answers: the occupational classes of all recruits; their total numbers or religious denominations, by Provinces; the number from each Province who had been promoted to commissioned rank with three months' service, or six months' service; and so forth. The Hollerith machines could produce the answers to questions of this type very quickly and with a negligible amount of human labour, provided that the information asked for had been recorded on the individual cards.

The installing of such machines to supplement the existing personnel records was first suggested in November 1940. At that time the total personnel numbered less than 15,000, and the greatest number forecast for the future was only 23,000; moreover it was difficult to find space in which to install the apparatus. In June 1943, however, it was decided to introduce Hollerith machines at N.S.H.Q. for personnel records, at a rental of about \$10,000 a year. The machines began to operate in January 1944, by which time the total naval personnel consisted of over 80,000 officers and men. The weak point of the

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machines was that only a limited amount of information could be recorded on each card, while the variety of questions concerning personnel that could be asked was almost unlimited.

The increasing importance and complexity of the technical aspects of naval warfare brought about the creation, early in 1943, of the important Directorate of Warfare and Training.⁸ The terms of reference⁹ of this particular directorate, which were formulated in August 1943, were as follows: the establishment of staff requirements of all H.M.C. ships except local craft; to set up and maintain standards of fighting efficiency; research and development; the tactical use of H.M.C. ships and weapons; analysis of reports of proceedings and actions; schemes of training; and advice concerning staff organization. The responsibility of D.W.T. for training came to be limited to the training of seamen and for certain technical branches.

The directorate was divided at first into four sections: fighting efficiency, tactical analysis, training, and research and development. As was to be expected, an innovation of this magnitude which touched almost every phase of naval activity, remained a subject of controversy for some time after its establishment, and the director faced many problems of internal organization. As time went on the number of sections in D.W.T. greatly increased, and in January 1945 the following sections were shown in the Navy List: gunnery, torpedo, A/S, tactical, chemical warfare and smoke, visual training aids, bomb disposal, A/S research, minesweeping, complements, photography, fighting equipment co-ordination, and scientific research and development. The area over which D.W.T.'s responsibility extended, however, remained largely unchanged.

Naval Stores Division had in pre-war days looked after more details than had the unit with the same title in the Admiralty organization. It handled victualling stores, ordnance stores, and printing and stationery, in addition to those classes of supplies ordinarily included under the technical term "naval stores." It was also responsible for some other matters including crown lands. During the early weeks of the war the branch tried to cope with the problem of office accommodation for N.S.H.Q., until it became evident that this task would need the full-time attention of real-estate experts.

The branch had always maintained its own record of financial liabilities, and had allocated the total available funds to

⁸ The development of D.W.T. is recorded in N.S.C. 11700-100.57, *passim*.

⁹ A.C.N.S. to V.C.N.S., Aug. 31, 1943, N.S. 11700-100.57.

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different classes of requirement and different depots and establishments. This part of the work expanded so greatly that a special section under a qualified accountant was set up to deal with it. The new section handled Estimates, passed invoices and claims, recorded encumbrances and contract demands, and kept the director fully informed of the state of the funds available for supply. It was important to ensure that expenditure on supplies kept in line with expenditure on the naval programme as a whole, and this was achieved through liaison with the Chief Treasury Officer. When in course of time a similar type of financial control was set up for the whole Department, the Naval Stores Branch fitted without difficulty into the general system.

The tremendous volume of material being handled led to the leasing of warehouses in Montreal, Toronto, Quebec, Saint John, N.B., and Vancouver, in addition to those at Halifax and Esquimalt and those that served the local needs of the naval bases which were developed during the war.

Asdic and W/T sets and many other stores were of a highly technical character. In pre-war days this type of supply had generally been obtained from Admiralty sources, and there had consequently been no need of technical staffs to supervise specifications and inspection. Under war conditions, however, with supplies of all sorts being manufactured in Canada, it became necessary to build up such staffs, who were responsible to stores division for inspection, and to C.N.E.S. (Technical Division) for design and specification. For a time the Naval Stores Division even functioned in the field of production, certain parts of the asdic sets being made in workshops in Ottawa which were under its control. After successful production had been assured, however, this responsibility was handed over to other bodies.

The problem of providing adequate buildings and works in a period of such tremendous expansion was very difficult, and called forth considerable developments in organization. In November 1940 the Engineer in Chief, at his own request, was relieved of responsibility for civil-engineering work by the institution of a Directorate of Works and Buildings, under a civilian head who at first was directly responsible to the Minister. This directorate was entirely concerned with new construction and was not responsible for maintenance. Some of the personnel were borrowed from the Department of Public Works and the Department of Mines and Resources, while

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others were obtained from the commercial field. Closely connected with this directorate was the Base Planning Committee, which was set up in October 1940 in order to determine the naval requirements in the way of works and buildings at the new shore bases. Halifax and Esquimalt were expressly excluded from the terms of reference of this committee, yet in the absence of any other suitable body it devoted considerable time to their problems.

In April 1941 an officer was appointed to assist D.C.N.S. to co-ordinate the work of D.W.B. and the Base Planning Committee. The following September the authorities approved the appointment of a Construction Liaison Officer to maintain co-ordination between the Base Planning Committee, the commands at the coast, and the Naval Staff. In October the Halifax and Esquimalt Planning Committee was formed, and was also linked up with the other related activities by the Construction Liaison Officer. On the formation of the Equipment and Supply Branch this liaison officer came under it, as head of a section with officers assigned to various individual projects.

In the spring of 1942 a Projects Committee was formed which combined the two previous base-planning committees. The new committee was intended to act as an interim body until a Directorate of Organization could be set up. In November 1942 this directorate was established, and it absorbed the Construction Liaison Section. At the same time D.W.B. was made a division under C.N.F.S., and ceased to deal directly with the Minister. D.W.B. continued to be responsible for design and execution, but not for planning construction requirements nor for maintenance. All these units maintained close liaison with the Department of Munitions and Supply which made all the final contracts, and with the Real Estate Adviser of the Department of National Defence who took charge of the detailed work concerning lands and buildings which had to be leased or purchased.

In May 1943 a Directorate of Maintenance was established, with a Staff Officer (Maintenance) at each base, and with its own workshops and artisan personnel to look after the upkeep and repair of all real property for which the Naval Service was responsible. It attended to all matters connected with properties that required such regular forms of maintenance as cleaning, heating, snow removal, and the payment of rent and of charges for water, electricity, and telephones. Such items were dealt with under a comprehensive annual appropriation for

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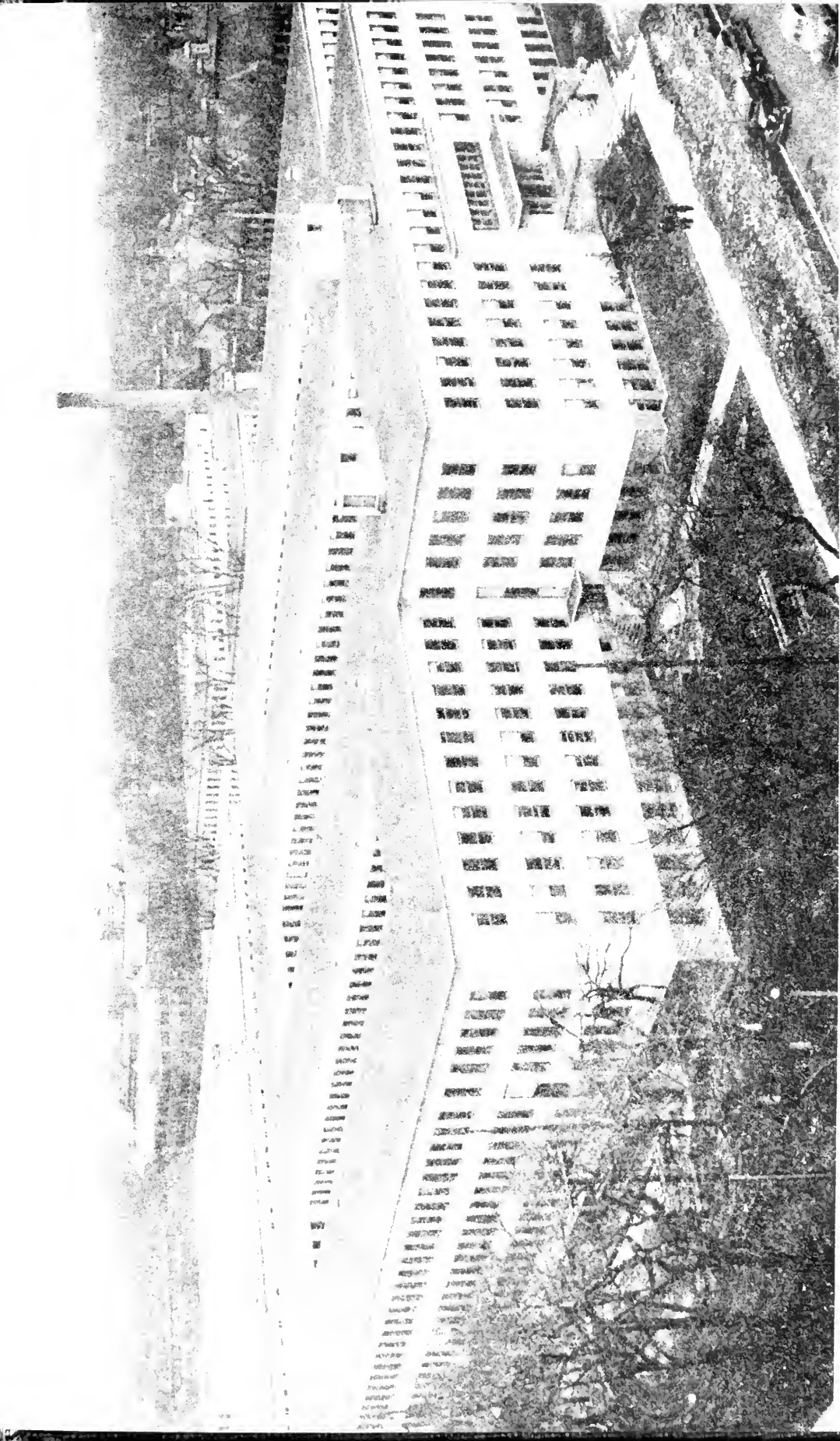
maintenance. The directorate also dealt with repairs beyond the scope of the annual maintenance programme, and with minor alterations and additions. Financial authority for work under these latter headings had to be obtained from the prescribed authority, which varied according to the size of the Estimate.

The question of accommodation for N.S.H.Q. itself, was fairly typical of the problem as a whole. In September 1939 headquarters occupied a part of the Robinson Bldg. on Queen Street in Ottawa. The offices there only just provided enough accommodation for the small pre-war staff, and in the early days of the war in many cases several officers had to work in one small room. More space in the same building was gradually acquired, until by and by the navy had sole occupancy; but still the expansion went on, and small sections were moved to other buildings. In 1941 a large part of N.S.H.Q. moved into the Aylmer Apartments and Truro Apartments on Slater St.; but several divisions, notably Personnel, Accounting, and Naval Distributing Authority,¹⁰ remained in the Robinson Bldg.

Meanwhile approval had been given for the construction of a temporary-type building on Cartier Square to house N.S.H.Q. This structure was completed in November 1942, by which time the organization was functioning in no less than seventeen different buildings, a condition which greatly complicated the problems of file passing and Security. As soon as the new building was finished all the branches moved into it, except N.D.A. which remained in the Robinson Bldg., the whole of which it later came to occupy. N.S.H.Q. was satisfactorily housed at last, and generally speaking remained so for the rest of the war.

The Directorate of Organization, which as has been stated was set up in November 1942, operated under that title for about a year, during which it dealt with a variety of activities which needed to be reorganized and of new functions for which an organization was required. No terms of reference appear to have been set out for this directorate, which dealt with problems as they were referred to it by the Minister, the Deputy Minister, the C.N.S., or the Naval Staff. It was closely concerned with financial reforms, and created the ap-

¹⁰ The part of D.N.I.'s branch which distributed confidential books and saw to the issue of non-confidential publications and those Naval Orders which were circulated to the Service in general.



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pointment of Financial Comptroller within the directorate. The officer (R.C.N.V.R., Special Branch) appointed to this post supervised the production of Estimates by the various branches and divisions. He also endeavoured to keep proposals for expenditure under control, and to ensure that actual expenditures were made under the proper authority and within the approved Estimates. His functions seem to have overlapped and at times merged with those of the Treasury and other civilian financial officials. He later became an official of the Deputy Minister's branch.

The Directorate of Organization was abolished at the end of 1943, but the type of work that it had been performing remained to a considerable extent in the hands of A/Capt. E. Johnstone, R.C.N. (Temp.), who had been its head. After a period as C.N.E.S., during which he was still available to give advice on organizational problems, Capt. Johnstone became a special assistant to the C.N.S. In this capacity he virtually reverted to his former duties of organizing wherever this was needed. A major task of this sort was the plan known as "Target Navy", which was a comprehensive scheme covering the size and organization of the post-war permanent R.C.N. and the peace-time reserves. For obvious reasons "Target Navy" proved to be extremely useful in connection with demobilization.

One of the features of organization which gave rise to the greatest difficulties was accounting, both financial and stores. As far as accounting within N.S.H.Q. was concerned, store accounting was itself largely financial, for by the time it got there it was already going through the metamorphosis of turning into money values.

Financial accounting at N.S.H.Q. had three distinct levels. On the lowest was the organizing and control of expenditure and accounting by the outside services for pay and allowances and local purchases. One stage higher lay major purchasing by the Department. Accounting at the third level interlocked with the Treasury and with the culminating governmental or parliamentary control and accounting.

In peace-time, the third-level accounting had been almost exclusively concerned with the preparation of Estimates and their subsequent approval by Parliament. This was an arduous task, but many years of experience had made it a cut-and-dried operation with clear limits and a definite end. Once

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the Estimates had been passed, accounting was confined to the two lower levels, and the appropriations were disposed of throughout the year according to routine procedures, final control and correlation being in the hands of the Treasury Department. Most of the work of the financial office at N.S.H.Q. in peace-time had been the control and checking of pay and allowances to personnel.

With the coming of war, however, it quickly became apparent that the normal routine of annual Estimates for the fighting Services was out of the question, except for a few items, such as pay and allowances, which were comparatively stable or which increased at a reasonably predictable rate. Parliament immediately passed the War Appropriation Act granting \$100,000,000 to cover the requirements of the defence Services up to March 31, 1940, the ways in which the money was to be spent being left to Cabinet decision. Similar over-all sums were voted in subsequent years.

About a year after the war began a procedure was brought into effect whereby Estimates for a multitude of items and projects were continuously in course of preparation for the approval of the Treasury Board or the Cabinet.¹¹ The obtaining of prior financial approval was, of course, a matter for the executive. The practice which finally evolved was that the branch principally concerned with a project was responsible for compiling all the necessary information, and for presenting it to Council through the Deputy Minister and the Minister.

Before obtaining funds, the naval executive had to convince the civil executives of the government that the proposed expenditure should be permitted. The Deputy Minister was the link with the government, and also its first defensive outpost. Before the creation of the Naval Board the procedure had been that the Naval Staff formulated a policy and obtained the concurrence of the C.N.S., who then stated the case to the Deputy Minister. At this stage the policy in question had to be fully advocated by the C.N.S., so as to overcome the resistance which it was the Deputy Minister's duty to offer to any expenditure until it had been shown to be necessary. The next step was taken when the Deputy Minister obtained the consent of the Minister, who then presented the request to the Treasury Board or the Privy Council. The Naval Board procedure telescoped the pipe-line from Naval Staff to Minister,

¹¹ P.C. 6695 of Nov. 19, 1940.

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Diagram of Procedure for Obtaining Approval and Authorization of Maintenance "WORK" and Development "PROJECTS".

MAINTENANCE:—

"WORK"

N.O.I.C. of Base (origin)

D. of Maintenance projects

1. Lists all submissions for Work or Projects received for record by Compt. in "Weekly Summary of Action". (See Note 1.)
2. Approves as to necessity and refers for financial approval all work within C.N.E.S. financial authority to C.N.E.S. or
3. Recommends as to necessity and refers for approval to C.N.E.S. all Work in excess of C.N.E.S. financial authority. or
4. Refers submission to D. of P. for treatment as Project. -----
5. When applicable, raises F.E. and obtains certification from C.T.O.(N) of unencumbered balance available.

C.N.E.S.

1. Approves Work within his financial authority.
2. Approves as to necessity and refers for financial approval of D.M.(N) Work in excess of his financial authority.

D.M. (N)

1. Approves as to finance

D. of Maintenance

1. Records approval for "Weekly Summary".
2. Advises N.O.I.C. of appro. of work and F.E. number.
3. Where applicable forwards F.E. to Dockyard Treasury Officers.

N.O.I.C. of Base

1. Execution of work.

DEVELOPMENT:—

"PROJECTS"

Directorates of N.S.H.Q. - (origin)

Projects

D. of Plans

1. Gives or obtains approval in principle as to necessity.
2. Develops a proper description of requirements.
3. Forwards for a preliminary estimate through Compt. for record with Kardex, on Project Proposal Form.

Comptroller

1. Records Project on Kardex for follow-up.
2. Includes reference in "Weekly Summary"

C.N.E.S.

1. Obtains preliminary estimates for Project from D.W.B., and D.G.-N.S. & D.N.O. as applicable.
2. Forwards preliminary estimates to Compt.

Comptroller

1. Records estimates for Project with Kardex and includes reference in "Weekly Summary".
2. Records the Financial Status of Project, as to authorization and adequacy of funds available.
3. Refers to D. of P. to give or obtain approval as to necessity.

D. of Plans

1. Gives or obtains approval as to necessity.
2. Establishes where relevant the degree of priority required.
3. Refers to Compt. to obtain financial approval.

Comptroller --(Continued)

Projects --(Continued)

Comptroller --(Continued)

1. Refers to D.M. (N) for approval as to finance where approval as to finance has not previously been given under Order-in-Council.
2. Records action with Kardex & for "Weekly Summary."
3. Forwards to C.N.E.S. for execution.

C.N.E.S.

1. Production of working drawings and specifications by D.W.B.
2. D.W.B. to request through D.M.(N) call for tenders from M. & S.
3. On receipt of Tenders D.W.B. will raise F.E. & letter of transmittal for D.M. (N) signature, and forward through C.N.E.S. for signature, and through C.T.O (N) for cert. of unencumbered balance.

D.M. (N)

1. Signs F.E. and letter of transmittal to M. & S. or
2. In cases requiring clarification refers to Compt. for statement of financial status.
3. Forwards F.E. and letter of transmittal to M. & S.
4. Returns file through Compt. to D.W.B.

Comptroller

1. Records commitment.
2. Forwards file for inf. of D.W.B. thro' C.N.E.S.

Note I:—The "Weekly Summary of Action on WORK & PROJECTS" will be compiled by COMPTROLLER'S Record Section from:—

- (a) D. of Maintenance summary of submissions received from N.O.I.C.'s.
- (b) D. of Maintenance summary of approvals or reference for approval of work.
- (c) Comptroller's Kardex record of reference of PROJECTS for preliminary estimate, for approval as to necessity, for financial approval or for execution.

Note II:—For "Follow-up" of signing of Financial Encumbrances, D.W.B. will supply Compt. with a list of F.E.'s raised, periodically, to enable check of commitments made, of F.E.'s received and approval pending with D.M. (N), of F.E.'s not received by D.M. (N).

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and thus saved much time and labour, minimized the delay attending decisions on policy that involve financial considerations, and reduced the undue influence which finance sometimes exercises upon policy. Under the war-time procedure financial approval to meet urgent needs could sometimes be obtained remarkably quickly; but the normal routine of obtaining approval seems never to have become fully simplified.¹²

Early in the war the rising tide of business transactions came near to swamping the Director of Navy Accounts' branch. Requests from that officer for additional space and men, however, had to take their place with similar requests from each of the other branches. Moreover among all the urgent requirements that began to deluge the Department after the outbreak of hostilities, positive action and tangible supplies naturally received the first attention, while secondary action, including accounting and more especially auditing, was given a lower priority. Nor had D.N.A. sufficient authority for the proper management of financial affairs in war-time, and liaison with the Treasury Department was not close enough.

In April 1941 D.N.A. made strong representations on the situation, indicating moreover that this protest was the culmination of many others.¹³ Mr. W. G. Mills, who had recently joined the Department as Assistant Deputy Minister,¹⁴ took the matter in hand, and it received very careful consideration. The first action taken was to relieve D.N.A. of the duty of paying the naval personnel at N.S.H.Q. by commissioning a "ship", H.M.C.S. "Bytown", with a naval accountant officer, on the books of which all uniformed personnel at N.S.H.Q. were borne.¹⁵

Soon afterwards a Treasury office was set up within the premises of N.S.H.Q. to pay accounts and maintain a record of the financial position. The task at N.S.H.Q. was so heavy that it was shortly found necessary to set up branch Treasury offices at Halifax and Esquimalt to deal with local purchases and civilian wages. Later a similar office was also set up at St. John's, Newfoundland, to take care of the local requirements

¹² Plate XX reproduces a diagram of the war-time procedures for obtaining approval for "work" or maintenance, and for "projects" or new development.

¹³ D.N.A. to C.N.S., Apr. 17, 1941, N.S. 64-2-9 (1).

¹⁴ He became Deputy Minister later in the year.

¹⁵ The Director of Operations was formally appointed Captain of H.M.C.S. "Bytown", which solved some disciplinary problems that had begun to appear with the employment of ratings at N.S.H.Q.

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of the three defence forces. At the peak of the war the Treasury Office (Naval) had 693 employees at Ottawa, 82 at Halifax, and 32 at Esquimalt.

The functions of T.O. (N) included: maintenance of the allotment, commitment, and expenditure records, that is to say the main accounting from the Cabinet and parliamentary angle; supplying financial statements daily, monthly, and annually, in the detail required by the Department of Finance, the Deputy Minister, and the Naval Service branches and directorates; pre-audit and payment of all accounts; payment of naval allotments; audit of monthly cash accounts from ships and establishments; audit of ledgers; and reconciliation of the bank imprest carried by each naval establishment.¹⁶ The former D.N.A., under the new title of Director of Naval Pay Accounting, was left free to discharge his principal peace-time function of regulating the issue of pay and allowances for the Service in general.

Two collections of information that was essential to the smooth functioning of the organization from day to day were radically revised during the war. The first of these revisions consisted of the reclassification of the more recent files in Central Registry. In February 1943 some of the supervisors in C.R. put forward a scheme for completely revising the file headings and sub-titles. Considerable difficulty was being experienced in the use of files, and the new system of classification which was then advocated was already being applied to the armament files. Much of the trouble seems to have lain in a failure of the branches to carry out prescribed routines intended to help in keeping the files in order, and in a scarcity of competent filing clerks. There was some opposition to reclassification, on the grounds that the existing system would work well if properly used, and that the middle of a war was an unsuitable time for so extensive a change. It was thought best to make the change, however, and the new system was introduced.

The second of the radical revisions mentioned above was that of the standing regulations for the Royal Canadian Navy. The decision to revise these regulations was made in Novem-

¹⁶ "Allotments" are the portions of pay and allowances allocated by the uniformed personnel for the support of their dependents, and sent to the dependents direct from headquarters to ensure that the payments are received punctually each month. This entails close co-operation with the naval accountant officers on whose books the officers and men are borne. The ships' ledgers are elaborate classified pay lists.

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ber 1943. Ever since its inception the R.C.N. had been governed by the King's Regulations and Admiralty Instructions, except where these conflicted with Canadian legislation or with regulations made under Canadian law. Because of this exception, through the years a mass of Canadian regulations and general orders had accumulated which supplemented or modified the K.R. and A.I. The point had been reached where it was difficult to be sure whether or not a particular provision of the K.R. and A.I. applied to the R.C.N.

A committee was accordingly appointed for the purpose of producing two volumes of regulations for the R.C.N.¹⁷ The titles of the first and second volumes were to be, respectively: "King's Regulations and Instructions for the Royal Canadian Navy", and "Financial Regulations for the Royal Canadian Navy." These regulations were issued in October 1945, and superseded both K.R. and A.I. and the books of regulations for the reserve forces which had formerly been used.

After the defeat of Germany the peak of the war effort was past, and the headquarters organization began to contract. A very small reduction in personnel between May and July 1945 was produced by slight contractions in some sections, which more than offset an increase in the personnel required to handle demobilization. Thereafter many forms of activity that had grown up in war-time gradually ceased, though others proved to be necessarily continuing features of the naval headquarters organization, and all sections which were to be retained gradually shrank to the size of their post-war complements.

¹⁷ The chairman of this committee was a former professor of law who had had much experience in drafting statutes.

LIAISON WITH THE ADMIRALTY

LIAISON may be defined as the process of facilitating co-operation between two or more groups of organizations by prearranged personal relations at different levels. Canadian naval liaison with the Royal Navy had at first the comparatively easy task of mediating between a very small and simple organization, the Royal Canadian Navy of 1939, and the few authorities in the great structure of the Admiralty who were directly concerned with the operational employment and maintenance of the Dominion's six destroyers. But as the R.C.N. expanded to the size and complexity which it reached in 1944, the task of liaison became correspondingly more intricate, involving not merely the operational employment of ships and men, but every aspect of the planning, building, equipping, manning, training, and organizing, of an independent navy.

The ordinary media of communication were letters, cablegrams, or wireless signals, and for most purposes they were adequate. Yet from the beginning there were certain subjects which required personal discussions between representatives of the two navies. Chief among these were matters of high policy, which at times involved political and psychological factors that were better explained by word of mouth; the care of Canadian personnel serving in the United Kingdom or further afield in the Royal Navy; and the vast and complicated field of technical matters relating to the building and equipping of ships.

In peace-time, naval liaison had been one of the several duties entrusted to Canada House. But as the volume of work increased with the growth of the navy, it became necessary to supplement the peace-time organization by appointing naval officers to undertake one liaison duty after another, until a full-scale liaison establishment was in being.

The techniques of liaison varied according to the subject under discussion. High policy had to be discussed and ap-

proved by the heads of the two governments, and in fact the extent and nature of Canada's participation in the war at sea were decided, in outline at least, in discussions between the Prime Ministers early in the war and later at the two Quebec Conferences. Only at these last two meetings did much preliminary discussion take place between the planning staffs of the two navies, for the small size and limited potentialities of the R.C.N. in the early stages of the war had made it possible to decide, in a very short time, all important details concerning its employment. High policy, needless to say, never passed out of the hands of the War Committee of the Cabinet; but as the navy grew the Naval Staff was called upon to an ever greater extent for detailed plans and the groundwork needed for that committee's decisions.

Liaison on matters of high policy was thus not a major concern of the naval authorities until late in the war. The decisions which implemented the agreements arrived at by the Prime Ministers were made by the Cabinet on advice from the Chief of the Naval Staff, and the correspondence on details passed through Canada House. Later the normal procedure in case of major plans or other matters involving high policy, was for any given proposal drafted by the Naval Staff in Canada to go to the War Committee of the Cabinet through the Naval Board. When the committee had reached its decision the proposal was passed on through the Department of External Affairs, the High Commissioner, and the Dominions Office, to the British Cabinet and so to the Admiralty. Proposals from the Admiralty followed the reverse route. In many cases, informal discussions between the Prime Ministers or the Chiefs of Staff preceded or accompanied the regular procedure, but for a long time there was no machinery for keeping the two navies in touch with each other, in regard to plans, at the staff level or lower.

Comparatively few decisions on policy were needed in the period which elapsed between those committing the R.C.N. to North Atlantic convoy work and those deciding its share in the invasion. Accordingly it was not found necessary, until early in 1944, to establish a separate naval liaison at staff level to co-operate in final invasion schemes and discuss plans for Canadian participation in the Pacific war.

Nor was much liaison work needed until 1944 in connection with the operational employment of Canadian ships by the Royal Navy. At first the numbers involved were compar-

atively small, and later the establishment of Canadian areas of command simplified the handling of a large number of ships. After the first decisions to put H.M.C. ships under the operational control of the Admiralty for various purposes, the main principles of operation were soon reached. Few problems ever arose in connection with the employment of Canadian ships working under R.N. control, or of H.M. ships working under Canadian control; any necessary discussions being carried on by the senior officers of the ships or groups of ships concerned. In this division of liaison work the early experience of the Captain Commanding Canadian Ships in the United Kingdom shows how little actual operational liaison was required. Almost from the very first the title of this officer was found to be inapplicable to the situation—the ships were left to the full discretion of the R.N. commands to which they were allocated, and C.C.C.S. devoted his time to other liaison duties.

When a considerable number of R.C.N. escort vessels began to use Londonderry, an R.C.N. liaison officer was appointed to the staff of Commodore (D) W.A., the operational and administrative authority in that area; but here again the liaison work had little or no connection with Operations, being mainly concerned with administrative and disciplinary problems.

Liaison between the personnel branches had been carried on continuously in peace-time, in the interest of Canadians undergoing advanced training in the United Kingdom or serving in H.M. ships for experience. Its purpose was to ensure that the training and experience provided were suited to the needs of each individual, to keep N.S.H.Q. informed of progress and of any problems which might arise, and to investigate any grievances or difficulties of the Canadians. In war-time the functions of this liaison did not alter in character, but became more extensive, dealing with a much larger number of personnel and a greater variety of training courses and appointments.

The immediate and very great increase in the number of officers on loan to the R.N. which followed closely on the outbreak of war soon made it desirable to relieve Canada House of the task of looking after their interests. Details concerning their training and appointments, pay and allowances, leave, and status in the R.N., required frequent attention from the beginning. Accordingly, an R.C.N.V.R. liaison

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officer was appointed to the staff of the Second Sea Lord at Rex House in order to deal with these problems, and his functions as a liaison officer were continued with little change by the Staff Officer Personnel to C.C.C.S.

Technical liaison, which was all but non-existent at first, became increasingly important in the course of the war because of the rapid and continuous development on a large scale of new weapons and equipment of every sort; and owing to the increasing importance of Canada as a producer, and of the Royal Canadian Navy as a consumer, of highly complex apparatus such as asdic, radar, electrically-powered gun mountings, radio, and weapons of every type. The function of the technical liaison group, which was not set up until late in the war, was to ensure the most rapid and frequent exchange of information on the construction and repair of ships and all their gear, so that work done and the gear manufactured embodied improvements suggested by the most recent research findings and the results of operational experience. In order to achieve this result, liaison officers had to keep in touch with the development of new equipment and techniques from their earliest experimental stages often until long after they had been brought into operation and modified as a result of experience.

In the first three years of the war most of the important decisions which related to the development and employment of the R.C.N., in which the Admiralty were directly concerned, were arrived at as a result of signals and other correspondence, reinforced and elaborated by personal interviews between Canadian and British authorities. Later, as larger and more intricate problems of co-operation arose, the liaison establishment in London developed to handle them; but although it assumed the growing burden of routine liaison and preliminary discussion of the most important subjects, major decisions still required either the visit of a senior staff officer or a member of the Canadian War Cabinet to the United Kingdom, or a conference at which both countries were represented by their highest civil and naval authorities.

Later in the war also, visits to the United Kingdom by specialists in a variety of technical subjects became more common. As the R.C.N. grew in size and complexity it had to depend upon the Admiralty for more detailed guidance in the development of mechanical devices; and even after the establishment of a large technical liaison staff in London and

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Bath, visits of such specialists became more and more frequent. Certain visits to Canada by representatives of the Admiralty were also significant. During the war many senior officers of the R.N. visited N.S.H.Q., and in discussions with their Canadian "opposite numbers" contributed valuable suggestions from their experience, and helped to facilitate co-operation between the two Services.

One such visit prior to the outbreak of hostilities illustrates the value of informal personal talks. Early in 1939 the Admiralty was, of course, anxious to know what assistance might be expected from the Royal Canadian Navy in case of war. In view of the sensitiveness of Canadian public opinion and the imminence of a general election, it was judged inadvisable to send any very well-known officer on a formal visit which might attract unusual attention and publicity. However, the Commander in Chief, Atlantic and West Indies, as the nearest operational authority, could visit Ottawa without arousing curiosity. Vice Admiral S. J. Meyrick, who held that appointment at the time, accordingly paid a short visit from June 28 to 30, 1939, and after a lunch with the Prime Minister and the Defence Minister, he was able to report to the satisfaction of the Admiralty that Mackenzie King had promised that the R.C.N. would be ready to co-operate with the R.N. as soon as Parliament had given its approval; but he could give no formal assurance at that time.¹

Visits of Admiralty officials during the war were usually on an informal basis, and were taken up with personal inspections and conversations which were not incorporated in written reports. They were usually of minor importance to the R.C.N. compared with the visits of Canadians to the United Kingdom.

The visit of Capt. L. W. Murray in March and April, 1940, inaugurated a long series of journeys by Canadian naval officers and government officials to discuss particular projects. Capt. Murray's purpose was to ascertain whether British shipyards would be allowed to build tribal destroyers for the R.C.N. After he had discussed the various problems involved with the Admiralty authorities chiefly concerned, the detailed arrangements were made largely through the Department of External Affairs and Canada House, although the visit of Col. J. L. Ralston, the Minister of National Defence, in

¹ Report by C. in C., A.W.I., on visit to Ottawa, A.R.O., M.00715-39.

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November and December 1940, was also concerned with the tribal contracts.²

No personal liaison on the highest level took place in the first year-and-a-half of hostilities, mainly because Canada's naval rôle was not large and had been determined before the war. But as the R.C.N. grew in ships and men, more thorough discussion of its functions became necessary, and this took place during the summer of 1941. The Prime Minister was in the United Kingdom from August 20 to September 4, and could discuss all the aspects of the common war effort and future Canadian participation in it. The nature and extent of American co-operation undoubtedly entered into these discussions, for Mackenzie King saw Mr. Churchill after the British Prime Minister's meeting with President Roosevelt at sea in mid-August; and during his visit he also attended meetings of the British War Cabinet. Mackenzie King's discussions with the United Kingdom Ministers had been preceded by a visit of the naval Minister, Mr. A. L. Macdonald. The Minister was accompanied by Rear Admiral P. W. Nelles, the Chief of the Naval Staff, and Capt. F. L. Houghton, Director of Plans.

On August 13 the Canadian naval officers met the three Admiralty Assistant Chiefs of the Naval Staff, and the directors of Admiralty departments concerned with North Atlantic convoy work. Their discussions dealt with the transfer of operational authority in the Western Atlantic to the U.S.N. Chief of Naval Operations, which meant that the Canadian east-coast commands would thenceforth receive their instructions from him.³ The improvement of the Esquimalt naval base, the employment of H.M.C.S. *Prince Henry* to escort United States merchant ships transporting Australian and New Zealand Service personnel in the Pacific, the despatch of A/S training materials from the United Kingdom to Canada, and the organization of a combined R.C.N.-R.C.A.F. headquarters at St. John's, Newfoundland, were also part of the agenda.

On the 14th, Mr. Macdonald and Rear Admiral Nelles met the First Lord of the Admiralty and the Assistant Chiefs of the Naval Staff in order to discuss the major implications of

² Interview with Mr. E. J. MacLeod, Canada House, July 1941.

³ The U.S.N. took charge on Sept. 15, 1941, in accordance with their plan WPL-51 (Western Hemisphere Defence Plan No. 4).

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WPL 51,⁴ the development of the naval base at St. John's, Newfoundland, the working up and training of Canadian corvettes in British waters, the preliminary training of R.N. Fleet Air Arm ratings in Canada, and the loan of naval constructors from the Admiralty to set up a Canadian corps of naval constructors.⁵ Cdre. H. E. Reid, the Deputy Chief of the Naval Staff, was also in England during the summer of 1941, and his discussions laid the basis of R.C.N. participation in combined Operations.

These discussions improved the mutual understanding on which the development of plans for the common war at sea depended. Although the entry of Japan and the United States into the war made many alterations necessary, the broad principles of Canadian participation were now well enough understood to make major consultations on the highest level unnecessary for almost two years.

In 1942, since North Atlantic escort arrangements needed only minor modifications, there were few occasions for discussion of policy on the highest level. The most important visit was probably that of the Chief of Staff to Admiral Cunningham at the end of August 1942, to request a loan of ships for "Operation Torch", the projected landing of the allies in North Africa. This request was discussed and granted with very little delay, and the decision was implemented by the despatch of seventeen corvettes to the United Kingdom for use in the Operation.

In the summer of 1943, two important consultations took place to deal with Canadian assistance to the Royal Navy in a man-power crisis. These consultations occurred at the first Quebec Conference in August 1943, and were later elaborated during a visit of Capt. W. B. Creery (A.C.N.S.) to Britain in November 1943.

The Royal Navy's reserve of man-power had been pressed almost to the limit in the early months of 1943. The completeness of British mobilization had made it impossible to find any substantial number of recruits beyond the navy's share of the young men reaching enlistment age year by year. Yet the need for men continued to grow. Not only did operational commitments grow greater with the development of allied offensives in the Mediterranean and the Far East, but new weapons and techniques of warfare also demanded that a

⁴ The U.S.N. plan, mentioned above, by which the U.S.N. undertook to convoy British and neutral shipping as far as Iceland.

⁵ A.R.O. M.02259, 41.

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greater proportion of the available men should be kept in training establishments to learn how to employ them; and while British shipyards continued to build warships as rapidly as ever, the Royal Navy also had to find men for scores of new vessels from the United States and Canada. In the summer of 1943 it was evident that without relief of some kind the R.N. would be unable to man all the vessels due to commission in the fall, and would lack some 20,000 men of the number needed for combined Operations. The Admiralty communicated their problems by signal, and through Capt. R. H. V. Buxton who visited N.S.H.Q. prior to the conference.

The Canadian Naval Staff was thus able to examine its own resources and meet many of the proposals made by the British authorities at the First Quebec Conference. At this conference the Canadian Chief of the Naval Staff and the Directors of Plans and Naval Personnel met their "opposite numbers" in the Admiralty, and in several discussions arrived at a series of proposals which would help to ease the Admiralty's problem, and at the same time give Canadian personnel wider experience and a chance to gain prestige in other fields of naval warfare. The manning of the two "V"-class fleet destroyers (later named *Algonquin* and *Sioux*), and two flotillas of coastal craft, infiltration into H.M. cruisers to train personnel for manning two H.M.C. cruisers later on, the manning of three flotillas of landing craft for use in "Operation Neptune", the establishment of a beach commando for the same Operation, and the provision of ten CW officer candidates a month for training and subsequent loan to the R.N., were all agreed upon, and the manning of two escort carriers and a training cruiser was discussed.

The proposals were then put into the hands of the British Prime Minister who personally requested Mackenzie King to lend the necessary personnel. About 3,200 Canadian officers and men could be made available, as recruiting had proceeded according to plan whereas ship completions were somewhat behind schedule and might easily be retarded still further. In the event, the surrender of the Italian fleet came in time to release some of the older British battleships from service, and though the R.N. manpower shortage continued it was not as critical as had been feared.

To discuss changes in the employment of the Canadian personnel to be lent and further possible commitments, Capt. W. B. Creery was sent to the United Kingdom in November

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1943. As a result of his visit and discussions the part-manning of the escort carriers *Nabob* and *Puncher* and ten R.N. frigates was agreed to, and several smaller adjustments were made in the plan of assistance.

After this there was no visit of paramount importance, although specialists continued to arrive in England in order to study Admiralty progress in their particular fields. The presence of Vice Admiral Nelles in the United Kingdom as S.C.F.O. (O) from January 1944 onwards, and the formation of the Canadian Naval Mission Overseas, greatly strengthened the regular liaison establishment and enabled it to carry out negotiations which would previously have been entrusted to a high-ranking visitor.

The last important conference was the Second Quebec Conference in September 1944. As the Canadian Naval Mission Overseas carried out fairly elaborate negotiations in preparation for this conference, it will be described later in this chapter. It displayed the fullest development of Canadian naval liaison, with the overseas liaison staff working closely with N.S.H.Q. and the Admiralty to develop an acceptable plan for Canadian co-operation in the war against Japan. Although in this instance the results achieved were not as satisfactory as had been anticipated, the method was undoubtedly the most suitable for liaison between two such organizations as the R.C.N. and the R.N.

The Work of Canada House

Before and during the First World War little naval liaison work had been necessary. The few Canadian ships, operated from Canada, were supplied with all necessary armament and essentially naval equipment from Great Britain, and as there were few changes in the weapons and equipment of minor warships, no serious problems of rearming or refitting were encountered. The chief matters requiring liaison work were those concerning the welfare of Canadians serving in the Royal Navy during hostilities.

From 1918 to 1939 liaison with the Admiralty was maintained through Canada House. Officers of the R.C.N. continued to receive advanced training in R.N. ships and establishments in peace-time, and Canada House continued to look after their interests. The transfer of successive destroyers to the R.C.N., and the building of the *Skeena* and *Saguenay* in

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1930-31, were the most important transactions in this period. Not only were all financial matters concerning these ships handled by Canada House, but all necessary drawings, plans, and technical information concerning each ship, were obtained and forwarded to N.S.H.Q. by Mr. E. J. MacLeod who was in sole charge of naval liaison in the United Kingdom from 1915 to 1940. From 1936 onward the volume of material passing through Canada House increased greatly with the transfer of several destroyers and the development of plans for expanding the Canadian navy.

The outbreak of the Second World War naturally involved a great increase in the questions of supply and technical matters that had to be dealt with. The coming of Canadian destroyers to the United Kingdom in 1940 also added to the complexity of the supply and liaison problems, although the Captain Commanding Canadian Ships was responsible for all administrative concerns and the R.C.N.V.R. Liaison Officer took over the task of looking after Canadians who were on loan to the R.N.

Not until March 1942 was any large part of the liaison work on supply and technical matters transferred from Canada House to the naval organization. At that time Mr. C. A. Banks of the Department of Munitions and Supply, who had so far been in charge of military and air-force supply in Britain, also took over the work of naval supply, while a Canadian pay lieutenant was appointed to the staff of C.C.C.S. to act as a technical liaison officer for the R.C.N. and to co-operate with the representatives of the Department of Munitions and Supply in London. Mr. MacLeod of Canada House, however, continued to deal with all financial matters concerning the R.C.N. in the United Kingdom.

In theory at least, liaison through Canada House was a very roundabout means of connecting the R.C.N. with the Admiralty, as requests from the R.C.N. would normally go to the Department of External Affairs to be passed to Canada House, which in turn would pass them to the Dominions Office for transmission to the Admiralty. In practice, however, Mr. MacLeod usually dealt directly with the R.C.N. on one side and with the Admiralty and private firms engaged in work on R.C.N. account, on the other.

As far as it went, this one-man liaison office worked very well. Mr. MacLeod was well acquainted with the organiza-

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tions of the Admiralty and the Dominions Office, and was personally known to most of the men in key positions. Consequently he was able to obtain without difficulty any information required. What he could not do was to obtain information on equipment in the development stage, or to keep in touch with new weapons and training methods and the constantly changing problems of policy and organization. Especially in the matter of technical research and the development of new weapons a group of naval experts capable of carrying on detailed liaison work was necessary to keep the R.C.N. abreast of new projects and equipment.⁶

Personnel Liaison

The growth of the purely naval liaison organization maintained by naval personnel in the United Kingdom thus developed at the expense of Canada House. Bit by bit the duties carried out there, as they became more extensive and onerous, were assumed by the Naval Service. The first to be taken over was the care of Canadian personnel on loan to the Royal Navy for duty or training.

Immediately after the outbreak of war the Admiralty had requested the loan of all naval reserve officers and men surplus to immediate R.C.N. requirements, and permission to recruit suitable officers and technicians in Canada. Canadian policy was to enlist personnel of the type needed by the Admiralty and to send them over on loan as they were needed. Among the first classes required were engineers and physicists who could be employed in the development of radar. Later, yachtsmen to serve in small vessels and doctors for the medical service were required, while men of many different civilian backgrounds were called for as the needs of the war expanded. Groups of officers and ratings began to reach the United Kingdom early in 1940, and as their number increased it was decided to detail a personnel officer to look after their interests and those of the Dominion, when Canadian and Admiralty policies and practices differed. This purpose was stated in June 1940:

In order to assist R.N. authorities to administer these officers and ratings in accordance with R.C.N.V.R. regulations it is proposed to send Commander E. A. Brock, R.C.N.V.R. with the fifth batch, leaving Canada approximately 1st August. It is thought he could best be employed as Liaison Officer in the Second Sea Lord's office.⁷

⁶ Interview with Mr. MacLeod, July 1944.

⁷ N.S.H.Q. to Admiralty and Can. High Comm., June 8, 1940.

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The main duties of this position were: passing information to Ottawa about the personnel on loan, including recommendations for promotion, and dealing with their various practical problems such as leave, marriage allowances, mail, and transfers from the R.N. back to the R.C.N. Personnel were normally loaned to the R.N. for two years; during that period the Admiralty had complete control of all their movements and appointments, and always co-operated generously in all matters concerning them.

As well as assisting in the administration of R.C.N.V.R. officers and men lent to the R.N., the R.C.N.V.R. Liaison Officer, and later the Staff Officer Personnel to C.C.C.S., acted as middleman between R.C.N. officers and men requiring specialist training and the R.N. establishments which provided that training. This duty which involved hundreds of courses in naval subjects at scores of establishments, and thousands of officers and men, was made easier by the unfailing helpfulness of all the R.N. commands concerned, who made every effort to see that Canadians were given the courses they needed, without loss of time. In making arrangements for courses the liaison officer dealt directly with the heads of training establishments, greatly speeding up procedure and reducing the amount of paper work.

The rapid growth of Canadian training establishments, however, did not reduce the number of courses needed at R.N. establishments. Throughout the war all advanced courses in gunnery, navigation, radar, anti-submarine, torpedo, meteorology, and staff duties, were studied in R.N. establishments, the R.C.N. having no adequate means of giving such instruction. Moreover, even courses which were given in Canada were often taken in R.N. schools, for the sake of convenience, by the officers and men of ships refitting in the United Kingdom or on short lay-overs from convoy duty. An important development in the later years of the war was team training of a ship's radar or A/S complement working together as a unit.

A further responsibility which also became more important in the latter part of the war was the administration of special services and of the chaplains who served the R.C.N. men on courses and in various establishments in the United Kingdom. This work, too, expanded greatly in the course of the war, and especially in 1944, when so many R.C.N. ships were based on

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British ports and more officers and men than ever before were taking courses in British training establishments.

The R.C.N.V.R. Liaison Officer remained attached to the staff of the Second Sea Lord at Rex House from August 1940 to January 1942. It was then decided to transfer his functions to a Staff Officer, Personnel, under the authority of the C.C.C.S.⁸

Captain Commanding Canadian Ships

An additional liaison officer became necessary late in 1940, when it was decided to operate some of the Canadian town-class destroyers in British home waters. With the river-class ships which had been there since May, Canada was now to have more than a full flotilla based abroad, and it was clear that their administration could not be handled by Canada House alone. The experience of the river-class destroyers on loan indicated that the senior Canadian officer would have to spend much of his time in liaison duties. Although the ships were under the operational control of the Admiralty, the pay and allowances, victualling, and leave of the men, together with the repairs and alterations and additions to the ships, were governed by Canadian regulations which had to be interpreted to the R.N. base authorities.

The Naval Staff recognized the importance of liaison work as part of the duties of the senior Canadian officers in Great Britain, and included a reference to it in the appointment of a Captain (D) for the town-class group of destroyers:

Captain C. R. H. Taylor, R.C.N., has been appointed Captain (D), Town Class Flotilla, and at a later date will become Commanding Officer HMCS *Dominion*, and will carry out liaison duties between Canadian ships and personnel in United Kingdom waters, and the Admiralty.⁹

Soon after his arrival in British waters, Capt. Taylor was appointed "Captain Commanding Canadian Ships and Establishments in the United Kingdom" (C.C.C.S.). He carried out his duties from H.M.C.S. *Assiniboine*.

This situation did not last long. The first town-class destroyers had no sooner arrived in the United Kingdom than it was decided to transfer thither the Senior Officer Halifax Force, Cdre. L. W. Murray, R.C.N., with nearly all the operational R.C.N. destroyers then remaining in Canadian

⁸ Interview with Capt. (S) R. A. Pennington, Oct. 1945.

⁹ Naval Weekly Review, Nov. 28, 1940, N.S. 1000-5-7 (1).

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waters. In a memorandum of January 7, 1941, the C.N.S. proposed to the Minister that Cdre. Murray should take over administrative control of H.M.C. ships on loan to the R.N.:

. . . to co-ordinate and draw the threads together of these many divided efforts [of Canadian ships working from U.K. bases, N.S.H.Q. liaison with Admiralty, etc.] . . . and to look after the welfare of personnel and to transmit to this country a regular and precise account of their proceedings. . .

This proposal was approved, and the appointment of Cdre. Murray as C.C.C.S., substituting "Commodore" for "Captain" to preserve the short title, was approved by the Minister on January 11, 1941. This appointment took effect on February 12, when Cdre. Murray became C.C.C.S. "for administrative control", with his broad pendant in H.M.C.S. *Assiniboine*.¹⁰

Yet the kind of administrative control exercised by C.C.C.S. over Canadian ships on loan had to function through the framework of the normal R.N. administration, as it was obviously undesirable to duplicate existing R.N. facilities. During Capt. Taylor's term as C.C.C.S. he had been able to avoid friction while remaining on board *Assiniboine* as Senior Officer because he was junior to the Captains (D) at both Greenock and Plymouth, under whose administration the Canadian ships then operated as part of the Western Approaches Command.

As soon as he had relieved Capt. Taylor, Cdre. Murray decided to avoid any possible mutual embarrassment by transferring his broad pendant from *Assiniboine* to shore. He chose London for headquarters, so that he could carry out his liaison duties with the Admiralty and Canada House and at the same time be in a convenient position to visit whatever bases Canadian ships were using. Cdre. Murray explained his choice in letters to the Naval Secretary, N.S.H.Q., and the Secretary of the Admiralty, of March 27 and April 2, 1941, respectively, in which he also reviewed operational changes affecting the Canadian ships on loan.¹¹ On March 31, 1941, C.C.C.S. moved into offices in Canada House.¹² In so doing he abandoned any show of operational control over Canadian ships, leaving it to the Captains (D) of the various R.N. bases, who were the officers best qualified to exercise it. Accounting

¹⁰ A.F.O. 1143/41, Mar. 20, 1941.

¹¹ N.S. 30-26-2.

¹² A.F.O. 1546/41.

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(i.e. pay and victualling) was the only administrative function exercised by C.C.C.S. in London.

Up to the time of Cdre. Murray's arrival, the R.C.N. had had no manning pool in the United Kingdom, so that reliefs had to be supplied from R.N. personnel. Now that nearly all Canadian destroyers were operating on loan to the R.N., with corvettes expected in a few months, a manning pool was a pressing requirement. Capt. Taylor, having been since his arrival an advocate of an R.C.N. pool, was given the job of organizing one. On the advice of C. in C., W.A., whose headquarters it then was, Plymouth was chosen as the most suitable location, because most of the Canadian ships were refitting there or working up in the area.

The United Services Orphanage was accordingly requisitioned for the manning depot, and the R.C.N. pay offices which had been established in Britain to meet the emergency created by the loss of the *Fraser* were combined to make a unit commissioned as H.M.C.S. "Dominion." This unit was in full operation by the spring of 1941, when R.C.N. personnel earned an excellent reputation during the blitzes. The name "Dominion" was changed because it was causing confusion with the cable address of the High Commissioner, "Dominion London", and the R.C.N. base was re-commissioned as H.M.C.S. "Niobe", after Canada's pioneer cruiser. The relationship between C.C.C.S. and C.O. "Niobe" was described in May 1941 as being similar to that existing between C.O.A.C. and H.M.C.S. "Stadacona" in Halifax.¹³

Within a few weeks, however, when U-boats extended their area of Operations farther and farther west across the North Atlantic, the main strength of the R.C.N. was required to protect shipping on the Canadian side. Cdre. Murray was accordingly transferred to St. John's in July 1941, taking most of the Canadian corvettes and all H.M.C. destroyers with him. At the end of June 1941, "Niobe" at Plymouth was paid off and the buildings were turned over to the Polish navy, for it had been decided that a manning pool was no longer required in the United Kingdom.

It soon appeared that this decision had been too hasty. The loss of the manning pool immediately created such serious difficulties for the Canadian corvettes left in British waters that the C.N.S. and the V.C.N.S. made a special trip

¹³ C.C.C.S. to N.S.H.Q., 1345 B/10/5/41.

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by air to investigate. As it had been planned to operate a few R.C.N. ships from the United Kingdom for an indefinite period, and as the manning pool would be absolutely necessary if the number were again increased, it was decided to re-commission "Niobe":

The [Naval] Council felt very strongly that we should adhere to our policy of sending as many ships as possible to the U.K. after Plan 4 (W.P.L.—51) is brought into force i.e., when the U.S. enters the war and takes over north-west Atlantic conveying. In continuation of this policy the Minister approved that HMCS "Niobe" be re-opened in the U.K. as soon as circumstances make this desirable.¹⁴

At Greenock, on December 15, 1941, H.M.C.S. "Niobe" was recommissioned under Capt. Taylor's command as a manning and pay depot for all the R.C.N. in the United Kingdom, except the personnel on loan to the R.N. When Cdre. Murray was transferred to Newfoundland, Capt. Taylor relieved him as C.C.C.S. while retaining command of "Niobe." H.M.C.S. "Dominion" had been paid off but the remnant pay base, "Niobe", was continued at Greenock.

When Capt. R. I. Agnew, R.C.N., relieved Capt. Taylor as C.C.C.S. on February 1, 1942, there were three matters which called for immediate attention: the position of C.C.C.S. *vis-à-vis* the R.C.N.V.R. liaison officer at Rex House, the lack of office space at Canada House, and the confused relationship of C.C.C.S. and "Niobe." Personnel matters were becoming increasingly important, since the R.C.N. was beginning to send over considerable numbers of officers to receive specialist training with the R.N., particularly in engineering, A/S, gunnery, and torpedo, so that the personnel serving on loan to the R.N. were no longer the only Canadian group in Great Britain.

About a week after Capt. Agnew took over, Cdr. F. A. Price, R.C.N.V.R., relieved Cdr. Brock at Rex House. His appointment, however, was not to the Staff of the Second Sea Lord but as Staff Officer Personnel to C.C.C.S., so that all liaison activities concerning personnel, whether the latter were on loan in Canadian ships or to the R.N. as individuals, might be handled through C.C.C.S. After gaining experience and contacts at Rex House, Cdr. Price moved from there to C.C.C.S.'s offices in Canada House on March 12, 1942.

¹⁴ Naval Council Minutes, Aug. 5, 1941.

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Functions of C.C.C.S.

At this juncture it was decided to move the enlarged establishment from Canada House, now overcrowded with war-time appointments. Accordingly the first floor of King's House in the Haymarket was leased through the British Ministry of Works, and taken over on March 30.

During the early months of 1942 the function of the C.C.C.S. as a liaison authority was clarified by a letter from the Minister to the Under-Secretary of State for External Affairs, in reply to a suggestion that the High Commissioners of the Dominions should have service liaison officers attached to their staffs. The idea had been approved in principle by the High Commissioners and the Dominions Office. The Minister's letter, however, indicated C.C.C.S. as the recognized naval liaison officer:

It is at the present time impossible to spare a suitable qualified officer for appointment to the position visualised by the High Commissioner. It is therefore the intention that the officer holding the appointment of Captain Commanding H.M.C. Ships in United Kingdom should be responsible for maintaining the necessary liaison with the British Chiefs of Staff Organization. The appointment of an officer to command HMCS "Niobe" will free C.C.C.S. of this particular duty, and he will carry out his duties in London, where he will be available for Liaison purposes as necessary.¹⁵

The decision to divorce C.C.C.S. from the direct administrative details of "Niobe" was implemented some weeks later by the appointment to "Niobe" of Cdr. H. Kingsley, R.C.N., who assumed command on June 11, 1942. The relationship between C.C.C.S. and "Niobe" reverted to the basis that had obtained for Cdre. Murray and Capt. Taylor in the spring of 1941. C.C.C.S. retained general administrative control over R.C.N. ships and establishments, including "Niobe", in the United Kingdom, in the same way as C.O.A.C. controlled "Stadacona."

The division of functions between the two authorities is indicated in C.C.C.S. Temporary Memorandum No. 2:

- (a) Drafting of ratings to and from HMC ships. This duty will be exercised by HMCS "Niobe", Greenock.
- (b) Advancement of ratings. This duty will be exercised by HMCS "Niobe" and/or HMCS "Stadacona" through HMCS "Niobe".
- (c) Appointments, reliefs, and arrangement of courses for officers. These duties are exercised by C.C.C.S. for and on behalf of N.S.H.Q.

¹⁵ Min. to Under-Sec. of State (Ext. Aff.), Apr. 25, 1942.

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- (d) Pay and victualling accounting to be exercised by HMCS "Niobe".
- (e) Provision through Canadian Auxiliary Services of sports and recreational gear and facilities.
- (f) Issuing of orders to HMC ships covering returns required by N.S.H.Q. or C.C.C.S. All other administration affecting HMC ships mentioned above will be by the RN authority designated by Admiralty or N.S.H.Q. All operational control of HMC ships will be by the RN authority designated by Admiralty or N.S.H.Q.

To this list of functions should be added that of the handling of mail through C.C.C.S.' Canadian Fleet Mail Officer who looked after all mail for R.C.N. personnel overseas. The above statement of C.C.C.S.' functions, although promulgated in the spring of 1943, holds true for the preceding period as far back as the summer of 1942. The statement was designed for the information of Canadian ships coming under C.C.C.S.' administrative control, and therefore omits the purely liaison side of his duties.

Liaison was indeed the main part of the job. After "Niobe" had been made a separate command, C.C.C.S. retained only supervisory control, seldom exercised, over most administrative matters. The officers under his immediate command were in touch with various Admiralty departments, attending policy meetings and discussing developments with officers in key positions. The Captain himself attended Admiralty Staff meetings in order to keep abreast of the main outlines of Admiralty policy, and to make personal contact with the men mainly responsible for the day-by-day conduct of the war at sea. His function was to observe all turns of operational policy affecting the R.C.N. in any way, in order to interpret the changing situation to Ottawa and suggest possible courses of action in response, preparing the way for direct signalled negotiations. At the same time he was available to give information about the R.C.N. to the Admiralty Staff whenever necessary. He was in effect the connecting link between the planning staffs of the two navies.

Naturally the Royal Navy did the major part of all planning, the R.C.N.'s share being chiefly concerned with determining the nature and extent of the Canadian contribution to a larger effort. The normal procedure in formulating a major operational plan was as follows. The first draft was worked out by a staff officer, usually a captain or commander, in the Admiralty Plans Division. If Canadian interests were

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concerned, or if it seemed desirable that the R.C.N. should participate in the Operation in question, the planning officer consulted the senior Canadian liaison officer to ascertain what contribution the R.C.N. would be able to make, and what proposals would be most acceptable to the War Committee of the Cabinet in Canada. The liaison officer in turn informed Plans Division at N.S.H.Q. of the progress of the Admiralty plan, so that R.C.N. participation could be determined without delay. The preliminary plans of both navies then underwent discussion by the respective naval staffs and War Cabinets, and if necessary, visits and personal discussions took place to settle any important difficulties. When staff or cabinet decisions called for alterations in the plan, the same procedure was followed through again and again until a satisfactory result had been obtained. Finally the two War Cabinets concerned communicated directly to give formal assent to the plan.

Obviously planning could be best carried out when each Plans Division was most fully aware of the peculiar problems faced by the other, and in closest touch with the policies favoured by its own Naval Staff and War Cabinet. The planning for Canadian participation in "Operation Neptune" was a good example of the efficient working of this procedure, in spite of the far larger and more intricate problem involved when American as well as British plans had to be harmonized. Planning for Canadian participation in the Pacific war was to be less successful because the R.C.N. Plans Division was not fully informed of the Canadian Government's intentions.

More specialized work was carried on by the various staff officers. The duties of the Staff Officer Personnel have already been described. Related to the work of this officer was that of the Staff Officer, Combined Operations. The nature and extent of R.C.N. participation in combined Operations was decided upon as a result of conversations in the summer of 1941 between Cdre. H. E. Reid (D.C.N.S.), Lieut.-Gen. A. G. L. McNaughton (General Officer Commanding the Canadian Army in the United Kingdom), and Admiral of the Fleet Sir Roger Keyes. Fifty officers and three hundred ratings, a number afterwards increased from time to time, were assigned for training to H.M.S. "Quebec", the combined-Operations establishment at Inveraray. They were organized in six units, each comprising the personnel needed to man one flotilla of landing craft. Arrangements were completed by the end of

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1941, and early in February 1942 the first two units began training. In order to keep in touch with their training and operational employment, and in addition to keep abreast of developments in combined Operations generally, Lieut.-Cdr. K. S. MacLachlan was appointed to the staff of C.C.C.S. as liaison officer and Staff Officer (Combined Operations).

The most persistent problems encountered were those stemming from the frequent changes in training and manning schemes inevitable in a comparatively new and rapidly-growing organization. As it had been laid down that the Canadians should be kept in their own units as far as possible, it was difficult for replacements and additional personnel drafts to keep pace with these changes, and in Operations such as the Dieppe raid and "Torch" it was found impossible to operate flotillas manned entirely by Canadians.

In addition to these problems, discussions and exchange of information with the Canadian army and the British forces called for considerable attention. Operational requirements and the equipment and techniques to meet them were repeatedly revised in the light of experience obtained at St. Nazaire and Dieppe, and in North Africa, not to mention scores of small raids.

There was also an Assistant Staff Officer to relieve the others when necessary and undertake special liaison duties, and a Staff Officer (Material) who was responsible for the whole field of technical liaison. The information supplied to N.S.H.Q. through this office was very diverse, and included plans and instructions for shipbuilding and engineering as well as details of armament and the complexities of asdic, radar, and the rapidly-growing field of electrically-powered equipment. It was of course impracticable for a single officer to keep in touch with all technical developments except in the most general way. It was possible, however, for him to become acquainted with the Admiralty's technical organization, and to learn the most expeditious ways of obtaining information on new developments, and drawings and prototypes of new equipment. Technical specialists from Canada who visited the Admiralty from time to time in order to study and discuss various special problems supplemented the work of the S.O. (M). He assisted them by preparing for their visits and ensuring that they would meet the Admiralty specialists best qualified to assist them.

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The S.O. (M) was able to supply N.S.H.Q. with all information specifically requested, even on the wide range of subjects mentioned. The Admiralty was at all times eager to supply any information and assistance required, and the only limits to this generosity were those imposed by the shortage of draughtsmen to prepare the plans requested. Yet it was impossible to keep N.S.H.Q. informed of all new technical developments. Consequently information of this kind reached Ottawa slowly and irregularly, often through Admiralty Fleet Orders and other publications; and partly because of these delays the equipment of Canadian warships fell so far behind that of the Royal Navy as to create a serious situation in the winter of 1942-43. This crisis took place during Capt. Agnew's appointment as C.C.C.S., but it is clear that no blame could be attached to him. Although he was responsible for supplying information to N.S.H.Q., he received no instructions as to the conduct of technical liaison, and he had too small a staff to carry out more detailed liaison work.

Capt. Agnew's appointment ended on April 23, 1943, and Cdr. F. A. Price, R.C.N.V.R., the Staff Officer Personnel, assumed command until the arrival of Capt. F. L. Houghton, R.C.N., on October 31, 1943. In this comparatively short period several important changes took place. The title "Captain Commanding Canadian Ships and Establishments in the United Kingdom", which had been a misnomer ever since Cdre. Murray transferred from H.M.C.S. *Assiniboine* to Canada House, was altered to "Senior Canadian Naval Officer (London)" on June 15, 1943. This change in title was made without accompanying instructions, so that it was not clear at first whether H.M.C.S. "Niobe" remained under the control of S.C.N.O. (London). As the Commanding Officer of "Niobe" was now Capt. E. A. Brock who was senior to Cdr. Price, misunderstandings might easily have arisen. N.S.H.Q. made no reply to S.C.N.O.'s signal of June 17: "Unless otherwise instructed presume function of S.C.N.O. (L) to be the same as previously exercised by C.C.C.S." Cdr. Price therefore continued to act as co-ordinating authority, and Capt. Brock co-operated to prevent any friction.

Technical Liaison

Far more important were the changes that took place in matters of technical liaison. In the last four months of 1942 Canadian escort vessels were involved in a series of disasters

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so grave as to reflect very unfavourably on their fitness for active duty. Twelve merchant ships and two escort vessels were lost in the St. Lawrence during the autumn months; four merchant ships were sunk at anchor in Wabana harbour; SC-107 lost fifteen ships and ONS-154 lost fourteen all without the sinking of any enemy submarine. Although there were mitigating circumstances in each of these disasters, it was evident that the inferior equipment of Canadian escort vessels had contributed largely to their failure, and that this inferiority was in the main the result of delays in manufacturing and fitting improved patterns of radar and anti-submarine gear. Canadian ships were generally six months or a year behind their sisters in the Royal Navy.

The most important cause of these delays was that Canadian production of any given piece of equipment usually did not begin until after it had been brought into actual operational use by the Royal Navy. This fact in turn was owing, to some extent at least, to the inadequacy of the technical liaison. As was said above, technical liaison had been almost completely lacking in the research and testing stages of new equipment. Although the need for more rapid action had been partly realized even in 1941, little had been done to improve liaison methods, probably because the magnitude and complexity of the Admiralty's technical research organization was not fully realized.

During the early months of 1943, the strength of the Canadian escort forces in the North Atlantic was considerably reduced in order to release escorts for refit, while keeping at full strength the force despatched to North Africa for "Operation Torch." In spite of this reduction, improved routing made the record of Canadian-escorted convoys more satisfactory, but the success of the corvettes on loan for "Torch" emphasized the need for improved equipment in the other ships. For while no U-boats were sunk by Canadian groups from September 1942 to May 1943, and only one kill was shared by a Canadian ship in the North Atlantic, the refitted and modernized corvettes despatched to North African waters sank three enemy submarines in January and February 1943.

It is also probable that defects in N.S.H.Q. organization sometimes caused serious delays in the circulation of information sent from London, and that in certain cases important decisions and actions were unduly postponed. Fl. Lieut.-Cdr. E. G. Law, R.C.N.V.R., after several months as liaison

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officer on anti-submarine warfare, visited N.S.H.Q. late in 1943 to ascertain the effectiveness of his own and other technical liaison work. He found several officers who complained that information requested months previously had not yet reached them, though it had actually been sent without delay. Further investigation showed that the documents in question had been received at N.S.H.Q., but had not been distributed to the officers most closely concerned.¹⁶

Thorough investigations into the state of equipment on Canadian ships were made during the spring and summer of 1943, and the findings made it evident that technical liaison had been inadequate for the tasks required of it.

The increasing pressure of work involved in the existing technical liaison arrangements had already caused C.C.C.S. to ask for additions to his staff. In a letter to the Secretary of the Naval Board of January 18, 1943, he urged that several new appointments should be made, including that of:

One Chief Staff Officer to co-ordinate the activities of the staff, to supervise the administrative duties devolving on C.C.C.S. and to act for C.C.C.S. in his absence on duty or leave; one Lieutenant (E) to collect and co-ordinate data on HMC ships A's and A's, defects and refits carried out in the United Kingdom to ensure that this information is passed to N.S.H.Q. without delay, to advise on procurement of machinery, etc., and to be available for duties of inspection if necessary.

The appointment of Paymaster Capt. R. A. Pennington, R.C.N.V.R. (who was made S.O. to Senior Canadian Naval Officer by N.S.H.Q.'s approval on August 6), and of El. Lieut. Law in June, satisfied these requirements to some extent, but it was clear that more was necessary. Cdr. Price in a letter to the Secretary of the Naval Board dated July 9, 1943, pointed out that:

It is realized that a far greater liaison with Admiralty departments should be effected to enable this office to obtain and forward to N.S.H.Q. the latest information on technical and other matters. Particularly does this refer to A'S and Fighting appliances, Ordnance and Armament, and training.

This was amplified in two submissions of July 20, 1943. One asked for a Staff Officer (Training) to relieve the Staff Officer (Personnel) of the liaison work on this subject which had been growing too fast for him to cope with. The other asked for "an officer qualified to examine and report on development of new ordnance, including torpedoes and mines", and

¹⁶ S.C.N.O. (I) to Sec. N.B., Jan. 13, 1944, N.S.S. 1081-1-3.

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“an Engineer Officer who has some knowledge of shipping construction and who is capable of dealing with engineering construction and repair problems.” The letter added that: “It is proposed that . . . these officers . . . should spend an average of 4 days a week at Bath or at the various experimental establishments . . . in order to maintain an effective personal liaison. . .”, and this proposal was followed up by a visit to Ottawa which resulted later in the appointment of gunnery and torpedo officers.

Still another submission to N.S.H.Q., on October 29, 1943, asked for a signals officer to undertake liaison work in W.T., signals, and radar. On October 21, N.S.H.Q. signified its intention of sending another A S officer “for the purpose of assisting in keeping the R.C.N. fully abreast of tactical and operational developments of an anti-submarine nature.” None of these appointments had actually been made before Cdr. Price was succeeded by Capt. F. L. Houghton as S.C.N.O.

Capt. Houghton also was fully convinced of the need for these technical liaison officers, and recommended their appointment in his first reports to N.S.H.Q., with this caution, in a letter of December 7, 1943:

Previous experience has shown that the placing of R.C.N. liaison officers in Admiralty offices has not proved successful, these officers having been diverted to Admiralty work to the detriment of the liaison duties. It is therefore strongly recommended that proper Canadian offices should be set up with Commander Pressey, who has the advantage of a great deal of experience in this direction, as co-ordinator and senior representative.

A week later Capt. Houghton decided that although the technical officers should function as a group under Cdr. Pressey, they would in most cases be attached to the Admiralty offices with which they were concerned, because of the distances between various Admiralty technical departments situated in Bath. The appointment of these technical officers was subsequently approved.¹⁷

After further consideration it was decided not to have all technical liaison officers stationed permanently at Bath. As all files were kept in London, and as the officers and others in charge of planning the use and production of equipment were also there, it was thought best to carry on most of the work there also. Only certain officers responsible for engineering and ordnance were stationed in Bath, though an officer respon-

¹⁷ S.C.N.O. (I.) to N.S.H.Q., Dec. 13, and reply (signal), Dec. 16, 1943.

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sible for electrical engineering spent half his time there, and others made frequent visits in order to keep abreast of developments.

The machinery for thorough-going technical work was thus established early in 1944. It was now possible for N.S.H.Q. to receive information on technical improvements from the very earliest plans and ideas through the various stages of experimental design and the trials of prototypes, to their acceptance for production.

The technical liaison staff consisted of a secretariat and office staff, and specialist officers in charge of liaison in the following fields: engineering and construction, gunnery, ordnance, torpedoes, electrical engineering, A/S warfare, A/S material, communications, radar, and supply and expediting. Its functions included supervision of new construction taken over from the R.N., as regards equipment of every kind; the arrangement of repairs and refits of R.C.N. ships in the United Kingdom; supervision of alterations and additions of all sorts affecting Canadian ships; study of the personnel and training changes involved in the new equipment; and the maintenance of close liaison with the Department of Munitions and Supply as well as with the various technical departments in the Admiralty. Each of the specialists engaged in the various aspects of technical liaison attended meetings of the committees on progress and planning in the departments with which they were most concerned, besides visiting and discussing progress with the officers working on any matters of importance to the R.C.N.

The work of the technical liaison staff greatly expedited the adoption of technical improvements of all kinds by the R.C.N. The amount of information made available when projects were being investigated and tested made it possible for the R.C.N. authorities to study each piece of equipment in its early stages, and to make investigations in Canada as to the feasibility of bringing it into production if it proved a success. It was also possible to make earlier requests for allocations of important equipment from British sources and earlier decisions as to whether alterations and additions required by Admiralty Fleet Orders were suited to Canadian requirements. In the final stages of the war Canadian ships were on even terms with their British consorts in the matter of equipment, and this was reflected by their growing number of successes against U-boats.

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Transition to C.N.M.O.

In the latter half of 1943 a major reorganization was being carried out at N.S.H.Q., the technical liaison organization was being built up under S.C.N.O., and detailed plans were being made for Canadian participation in "Operation Neptune." The Quebec Conference in August and Capt. W. B. Creery's visit to the Admiralty in November were only part of the negotiations which decided the Canadian navy's rôle in that enterprise. Closely related to this planning was the implementing of the new policy for the R.C.N., that is to say the manning and acquisition of a greater variety of ships, including cruisers and fleet destroyers of the most recent design.

The rapid increase in the staff of S.C.N.O. was hardly adequate to keep pace with the increased work. More office space was acquired at intervals during 1943 and 1944, reaching a maximum by the beginning of 1945 when space was occupied in five separate buildings—three in the Haymarket, one in Kensington, and one in the City.

In late 1943 and early 1944 the number of Canadian personnel in the United Kingdom increased rapidly. The manning of coastal craft and landing craft for the R.N., infiltration into cruisers for training, the manning of ships built in Britain for the R.C.N., and the coming of Canadian escort vessels and minesweepers to participate in "Operation Neptune", led to growth in the administration and welfare staff in the R.C.N. establishment. The Fleet Mail Office had to be increased to several times its previous size, in order to handle the mail for the thousands of men in over a hundred ships and establishments.

A further important addition was made to the establishment by the appointment of Vice Admiral P. W. Nelles on January 15, 1944. The growth of the Canadian forces in the United Kingdom in preparation for the invasion of northern Europe made it desirable to have an officer of flag rank in close touch with the British and American chiefs of staff in the United Kingdom, and since Vice Admiral Nelles was about to be replaced as Chief of the Naval Staff, it was decided to appoint him as Senior Canadian Flag Officer Overseas. His most important tasks were to arrange the final details of Canadian naval participation in the invasion of Europe and to discuss plans for taking part in the war against Japan.

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The sweeping responsibilities given to Admiral Nelles in his first terms of reference, together with his limited powers for carrying them out, might have resulted in his becoming a scapegoat had a serious disaster befallen the Canadian naval ships or personnel.¹⁵ In the end, with the formation of the Canadian Naval Mission Overseas, this responsibility was somewhat reduced. The original terms of reference as set forth in the Minister's letter of January 19, laid down the following duties:

The care and welfare of all Canadian Naval Officers and men overseas whether serving in R.C.N. ships or Establishments or attached to the Royal Navy

To oversee the affairs of the Royal Canadian Navy—its personnel, ships, establishments and so on . . . in the United Kingdom or elsewhere overseas

Maintain close liaison with the Canadian High Commissioner and the respective heads of the Canadian armed forces in that area

You will endeavour to organize . . . close liaison with Admiralty.

The S.C.N.O. continued to function, in addition to the S.C.F.O. (O), his title being altered to Senior Canadian Naval Officer (London). His terms of reference,¹⁹ which made him responsible for nearly all R.C.N. affairs in the United Kingdom, were to some extent duplicated or overlapped by those of the S.C.F.O. (O), which were made "subject to modification from time to time in the light of experience." The latter officer, in the course of his first two months in the United Kingdom, visited or studied and reported on H.M.C.S. "Niobe", the Canadian Beach Party "W", the Canadian LCI (L) flotillas, Londonderry, and the Canadian escort forces operating from the United Kingdom.²⁰ During this time Vice Admiral Nelles became convinced that his terms of reference were inadequate and that he had insufficient power to perform useful work for the R.C.N. in Great Britain. In signals and in a letter of March 17 to the Minister, he pointed out that the S.C.N.O. (L) was not responsible to him, although their terms of reference overlapped considerably, that he himself had no organization capable of carrying out any of the detailed work called for by his instructions, and that:

. . . owing to the interconnected nature of all Canadian Naval affairs in the U.K. it is not possible to divide the functions of supervision and liaison

¹⁵ Failure to delegate sufficient authority to carry out delegated responsibilities is alluded to in ch. 15 as a recurrent feature of Canadian naval organization.

¹⁹ Naval Order 3171, Nov. 1943.

²⁰ S.C.F.O. (O) to N.S.H.Q., 231206 3, 44.

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either along the lines envisaged by the terms of reference or along any other lines of division without setting up an organization that is cumbersome and difficult to manage.

He therefore recommended that the offices of S.C.F.O. (O) and S.C.N.O. (L) be merged into that of a Canadian Overseas Commander in Chief, who would be responsible for the general direction of Canadian Operations of war within his command, the fighting and sea-going efficiency of Canadian naval vessels allocated to his command, the care and welfare of Canadian naval personnel both in his command and attached to the Royal Navy, and the co-ordination of the Canadian naval war effort with the corresponding effort of the overseas allies and particularly with that of Great Britain.²¹

This proposal was rejected on the grounds that "K.R. and A.I. imposes duties on a Commander in Chief which imply the existence of a complete organization staff, bases, repair facilities and the like and involve commitments beyond anything yet contemplated", and that it would be very difficult to share authority between the proposed Canadian Overseas Naval Commander in Chief, and the R.N. operational authorities, such as the Commander in Chief, Western Approaches, under whose authority Canadian ships were already working.²² The principle that S.C.N.O. (L) should be subordinate to S.C.F.O. (O) was approved, however, and a new draft of the terms of reference was submitted to the Minister. This draft made S.C.F.O. (O) solely responsible for the direction of the Canadian naval forces overseas, with special regard to the care and welfare of the personnel, the supervision and direction of the affairs of the Royal Canadian Navy, and the maintenance of liaison with Admiralty. The question was finally settled by abolishing the title of S.C.N.O. (L) and the establishment of the Canadian Naval Mission Overseas with S.C.F.O. (O) as its head.²³ The terms of reference of the Mission, later embodied in Naval Order 3824, included most of the functions and duties formerly allotted to both S.C.N.O. and S.C.F.O. (O), and stated specifically that: "The Head of the Mission is to have under his command all Canadian shore establishments overseas", namely beyond the limits of the western hemisphere.

S.C.N.O. (L) expressed himself strongly against the proposed organization, suggesting that such a drastic change in

²¹ S.C.F.O. (O) to N.S.H.Q., 151006 3 44 and 151007 3 44; same to Min., Mar. 17, 1944.

²² N.S.H.Q. to S.C.F.O. (O), 281558 3 44.

²³ N.S.H.Q. to S.C.F.O. (O), 201624/4 44.

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the administrative machinery would cause confusion and delay at a time when one of the most critical periods of the war was approaching. His fears, however, were not shared by S.C.F.O. (O) or by various Admiralty officials who were consulted on the subject, and on May 15, 1944, the proposed re-organization came into effect.

The liaison establishment in London now reached its fullest development. The greatly increased complement was organized to form a miniature headquarters with five sections, each under its own director, and a larger secretariat to handle the swelling flow of correspondence. Vice Admiral Nelles was Head of the Mission, and Capt. Houghton the Deputy Head. The Naval Assistant (Weapons and Equipment) was in charge of all technical liaison and the procurement of stores and equipment of all kinds from British sources. All personnel matters, including manning, training, medical care, mails, estates, special services, and chaplains, were administered by the Naval Assistant (Personnel and Welfare). There were also a Naval Assistant (Policy and Plans), an Accountant Officer, and a Chief Public Relations Officer, whose titles indicate their functions.

During the period from the establishment of the Mission to the end of hostilities in Europe, liaison was carried on at all levels on a greater variety of subjects and in more detail than ever before. The number of Canadian ships in British waters remained large; the equipment of new and larger ships and the training of crews to man them called for study of weapons and techniques not used before in the R.C.N. The survey carried out by Capt. H. N. Lay and others to determine the feasibility of establishing a Canadian Fleet Air Arm was only one of the important studies made in this period.

In formulating plans for participation in the Japanese war suggestions were first asked for and obtained from Admiralty Plans Division (M Branch II) which, in making plans for the deployment of British naval forces in Far Eastern waters, was best able to indicate what form of assistance from the R.C.N. would be most acceptable in that campaign. A memorandum from "M" Branch II dated June 14, 1944, contained the following suggestions which had been considered by the Naval Staff but not by the Board of Admiralty. After the end of the war with Germany, it was felt, the R.C.N. could provide: two cruisers, two fleet "V" destroyers and whatever tribal destroyers were in commission for fleet duties; two

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escort aircraft carriers (manned, except for aircrew, by R.C.N. personnel), *Prince Robert*, and all the escort destroyers, frigates, and castle-class corvettes, for escort duties in eastern waters; Bangor minesweepers for mine clearance in European waters and Algerines for use in the Pacific; and *Prince Henry* and *Prince David* for use in combined Operations. It was further suggested that Canadian personnel could be employed to man some or all of the following: a flotilla of 8 new fleet destroyers, 10 R.N. frigates, 30 L.C.I. (L)'s, a flotilla of 12 or 16 Canadian-built L.S.T.'s, a flotilla of 6 to 12 major support craft, and 3 escort maintenance ships, besides contributing to the complement of R.N. cruisers and fleet aircraft carriers.

These suggestions were duly considered by the Canadian Naval Staff, which in turn formulated a series of recommendations for consideration by the Naval Board and the Cabinet War Committee.²⁴ These were based on the assumption that Canada would be fully committed to the war against Japan and would bring to bear in the Far Eastern theatre whatever power she could, in an effort commensurate with that which she had made in the Atlantic campaign. Consequently the Staff proposed to use all ships capable of playing a useful part in the Pacific, and in addition to man a full flotilla of new fleet destroyers, and two escort maintenance vessels, with personnel made available by the paying off of corvettes unsuitable for operation in the Far East. Any personnel available after meeting these commitments and supplying the necessary shore staff were to man additional minesweepers for the clearance of the eastern Atlantic and to form an amphibious force. The total personnel afloat would number about 24,000.²⁵

Until September 1944 these suggestions at staff level were the only indication of what part Canada might play in the Pacific naval war, except for a statement in August from N.S.H.Q. that the scale of contribution was unlikely to exceed seventy per cent of the existing total. At a Cabinet meeting on September 14 it was decided that:

At the end of the war in Europe Canadian military forces should participate in the war against Japan in operational theatres of direct interest to Canada as a North American nation, for example, in the north and central Pacific rather than in more remote areas such as South East Asia.²⁶

²⁴ Staff Minutes, July 3, 1944.

²⁵ C.N.M.O. to M. Branch, Admiralty, July 17, 1944.

²⁶ C.N.M.O.'s 131640A 9 44.

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The Cabinet also decided that the form and extent of participation by the three Services should be determined after the conclusion of the second Quebec Conference, which was then in session.

The Canadian Chiefs of Staff were actually in consultation with their British opposite numbers on the same day. The Admiralty proposed to allocate to the Pacific all the Canadian ships offered, with the exception of those considered unsuitable for Operations there. *Prince Henry*, *Prince David*, and the tribal destroyers only were to be used in the South-East Asia Command, the former because they were eminently suitable for "Operation Dracula", a projected assault on Malaya, and the tribals because their short range would handicap them in the Pacific while their heavy gun power would be best employed in support of landings within that command.²⁷

It was thought by both the R.N. and R.C.N. Chiefs of Staff that any alterations in these arrangements would be of a minor nature. The final Cabinet decision, however, which was communicated in mid-October, was that Canadian ships would be employed in the Pacific only and not in the Indian Ocean, and that the total sea-going strength employed would not exceed 13,000.²⁸

This reduction in the R.C.N.'s strength for use in the Pacific necessitated alterations in the general plans for the coming campaigns, and caused some disappointment to the Admiralty as well as to the R.C.N. itself. The Admiralty found it necessary to ask for *Prince Henry* and *Prince David* on loan, to be manned by R.N. personnel for use in the South-east Asia Operations,²⁹ and the building up of escort forces was hampered by the reduction in the number of R.C.N. frigates designated for the Pacific and the refusal of the R.C.N. to man any escort maintenance vessels.

By October, Vice Admiral Nelles was no longer actively engaged in the working out of these plans for Canadian participation in the Far Eastern War. The most important part of his work was completed, and he was put on the retired list to date January 6, 1945.

Plans for participation in the Pacific campaigns were continued, and began to be implemented in the early months

²⁷ Plans Paper 12/44, C.S. 21 (C.N.M.O. records).

²⁸ N.S.H.Q. to C.N.M.O. 131712Z/10/44.

²⁹ C.N.M.O. to N.S.H.Q. 192348A, 181740, Nov. 1944.

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of 1945 on the basis of thirteen thousand sea-going personnel. The ships involved were: 2 cruisers; *Prince Robert* (anti-aircraft cruiser); 2 light fleet carriers; 11 fleet destroyers, including 2 fleet "V's" and 4 tribals; 5 Crescent-class destroyers; 36 river-class frigates; and 8 castle-class corvettes. In addition 6 more fleet destroyers (the last 3 of the Crescent class to commission and the three tribals building in Canada), 20 frigates, and 4 castle-class corvettes, were to be kept as an operational reserve in Canada.³⁰ The end of the war in the Pacific, however, brought these plans to an abrupt conclusion before they had been more than partially implemented.

The organization responsible for liaison in the United Kingdom had developed in response to a series of emergencies requiring immediate action, and its complement was made up almost entirely of *ad hoc* appointments. So little liaison work had been necessary in peace-time that it had been hard to realize that the work to be done had expanded a hundredfold or more in the course of a few years.

It has been strikingly characteristic of twentieth-century war to date that it has for the most part been made by associated groups of nations. Governments and their armed forces have accordingly been obliged to co-operate closely with the governments and Services of other countries, and in doing so they have had serious difficulties to overcome. The liaison work which has been described in this chapter was, for several reasons, comparatively easy to perform. Yet it illustrates clearly a special problem of warfare waged under modern conditions.

³⁰ C.N.M.O. to First Sea Lord (memo.), Nov. 15, 1944; C.N.M.O. Policy and Plans file 104.

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Personnel

We do not know when or under what circumstances the war will end. We do not know what military obligations may continue afterwards or for how long. We do not know what further changes in our national economy may yet be compelled within the period of the war itself.

Hence the planning of the procedure of demobilization, and of the reconstruction period, cannot yet be reduced to a blueprint or a statute. Broad principles can be and have been studied. The Government has enunciated and committed itself to certain very definite policies. But the time for definite action has not yet [1944] been reached.

C.N. Senior, *When the Boys Come Home* (Toronto 1944), p. 157.

THROUGHOUT the war the problems involved in the return of members of the fighting Services to civilian life were often considered. When it had become evident in the summer of 1939 that peace could not last much longer, the Canadian Government had created six Subcommittees of Council for the prosecution of the war effort.¹ In December 1939, when the tasks devolving upon the subcommittees had increased to such an extent that it was found necessary to reshuffle them into ten sections, renamed Committees of the Cabinet, one of these was formed expressly to deal with demobilization and rehabilitation.² The Minister of Pensions and National Health was the chairman of the Committee on Re-establishment and Demobilization, and the other members were the Ministers of Labour, Public Works, Mines and Resources, and Agriculture, and the Secretary of State.

The whole concept of the reversion of the Service men and women back to civil life involved their welfare and that of any dependents, and their adaptation to the respective fields of opportunity open to them. It was decided early in the war to distinguish clearly between the purely Service question of demobilization, which ended when the persons concerned had

¹ P.C. 2474, Aug. 30, 1939.

² P.C. 4017¹/₂, Dec. 5, 1939; P.C. 4064¹/₂, Dec. 8, 1939.

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actually become civilians again, and the more delicate problem of rehabilitating and readjusting them to life in peace-time, which could be handled better by non-military authorities.

Throughout the early war years other committees came into being, such as the Committee on Reconstruction, the Committee on Manpower, and the Canadian Mutual Aid Board.³ The Veterans' Bureau, which had been established in October 1930 as a branch of the Department of Pensions and National Health, had played a large part in the first plans for re-establishment. The purpose of the Veterans' Bureau had originally been to assist in preparing and presenting the cases of veterans of the First World War who had applied for pension. With the tremendous expansion of its work and responsibilities after 1941, the bureau was re-formed as a separate unit in October 1944 and became a part of the Department of Veterans' Affairs; but no steps were taken to lay down any hard and fast rules until the end of 1944, when it was evident that hostilities in Europe would not go on much longer. The Department then took over most of the legislation and administrative organization affecting rehabilitation.

Difficult problems faced the Department of Veterans' Affairs. The average fighting man of the Second World War had enjoyed a higher standard of living before entering the Services than had his counterpart of 1914-18, and on returning to civil life he often expected more than the country could give him. Some naval men, for instance, came back from overseas with an erroneous idea of what rehabilitation had to offer them. Cases were known where officers, in good faith, had led their crews to suppose that the moment they landed back in Canada the best of everything was to be handed to them—farms, automobiles, continued exemption from income taxes, almost anything they wanted. Hence there were complaints when it was found that hopes had been unduly raised.⁴

In the years preceding the formation of the D.V.A., government planning boards and various committees had been engaged in drafting an economic programme to take care of all discharged personnel. At first it was laid down that the women of the armed forces should benefit to a smaller degree than the men, but in May 1945 this ruling was changed so

³ Committee on Reconstruction authorized by P.C. 4068¹/₂, Dec. 8, 1939. The Committee on Man-Power was approved by the War Committee of the Cabinet on Dec. 16, 1941. The Canadian Mutual Aid Board was established under the provisions of the United Nations Mutual Aid Act of Oct. 9, 1943.

⁴ Interviews with discharge officers from D.F.C.'s in Vancouver and Saint John, N.B.

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that all received the same advantages, and the merchant navy was included in certain circumstances.⁵

A staff of "welfare officers", distributed throughout the country by D.V.A., opened offices in the premises of the National Employment Service. These officials were mostly veterans of the First World War, and had been expressly trained to advise and help "dischargees." As the task of demobilization grew, several veterans of the more recent war were called upon to assist in this field. The main duty of the welfare officers was to determine the qualifications, education, and experience of the dischargee, and no one completed the routine of leaving his Service without an interview. On the basis of the information given, the dischargee was instructed in the various benefits and services at his disposal, and was given in writing a list of places at which to apply for advice and assistance in his own particular problems. One great help to the civilian welfare officers, although used principally by the service rehabilitation officers who advised the personnel prior to discharge, was the naval manual entitled *Naval Rates—Their Meaning for Employers*. This pamphlet, prepared by the Directorate of Personnel Selection, described approximately ninety trades which were open to men with non-substantive ratings, that is, with special training in certain fields such as gunnery or mechanics. It also provided an extensive table showing all naval trades which could be applied to the many forms of civilian industry. Nearly a hundred main industries were cross-referenced in this way, so that a prospective employer could discover at a glance which naval trades applied to the particular positions that he had to offer.⁶

It was inevitable that some people should have more difficulty than others in re-establishing themselves, through lack of education or for psychological reasons, or because of physical disability. In such cases an "out-of-work" or "awaiting-returns" allowance was arranged to tide them over until they could find employment. Such individuals might also benefit from a system of vocational or university training undertaken at the public expense. Men who wished to take up farming could avail themselves of the Veterans' Land Act, which provided for part-payment by the government for suitable tracts of land, farms or small holdings, for them to

⁵ P.C. 213/185, Jan. 10, 1945.

⁶ *Naval Rates—Their Meaning for Employers* (Ottawa 1945), prepared by D.P.S.

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own and work. A further help to the ex-Service man was the provision of free medical treatment or hospitalization for a full year after he had left the forces, and in certain circumstances benefits were provided for his dependents.⁷

Lastly, in conjunction with the three Services the government evolved a plan for orderly demobilization which could be adjusted to the economic state of Canada at the end of the war. The rehabilitation of the veteran was to be undertaken by the civilian departments, while actual discharge procedure, payment of bonuses and gratuities, and the distribution of information pamphlets, would be in the hands of the navy, army, and air force.

The Naval Service had not been in a position to give much thought to the problem of wholesale demobilization of naval forces until September 1943. Even by that time it was impossible to predict when or to what extent demobilization would take place. It was intended, however, that certain basic plans should be made, in order that when the time came Service personnel could be drafted from ship to base, from base to discharge establishment, and from there to civil life, with little delay and trouble.

In September 1943 the Assistant Director of Plans proposed to form a naval demobilization committee, but it was not until January 1944 that the Directorate of Demobilization⁸ was finally established. The war was still in progress, yet circumstances made it necessary that the Service should be prepared to embark upon a demobilization programme at very short notice. The Director of Demobilization therefore arranged to apportion responsibilities among the several naval authorities concerned, so that each could play its proper part with a minimum of friction. Provision was made for the interlocking of these authorities through the Directorate itself. The method of demobilization and the time when the machinery would begin to function awaited the word of the government, which would decide the type and size of navy needed in peace-time.⁹

Meanwhile the object was to prepare to reduce the strength of the navy without any loss of over-all efficiency. It was planned to raise the general peace-time standard of officer and

⁷ *Canada Year Book*, 1946, pp. 823-825 and 1072-1074; C.N. Senior, *When The Boys Come Home* (Toronto 1944), pp. 14-18.

⁸ Cdr. J. H. McDonald, R.C.N.V.R., assumed the title of Director of Demobilization on Feb. 1, 1943, but worked alone until the formation of the Directorate of Demobilization eleven months later.

⁹ Information in N.S. 1279-8 (1) and N.S. 1280-125 (1).

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man by careful weeding. To achieve this purpose it was necessary that enough efficient men should be retained in each division and subdivision, and that men whose qualifications were not of the highest order, or whose services were no longer required, should be discharged. When the Naval Service had been informed of the policy to be followed, responsible directorates such as those of Plans and of Operations would decide which individual ships were to be paid off, and then draw up lists of new complements for the various classes of ship remaining and for the shore establishments and base staffs which would continue to operate.¹⁰

Soon after the Directorate of Demobilization had been set up a number of important steps were taken. In January 1944 an order was promulgated providing a uniform discharge procedure for all officers and ratings. Programmes for vocational guidance and a system of terminal leave were uniformly adopted by all three Services, being mapped out from recommendations put forward by an inter-Service demobilization committee. Pending the establishment of a complete organization under the Department of Pensions and National Health, a scheme was worked out whereby the Services became responsible for repatriating overseas dependents of members of the forces. A pamphlet entitled *Back to Civil Life* was published for the use of discharges.¹¹ Liaison between the Services and the civil Departments concerned with rehabilitation was put on a smoothly-running basis. Other plans and ideas of varied importance were advanced as well, but they were left in abeyance until demobilization itself should have become imminent.¹²

Surveys were made to ascertain the emotional state of personnel reporting for discharge, and these seemed to indicate that the period immediately preceding discharge might be one of the most difficult times in a man's Service career: "Experience shows that whilst the average dischargee wants to be discharged, he is fearful of the future; he resents the slightest delay and is often nervous, irritable and suspicious."¹³

The planners had to prepare for large numbers; even as early as December 1944, before demobilization had begun,

¹⁰ "Naval Demobilization Organization", Aug. 1, 1944, prepared by D. Demob., N.S. 1279-8 (1); report from C.N.P., Jan. 19, 1945, N.S. 4240-15 (1).

¹¹ *Back to Civil Life* (Ottawa 1944), prepared by the Dept. of Pensions and National Health.

¹² Inter-Service Demob. Cttee. Report, Apr. 10, 1944, N.S. 1280-125 (1); Naval Order No. 3321, Jan. 15, 1944.

¹³ Inter-Service Demob. Board Report, Dec. 11, 1944, N.S. 4240-1 (2).

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there were approximately 4,000 discharges during the month from the army and from the air force. It was expected that when demobilization got fully under way the army would have to deal with 20,000, the air force with 10,000, and the navy with 3,000 discharges a month.¹⁴

One of the main achievements at this stage of planning for demobilization was the forming of Final Discharge Establishments across Canada in July 1944. Such a unit was set up at each of several centres to handle discharges intending to live in a given district: H.M.C.S. "Stadacona" for Nova Scotia, H.M.C.S. "Givenchy" for Vancouver Island, H.M.C.S. "Discovery" for British Columbia other than Vancouver Island, H.M.C.S. "Donnacona" for Montreal and the surrounding districts, and all the reserve Divisions for localities not falling within these areas. Normally, the establishment chosen for the individual was determined by whether he was returning to civilian employment in an essential industry, in which case he was sent to the establishment nearest to that employment, or simply being released at the conclusion of his Service career, in which case he would go to the discharge establishment nearest to his home. The whole routine was over in a matter of a few hours, the dischargee being given a quick but adequate medical check-over, receiving his discharge pay and papers, and then being referred to the nearest D.V.A. Rehabilitation Centre. From that point on he was no longer the responsibility of the Naval Service.

Early in the war there had been talk of combining the three Services for purposes of demobilization, and an inter-Service advisory board on this and related subjects had been established in May 1944. The members were the three directors of demobilization and an additional officer from each Service, together with the Chief Staff Officer Reserves, the Adjutant General, and the Air Member for Personnel. The duty of the board was to advise on all matters relating to demobilization policy as it affected the three Services as a whole, making recommendations to the War Committee of the Cabinet, and keeping each Service informed of the plans of the other two. The advisory board was responsible to the Ministers of National Defence.

Combined demobilization, however, might have been too expensive and might have required too much space at any

¹⁴ *Ibid.*

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one discharge centre to accommodate members of all the forces. Moreover, it was thought impracticable to co-ordinate the differences in function of the District Depot (army), Release Centre (R.C.A.F.), and Transit Centre (navy), without causing confusion. Apart from the fact that the three medical boards were run on different lines, it was feared that it would be difficult to enforce proper discipline with soldiers, sailors, and airmen, all collected in one spot.¹⁵

Although this idea of a unified demobilization machine for the three Services was represented as so costly and complicated that it was soon abandoned, the navy, army, and air force, maintained close co-operation on matters of demobilization through the Inter-Service Demobilization Committee which had been established in January 1944 at the same time as the naval Directorate of Demobilization.

The naval directorate had opposed the idea of amalgamation from the beginning, partly because it had already begun to organize Discharge Transit Centres on the east and west coasts. The first of these went into operation on December 11, 1944, at Halifax. All naval personnel discharged at that time passed through it, after which they went on accumulated demobilization leave, if any was due; otherwise they proceeded immediately to a final discharge establishment, of which there were twenty distributed throughout the country.

At the end of the European war other Discharge Transit Centres were established at Sydney, "Cornwallis", Quebec, St. Hyacinthe, Esquimalt, and at H.M.C.S. "Bytown" in Ottawa, the scheme envisaging an even demobilization rate of 3,500 men per month, and it was planned to have an additional transit centre at St. John's, Newfoundland, as soon as sea-transport could be made available. Within a month four river-class destroyers and several frigates had been put at the disposal of C. in C., C.N.A., in order to ferry surplus personnel from Newfoundland to Canada.¹⁶

The various reserve Divisions were to be transit centres for their own ships' companies only, as their facilities for medical examinations were limited. In view of the simplicity of the final routine, however, they were able to act as discharge establishments for all naval personnel sent to them, though

¹⁵ *Ibid.* Armed services tend to dislike integration of this sort.

¹⁶ Exec. Asst., C.N.S. to A.C.N.S., May 17, 1945, N.S. 4240-1 (2); N. Sec. memo., May 1945, N.S. 4240-12 (1).

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many returned men and sea-going ranks and ratings were dealt with at the larger bases.

With the tapering off of demobilization during the winter of 1945-46, most of the Discharge Transit Centres were closed down one by one. For example, when in the course of time the staffs maintained to deal with discharges at "Cornwallis", St. Hyacinthe, and Shelburne, became quite out of proportion to the reduced number of men passing through, the duties of the D.T.C.'s at these places were transferred to H.M.C.S. "Stadacona" and H.M.C.S. "Peregrine." The former dealt solely with officers, and the latter with ratings.¹⁷

Even as late as the end of 1944 the problem of demobilization was still secondary to that of planning the re-allocation of man-power between the end of hostilities with Germany and the defeat of Japan. This problem concerned civilian industries as well as the Services. In Great Britain compulsory recruiting was to go on for some time in order to bring relief to the men who had been long in the forces, and to supply man-power for industry. This particular difficulty was not as serious in the Dominion, since Canadian commitments in the Japanese war were far smaller than those of Britain, but for a time no one whose retention was considered necessary was released, except on strong compassionate grounds. Canadians were no longer unaware of the need for effective defence, as they had been in 1939, and public opinion had its influence.

In May 1945 it was stated by the Chief of Naval Personnel that large-scale demobilization would have to await the receipt of two pieces of information: the final evidence that all enemy submarines in the Atlantic had been accounted for, and the full returns of volunteers for the Pacific war. The Admiralty expected that all U-boats in the Atlantic would have surrendered by May 29, 1945; it was not expected that the required returns on Pacific volunteers would be complete until the beginning of June. As soon as this information was received a programme of re-allocation of ships and men could be worked out, and it was hoped that by mid-June intensive demobilization would be in full swing. From that time until the complement for the Pacific war was reached, some 5,400 officers and 22,600 ratings could hope to be discharged.

In July 1944, while demobilization was still in the future, the question had arisen of setting up a priorities board by the

¹⁷ C.O.A.C. to "Cornwallis", Nov. 29, 1945; C.O.A.C. to N.S.H.Q., Nov. 23, 1945; (S.D.O. records).

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Naval Service; but it was decided that until the government could provide concrete information concerning the system of priorities required, no board could be effectively established.¹⁸ Priorities for the return to Canada of personnel serving overseas were laid down, however, as follows: prisoners of war and casualties; volunteers for the Japanese war; non-volunteers afloat in European waters; and non-volunteers ashore in Europe. In the lowest priority for return to Canada were the Canadian Naval Mission Overseas, personnel at H.M.C.S. "Niobe", and the members of the Navy Show.¹⁹

Before the time actually came to cope with the administrative problem, few predictions and no plans had been made as to which individual establishments were to be closed down, what ships were to be paid off, or the extent to which naval complements could be reduced. But certain facts about rehabilitation and what Canada had to offer to returned men had been established, and the Director of Demobilization was of the opinion that as much advance publicity as possible should be given to these. In January 1945, when the flow of discharges through the transit centres had begun to show a steady increase, he had suggested to the Chief Staff Officer Reserves, his immediate senior, that the Directorate should be divided into two committees, one to deal with the simple routine of discharge alone, and the other to occupy itself with rehabilitation as far as the navy was directly concerned with it.²⁰ This recommendation was approved by the Minister and the C.N.S. in April.

In May the Winnipeg *Free Press* sent a list of questions to N.S.H.Q. with regard to plans for demobilizing men overseas. Policy had not yet reached the stage where all the questions could be definitely answered; but the Naval Service made a general statement for publication. The *Free Press* was told that men would be returned to Canada as quickly as the shortage of shipping would permit, and that priority in this regard would be given to prisoners of war, casualties, and those who had elected to serve in the Pacific. Upon arrival in Canada these last would as far as possible be allowed thirty days' special leave, as well as any normal leave which might have accumulated as a result of their overseas service. Personnel who were no longer required, or who were entitled to

¹⁸ Inter-Service Demob. Cttee. Minutes, July 24 and Dec. 6, 1944, N.S. 1280-125 (1).

¹⁹ C.N.P. to C.N.S., May 10, 1945, N.S. 4240-1 (2). By "non-volunteers", here and elsewhere, is meant those who had not volunteered for the Pacific war.

²⁰ D. Demob. to C.S.O.R., Jan. 18, 1945, N.S. 1700-100 65 (1).

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exercise their release priority, were to receive on disembarkation their medical and dental examinations, personnel-selection interviews, and most of their pay and clothing allowances. They would then be sent to the naval establishment nearest to their place of enlistment, which in most cases was their home, for final discharge, balance of pay, gratuities, and so on.²¹

In order that discharges might come up for interview with some knowledge of the programme available to them should they wish to make use of it, the main features of the demobilization policy were set before the public in lectures and through the Press. Officers and men were therefore able at once to ask pertinent questions concerning their futures, which simplified and speeded the task of the interviewers. Pre-discharge information was given to overseas personnel, and selected ranks and ratings of all three Services were specially trained and sent to troop-ships, hospital-ships, and troop-trains, to discuss and distribute copies of *Back to Civil Life*, and to answer questions. Certain civilian organizations joined in this campaign, and Veterans' Welfare officers made arrangements to lecture to ships' companies on the rehabilitation programme.²²

One of the first acts of the Directorate of Demobilization had been to train some specially-selected naval officers to act as rehabilitation advisers to those leaving the Service, and as co-ordinators of all rehabilitation activities within the naval establishments to which they were assigned. Such officers were appointed to all the principal Canadian naval centres at home and overseas. They were expected to inform all concerned of the government's plans for rehabilitation, and they reached as many officers and ratings in their districts as they could by means of private interviews, general discussions, and study groups. In addition to advising on civilian opportunities they drew attention to the chances for reserve personnel to transfer to the R.C.N. for permanent service. They also had to maintain close liaison with the local offices of the Department of Veterans' Affairs, the Department of Labour, and any other agencies which might be concerned with rehabilitation and re-establishment.²³

Immediately before discharge, both officers and men were given an opportunity of stating any grievances which they

²¹ C.N.P. to C.N.S., May 10, 1945; Exec. Asst., C.N.S. to D. Min., May 14, 1945: N.S. 4240-1 (2).

²² Inter-Service Demob. Cttee. Minutes, Oct. 2, 1944, N.S. 1280-125 (1).

²³ Information in N.S. 4580-2 (1).

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might have concerning their service, and such grievances were reported to N.S.H.Q. Officers responsible for the discharge procedure made a point of mentioning this privilege, the object being that all demobilized personnel should leave the navy with the feeling that their services had been appreciated by the country, and that the navy was still interested in their welfare.

In December 1944 thought had been given to a possible increase of personnel in the Canadian Naval Air Service. The only way to achieve this within the total complement was to accept a reduction in other branches of the navy, so that corresponding numbers of air-service ratings could be taken on. As there was at the time an excess over complement in the engine-room artificer branch, a considerable number of these ratings were discharged and an equal number of air personnel entered.²⁴

The general instructions governing demobilization which had been laid down in September 1944 were to discharge those who wished to go and retain those who wished to stay, dependent of course on the ability of the navy to spare the personnel. Of those who wished to go, married women and persons needed by government Departments and essential industries were to be discharged immediately. The remainder would leave the Service on the basis of "first in, first out." For purposes of demobilization the term "interim release" was used to denote the discharge of personnel at any time between the end of the war with Germany and the defeat of Japan. Interim release was to be applied only in the event of there being no announcement of government policy on this point by the time it was necessary to cut down the complement of the naval forces. The stipulation was made that if too many preferred to remain in the Service, as actually turned out to be the case, personnel were to be released on a basis of "last in, first out", on the principle that partly-trained individuals were the least valuable to the navy.²⁵

During the Second World War about 100,000 officers and men were enrolled in the R.C.N., the R.C.N.R., and the R.C.N.V.R., and some 6,500 women in the W.R.C.N.S. The peak strength for the entire Naval Service was reached in January 1945 with over 92,000 including Wrens. This level

²⁴ N. Sec. memo., Dec. 14, 1944, N.S. 4240-1 (2).

²⁵ Inter-Service Demob. Cttee. Minutes, Sept. 6, 1944, N.S. 1280-125 (1); paper presented by C.N.P. at D. Min.'s Advisory Cttee. meeting, Sept. 8, 1944, N.S. 1000-3-39 (1).

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was maintained until VE-day, May 8, 1945, but immediately afterwards 5,600 ratings came up for discharge. These were persons who at the time were on the sick list, on leave, or awaiting draft. Those holding seniority as of 1939 and 1940 were the first to go. Arrangements were also made to dispose of all new entries who were still in training and had not therefore been fully absorbed into the navy; and this notwithstanding the policy of first in, first out, which went into effect as soon as hostilities ceased. All the east-coast sub-commands and the Newfoundland commands were instructed to prepare lists of reduced complements, which would become effective as soon as possible.²⁶

The British system whereby each member of the forces was given a priority number based upon age and length of service was not entirely favoured by the R.C.N., although the Inter-Service Demobilization Committee considered that, with the exceptions already mentioned, priority in demobilization should be determined in the same way. The Naval Staff maintained that the administrative difficulties would be too great, that the system was too rigid and would complicate certain requests for discharge based purely on compassionate grounds, and that there would probably be much dissatisfaction if every individual were advised of his or her demobilization number.²⁷

The peace-time regulations for the discharge or retirement of officers did not apply in war-time:

Under the provisions of the War Measures Act, Chapter 206, Revised Statutes of Canada, 1927, notwithstanding the provisions of any other Acts or regulations, for the period of the present hostilities, any Officer of the Naval Forces of Canada on Active Service may at any time be retired or discharged under conditions laid down by the Minister of National Defence for Naval Services and subject to his approval in each case.²⁸

The reasons for discharging officers as laid down were: retirement on account of age; resignation, with sufficient reason, such as return to essential industry, or strong compassionate grounds; resignation to avoid court martial, granted at the discretion of the Minister of National Defence for Naval Services; medical unfitness; dismissed by court martial or disciplinary court; "unsuitable for naval service", in which

²⁶ N. Sec. memo., June 6, 1945, N.S. 4240-12 (1).

²⁷ Inter-Service Demob. Cttee. Minutes, Sept. 6, 1944, N.S. 1280-125 (1); Admiralty to AIG 1-502A (B3) (signal), Oct. 3, 1945, N.S. 4240-146/17 (1); Naval Order No. 3683, June 3, 1944.

²⁸ Naval Order No. 3683, June 3, 1944.

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case the officer concerned would be allowed to submit his own reasons in writing against such a recommendation; failure to complete courses, or failure in examinations by probationary officers; "to promote efficiency or economy", where again, the officer in question might submit reasons against such discharge; and "services completed", applying to reserve and other temporary officers who might be discharged prior to general demobilization by reason of reduction in strength, completion of duty, or the fact of no suitable appointment being available, a ground which was not actually used until general demobilization came in.

Naval officers were divided into classes according to the requirements of the war against Japan. Once the lists of those volunteering for the Pacific theatre had been received by the Chief of Naval Personnel the officers were again listed, this time according to length of service and whether or not each was qualified for one or more types of work. If qualified for more than one, his employment at the time was the determining factor. All officers fell into four groups. The first comprised those volunteering to serve in the Japanese war for its duration, after which they could be discharged in turn according to their release priorities. The second class was made up of those volunteers for the Pacific who desired discharge when their release priorities entitled them to it, whether or not the Japanese war was over. Thirdly there were officers who had not volunteered for the war against Japan, but were willing to continue serving in the navy in other areas as long as required, regardless of their discharge priorities. Lastly there were those who had not volunteered for the Japanese war, and who chose to be discharged as soon as their release priorities permitted. In practice, all members of the first group whose services could be used were retained, while if this class was not large enough to fill the requirements for the Far East, ashore and afloat, the deficiencies would be made up from the second. Those required for service in Canada were to be taken from the third group, and also if necessary from the second and fourth.

There were eight classifications of discharge for ratings. Four of these were termed "honourable", and were: medically unfit; at own request, to return to agriculture or essential industry, or on compassionate grounds; unsuitable for the rating held; and unlikely to become efficient. The other four reasons, classed as "dishonourable", were: "services no longer

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required", when the rating concerned was obviously unfit for the Naval Service because of a steady history of bad behaviour that was not serious enough to warrant court-martial; fraudulent entry into the Service, of which the most common type was falsification of written proofs of character or education; dismissal without disgrace; and dismissal with disgrace.

The sudden end of the war with Japan in August 1945 caused considerable change in the arrangements made by the Naval Service, and demobilization plans had to be rapidly revised. Many officers and ratings who had already elected to remain in the navy until September 1947, or until such time as their services would no longer be required, had become a problem of surplus personnel by the middle of 1946. This group, designated as "interim forces", was divided into three classes: those who wished to hold to their two-year engagements in spite of the termination of hostilities; those desiring release from the full two-year period, but wishing to serve until some specified date within that time; and those wishing to cancel their engagements. It was therefore laid down that to be eligible for discharge, interim-force personnel must have signed on prior to April 30, 1946, for a two-year period, and have made application for release on or before July 31, 1946. Personnel not included in the above classes had to abide by their agreements unless they could show strong compassionate grounds for not doing so.²⁹

The majority of naval officers and men arriving from overseas for discharge or for the Japanese war disembarked at Halifax, and were distributed to the Final Discharge Establishments through the local Discharge Transit Centre, H.M.C.S. "Peregrine." They were dealt with in one of two ways: those required for continued service in the Pacific or who could not be spared from other duties underwent normal barracks routine at H.M.C.S. "Peregrine", and were sent on accumulated overseas leave and thirty days' Pacific leave; while those who were destined for discharge went through a routine involving medical and dental examinations and personnel-selection interviews. The latter returned certain items of equipment and loan clothing, received most of their pay, and were despatched to the establishment nearest to their homes, places of enlistment, or places of employment, for their final routine. No naval officer or rating was discharged at his

²⁹ C.N.P. to Min., May 23, 1945, N.S. 4240-25 (18); N. Sec. memo., June 6, 1946, N.S. 4240-37 (1).

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port of arrival unless he had expressed an intention of living there.

The Women's Royal Canadian Naval Service, which had been created in 1942, was at all times regarded as a temporary organization. Nevertheless, when classes were started at H.M.C.S. "Conestoga", the "trainees" were as fully subject to naval discipline and at least as keen to observe naval etiquette as any male officer or rating. Although the basic training of the Wrens was relatively short, they learned quickly and easily, and contributed very greatly to the development of the modern Canadian navy. It was decided late in the war that when the time should come for the women in the Service to return to civilian life, they should be given the same opportunities and have the same benefits as the men.

The principle of first in, first out, applied also to the Wrens; and last in, first out, followed upon this when applicants for discharge in the former classification had been exhausted. W.R.C.N.S. personnel whose husbands had been discharged before September 1945 were entitled to be demobilized irrespective of their classification. Married women whose husbands were still in one of the Services were dealt with according to the normal system of classes.

In August 1945 the desirability of retaining a certain number of Wrens in the navy had been discussed. It would have been advantageous to keep a disciplined group, both to carry on the excellent record that had been established and to maintain the nucleus of a women's service ready for expansion in any future war. More important, perhaps, their retention would have made available women with specialized training for certain positions, particularly clerical ones, for which women generally show more aptitude than men. On the other hand the Director W.R.C.N.S. argued that the number needed for a peace-time force would have required a training staff quite out of proportion to the total number in the Service. She thought that Service life was not a natural one for women in peace-time, and felt that there would not be sufficient volunteers from members of the Service to warrant continuation, even on a reduced scale. In a memorandum to the Chief of Naval Personnel, D.W.R.C.N.S. stated that:

To make women effective and a credit to the Service, peacetime training and discipline would have to be strict. Communal uniformed life does not appeal to most women. They have adapted themselves to it cheerfully in a time of emergency, but it is doubted whether they would do

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so readily in peacetime. The contrast with civilian employment, both in terms of freedom and opportunities for advancement would be too great, and much of the prestige that goes with the wearing of a uniform in wartime would be gone.³⁰

She recommended, however, that as a considerable number of W.R.C.N.S. personnel were interested in continuing to work for the Naval Service as civilians, the navy should reap the benefit of their previous experience in this way without any of the difficulties involved in making them a part of the permanent force.

By August 31, 1946, the Women's Royal Canadian Naval Service had ceased to exist, although a considerable number of Wrens were still to be seen about. These were either on pre-discharge leave or going through their final demobilization routines at the various F.D.E.'s.³¹

The Fishermen's Reserve had ceased to play any effective part in the war by October 1943. The disposal of the F.R. personnel was a problem, for since they were the only section of the navy not liable to overseas service their absorption into the general service presented difficulties. A scheme for the reduction of the force was put into effect in July 1943. During the subsequent twelve months, in addition to those given the opportunity of discharge, some 35 volunteered to join the R.C.N.R. or R.C.N.V.R. and were merged in the general manning pool. By August 1944 it was decided to abolish all the patrols which the F.R. had been continuing to maintain off Vancouver Island, the Queen Charlotte Islands, and in the mainland inshore waters. This would leave in operation only five of the vessels taken into service under the F.R. scheme—those at Prince Rupert acting as transportation vessel, bathythermographic vessel, C.V.D. tender, D.F.M.S. tender, and fire boat. This freed 154 F.R. ratings for discharge or transfer to the general service if they volunteered. Under the F.R. regulations boats and crews had been taken into the Service as complete entities, but special arrangements were made to retain the five boats at Prince Rupert, and to man them from the general service so as to release the remaining 35 F.R. ratings, and by the end of 1944 that force had ceased to exist.³²

³⁰ D.W.R.C.N.S. to C.N.P., Aug. 23, 1945, N.S. 1700-190 (1).

³¹ This account of the Wrens and their demobilization is taken from S.O. (T), Pacific Coast, to D.N.I. and T., June 20, 1945, and D.W.R.C.N.S. to C.N.P., Aug. 23, 1945, N.S. 1700-190 (1); Personnel Members Cttee. Minutes, Feb. 13, 1946, N.S. 4240-9 (1).

³² Extract from D. Min.'s Advisory Cttee. Minutes, Sept. 6, 1944; C.O.P.C. to Sec. N.B., Aug. 30, 1944; N.S. 4240-904 (1).

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Ships

The character of Canada's post-war navy seems to have been considered for the first time at the Quebec Conference in August and September 1943. At that time the Dominion was most anxious to get more Canadian naval personnel to sea, and Sir Dudley Pound, the First Sea Lord, said that if Canada wanted to man cruisers there would be no difficulty in getting the requisite ships from the United Kingdom, provided that the necessary higher ratings were available. Such a move would prevent the R.C.N. from remaining merely a small-ship navy.

The Chief of the Naval Staff hoped that the Canadian navy after the war would be made up of at least five cruisers, two light fleet carriers, and three destroyer flotillas. Any proposals for a post-war navy, however, would have to wait until decisions about the war against Japan had been approved by the Canadian Chiefs of Staff at Ottawa. The provision of the necessary ships could then be considered, and responsible authorities would be in a position to make long-term plans regarding the future construction and disposition of ships.

Among the many things to be considered were the possible creation of a Canadian fleet air arm, to be retained in peace-time, and the fact that so many of the vessels on loan from the Royal Navy would be returned on the defeat of Germany. It was argued that for making war at sea under modern conditions, a naval air service was essential. If Canada failed to provide a reasonable contribution to her own defences in some future war, she might lose prestige and be subordinated unnecessarily to other Powers, either hostile or friendly.³³

At various times during and after the Second World War, recommendations were made concerning the number of men and the types of ships and their numbers which would be required for an effective post-war navy. Early in 1943 a total of 30,000 officers and men was suggested. This tentative complement was reduced from time to time, until in August 1945, when Japan capitulated, the figure stood at 10,000.

In September 1943, however, on the premise that about 273 officers and 12,000 ratings would fill the naval-defence needs of the Dominion in peace-time, provisional lists of types of ship, and the number of each type required for the post-war

³³ Quebec Conference Minutes, Aug. 11, 1943, N.S. 14300-9 (1); "The Post-War Canadian Navy" prepared by D.P.D., Sept. 1943, N.S. 1017-10-34 (1).

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R.C.N. were drawn up by the Director of Plans. It will be remembered that in the course of the war Canadian policy in acquiring warships went through three stages. The first emphasized the direct defence of Canada, and the second was dominated by the Battle of the Atlantic. In the third stage, 1943-45, three principal needs were borne in mind, and as far as possible reconciled with each other. These were the requirements imposed by the projected landings in Europe, the campaign in the Pacific after the defeat of Germany, and the type of navy that Canada would probably need after the war. The D. of P. recommended as the smallest fleet that would be effective: one squadron of four heavy cruisers, two light fleet aircraft carriers, one flotilla of nine fleet destroyers including a flotilla leader, and smaller craft as necessary.³⁴ After mine-sweeping Operations in the eastern Atlantic were completed, the Bangor minesweepers might be disposed of, leaving the Algerines as a nucleus for a fleet of post-war minesweepers, and in case of need one of the Dominion's four Suderoys could be retained while the other three were put up for disposal.³⁵

Between the time of the Quebec Conference and VJ-day Canada acquired ships of sixteen different types,³⁶ ranging from cruisers to M.T.B.'s. There was a temptation to keep these for a post-war R.C.N.; but it became evident as time passed that the cost of maintaining all these newly-acquired ships in peace-time would be too great. The fleet proposed in September 1943 seemed ample for peace-time needs, and would form a nucleus which could be quickly expanded to war-time strength.

At the same time, and purely for planning purposes, the Naval Staff drew up a programme for peace-time training, and prepared a list of ships required for this purpose. The naval college at Royal Roads would need two destroyers, one for general training and one for torpedo work. River-class destroyers were considered the best for this purpose, as it was not intended that they should have any operational status once hostilities had ceased. For training in other establishments,

³⁴ "The Post-War Canadian Navy", and a supplementary paper outlining a post-war Canadian navy with a complement of 12,000, Sept. 1943, prepared by D.P.D., N.S. 1017-10-34 (1).

³⁵ "Operational Life of H.M.C. Ships", recommendations made at Naval Staff Meeting, Oct. 30, 1944, N.S. 8360-446 (1).

³⁶ These were 2 tribal-class destroyers, 2 fleet "V" destroyers, 1 river-class destroyer, 67 river-class frigates, 31 revised flower-class (I.E.) corvettes, 10 Algerines, 22 M.L.'s, 7 "D" M.L.'s, 2 cruisers, 2 C.V.E.'s, 8—105' M/S's, 3—126' M/S's, 3 loch-class frigates, 12 castle-class corvettes, 6 M.T.B.'s, and 30 L.C.I. (L)'s.

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a river-class frigate was recommended for gunnery-firing practice, three revised flower-class corvettes for navigation, radar, and anti-submarine work, two Algerines for seamanship and engineering, two 105-ft. minesweepers for M/S training, two M.L.'s for target-towing, seven A/S target-towing vessels, four diesel tugs, two A/S yachts, and five submarines.³⁷

In October 1943 the first step towards reducing the size of the Canadian navy was taken. The Naval Service decided that as soon as Germany was defeated, any ships that the Admiralty might need which were surplus to Canadian requirements should be lent to the Royal Navy until the end of the fighting in the Pacific.³⁸

Another problem facing the Naval Service was to determine how many ships of Canada's anti-submarine fleet were to be disposed of. Figures at that time had to be tentative, however, as no allowance could be made for possible losses. There were also land, buildings, equipment, ammunition, and motor vehicles, which the navy would not need after the war. A tremendous amount of planning and organization was needed to bring the complement in men, ships, and equipment, down to a peace-time level. The creation of the Naval Surplus Disposal Committee on January 5, 1944, was the first step in this direction. At about the same time an Inter-Service Departmental Committee was formed to deal with all types of gear, properties, or ammunition which belonged to any of the three Services, and which, not being needed by the one in whose possession they were, might be transferred to either of the others.³⁹

Nearly a year before VE-day a fairly uniform method had been laid down for disposing of superfluous ships when the time should come. This procedure, which varied a little according to the size and type of ship, worked out substantially as follows. The planning and recommendations as to the disposal of vessels rested with the Director of Operations and the Director of Plans. It was their responsibility to determine what ships were to be given up by the navy. The Chief of Naval Equipment and Supply was responsible for setting up the organization for preparation and disposal. The Operations Division having certified that a ship was surplus, C.N.E.S. and the appropriate command were so informed, and were also

³⁷ Naval Staff Minutes, May 7, 1945.

³⁸ Cabinet War Cttee. Minutes, Oct. 29, 1944, N.S. 1286-5 (2).

³⁹ Interview with D. B. Taylor, Esq., Sec. N.S.D.C., May 1947.

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told what stores and equipment were to be retained. Items to be removed fell into three general classes: those required for the future by the navy, secret equipment, and dangerous materials. Ships were then ordered to sail to the de-storing port whence, after the removal of all such stores and equipment in conjunction with the Crown Assets Allocation Committee, they proceeded under a predetermined schedule to the "handing over" port for transfer to the War Assets Corporation.⁴⁰

The purpose of the C.A.A.C., which was formed in April 1944, was to:

. . . set up the machinery to deal with the disposal of surplus war material owned by the Government, in such manner as . . . [would] cause the minimum of dislocation of the economic structure of the country and assist in the orderly transition to peacetime basis of the production of such industries as have, during the War, been wholly or substantially engaged in war production.⁴¹

The War Assets Corporation, which was in effect the sales organization of the committee, was responsible for carrying out:

. . . the program undertaken for the sale and disposal of war surplus material, industrial war plants, machinery and equipment, and lands and structures which had been acquired by the Armed Services, Government departments and industrial establishments to promote Canada's war effort.⁴²

The Crown Assets Allocation Committee had a full-time chairman, and was composed of representatives of agriculture, labour, householders, and certain government Departments. It was authorized to obtain reports from Departments connected with the war and from other agencies, respecting all surpluses, and to administer and dispose of such assets. Almost all the ships disposed of through the Committee were put into the hands of the War Assets Corporation.⁴³

In January 1945, the Directorate of Disposal Organization was formed within the Naval Service to organize and supervise the de-storing and transfer operations. This directorate consisted of a Director of Staff controlling from N.S.H.Q., a travelling organizer and supervisor, a Command Disposal Officer on each coast, and a representative at each de-storing and "turn-over" port.

⁴⁰ D. Min.'s Advisory Cttee. meeting, July 27, 1944; Naval Board Minutes, July 25 and July 31, 1944; interview with Capt. P. B. Cross, R.C.N. (R) ret'd., July 1947.

⁴¹ P.C. 9108, Nov. 29, 1943.

⁴² *Canada Year Book*, 1946, p. 840.

⁴³ *Ibid.*, 1945, p. 849.

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The Crown Assets Allocation Committee had been informed by the Deputy Minister in March 1945 that the Service planned to dispose of naval property in two stages. The first of these would begin as soon as Germany was defeated, and the second after victory over Japan. It was expected that the second stage would be considerably less complicated than the first, as there would not be the problem of a continuing enemy while disposal was taking place.⁴⁴

For the period immediately following VE-day, Sydney was selected as the de-storing port for the larger warships, and Quebec for M.L.'s. All vessels from both ports were sailed or towed to Sorel after de-storing, where they were berthed and transferred complete with all equipment remaining on board, to W.A.C. It is worthy of note that whereas a target of one ship a day was given to Sydney, the organization set up there soon de-stored and paid off at the rate of three ships a day, so that within six weeks of the starting time (June 15), eighty-nine corvettes and minesweepers were safely in the hands of the War Assets Corporation at Sorel.

Following VJ-day Shelburne became the de-storing and turn-over port for the east coast where ninety-two vessels were handed over; while ships on the west coast were de-stored at Lynn Creek Naval Stores and transferred to the War Assets Corporation in Bedwell Bay near Vancouver.⁴⁵

When the war ended in the Atlantic, vessels that had been doing heavy duty as escorts were given other assignments until the time when the R.C.N. could begin to carry out its plan for disposal. An example of this occurred in May 1945, when H.M.C.S. *Beauharnois* was directed to stand by S.S. *Lord Kelvin* during cable-laying operations south of Cape Race.⁴⁶ Ships were also detailed from time to time to take groups of sea cadets to sea for the day, the whole affair being more in the nature of a holiday than a duty for all concerned.

Ships that remained in commission after May 1945 were divided into a number of classes: ships to be used in the Pacific war; those for patrols or training in Canadian coastal waters; those for mine clearance; ships to be returned to the Royal

⁴⁴ D. Min. to C.A.A.C., Mar. 16, 1945, N.S. 1813-1 (1).

⁴⁵ Interviews with Keith Stokes, Esq., A/C.N.A.S. (E), and D. B. Taylor, Esq., May 1947; Naval Staff Minutes, May 7, 1945; Dir. Disp. Org. to A/C.N.A.S. (E), Apr. 30, 1946, and D. Min. to C.A.A.C., Mar. 16, 1945; N.S. 1813-1 (1); Capt. P. B. Cross, R.C.N. (R) to A/C.N.A.S. (E), Mar. 7, 1946, N.S. 1813-400 (1); information in N.S. 8000-200 (2); interview with P. B. Cross, Esq., July 1947.

⁴⁶ C. in C., C.N.A. War Diary, May 1945, N.S. 1445-102/1 (1).

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Navy; and those for disposal.⁴⁷ The post-war R.C.N. was planned on the basis of manning the newest and most up-to-date fighting ships, and by May a nucleus had already been formed with two modern cruisers, H.M.C.S. *Uganda*, commissioned in October 1944, and H.M.C.S. *Ontario*, commissioned in the following April. Authority was also obtained from the government to man two light fleet carriers and a flotilla of the newest fleet destroyers as soon as they could be completed. The main purposes behind the development of the peace-time navy were stated to be: to repel all but heavy task forces in waters adjacent to Canada, to protect trade routes and maintain sea communications, to co-operate in hemispheric defence, to prevent un-neutral acts in territorial or coastal waters, and in general to support national policies and interests.⁴⁸

A considerable decrease in the size of the navy took place with the return to the United Kingdom of H.M.C. ships *Eyebright*, *Arrowhead*, *Hepatica*, *Lockeport*, and *Trillium*, all of which had been lent to Canada in May 1941. These ships sailed with reduced complements on May 27, 1945, acting as escorts to convoy HX-358.⁴⁹ Support Group 6 was disbanded and sailed for Britain at the end of the month, and the Western Isles trawlers also left Canada to return to the R.N.⁵⁰ By this time the M.L.'s were largely obsolescent, for Canadian uses at least, and on June 1, 8 flotillas of them, comprising 59 vessels, began to pay off prior to being put up for disposal. After the removal of most of their stores at Quebec they were towed to Sorel accompanied only by their commanding officers, and were laid up or secured to trots until they could be sold. By the end of June 10 M.L.'s were left in commission, and in the course of the next few months 6 of these were paid off. At the end of the year there were 4 M.L.'s left in the Canadian navy, three on the east coast and one on the west.⁵¹

The disbanding of the Mid-Ocean and Western Escort Forces was also started in June 1945. Corvettes at St. John's and Halifax were steamed to Sydney to de-store, and then

⁴⁷ Naval Staff Minutes, May 14, 1945.

⁴⁸ Minutes, special meeting of Min. with Chiefs of Staff, June 25, 1945, N.S. 1818-13 (1); "General Announcement re Postwar 'Short Service'" (unsigned), c. Aug. 16, 1945, N.S. 1818-9 (2).

⁴⁹ C. in C., C.N.A. War Diary, May 1945, N.S. 1445-102.1 (1); information in N.S. 8280-(HX-358).

⁵⁰ C. in C., C.N.A. War Diaries, May and June 1945, N.S. 1445-102.1 (1).

⁵¹ P.C. 4834, July 10, 1945; C.O. (M.L.'s) to C. in C., C.N.A. (n.d.), N.S. 8000-461 (2); interview with R. Pearson, Esq., D.S.R., July 1947.

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removed to Sorel by a part of their own crews and turned over to the War Assets Corporation. Many of the frigates of the escort and support forces that had been operating from the United Kingdom began to refit in readiness for the Pacific. In June H.M.C.S. *Gatineau* made her last trip to England and back, and was then sent round to the west coast for conversion into a training ship. In August, H.M.C. ships *Beaver* and *Wolf*, former American yachts, were authorized to be turned over to the War Assets Corporation.⁵²

Shortly before the cessation of hostilities with Japan it was proposed that Canada's post-war navy, which was to be designed as a task force rather than an escort force, should be larger than the one that had been planned in 1943. The proposed fleet, with two destroyer flotillas instead of one, would require twenty thousand instead of twelve thousand men. The fleet personnel was to be made up of active and reserve elements on a wholly voluntary basis.⁵³

Before VJ-day there were four tribal-class destroyers in service, and three preparing to commission. The R.N. did not propose to send castle-class corvettes to the Pacific, and as it was desirable that the R.N. and the R.C.N. escort forces should be as alike as possible, the D. of P. recommended that 11 of the 12 castle-class corvettes remaining in Canadian coastal waters should carry out patrol and training duties, and that the twelfth should be kept on the east coast in reserve until the war with Japan was over. Among the reasons for not sending these ships to the Pacific was the fact that the approved complement of 13,000 men for the Japanese war did not allow for any more ships in that area than had already been decided upon. Moreover the castle-class corvettes were not equipped for anti-aircraft fighting, and the submarine danger in the Pacific had been reduced to a minimum. The same applied to the I.E. (increased endurance) corvettes, and these also lacked the amenities needed for meeting the climatic conditions of the Pacific. Assuming that until ships could be built or converted for a permanent post-war navy the number of those in commission should be the absolute minimum which could in an emergency maintain sea communications in Canadian waters, twenty-one I.E. corvettes were left surplus. "Tropicalization" was approved for 46 frigates, 10 of which were to be held in reserve; but as the months passed

⁵² P.C. 5655, Aug. 21, 1945; C. in C., C.N.A. War Diary, June 1945, N.S. 1445-102/1 (1).

⁵³ Minutes, special meeting of Min. with Chiefs of Staff, June 25, 1945.

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the number destined for the war in the east grew smaller until only 10 were expected to go. At the very last moment, at the time when Hiroshima was bombed, and when H.M.C.S. *Charlottetown* was about to proceed out of Saint John, N.B., on her trials as the first of the tropicalized frigates, the whole plan was cancelled. The 10 frigates were used for a short time on coastal patrol work, 5 on each coast.

Before it had been decided to close down H.M.C.S. "Somers Isles", it had been intended to retain 4 M.L.'s for target practice on the Bermuda station and 1 for experimental work at Halifax, but in the end this was not done.⁵⁴

All of the Dominion's superfluous warships were in effect sold in a world market, and though most of them were disposed of within the country, some found purchasers in distant parts of the world. Most of the Canadian destroyers were sold for scrap on the east coast, Frankel Brothers of Toronto and the International Iron and Metal Co. of Hamilton buying fifteen of them for this purpose. The former H.M.C.S. *Skeena*, which had been grounded off Iceland, was considered unsalvageable by the Canadian authorities, and after all the gear had been removed the hull was sold in June 1945, through the Admiralty, to Mr. Arsaëll Jonasson of Reykjavik for £1,350. Mr. Jonasson did a remarkable piece of work in refloating and repairing the *Skeena*, and offered her for resale to the Canadian Government; but the Naval Staff considered that the expense of outfitting the ship again and making her really seaworthy would be too great.⁵⁵

Some 45 corvettes were sold for scrap, and one was bought by an individual for private use. Canadian firms bought several and refitted them as coastal and Great Lakes tankers and cargo vessels. Firms in the United States bought 25 altogether, and it was rumoured that one or two of these later found their way to Palestine carrying Jewish refugees from Europe. Seven corvettes were bought by Venezuela, and several by France and China.⁵⁶

In September 1945 arrangements were made for the War Assets Corporation to accept responsibility for the harbour

⁵⁴ Naval Staff Minutes, May 7, 14, and 28, 1945; "Continuing Royal Canadian Navy", D.P.D., June 22, 1945, N.S. 1818-9 (1); "General Announcement re' Postwar Short Service"; minutes, special meeting of Min. with Chiefs of Staff, June 25, 1945; interviews with Capt. A. H. Harrison, R.C.N., D.N.C., and Cdr. C. V. Green, R.C.N., A/D.N.C., July 1947.

⁵⁵ List supplied by Sales Div., W.A.C., June 1, 1947 (D.N.P.I. records); Arsaëll Jonasson, Esq., to R.N.L.O., Reykjavik, Oct. 12, 1945, and C.N.M.O. to Sec. N.B., Dec. 19, 1945, N.S. 8180-353/28 (1).

⁵⁶ List supplied by Sales Div., W.A.C.

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craft at Halifax, Sydney, Saint John, and St. John's, Newfoundland. At about this time the Corporation moved some of the M.L.'s from Sorel to Rimouski for sale to the branch of the Quebec School of Arts and Crafts there. One was partly scrapped, and the engines and equipment placed in the marine division of the school, another was sold by the school to a shipbuilder in the Isle of Orleans, while two more, fully equipped, were used for training future merchant-marine officers.⁵⁷

Of the Canadian frigates, sixteen were sold to Marine Industries Ltd., of Montreal, to be broken up. Most of the others were sold to Chile, Uruguay, and Peru, and one was bought by the Dominican Republic. Only one Canadian minesweeper, the former H.M.C.S. *Gananoque*, was sold for scrap. All the others were converted to commercial use, mostly by Canadian firms. Montreal representatives of a Chinese company bought three to be sent to China, and one went to the New York agents of a Greek shipping firm. The M.L.'s, most popular of all ex-naval ships from the point of view of the private owner, were sold throughout the Americas, in many cases to be converted into yachts. Some became fishing boats and others small coastal traders. The Creole Petroleum Corporation of Venezuela bought two M.L.'s for work in the Caribbean.⁵⁸

By the end of April 1946, the Naval Service had reduced its complement of ships and amount of equipment to the required post-war standards, apart from ships still in the process of building or not yet laid down. The Directorate of Disposal was therefore discontinued, the Staff Officer Operations being made responsible for any further ships that might be paid off.⁵⁹

In the seventeen months between September 1944 and March 1946, 298 of the larger war vessels and 319 local and harbour craft had been disposed of by the Naval Service. Two hundred and eighty-three of the larger ships, including such a diversity as I.E., flower, and castle-class corvettes, destroyers, M.L.'s, Bangor and Basset minesweepers, training vessels, frigates, converted yachts, and two of the auxiliary cruisers, had been turned over to the War Assets Corporation

⁵⁷ D. Min. to W.A.C., Sept. 10, 1945, N.S. 1813-1 (1); L. D. Germain, Esq., to D.N.H.S., July 18, 1947.

⁵⁸ List supplied by Sales Div., W.A.C.

⁵⁹ D. D. O. to A.C.N.A.S. (E), Apr. 30, 1946, N.S. 1813-1 (1).

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to be sold. The rest had either been resold at the pre-determined or a nominal price to their vendors, by the Crown Assets Allocation Committee, or if on loan, had been returned to their owners. Of the harbour craft, 203 had been put up for sale by the W.A.C., and the rest had reverted to their pre-war status.⁶⁰

Establishments

Even before the Second World War ended, some of the naval bases and other shore establishments had ceased to be needed. As early as 1943 the Naval Staff had begun to plan for its post-war complement of establishments. The following peace-time facilities would be required: bases to provide stores and equipment, running repairs and periodic refits for H.M.C. ships, accommodation and upkeep for the R.C.N. reserve fleet, as well as storage space for guns, ammunition, and all items removed from the ships in reserve and from disarmed merchant vessels; training facilities, administrative offices, and accommodation for shore personnel; space for the research and experimental work carried on by the navy in peacetime; and quarters for the reserve Divisions which were to be retained after the war. It was also expected that ships of the R.N. and the U.S.N. and merchant vessels from all over the world, would require repairs and stores from time to time.⁶¹

Although after VE-day the reduction in services rendered to allied ships by the R.C.N. would have a considerable effect on the east-coast and Newfoundland shore bases and establishments, it was not expected that there would be a corresponding reduction in the number of major refits. These would probably continue at the same rate for at least five or six months, in spite of the planned reduction in the number of ships in commission in the R.C.N., and of the absence of many of these which were expected to be in the Far East or employed in minesweeping around the British Isles. Ships that had been lent to the R.N. for "Operation Neptune" still needed refitting, and it was certain that with the defeat of Germany they would immediately be taken in hand. The tropicalization of vessels for the Pacific had not yet started. Minesweepers intended for work in United Kingdom waters

⁶⁰ C.O.P.C. to N.S.H.Q. (signal), Jan. 15, 1946, N.S. 1700-122/7; Dir. Disp. Org. to A C.-N.A.S. (E), Mar. 5, 1946, N.S. 1813-1 (1).

⁶¹ "Canada's Post-War Navy", D.P.D., Sept. 27, 1943, N.S. 1017-10-34 (1); Sec. N.B. to C. in C., C.N.A., May 9, 1945, N.S. 1650-22 (1); "Impending German Surrender", Feb. 1944 (D.P.D. records).

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and along the coast of the European continent would require overhauling before beginning their duties. The whole Canadian reserve fleet, moreover, would need refitting, or at least a certain amount of dockyard work done on it, before being paid off into care and maintenance. Moreover a large amount of equipment would have to be removed from the vessels which were to be handed over to the War Assets Corporation for disposal.⁶²

It was expected that Canadian naval ships fighting in the Japanese war would be steamed to Canada for normal refits if in a seaworthy condition, as the major repair facilities of dockyards in India, Ceylon, and Australia, would be taxed to their utmost by warships of the R.N., the R.A.N., and the R.N.Z.N. It was even thought that the repair yards of the United Kingdom and South Africa might be used for some ships of the Pacific fleets. On the other hand, the volume of work in connection with minor defects and running repairs might be expected to drop considerably, and the Director of Plans at N.S.H.Q. strongly recommended that all minor R.C.N. repair centres which could not cope with the major refits of the larger vessels should be classified as superfluous, only sufficient equipment and personnel being retained to meet the needs of local harbour craft where no suitable commercial facilities could be used.⁶³

Reducing the problem to the simplest terms, the Director of Plans considered that there should be one principal and one secondary naval establishment on each coast, the minor one being capable of substituting for the main establishment in an emergency. He suggested that Halifax and Sydney on the east coast, and Esquimalt and Prince Rupert on the west, should be the four permanent Canadian naval centres. To cover the St. Lawrence traffic, which operated for only part of the year, Gaspé was considered to be the most suitable naval operational base. For the time being Shelburne was tentatively considered as the best centre for refitting and repairing ships, one of the reasons being its proximity to American east-coast bases and dockyards.⁶⁴

In addition to these bases, other administrative and training establishments were to be kept. These were N.S.H.Q.

⁶² "Impending German Surrender."

⁶³ *Ibid.*

⁶⁴ "Canada's Post-War Navy"; "Impending German Surrender"; Naval Staff Minutes, June 18, 1944.

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itself, the Royal Canadian Naval College, and all the reserve Divisions; while it was considered that if a naval air service were established, two air stations on each coast would be required. It was proposed to transfer the training facilities at Digby, N.S., to Halifax, and to close down H.M.C.S. "Cornwallis" as soon as the policy on post-war naval instruction had been definitely laid down. Wireless stations would be discontinued, except that one would be retained at the chief naval centre on each coast to give warning of approaching shipping. All the Loran stations were to be continued, however, as the Naval Service had undertaken to maintain them in the post-war years. As the reserve fleet was to be kept on a care-and-maintenance basis, permanent wharfage and moorings for this purpose would have to be provided. For the storing of naval ammunition and armament it was recommended that only two major inland depots should be retained, Kamloops in British Columbia for the west, and Renous in New Brunswick for the east,⁶⁵ and two minor ones at Colwood and Bedford on the coasts.

When Canada's post-war navy was being planned in the fall of 1943, all the Canadian establishments then existing, both in the Dominion and overseas, had been considered as belonging to one of three classes. Permanent establishments were to be managed on a reduced scale after the war; semi-permanent ones were to be retained for a limited period until the permanent bases had been decided upon definitely; while the temporary establishments were those which would only be required for the duration of the war with Germany, or possibly until the end of the Japanese conflict. No main west-coast establishments were considered at that time as being in the temporary group. In order to establish a broad general policy for base planning, it was recommended that the permanent establishments should be those at Halifax, Esquimalt, Royal Roads, and Ottawa, the two reserve magazines in British Columbia and New Brunswick, and certain secondary establishments and the reserve Divisions. The location of the secondary naval centres had not yet been determined. The semi-permanent establishments were to be at Sydney, Shelburne, Cornwallis, Bermuda, Vancouver, Prince Rupert, Bay Bulls and St. John's, Newfoundland, and in Scotland. The temporary establishments would be those at Saint John, Gaspé, Lunenburg, Louisbourg, Halifax (H.M.

⁶⁵ "Canada's Post-War Navy"; "Impending German Surrender."

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C.S. "Peregrine" and H.M.C.S. "King's"), Pictou, Liverpool, Montreal, Toronto, Quebec, St. Hyacinthe, and Galt (H.M.C.S. "Conestoga").⁶⁶

With the defeat of Germany it was assumed that there would be a closing down, or a reduction in scope, of many defence installations on the east coast, such as port war signal stations, examination services, indicator loops and associated patrol craft, harbour defence asdics, controlled minefields, anti-submarine and anti-torpedo nets, and boom defences. This would necessarily have a considerable effect on shore bases and other establishments on the east coast and in Newfoundland. It was planned to retain certain indicator loops and A/S and A/T nets at the larger ports as a precautionary measure, but minor naval installations all over the Dominion such as the port war signal station at Shelburne and the bomb disposal school at Chilliwack, B.C., were closed down before the end of 1943, when it was thought that in spite of the probable length of the war they had ceased to be useful. Their continued maintenance would only have been a drain on personnel more useful elsewhere. Provided that there were no more indications of enemy submarines in the north Atlantic within three or four months after the German surrender, the intention was to withdraw all remaining harbour defences.⁶⁷

Although so many east-coast establishments and defence installations were to be closed down and disposed of, it was planned that the Crown should retain certain rights over the properties in the event of a future war.⁶⁸ Later on, when strategically important sites were turned over for sale or returned to their owners, agreements were drawn up whereby the navy reserved the right of re-entry and occupancy in any emergency.

The general policy governing the discontinuance or reduction to a peace-time status of all these establishments was that where adequate non-naval facilities existed, and were available for naval use when required, properties owned or leased by the Naval Service and not needed for its own purposes in peace-time were to be declared surplus. The site, at least, of establishments which were considered necessary for

⁶⁶ D. Min.'s Advisory Cttee. Minutes, Oct. 26, 1944, N.S. 19060-1 (1); Navy List, Jan. 1947.

⁶⁷ Naval Staff Minutes, Apr. 23, 1943; Naval Board Minutes, Dec. 20, 1943; "Impending German Surrender."

⁶⁸ Memo. by C.N.E.S., Feb. 20, 1945, N.S. 19080-166/10.

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the fulfilment of naval commitments in war-time, and where government or private facilities were not available, must remain at the disposal of even if not actually used by the navy. The Naval Service was to act as lessor to civilian concerns, or the shore bases and establishments retained were to be kept in such condition as to reduce maintenance to a minimum.⁶⁹

After VE-day, and when the responsible Ministers had announced the government's policy for the operation of Canadian armed forces during the Japanese war, there started a gradual but increasing reduction in the number and scope of the east-coast establishments. This involved the paying off of those not required for the support of the Pacific war effort or for the demobilization programme, the successive closing of all establishments no longer needed for the refitting of ships and training of personnel either for the war in the east or for the post-war navy, and as mentioned before, the gradual elimination of war-time facilities and defences from refitting and training establishments and from those chosen for peace-time use.

With the German conflict at an end the Reserve Divisions began to revert from an active-service to a peace-time status, and recruiting and preliminary training were restricted to keep pace with reduced personnel requirements. The appointment of N.O.I.C. Toronto was terminated, and his functions were assumed by the Commanding Officer, H.M.C.S. "York"; the same applied to Montreal and Quebec, where the duties of the N.O.I.C. were relegated to the C.O., H.M.C.S. "Donnacona", and the C.O., H.M.C.S. "Montcalm" respectively. In this new organization, as N.O.I.C.'s they remained responsible to C.O.A.C., but as C.O.'s of Divisions to C.O.N.D.⁷⁰ The base at Gaspé was reduced to care and maintenance, and all personnel and material were withdrawn and all activities ceased at the Gut of Canso and Louisbourg naval centres. At Saint John, N.B., H.M.C.S. "Captor II" was merged with the reserve Division H.M.C.S. "Brunswicker" in September, while the armament depot for the east coast, which until then had been under the administration of H.M.C.S. "Brunswicker", was turned over to the Cdre. Superintendent, Halifax. The naval centres at Pictou, Lunenburg, and Liverpool, in Nova Scotia, though still retaining their civilian overseeing

⁶⁹ Naval Staff Minutes, June 4, 1944.

⁷⁰ D.P.D. to C.N.S., Sept. 14, 1945, N.S. 1700-112/10 (1).

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staffs, ceased to function as bases as soon as the ships selected for the Pacific had finished refitting. The original plans for a post-war naval establishment at Shelburne had been cancelled, and the base there was to be closed down to care and maintenance as soon as its commitments would allow; it had been expected that this would be some time in December 1945, but it was not until the end of the following January that the base was turned over to the War Assets Corporation.⁷¹

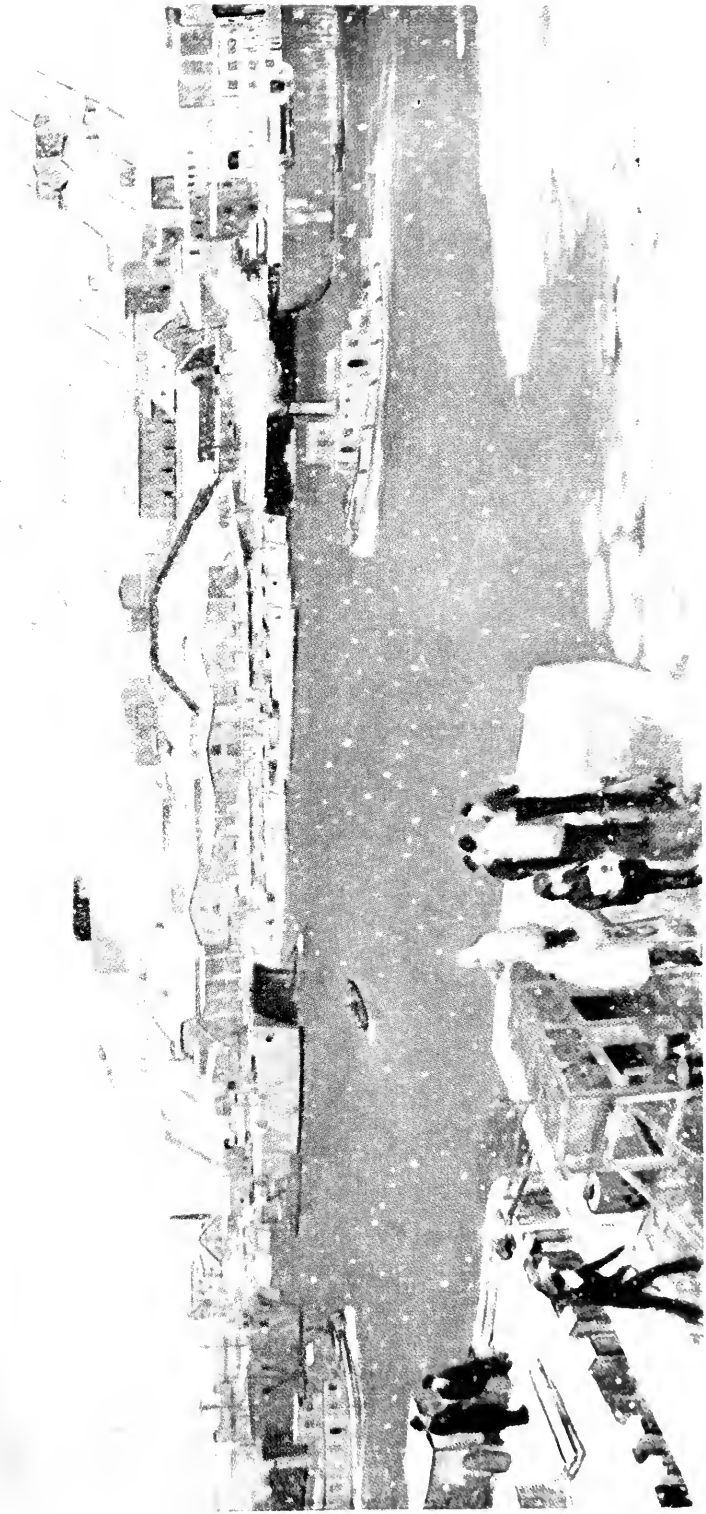
The departure of the R.C.N. from Newfoundland started on VE-day. Ships refitting for the Pacific were withdrawn, and from then until early in 1946 the main activity was collecting all Canadian stores in the country to be turned over to the War Assets Corporation. The Newfoundland Government had been willing to concede to Canada a ninety-nine year lease of Bay Bulls, but anti-torpedo and anti-submarine nets were taken out in all the bases in June and July 1945, and by September Botwood, Bay Bulls, Wabana, Corner Brook, and Harbour Grace, had completely closed down.

Throughout the Second World War the Canadian navy had exercised operational command and administration of Admiralty properties at all naval centres in Newfoundland. Naval properties at St. John's had been paid for with money from Canadian advances to Britain. After the war, however, all Canadian naval stores were declared surplus to the Crown Assets Allocation Committee, and once Canadian-owned equipment had been removed, all charges for the care and maintenance of properties became the responsibility of the Admiralty until they should be taken over by the Newfoundland Government.

On August 15, 1945, the appointment of Flag Officer Newfoundland Force was withdrawn (it is interesting to note that Cdre. Taylor struck his broad pendant within an hour of the surrender of Japan), and the N.O.I.C., St. John's, Capt. G. H. Griffiths, O.B.E., R.C.N. (Temp.), became Senior Naval Officer in Newfoundland. When all R.C.N. equipment had been turned over to the War Assets Corporation, or otherwise disposed of, the Canadian Naval Service had no further commitments in the island except to assist the Admiralty with inspections and administrative supervision. There were, however, many delays in the disposal of Admiralty properties after the Canadian navy had removed its equipment. Accord-

⁷¹ C.O.A.C. to C.O.P.C. (signal), Oct. 13, 1945, N.S. 1700-112, 8 (1).

2. Aug. 1915



South Shore
St. John's
by Cdr.
Harold Beament
(National Gallery
of Canada)

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ingly it was not until the end of June 1946 that this establishment was paid off, and even then the British, together with a few Canadian officials, continued the last phase of closing down until the end of July.

When F.O.N.F. handed over to the N.O.I.C. there had been roughly 1,500 officers and men in Newfoundland; by the end of May 1946 there remained about 75 men and 12 officers. The last ship out of St. John's was H.M.C.S. *Riverton* which sailed in June 1946, and by November there was only one representative of the Canadian navy left in the country, and he returned to Canada in the same month. The bases at Botwood and Bay Bulls were declared surplus, and the Admiralty decided to hand over all rights and properties to the Newfoundland Government to be held available in the event of future war. The latter agreed to take charge, provided that it might employ these properties and installations for its own purposes, such as administrative or private commercial use.⁷²

The appointment of C. in C., C.N.A. was terminated on September 6, 1945, and the title C.O.A.C. was resumed for the senior authority on the east coast.⁷³

The only establishment retained at full strength on the east coast between VE- and VJ-days was H.M.C.S. "Stadacona" at Halifax, as ships had been refitting and working up from there with the intention of proceeding to the Pacific. H.M.C.S. "Peregrine" was also retained temporarily as the main Discharge Transit Centre. At Sydney, N.S., all naval personnel were gradually withdrawn except for a reduced Naval Control Service and the Naval Records Centre.⁷⁴

H.M.C.S. "Conestoga", the only naval establishment for the basic training of members of the W.R.C.N.S., was among the first of the major naval centres to be paid off. In November 1944 it had been decided that after February 1945 there would be no further recruiting of Wrens. By March the last entries, consisting of dental assistants, messwomen, wardroom attendants, and regulating Wrens, had finished their training, and H.M.C.S. "Conestoga" was ready for reduction to care

⁷² Sec. N.B. to C. in C., C.N.A., May 9, 1945, N.S. 1650-22 1 (1); File No. 20011-40C (Ext. Aff. records); interview with W. A. Ramsay, Esq., July 1947; N.S.H.Q. to F.O.N.F. (signal), Aug. 9, 1945, N.S. 071880-3 (1); Sec. N.B. to F.O.N.F., June 19, 1945, N.S. 9080-112/3 (1).

⁷³ Temp. Sec. memo., Aug. 31, 1945, N.S. 1360-9 (1).

⁷⁴ "Planning for Post-German Defeat", Sec. N.B. to C. in C., C.N.A., May 9, 1945, N.S. 1650-22 (1).

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and maintenance. By the end of the month the whole of the ship's company, apart from a skeleton staff of thirty retained for the paying-off ceremony, had been drafted elsewhere. The male members of the ship's company, the stokers, were retained for a short while longer until they could be relieved by civilian personnel, and H.M.C.S. "Conestoga", which had been leased from the Government of Ontario for the sum of a dollar a year, was turned over to the Crown Assets Allocation Committee which made arrangements to return it to the Province.⁷⁵ The few further new entries into the W.R.C.N.S. took their basic training at H.M.C.S. "Cornwallis",⁷⁶ and by the time this base began to prepare for closing down, the Wrens had already started their total demobilization.

With the end of the European war, and on the strength of the principle that personnel destined for the Pacific should be volunteers only, it was decided to close down H.M.C.S. "King's." The final march past and closing formalities took place on May 19, 1945, although the official date for paying off was set at May 31. Even then members of the supply branch remained in residence in the college until June 10, for the navy's convenience. The buildings which together had formed H.M.C.S. "King's" were returned to Dalhousie University and King's College directly by N.S.H.Q., and did not pass through the War Assets Corporation. It was decided, however, that the excellent navigation school at "King's" should not be abolished, and it was transferred to H.M.C.S. "Cornwallis."⁷⁷

There was considerable dissatisfaction in Prince Rupert over the intention of the Naval Service to scrap the defence facilities at H.M.C.S. "Chatham." The buildings had originally been put up as permanent installations and at a fairly high price. Mr. T. D. Pattullo, the former Premier of British Columbia who represented Prince Rupert in the Provincial Assembly, telegraphed to the Prime Minister in September 1945 the argument that Prince Rupert was more important strategically than were the inland places at which the navy intended to retain establishments. He pointed out that the port was the nearest point in Canada to the Orient, and strongly urged that the establishment should be retained. In

⁷⁵ Naval Staff Minutes, Nov. 27, 1944; Pers. (N) to C.N.P., Feb. 5, 1945, and C.O. "Conestoga" to C.N.S., Jan. 19, 1945, N.S. 1700-190 39 (1).

⁷⁶ Naval Staff Minutes, Nov. 27, 1944.

⁷⁷ Pres., King's College to Min., Nov. 5, 1945, N.S. 9650-1-17 (3); C. in C., C.N.A. to N.S.H.Q. (signal), Apr. 24, 1945, N.S. 1700-181 4 (1); Naval Board Minutes, Jan. 30, 1945.

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October 1946 the Naval Service finally decided to recommission H.M.C.S. "Chatham" as a reserve Division.⁷⁸

In the period from September 1944 to March 1946, eleven major naval establishments had been disposed of through the Directorate of Disposal. These were H.M.C. naval establishments "Peregrine", "Burrard", "Shelburne", "Cornwallis", "St. Hyacinthe", "Chatham", "Protector" at Sydney, "Somers Isles" at Bermuda, "King's" at Halifax, "Conestoga" at Galt, and "Fort Ramsay" at Gaspé. During this time H.M.C.S. "Avalon" at St. John's was in the process of closing down. In addition, 188 minor naval shore installations, such as W/T stations, offices, garages, and other properties, had been returned to their owners, or declared surplus and turned over by the Naval Service to the War Assets Corporation for disposal.⁷⁹

When, after the close of the war, the surplus ships and establishments had been relinquished to other uses, they left behind them only passive memories. The demobilized personnel, on the other hand, were a continuing influence. A hundred thousand men and women had returned from naval service to civilian life. Most or many of them had acquired a considerable knowledge of the purposes and functioning of a navy, as well as of some of the problems of national defence, and were well disposed towards that Service in which they had cast their war-time lot. They would live thenceforth dispersed among their fellow-citizens throughout the country, and would represent an almost wholly new and relatively lasting component of Canadian life and opinion.

In the course of the Second World War the Dominion of Canada, which had been among the least warlike of nations, had surprised itself and the world by the weight that it had contrived to place upon the scales of war. When hostilities had ceased it laid aside most of its armour and applied itself once more to the occupations of peace-time. The Naval Service had successfully completed its difficult and possibly crucial task, and having done so turned to face its post-war problems, the outlines of which were largely obscured by what was perhaps the most unpredictable future that had ever confronted a generation of mankind.

⁷⁸ Min. to Sec. Jr. Chamber of Commerce, Prince Rupert, B.C., Oct. 2, 1945; T. D. Patullo, Esq., to Prime Min., Sept. 21, 1945; D.N.R. to C.N.P., July 10, 1946; N.S.H.Q. to "Chatham" (signal), Oct. 2, 1946; N.S. 1700-112/7 (1).

⁷⁹ Dir. Disp. Org. to A/C.N.A.S. (E), Mar. 5, 1946, N.S. 1813-1 (1).

APPENDIX I

PARTICULARS OF WARSHIPS

Commissioned in or on loan to the R.C.N.
during the Second World War.

(N.B. This appendix includes a few ships which were commissioned shortly after V-J day, but omits all harbour and other small craft. Particulars of armament, and even of endurance and displacement, changed from time to time during the war as alterations and additions were made, and those given here should be taken merely as an indication of the general character of the class concerned. Dates marked with an asterisk are only approximate.)

I. WARSHIPS IN COMMISSION SEPTEMBER 1, 1939.

1. River Class Destroyers:

a. Built for the R.C.N. in the U.K.:

Displacement, 1,337 tons; overall length, 320' 0"; extreme breadth, 32' 6"; draught, 11' 0"; main engines, Parsons geared turbines; full speed (deep), 31.5 kts.; endurance, 3,450 n.m. at 15 kts.; armament (1939), 4-4.7" guns, 8-21" torpedo tubes, and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Saguenay</i>	Thornycroft	22. 5.31	18. 4.46
<i>Skeena</i>	Thornycroft	9. 6.31	25.10.44

b. Purchased from R.N.:

Displacement, 1,375 tons; overall length, 329' 6"; extreme breadth, 33' 0"; draught, 11' 2"; main engines, Parsons geared turbines; full speed (deep), 32.25 kts.; endurance, 4,830 n.m. at 15 kts.; armament (1939), 4-4.7" guns, 8-21" torpedo tubes, and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Fraser</i> (ex-HMS <i>Crescent</i>)	Vickers-Armstrong	17. 2.37	25. 6.40
<i>Ottawa</i> (ex-HMS <i>Crusader</i>)	Portsmouth	15. 6.38	14. 9.42
<i>Restigouche</i> (ex-HMS <i>Comet</i>)	Portsmouth	15. 6.38	9.11.45
<i>St. Laurent</i> (ex-HMS <i>Cygnat</i>)	Vickers-Armstrong	17. 2.37	9.11.45

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2. Trawler Minesweepers:

a. Modified Basset Class (Fundy Class):

Displacement, 692 tons; overall length, 162' 7"; extreme breadth, 27' 7"; draught, 10' 0"; main engine, steam reciprocating (coal); full speed, 12.5 kts.; armament, 1-4" gun, and other weapons; minesweeping gear, S.A.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Comox</i>	Burrard	23.11.38	27. 7.45
<i>Fundy</i>	Collingwood	1. 9.38	27. 7.45
<i>Gaspé</i>	Morton	21.10.38	29. 7.45
<i>Nanoose</i>	Yarrows	6.12.38	29. 7.45

(ex-HMCS *Nootka*)

b. H.M.C.S. *Armentières*:

Displacement, 486 tons; overall length, 136' 0"; extreme breadth, 29' 0"; draught, 15' 7"; main engine, steam reciprocating (coal); full speed, 10 kts.; armament, 1-12 pdr. gun and other weapons; minesweeping gear, oropesa; built by Canadian Vickers in 1918.

3. Training Vessels:

a. H.M.C.S. *Skidegate* (ex-M.V. *Ochechac*):

Displacement, 15 tons; overall length, 53' 0"; extreme breadth, 13' 9"; draught, 5' 0"; main engine, diesel; armament, machine guns. Purchased from Messrs. H. A. Orr and C. H. Hudson, Vancouver, and commissioned, July 25, 1938.

b. H.M.C.S. *Venture*, auxiliary schooner:

Displacement, 250 tons; overall length, 146' 0"; breadth, 27' 0"; draught, 14' 0"; main engine, diesel; sail area, 12,000 sq. ft.; armament, 2-3 pdr. guns; commissioned, June 9, 1937.

II. WARSHIPS BUILT IN CANADA. WAR

1. Tribal Class Destroyers:

Displacement, 1,990 tons; overall length, 377' 0"; extreme breadth, 37' 6"; draught, 11' 8"; main engines, Parsons geared turbines; full speed (deep), 31.5 kts.; armament, 6-4.7", 2-4" guns (*Micmac* and *Nootka*), 8-4" guns (*Cayuga* and *Athabaskan*), 4-21" torpedoes, and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Athabaskan</i>	Halifax Shipys.	20. 1.48	Retained
<i>Cayuga</i>	Halifax Shipys.	19.10.47	"
<i>Micmac</i>	Halifax Shipys.	12. 9.45	"
<i>Nootka</i>	Halifax Shipys.	7. 8.46	"

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2. Frigates:

a. River Class, 1942-1943 Programme:

Displacement, 1,445 tons; overall length, 301' 6"; extreme breadth, 36' 7"; draught fwd., 11' 6" and draught aft, 14' 4" (both full load); main engines, steam reciprocating; full speed, 19.0 kts.; endurance, 7,200 n.m. at 12 kts.; armament, 1-4", 1-12 pdr. gun or 2-4" guns and others.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Beacon Hill</i>	Yarrows	16. 5.44	Retained
<i>Cap-de-la Madeleine</i>	Morton	30. 9.44	16. 1.46
<i>Cape Breton</i>	Morton	25.10.43✓	29. 1.46
<i>Charlottetown</i>	G. T. Davie	28. 4.44	
<i>Chebogue</i>	Yarrows	22. 2.44	
<i>Dunver</i>	Morton	11. 9.43✓	25. 1.46
<i>Eastview</i>	Vickers	3. 6.44	22. 1.46
<i>Grou</i>	Vickers	5.12.43✓	6. 5.47
<i>Joliette</i>	Morton	14. 6.44	3. 1.46
<i>Jonquière</i>	G. T. Davie	10. 5.44	16. 1.46
<i>Kirkland Lake</i>	Morton	21. 8.44	22. 9.47
<i>Kokanee</i>	Yarrows	6. 6.44	29.12.45
<i>La Hulloise</i>	Vickers	20. 5.44	Retained
<i>Longuenil</i>	Vickers	18. 5.44	13. 1.46
<i>Magog</i>	Vickers	7. 5.44	19.10.45
<i>Matane</i>	Vickers	23.10.43✓	11. 2.46
<i>Montreal</i>	Vickers	12.11.43✓	22. 9.47
<i>New Glasgow</i>	Yarrows	23.12.43 ✓	21.12.45
<i>New Waterford</i>	Yarrows	21. 1.44	Retained
<i>Orkney</i>	Yarrows	18. 4.44	18.11.47
<i>Outremont</i>	Morton	27.11.43 ✓	21.12.45
<i>Port Colborne</i>	Yarrows	15.11.43 ✓	22. 9.47
<i>Prince Rupert</i>	Yarrows	30. 8.43 ✓	16. 1.46
<i>St. Catherine's</i>	Yarrows	31. 7.43 ✓	21.12.45
<i>Saint John</i>	Vickers	14.12.43 ✓	22. 9.47
<i>Springhill</i>	Yarrows	21. 3.44 ✓	23. 9.47
<i>Stettler</i>	Vickers	7. 5.44 ✓	21.12.45
<i>Stormont</i>	Vickers	28.11.43 ✓	3. 1.46
<i>Swansea</i>	Yarrows	4.10.43 ✓	Retained
<i>Thetford Mines</i>	Morton	24. 5.44 ✓	3. 1.46
<i>Valleyfield</i>	Morton	7.12.43 ✓	6. 5.44
<i>Waskesiu</i>	Yarrows	17. 6.43 ✓	31. 1.46
<i>Wentworth</i>	Yarrows	7.12.43 ✓	22. 9.47

b. River Class, 1943-1944 Programme:

Displacement, 1,445 tons; extreme length, 301' 6"; extreme breadth, 36' 7"; draught fwd., 11' 6" and draught aft., 14' 4" (both full load); main engines, steam reciprocating; full speed, 19.0 kts.; endurance, 7,200 n.m. at 12 kts.; armament, 1-4", 1-12 pdr. gun and others or 2-4" guns and others.

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Name	Builder	Commissioned	Date of loss or Disposal
<i>Antigonish</i>	Yarrows	4. 7.44	Retained
<i>Buckingham</i>	Davie	2.11.44	3. 1.46
<i>Capilano</i>	Yarrows	25. 8.44	5. 9.47
<i>Carlplace</i>	Davie	13.12.44	21.12.45
<i>Coaticook</i>	Davie	25. 7.44	4.12.45
<i>Fort Erie</i>	G. T. Davie	27.10.44	3. 1.46
<i>Glace Bay</i>	G. T. Davie	2. 9.44	3. 1.46
<i>Hallowell</i>	Vickers	8. 8.44	21.12.45
<i>Inch Arran</i>	Davie	18.11.44	16. 1.46
<i>Lanark</i>	Vickers	6. 7.44	21.12.45
<i>Lasalle</i>	Davie	29. 6.44	28.12.45
<i>Laurzon</i>	G. T. Davie	30. 8.44	21.12.45
<i>Lévis</i>	G. T. Davie	21. 7.44	29. 4.47
<i>Penetang</i>	Davie	19.10.44	21.12.45
<i>Poundmaker</i>	Vickers	17. 9.44	3. 1.46
<i>Prestonian</i>	Davie	13. 9.44	21.12.45
<i>Royalmount</i>	Vickers	25. 8.44	18.11.47
<i>Runnymede</i>	Vickers	14. 6.44	23. 1.46
<i>St. Pierre</i>	Davie	22. 8.44	16. 1.46
<i>St. Stephen</i>	Yarrows	28. 7.44	Retained
<i>Ste. Thérèse</i>	Davie	28. 5.44	3. 1.46
<i>Sea Cliff</i>	Davie	26. 9.44	16. 1.46
<i>Stone Town</i>	Vickers	21. 7.44	3. 1.46
<i>Strathadam</i>	Yarrows	29. 9.44	21.12.45
<i>Sussexvale</i>	Davie	29.11.44	3. 1.46
<i>Toronto</i>	Davie	6. 5.44	3. 1.46
<i>Victoriaville</i>	G. T. Davie	11.11.44	3. 1.46

3. Corvettes:

a. Flower Class, 1939-1940 Programme:

Displacement, 950 tons; overall length, 205' 1"; extreme breadth, 33' 1"; draught fwd., 8' 3" and draught aft, 13' 5" (both full load); main engine, steam reciprocating; full speed, 16.0 kts.; endurance, 3,450 n.m. at 12 kts.; armament, 1-4" gun and other weapons; minesweeping gear, oropesa (later removed). The forecastle was later lengthened in all except *Alberni*, *Chicoutimi*, *Lévis*, *Louisburg*, *Nanaimo*, *Rosthern*, *Shawinigan*, *The Pas*, *Spikenard*, *Weyburn* and *Windflower*.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Agassiz</i>	Burrard	23. 1.41	30. 8.46
<i>Alberni</i>	Yarrows	4. 2.41	21. 4.44
<i>Algoma</i>	Pt. Arthur	11. 7.41	6. 7.45
<i>Amherst</i>	St. John	5. 8.41	30. 8.46
<i>Arrowhead</i>	Marine Ind.	21.11.40	27. 6.45
<i>Arvida</i>	Morton	22. 5.41	30. 8.46
<i>Baddeck</i>	Davie	18. 5.41	30. 8.46

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Name	Builder	Commissioned	Date of loss or Disposal
<i>Barric</i>	Collingwood	12. 5.41	30. 8.46
<i>Battleford</i>	Collingwood	31. 7.41	30. 8.46
<i>Bittersweet</i>	Marine Ind.	23. 1.41	22. 6.45
<i>Brandon</i>	Davie	22. 7.41	30. 8.46
<i>Buctouche</i>	Davie	5. 6.41	30. 8.46
<i>Camrose</i>	Marine Ind.	30. 6.41	30. 8.46
<i>Chambly</i>	Vickers	18.12.40	30. 8.46
<i>Chicoutimi</i>	Vickers	12. 5.41	17.10.45
<i>Chilliwack</i>	Burrard	8. 4.41	30. 8.46
<i>Cobalt</i>	Pt. Arthur	25.11.40	30. 8.46
<i>Collingwood</i>	Collingwood	9.11.40	30. 8.46
<i>Dauphin</i>	Vickers	17. 5.41	30. 8.46
<i>Dawson</i>	Victoria	6.10.41	30. 8.46
<i>Drumheller</i>	Collingwood	13. 9.41	30. 8.46
<i>Dunvegan</i>	Marine Ind.	9. 9.41	30. 8.46
<i>Edmunston</i>	Yarrows	21.10.41	30. 8.46
<i>Eyebright</i>	Vickers	26.11.40	17. 6.45
<i>Fennel</i>	Marine Ind.	15. 1.41	12. 6.45
<i>Galt</i>	Collingwood	15. 5.41	30. 8.46
<i>Hepatica</i>	Davie	12.11.40	27. 6.45
<i>Kamloops</i>	Victoria	17. 3.41	30. 8.46
<i>Kamsack</i>	Pt. Arthur	4.10.41	30. 8.46
<i>Kenogami</i>	Pt. Arthur	29. 6.41	30. 8.46
<i>Lethbridge</i>	Vickers	25. 6.41	30. 8.46
<i>Lévis</i>	G. T. Davie	16. 5.41	27. 9.41
<i>Louisburg</i>	Morton	29. 9.41	6. 2.43
<i>Lunenburg</i>	G. T. Davie	4.12.41	30. 8.46
<i>Matapedia</i>	Morton	9. 5.41	30. 8.46
<i>Mayflower</i>	Vickers	9.11.40	31. 5.45
<i>Moncton</i>	St. John	24. 4.42	12.12.45
<i>Moosejaw</i>	Collingwood	19. 6.41	8. 7.45
<i>Morden</i>	Pt. Arthur	6. 9.41	30. 8.46
<i>Nanaimo</i>	Yarrows	26. 4.41	30.10.45
<i>Napanee</i>	Kingston	12. 5.41	30. 8.46
<i>Oakville</i>	Pt. Arthur	18.11.41	30. 8.46
<i>Orillia</i>	Collingwood	29. 4.41	30. 8.46
<i>Pictou</i>	Davie	29. 4.41	30. 8.46
<i>Prescott</i>	Kingston	26. 6.41	30. 8.46
<i>Quesnel</i>	Victoria	23. 5.41	30. 8.46
<i>Rimouski</i>	Davie	26. 4.41	30. 8.46
<i>Rosthern</i>	Pt. Arthur	17. 6.41	17.10.45
<i>Sackville</i>	St. John	30.12.41	Retained
<i>Saskatoon</i>	Vickers	9. 6.41	30. 8.46
<i>Shawinigan</i>	G. T. Davie	19. 9.41	24.11.44
<i>Shediac</i>	Davie	8. 7.41	5.11.45
<i>Sherbrooke</i>	Marine Ind.	5. 6.41	30. 8.46
<i>Snowberry</i>	Davie	30.11.40	8. 6.45
<i>Sorel</i>	Marine Ind.	19. 8.41	30. 8.46
<i>Spikenard</i>	Davie	8.12.40	11.12.42
<i>Sudbury</i>	Kingston	15.10.41	1.11.45
<i>Summerside</i>	Morton	11. 9.41	30. 8.46

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Name	Builder	Commissioned	Date of loss or Disposal
<i>The Pas</i>	Collingwood	21.10.41	24. 7.45
<i>Trail</i>	Burrard	30. 4.41	30. 8.46
<i>Trillium</i>	Vickers	22.10.40	27. 6.45
<i>Wetaskiwin</i>	Burrard	16.12.40	30. 8.46
<i>Weyburn</i>	Pt. Arthur	26.11.41	22. 2.43
<i>Windflower</i>	Davie	26.10.40	10.12.41

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b. Flower Class, 1940-1941 Programme:

Displacement, 950 tons; overall length, 205' 1"; extreme breadth, 33' 1"; draught fwd., 8' 3" and draught aft, 13' 5" (both full load); main engine, steam reciprocating; full speed, 16.0 kts.; endurance, 3,450 n.m. at 12 kts.; armament, 1-4" gun and other weapons. This and subsequent classes of corvette had water-tube instead of cylindrical boilers. The forecastle was later lengthened in all except *Brantford*.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Brantford</i>	Midland	15. 5.42	17. 8.45
<i>Midland</i>	Midland	8.11.41	15. 7.45
<i>New Westminster</i>	Victoria M.	31. 1.42	30. 8.46
<i>Timmins</i>	Yarrows	10. 2.42	30. 8.46
<i>Vancouver</i>	Yarrows	20. 3.42	30. 8.46

c. Revised Flower Class, 1940-1941 Programme:

Displacement, 1,015 tons; overall length, 208' 4"; extreme breadth, 33' 1"; draught fwd., 11' 10" and draught aft, 15' 7" (both full load); main engine, steam reciprocating; full speed, 16.0 kts.; endurance, 3,450 n.m. at 12 kts.; armament, 1-4" gun and other weapons. Built with increased sheer and flare in the bow and with lengthened forecastle.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Calgary</i>	Marine Ind.	16.12.41	30. 8.46
<i>Charlottetown</i>	Kingston	13.12.41	11. 9.42
<i>Fredericton</i>	Marine Ind.	8.12.41	14. 7.45
<i>Halifax</i>	Collingwood	26.11.41	12. 7.45
<i>Kitchener</i>	G. T. Davie	28. 6.42	30. 8.46
<i>La Malbaie</i>	Marine Ind.	28. 4.42	30. 8.46
<i>Port Arthur</i>	Pt. Arthur	26. 5.42	16. 7.45
<i>Regina</i>	Marine Ind.	22. 1.42	8. 8.44
<i>Ville de Québec</i>	Morton	24. 5.42	6. 7.45
<i>Woodstock</i>	Collingwood	1. 5.42	

d. Revised Flower Class (Increased Endurance), 1942-1943 Programme.

Displacement, 970 tons; overall length, 208' 4"; extreme breadth, 33' 1"; draught fwd., 11' 5" and draught aft, 16' 0" (both full load); main engine,

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steam reciprocating; full speed, 16.0 kts.; endurance, 7,400 n.m. at 10 kts., armament, 1-4" gun and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Athol</i>	Morton	14.10.43	30. 8.46
<i>Cobourg</i>	Midland	11. 5.44	30. 8.46
<i>Fergus</i>	Collingwood	18.11.44	30. 8.46
<i>Frontenac</i>	Kingston	26.10.43	30. 8.46
<i>Guelph</i>	Collingwood	9. 5.44	30. 8.46
<i>Hawkesbury</i>	Morton	14. 6.44	30. 8.46
<i>Lindsay</i>	Midland	15.11.43	30. 8.46
<i>Louisburg</i>	Morton	13.12.43	30. 8.46
<i>Norsyd</i>	Morton	22.12.43	30. 8.46
<i>North Bay</i>	Collingwood	25.10.43	30. 8.46
<i>Owen Sound</i>	Collingwood	17.11.43	30. 8.46
<i>Rivière du Loup</i>	Morton	21.11.43	30. 8.46
<i>St. Lambert</i>	Morton	27. 5.44	30. 8.46
<i>Trentonian</i>	Kingston	1.12.43	22. 2.45
<i>Whitby</i>	Midland	6. 6.44	30. 8.46

e. Revised Flower Class (Increased Endurance), 1943-1944 Programme:

Displacement, 970 tons; overall length, 208' 4"; extreme breadth, 33' 1"; draught fwd., 11' 5" and draught aft, 16' 0" (both full load); main engine, steam reciprocating; full speed, 16.0 kts.; endurance, 7,400 n.m. at 10 kts.; armament, 1-4" gun and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Asbestos</i>	Morton	16. 6.44	30. 8.46
<i>Beauharnois</i>	Morton	25. 9.44	30. 8.46
<i>Belleville</i>	Kingston	19.10.44	30. 8.46
<i>Lachute</i>	Morton	26.10.44	30. 8.46
<i>Merrittonia</i>	Morton	10.11.44	30. 8.46
<i>Parry Sound</i>	Midland	30. 8.44	30. 8.46
<i>Peterborough</i>	Kingston	1. 6.44	30. 8.46
<i>Smiths Falls</i>	Kingston	28.11.44	30. 8.46
<i>Stellarton</i>	Morton	29. 9.44	30. 8.46
<i>Strathroy</i>	Midland	20.11.44	30. 8.46
<i>Thorlock</i>	Midland	13.11.44	30. 8.46
<i>West York</i>	Midland	6.10.44	30. 8.46

4. Algerine Escorts:

a. 1942-1943 Programme:

Displacement, 990 tons; overall length, 225' 0"; extreme breadth, 35' 6"; draught fwd., 10' 5" and draught aft, 10' 0" (both full load); main engines, steam reciprocating; full speed, 16 kts.; endurance, 4,500 n.m. at 11½ kts.;

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armament, 1-4" gun and other weapons. Canadian Algerines carried no minesweeping gear.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Border Cities</i>	Port Arthur Sb. Co.	18. 5.44	28. 7.45
<i>Kapuskasing</i>	Port Arthur Sb. Co.	17. 8.44	Retained
<i>Middlesex</i>	Port Arthur Sb. Co.	8. 6.44	
<i>Oshawa</i>	Port Arthur Sb. Co.	6. 7.44	Retained
<i>Portage</i>	Port Arthur Sb. Co.	22.10.43	"
<i>Rockcliffe</i>	Port Arthur Sb. Co.	30. 9.44	"
<i>Sault Ste. Marie</i>	Port Arthur Sb. Co.	24. 6.43	"
<i>St. Boniface</i>	Port Arthur Sb. Co.	10. 9.43	22. 9.47
<i>Wallaceburg</i>	Port Arthur Sb. Co.	18.11.43	Retained
<i>Winnipeg</i>	Port Arthur Sb. Co.	29. 7.43	"

b. 1943-1944 Programme:

(Particulars the same as for ships in 1942-1943 programme above).

Name	Builder	Commissioned	Date of loss or Disposal
<i>Fort Frances</i>	Port Arthur Sb. Co.	28.10.44	Retained
<i>New Liskeard</i>	Port Arthur Sb. Co.	21.11.44	"

5. Western Isles Anti-Submarine Trawlers: (built for R.N. and loaned to R.C.N.)

Displacement, 530 tons; overall length, 164' 0"; extreme breadth, 27' 8"; draught (mean), 8' 7"; main engine, steam reciprocating; full speed, 12.25 kts.; armament, 1-12 pdr. and other weapons; minesweeping gear.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Anticosti</i>	Collingwood	8. 8.42	17. 6.45
<i>Baffin</i>	Collingwood	20. 8.42	20. 8.45
<i>Cailiff</i>	Collingwood	16. 9.42	17. 6.45
<i>Ironbound</i>	Kingston	5.10.42	17. 6.45
<i>Liscomb</i>	Kingston	3. 9.42	17. 6.45
<i>Magdalen</i>	Midland	19. 8.42	17. 6.45
<i>Manitoulin</i>	Midland	8. 9.42	17. 6.45
<i>Miscou</i>	Collingwood	20.10.42	17. 6.45

6. Motor Launches—Fairmile "B" Type:

a. 1940-1941 Programme:

Displacement, 79 tons; overall length, 112' 0"; extreme breadth, 17' 10"; draught, 4' 10"; main engines, twin 630 h.p. Hall-Scott diesels; full speed, 20 kts.; endurance, 1,455 n.m. at 7½ kts.; armament, machine guns and depth charges.

Name	Builder	Commissioned	Date of loss or Disposal
<i>M.L. 050</i>	Midland Boat	18.11.41	8. 7.45
<i>M.L. 051</i>	Midland Boat	24.11.41	23. 6.45
<i>M.L. 052</i>	J. J. Taylor	31.10.41	25. 7.45

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Name	Builder	Commissioned	Date of loss or Disposal
<i>M.L. 053</i>	J. J. Taylor	17.11.41	10. 6.45
<i>M.L. 054</i>	Greavette Boat	17.10.41	8. 7.45
<i>M.L. 055</i>	Greavette Boat	6.11.41	10. 6.45
<i>M.L. 056</i>	Greavette Boat	24.11.41	10. 6.45
<i>M.L. 057</i>	Minett-Shields	28.10.41	8. 7.45
<i>M.L. 058</i>	Minett-Shields	24.11.41	14. 7.45
<i>M.L. 059</i>	Minett-Shields	26. 5.42	27. 5.46
<i>M.L. 060</i>	Hunter Boat	1.11.41	17. 6.45
<i>M.L. 061</i>	Hunter Boat	11.11.41	7. 5.46
<i>M.L. 062</i>	MacCraft	18. 4.42	27. 5.46
<i>M.L. 063</i>	MacCraft	18. 4.42	25. 7.45
<i>M.L. 064</i>	J. H. Leblanc	15. 5.42	17. 6.45
<i>M.L. 065</i>	J. H. Leblanc	15. 5.42	14. 7.45
<i>M.L. 066</i>	Vancouver Ship.	6. 3.42	12.10.45
<i>M.L. 067</i>	Vancouver Ship.	27. 3.42	10.10.45
<i>M.L. 068</i>	A. C. Benson	7. 3.42	12.10.45
<i>M.L. 069</i>	A. C. Benson	28. 3.42	6.10.45
<i>M.L. 070</i>	Star Shipyard	14. 3.42	12.10.45
<i>M.L. 071</i>	Star Shipyard	15. 4.42	7.11.45
<i>M.L. 072</i>	Grew	24.11.41	17. 7.45
<i>M.L. 073</i>	Grew	24.11.41	17. 7.45

b. 1941-1942 Programme:

(Particulars the same as for vessels in 1940-1941 Programme).

Name	Builder	Commissioned	Date of loss or Disposal
<i>M.L. 074</i>	Minett-Shields	26. 5.42	23. 6.45
<i>M.L. 075</i>	Minett-Shields	22. 6.42	17. 7.45
<i>M.L. 076</i>	Minett-Shields	22. 6.42	17. 7.45
<i>M.L. 077</i>	Greavette	2. 6.42	17. 7.45
<i>M.L. 078</i>	Greavette	2. 6.42	17. 7.45
<i>M.L. 079</i>	J. J. Taylor	27. 5.42	15. 6.45
<i>M.L. 080</i>	J. J. Taylor	17. 6.42	13. 6.45
<i>M.L. 081</i>	Midland Boat	27. 5.42	15. 6.45
<i>M.L. 082</i>	Midland Boat	27. 5.42	
<i>M.L. 083</i>	Leblanc	25. 5.42	13. 6.45
<i>M.L. 084</i>	Leblanc	18. 6.42	15. 6.45
<i>M.L. 085</i>	Hunter Boat	13. 6.42	13. 6.45

c. 1942-1943 Programme:

(Particulars the same as for vessels in 1940-1941 Programme).

Name	Builder	Commissioned	Date of loss or Disposal
<i>M.L. 086</i>	J. J. Taylor	26.10.42	30. 6.45
<i>M.L. 087</i>	J. J. Taylor	9.11.42	29. 6.45
<i>M.L. 088</i>	J. J. Taylor	10. 5.43	22. 6.45
<i>M.L. 089</i>	Greavette	15.10.42	29. 6.45
<i>M.L. 090</i>	Greavette	19.11.42	9. 7.45
<i>M.L. 091</i>	Greavette	17. 5.43	14. 7.45
<i>M.L. 092</i>	Hunter	2.11.42	22. 6.45
<i>M.L. 093</i>	Hunter	2.11.42	1. 7.45

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Name	Builder	Commissioned	Date of loss or Disposal
<i>M.L. 094</i>	Midland Boat	19.11.42	23. 6.45
<i>M.L. 095</i>	Midland Boat	12. 5.43	1. 7.45
<i>M.L. 096</i>	Minett-Shields	9.11.42	30. 6.45
<i>M.L. 097</i>	Minett-Shields	16.11.42	29. 6.45
<i>M.L. 098</i>	Grew	7.11.42	7. 7.45
<i>M.L. 099</i>	Grew	7.11.42	22. 6.45
<i>M.L. 100</i>	Grew	7.11.42	7. 7.45
<i>M.L. 101</i>	MacCraft	7.11.42	9. 7.45
<i>M.L. 102</i>	MacCraft	14.11.42	22. 6.45
<i>M.L. 103</i>	MacCraft	18.11.42	7. 7.45

d. 1943 Programme:

(Particulars the same as for vessels in 1940-1941 Programme).

Name	Builder	Commissioned	Date of loss or Disposal
<i>M.L. 104</i>	MacCraft	4. 8.43	15. 9.45
<i>M.L. 105</i>	MacCraft	5. 9.43	15. 9.45
<i>M.L. 106</i>	Grew	28. 8.43	Retained
<i>M.L. 107</i>	Grew	11. 9.43	15. 9.45
<i>M.L. 108</i>	Midland Boat	13. 8.43	14. 7.45
<i>M.L. 109</i>	Hunter	23. 8.43	14. 7.45
<i>M.L. 110</i>	Minett-Shields Port Carling Boat Works	7. 8.43	9. 7.45
<i>M.L. 111</i>	Leblanc	9. 9.43	9. 7.45

e. 1943-1944 Programme:

Displacement, 79 tons; overall length, 112' 0"; extreme breadth, 17' 0"; draught, 4' 10"; main engines, twin 700 h.p. Sterling diesels; full speed, 22 kts.; endurance, 1,925 n.m. at 7½ kts.; armament, machine guns and depth charges.

Name	Builder	Commissioned	Date of loss or Disposal
<i>M.L. 112</i>	J. J. Taylor	25.10.43	3. 8.45
<i>M.L. 113</i>	J. J. Taylor	20.11.43	21. 7.45
<i>M.L. 114</i>	Greavette	23.11.43	3. 8.45
<i>M.L. 115</i>	MacCraft	16.11.43	21. 7.45
<i>M.L. 116</i>	Hunter	12. 7.44	Retained
<i>M.L. 117</i>	Grew	16.11.43	3. 8.45
<i>M.L. 118</i>	Midland	6.11.43	23. 7.45
<i>M.L. 119</i>	Minett-Shields	16.11.43	3. 8.45
<i>M.L. 120</i>	Leblanc	27. 1.44	23. 7.45
<i>M.L. 121</i>	Leblanc	17. 4.44	Retained
<i>M.L. 122</i>	Vancouver Ship.	17. 5.44	3.10.45
<i>M.L. 123</i>	Vancouver Ship.	10. 6.44	3.10.45
<i>M.L. 124</i>	Vancouver Ship.	30. 6.44	Retained
<i>M.L. 125</i>	Star	22. 7.44	3.10.45
<i>M.L. 126</i>	Star	7. 8.44	3.10.45
<i>M.L. 127</i>	Star	27. 9.44	3.10.45
<i>M.L. 128</i>	Benson	29. 7.44	3.10.45
<i>M.L. 129</i>	Benson	16.10.44	3.10.45

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7. Bangor Minesweepers:

a. 1939-1940 Programme (steam):

Displacement, 672 tons; overall length, 180' 0"; extreme breadth, 28' 6"; draught fwd., 9' 10"; draught aft, 10' 2" (both full load); main engines, steam reciprocating; full speed, 16 kts.; endurance, 2,950 n.m. at 11½ kts.; armament, 1-3", 12 pdr., or 4" gun, and other weapons; minesweeping gear, S.A. (This last was removed in some cases from vessels used mainly as escorts.)

Name	Builder	Commissioned	Date of loss or Disposal
<i>Bellechasse</i>	Burrard D. D. Co.	13.12.41	24.10.45
<i>Burlington</i>	Dufferin Sbg. Co.	6. 9.41	3. 4.46
<i>Chedabucto</i>	Burrard D. D. Co.	27. 9.41	21.10.43
<i>Chignecto</i>	North Van S.R.	31.10.41	5.11.45
<i>Clayoquot</i>	Pr. Rupert D. D. Co.	22. 8.41	24.12.44
<i>Cowichan</i>	North Van S. R.	4. 7.41	3. 4.46
<i>Georgian</i>	Dufferin Sbg. Co.	23. 9.41	3. 4.46
<i>Mahone</i>	North Van S. R.	29. 9.41	3. 4.46
<i>Malpeque</i>	North Van S. R.	4. 8.41	3. 4.46
<i>Minas</i>	Burrard D. D. Co.	2. 8.41	3. 4.46
<i>Miramichi</i>	Burrard D. D. Co.	26.11.41	26.10.45
<i>Nipigon</i>	Dufferin Sbg. Co.	11. 8.41	3. 4.46
<i>Outarde</i>	North Van S. R.	4.12.41	26.11.45
<i>Quatsino</i>	Pr. Rupert D. D. Co.	3.11.41	27.11.45
<i>Quinte</i>	Burrard D. D. Co.	30. 8.41	4. 8.47
<i>Thunder</i>	Dufferin Sbg. Co.	14.10.41	3. 4.46
<i>Ungava</i>	North Van S. R.	5. 9.41	3. 4.46
<i>Wasaga</i>	Burrard D. D. Co.	1. 7. 41	3. 4.46

b. 1940 Programme (steam): (built for R.N. and loaned to R.C.N.)

(Particulars the same as for vessels in 1939-1940 Programme).

Name	Builder	Commissioned	Date of loss or Disposal
<i>Bayfield</i>	North Van	26. 2.42	26. 9.45
<i>Canso</i>	North Van	5. 3.42	26. 9.45
<i>Caraquet</i>	North Van	31. 3.42	26. 9.45
<i>Guysborough</i>	North Van	22. 4.42	17. 3.45
<i>Ingonish</i>	North Van	8. 5.42	2. 7.45
<i>Lockeport</i>	North Van	27. 5.42	2. 7.45

c. 1940-1941 Programme (diesel):

Displacement, 590 tons; overall length, 162' 0"; extreme breadth, 28' 0"; draught fwd., 8' 10"; draught aft, 8' 8½" (both at full load); main engines, twin 1,000 h.p. Sulzer diesels; full speed, 16 kts.; endurance, 2,700 n.m. at 13 kts.; armament, 1-12 pdr. and other weapons; minesweeping gear, S.A. (This last removed when vessels were used mainly as escorts.)

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Name	Builder	Commissioned	Date of loss or Disposal
<i>Brockville</i>	Marine Industries	19. 9.42	28. 8.45
<i>Digby</i>	Davie Shipbuilding	26. 7.42	17. 9.46
<i>Esquimalt</i>	Marine Industries	26.10.42	16. 4.45
<i>Granby</i>	Davie Shipbuilding	20. 6.42	17. 9.46
<i>Eachine</i>	Davie Shipbuilding	20. 6.42	17. 9.46
<i>Melville</i>	Davie Shipbuilding	4.12.41	
<i>Noranda</i>	Davie Shipbuilding	15. 5.42	28. 8.45
<i>Transcona</i>	Marine Industries	1.12.42	3. 8.45
<i>Trois Rivières</i>	Marine Industries	12. 8.42	3. 8.45
<i>Truro</i>	Davie Shipbuilding	27. 8.42	17. 9.46

d. 1940-1941 Programme (steam):

(Particulars the same as for vessels in 1939-1940 Programme except that those marked with asterisk also carried LL minesweeping gear.)

Name	Builder	Commissioned	Date of loss or Disposal
<i>Courtenay</i>	Pr. Rupert	21. 3.42	3. 4.46
<i>Drummondville*</i>	Vickers	30. 10.41	3. 4.46
<i>Gananogue*</i>	Dufferin	8.11.41	3. 4.46
<i>Goderich*</i>	Dufferin	23.11.41	3. 4.46
<i>Grandmère*</i>	Vickers	11.12.41	3. 4.46
<i>Kelowna</i>	Pr. Rupert	5. 2.42	23.10.45
<i>Medicine Hat*</i>	Vickers	4.12.41	3. 4.46
<i>Red Deer*</i>	Vickers	24.11.41	3. 4.46
<i>Swift Current*</i>	Vickers	11.11.41	3. 4.46
<i>Vegreville*</i>	Vickers	10.12.41	14. 9.45

e. 1941-1942 Programme (steam):

(Particulars the same as in 1940-1941 steam Bangor Programme.)

Name	Builder	Commissioned	Date of loss or Disposal
<i>Blairmore</i>	Pt. Arthur	17.11.42	3. 4.46
<i>Fort William</i>	Pt. Arthur	25. 8.42	3. 4.46
<i>Kenora</i>	Pt. Arthur	6. 8.42	3. 4.46
<i>Kentville</i>	Pt. Arthur	10.10.42	3. 4.46
<i>Milltown</i>	Pt. Arthur	18. 9.42	3. 4.46
<i>Mulgrave</i>	Pt. Arthur	4.11.42	
<i>Port Hope*</i>	Dufferin	30. 7.42	3. 4.46
<i>Sarnia*</i>	Dufferin	13. 8.42	3. 4.46
<i>Stratford*</i>	Dufferin	29. 8.42	3. 4.46
<i>Westmount*</i>	Dufferin	15. 9.42	3. 4.46

8. Wooden Minesweepers:

a. 105' Type:

Displacement, 228 tons; overall length, 119' 4"; extreme breadth, 22' 0"; draught fwd., 7' 2" and draught aft, 8' 8" (both full load); main engine, 500 h.p. Vivian diesel; full speed, 12 kts.; armament, machine guns; minesweeping gear, LL and S.A.

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Name	Builder	Commissioned	Date of loss or Disposal
<i>Coquitlam</i>	Newcastle Shipbldg.	25. 7.44	5.11.45
<i>Cranbrook</i>	Star Shipyards (Mercer's)	12. 5.44	5.11.45
<i>Daerwood</i>	Vancouver Yards	22. 4.44	29.11.45
<i>Kalamalka</i>	A. C. Benson	2.10.44	19.11.45
<i>Lavallée</i>	A. C. Benson	21. 6.44	27.12.45
<i>Llewellyn</i>	Chantier Maritime	24. 8.42	Retained
<i>Lloyd George</i>	Chantier Maritime	24. 8.42	"
<i>Revelstoke</i>	Star Shipyards (Mercer's)	4. 7.44	"
<i>Rossland</i>	Vancouver Yards	15. 7.44	2.11.45
<i>St. Joseph</i>	Newcastle Shipbldg.	24. 5.44	9.11.45

b. 126' Type:

Displacement, 360 tons; overall length, 140' 0"; extreme breadth, 27' 11"; draught fwd., 8' 6" and draught aft, 12' 6" (both full load); one diesel engine; designed speed 10.0 kts.; armament, machine guns; minesweeping gear, LL and S.A. These were under construction but none had been commissioned by VJ-day. They were turned over to Russia on completion.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Alder Lake</i>	Midland Boat Works	22. 9.45	20. 9.45
<i>Beech Lake</i>	Vancouver Shipyds.	5. 2.46	5. 2.46
<i>Cedar Lake</i>	J. J. Taylor & Sons	4.11.45	1.11.45
<i>Elm Lake</i>	MacCraft Co.	18.11.45	17.11.45
<i>Hickory Lake</i>	Grew Boats	4. 8.45	15. 8.45
<i>Pine Lake</i>	Port Carling Boat Works	22. 9.45	20. 9.45
<i>Poplar Lake</i>	Star Shipyds.	9. 1.46	9. 1.46
<i>Spruce Lake</i>	Star Shipyds.	19. 3.46	19. 3.46
<i>Willow Lake</i>	Newcastle Shipbldg.	11. 3.46	11. 3.46

9. Motor Torpedo Boats, Scott-Paine Type:

Twelve vessels in this class were built by Canadian Power Boat Co., Montreal. They were ordered by the R.C.N. but transferred to the R.N. on September 19, 1941, before the contract was completed.

10. Fairmile Depot Ships:

Displacement, 4,670 tons; overall length, 268' 11"; extreme breadth, 43' 11"; draught fwd., 17' 8½"; draught aft, 17' 11" (both at full load); main engines, diesel; designed speed, 10 kts.; endurance, 37,000 n.m. at 8½ kts.; armament, 1-12 pdr. and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Preserver</i>	Marine Industries	11. 7.42	4. 1.46
<i>Provider</i>	Marine Industries	1.12.42	

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III. WARSHIPS BUILT IN GREAT BRITAIN OR THE UNITED STATES.

1. Light Fleet Carriers:

Displacement, 14,000 tons; overall length, 695'; extreme breadth, 80'; mean draught, 24'; main engines, geared turbines; full speed, 24½ kts.; endurance, 8,500 n.m. at 20 kts.; armament, anti-aircraft guns.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Warrior</i>	Harland & Wolff	24. 1.46	Returned to R.N. on commissioning
<i>Magnificent</i>	Harland & Wolff		<i>Magnificent</i>

2. Escort Carriers (C.V.E.'s): (On Lease-Lend from U.S.N. to R.N.)

Displacement, *Nabob*—15,390 tons, *Puncher*—14,170 tons; overall length, *Nabob*—495' 8", *Puncher*—492' 0"; extreme breadth at flight deck, *Nabob*—107' 2", *Puncher*—102' 0"; maximum breadth at W.L., 69' 6"; maximum draught, *Nabob*—25' 5", *Puncher*—24' 8"; main engines, geared turbines; full speed, 18 kts.; armament, 2-5" and anti-aircraft guns.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Nabob</i>	Seattle-Tacoma S.B. Corp., U.S.A.	7. 9.43	1.10.44
<i>Puncher</i>	Seattle-Tacoma S.B. Corp., U.S.A.	5. 2.44	16. 1.46

3. Cruisers:

Displacement, 8,000 tons; overall length, 555' 6"; extreme breadth, 62'-63'; draught fwd., 20'; draught aft, 20' 8" (both full load); main engines, geared turbines; full speed, 30.25 kts.; endurance, 10,000 n.m. at 12 kts.; armament, 9-6" guns and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Uganda</i>	Vickers-Armstrong, Walker	21.10.44	Retained
<i>Ontario</i>	Harland & Wolff	26. 4.45	"

4. Destroyers:

a. Fleet V's:

Displacement, 1,710 tons; overall length, 362' 9"; extreme breadth, 35' 8"; main engines, geared turbines; full speed, 30.75 kts.; endurance, 5,300 n.m. at 15 kts.; armament, 4 4.7" guns and other weapons.

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Name	Builder	Commissioned	Date of loss or Disposal
<i>Algonquin</i> (ex-HMS <i>Valentine</i>)	John Brown	28. 2.44	Retained
<i>Sioux</i> (ex-HMS <i>Vixen</i>)	J. S. White	5. 3.44	"

b. Tribal Class:

Displacement, 1,927 tons; overall length, 377'; extreme breadth, 37' 6"; draught fwd., 9' 0"; draught aft, 15' 2" (both full load); main engine, geared turbines; full speed, 36.25 kts.; endurance, 5,200 n.m. at 15 kts.; armament, 6-4.7", 2-4" guns and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Athabaskan</i>	Vickers-Armstrong	3. 2.43	29. 4.44
<i>Haida</i>	Vickers-Armstrong	30. 8.43	Retained
<i>Huron</i>	Vickers-Armstrong	19. 7.43	"
<i>Iroquois</i>	Vickers-Armstrong	30.11.42	"

c. River Class:

Displacement, 1,350 tons; overall length, 329'; extreme breadth, 33' 3"; draught fwd., 11' 4"; draught aft, 14' 7" (both full load); main engine, geared turbines; full speed, 31.0 kts.; endurance, 5,400 n.m. at 15 kts.; armament, 3-4.7" guns and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Assiniboine</i> (ex- <i>Kempfenfelt</i>)	J. S. White	31. 5.32	8. 8.45
<i>Chaudière</i> (ex- <i>Hero</i>)	Vickers-Armstrong	15.11.43	19. 3.46
<i>Gatineau</i> (ex- <i>Express</i>)	Swan Hunter	3. 6.43	17. 3.47
<i>Kootenay</i> (ex- <i>Decoy</i>)	Thornycroft	12. 4.43	28. 1.46
<i>Margaree</i> (ex- <i>Diana</i>)	Palmers	6. 9.40	22.10.40
<i>Ottawa (II)</i> (ex- <i>Griffin</i>)	Vickers-Armstrong	20. 3.43	28. 1.46
<i>Qu'Appelle</i> (ex- <i>Foxhound</i>)	John Brown	8. 2.44	17.12.47
<i>Saskatchewan</i> (ex- <i>Fortune</i>)	John Brown	3. 6.43	28. 1.46

d. Town Class:

Displacement, 1,190 to 1,060 tons; overall length, 314' 4"; extreme breadth, 31' 0"; draught fwd., 11' 4"; draught aft, 12' 6" (both full load); main engine, geared turbine; full speed, 28 kts.; endurance, 2,600 n.m. at 15 kts.; armament, 4" guns and other weapons.

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Name	Builder	Commissioned	Date of loss or Disposal
<i>Annapolis</i> (ex- <i>MacKenzie</i>)	Union Iron Works		21. 6.45
<i>Buxton</i> (ex- <i>Edwards</i>)	Bethlehem		21. 3.46
<i>Columbia</i> (ex- <i>Haraden</i>)	Newport News		7. 8.45
<i>Hamilton</i> (ex- <i>Kalk</i>)	Fore River		2. 8.45
<i>Niagara</i> (ex- <i>Thatcher</i>)	Fore River		13. 1.46
<i>St. Clair</i> (ex- <i>Williams</i>)	Union Iron Works		5. 3.46
<i>St. Croix</i> (ex- <i>McCook</i>)	Bethlehem		20. 9.43
<i>St. Francis</i> (ex- <i>Bancroft</i>)	Bethlehem		2. 8.45

5. Frigates:

a. Loch Class:

Displacement, 1,435 tons; overall length, 307'; extreme breadth, 38' 7"; mean draught, 10' 6"; main engines, steam reciprocating; full speed, 19.5 kts.; endurance, 7,200 n.m. at 15 kts.; armament, 1-4" gun and other armament.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Loch Achanalt</i>	Henry Robb	31. 7.44	20. 6.45
<i>Loch Aloie</i>	Barclay Curle	10. 8.44	11. 6.45
<i>Loch Morlich</i>	Swan Hunter	17. 7.44	20. 6.45

b. River Class:

Displacement, 1,370 tons; overall length, 301' 4"; extreme breadth, 36' 8"; draught fwd., 10' 5"; draught aft, 14' 7" (both full load); main engines, steam reciprocating; full speed, 19.5 kts.; endurance, 7,500 n.m. at 15 kts.; armament, 2-4" guns and other armament.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Annan</i>	Hall Russell	13. 6.44	21. 6.45
<i>Ettrick</i>	J. Crown	29. 1.44	30. 5.45
<i>Meon</i>	A. & J. Inglis	7. 2.44	22. 4.45
<i>Monnow</i>	Chas. Hill	8. 3.44	11. 6.45
<i>Nene</i>	Smith's Dock Co.	6. 4.44	11. 6.45
<i>Ribble</i>	Blythe Dry Docks	24. 7.44	11. 6.45
<i>Teme</i>	Smith's Dock Co.	28. 2.44	4. 5.45

6. Corvettes:

a. Castle Class Corvettes:

Displacement, 1,060 tons; overall length, 251' 9"; extreme breadth, 36' 8"; max. draught, 15' 5"; main engines, steam reciprocating; full speed,

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16.5 kts.; endurance, 6,200 n.m. at 15 kts.; armament, 1-4" gun and other armament.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Arnprior</i>	Harland & Wolff	8. 6.44	5. 9.46
<i>Bowmanville</i>	Wm. Pickersgill	28. 9.44	5. 9.46
<i>Copper Cliff</i>	Blythe Dry Docks	25. 7.44	22.11.45
<i>Hesperer</i>	Henry Robb	28. 2.44	17.11.45
<i>Humberstone</i>	A. & J. Inglis	6. 9.44	22.11.45
<i>Huntsville</i>	Fleming & Ferguson	6. 6.44	5. 9.46
<i>Kincardine</i>	Smith's Dock Co.	19. 6.44	5. 9.46
<i>Leaside</i>	Smith's Dock Co.	21. 8.44	19.11.45
<i>Orangeville</i>	Henry Robb	24. 4.44	5. 9.46
<i>Petrolia</i>	Harland & Wolff	29. 6.44	15. 9.46
<i>St. Thomas</i>	Smith's Dock Co.	4. 5.44	23.11.45
<i>Tillsonburg</i>	Ferguson Bros.	29. 6.44	5. 9.46

b. Revised Flower Class (Increased Endurance):

Displacement, 970 tons; overall length, 208' 4"; extreme breadth, 33' 1"; draught fwd., 11' 5"; draught aft, 16' (both full load); main engines, steam reciprocating; full speed, 16 kts.; endurance, 7,400 n.m. at 10 kts.; armament, 1-4" gun and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Forest Hill</i>	Ferguson Bros.	1.12.43	30. 8.46
<i>Giffard</i>	Alex Hall	10.11.43	30. 8.46
<i>Longbranch</i>	John Brown	5. 1.44	30. 8.46
<i>Mimico</i>	John Brown	8. 2.44	30. 8.46

7. Motor Torpedo Boats:

a. 29th Flotilla (70' Scott-Paine Type):

Displacement, 44 tons; overall length, 71' 9"; extreme breadth, 20' 7"; draught fwd., 3' 1"; draught aft, 5' 8" (both full load); main engines, gasoline; full speed, 32 kts.; armament, 1-6 pdr. gun, 2 torpedo tubes and other weapons.

Name	Builder	Commissioned	Date of loss or Disposal
<i>#59</i>	British Power Boat Co.	2. 3.44	14. 2.45
<i>#60</i>	British Power Boat Co.	22. 3.44	1. 7.44
<i>#61</i>	British Power Boat Co.	15. 3.44	14. 2.45
<i>#62</i>	British Power Boat Co.		14. 2.45
<i>#63</i>	British Power Boat Co.		7. 7.44
<i>#64</i>	British Power Boat Co.		9. 3.45
<i>#65</i>	British Power Boat Co.		14. 2.45
<i>#66</i>	British Power Boat Co.		14. 2.45
<i>#85</i>	British Power Boat Co.	31. 7.44	8. 3.45
<i>#86</i>	British Power Boat Co.	5. 8.44	8. 3.45
<i>#91</i>	British Power Boat Co.	7.10.44	8. 3.45

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b. 65th Flotilla (Fairmile "D" Type):

Displacement, 102 tons; overall length, 115'; extreme breadth, 21' 3"; draught fwd., 4' 7"; draught aft, 5' 3" (both full load); main engines, gasoline; full speed, 29 kts.; armament, 2-6 pdr. and other armament.

Name	Builder	Commissioned	Date of loss or Disposal
<i>726</i>	Fairmile Marine Co.	2. 3.44	22. 5.45
<i>727</i>	Fairmile Marine Co.	27. 2.44	1. 6.45
<i>735</i>	Fairmile Marine Co.	26. 2.44	18. 5.45
<i>736</i>	Fairmile Marine Co.		22. 5.45
<i>743</i>	Fairmile Marine Co.		31. 5.45
<i>744</i>	Fairmile Marine Co.		
<i>745</i>	Fairmile Marine Co.	29. 1.44	18. 5.45
<i>746</i>	Fairmile Marine Co.	19. 5.44	18. 5.45
<i>748</i>	Fairmile Marine Co.	19. 2.44	23. 5.45
<i>797</i>	Fairmile Marine Co.	2. 1.45	21. 5.45

8. Landing Craft, Infantry (Large):

Weight loaded, 380 tons; overall length, 158' 6"; extreme breadth, 23' 8"; cruising speed, 12.5 kts.; endurance, 5,500 n.m.; carrying capacity, 155 men below deck.

(These vessels were built in the United States.)

a. First Canadian Flotilla:

Name	Commissioned	Date of loss or Disposal
<i>117</i>	4.12.43	31. 8.44
<i>121</i>	4.12.43	31. 8.44
<i>166</i>	4.12.43	31. 8.44
<i>177</i>	4.12.43	1. 9.44
<i>249</i>	4.12.43	3. 9.44
<i>266</i>	4.12.43	2. 9.44
<i>277</i>	4. 1.44	2. 9.44
<i>285</i>	4.12.43	13. 9.44
<i>298</i>	4.12.43	13. 9.44
<i>301</i>	4.12.43	28. 8.44

b. Second Canadian Flotilla:

Name	Commissioned	Date of loss or Disposal
<i>115</i>	30. 1.44	3. 9.44
<i>118</i>	29. 1.44	28. 8.44
<i>135</i>	29. 1.44	2. 9.44
<i>250</i>	29. 1.44	31. 8.44
<i>252</i>	29. 1.44	4. 9.44
<i>262</i>	29. 1.44	3. 9.44
<i>263</i>	29. 1.44	2. 9.44
<i>276</i>	29. 1.44	28. 8.44
<i>299</i>	29. 1.44	1. 9.44
<i>306</i>	29. 1.44	4. 9.44

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c. Third Canadian Flotilla:

Name	Commissioned	Date of loss or Disposal
<i>125*</i>	6. 3.44	4. 8.44
<i>255*</i>	2. 3.44	12. 9.44
<i>270</i>	8. 3.44	4. 9.44
<i>271</i>	8. 3.44	3. 9.44
<i>288</i>	8. 3.44	12. 9.44
<i>295*</i>	8. 3.44	1. 9.44
<i>302*</i>	8. 3.44	1. 9.44
<i>305</i>	29. 2.44	1. 9.44
<i>310*</i>	8. 3.44	1. 9.44
<i>311*</i>	29. 2.44	1. 9.44

* R.N. ships manned by Canadian crews.

IV. CONVERTED NON-NAVAL VESSELS.

1. Prince Ships:

a. Armed Merchant Cruisers:

Displacement, 5,736 tons; overall length, 385'; extreme breadth, 57'; draught fwd., 19' 6"; draught aft, 21' 1" (both full load); main engines, geared turbines; full speed, 22.0 kts.; cruising endurance, 4,572 n.m.; armament, 4-6" guns and other weapons.

(HMCS *Prince Robert* was rearmed with twin 4-inch and other guns in 1943, and recommissioned 7.6.43.)

Name	Builder	Commissioned	Date of loss or Disposal
<i>Prince David</i>	Cammell-Laird	28.12.40	1. 5.43
<i>Prince Henry</i>	Cammell-Laird	4.12.40	30. 4.43
<i>Prince Robert</i>	Cammell-Laird	31. 7.40	2. 1.43

b. Landing Ships, Infantry (Medium):

Armament, 4-inch guns and other weapons; carrying capacity, 8 L.C.A. and 550 army personnel.

Name	Recommissioned	Date of loss or Disposal
<i>Prince David</i>	20.12.43	7. 1.46
<i>Prince Henry</i>	6. 1.44	6. 4.45

c. Auxiliary Anti-Aircraft Ship:

Armament, 10-4" HA LA guns and other weapons.

Name	Recommissioned	Date of loss or Disposal
<i>Prince Robert</i>	7. 6.43	18. 1.46

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2. Armed Yachts:

a. Animals:

These vessels varied in size, speed, seaworthiness, and age. Except for *Grizzly* which was unsuitable except as a guardship, they were fitted with 4" or 12-pdr. guns, asdic sets, and depth charges.

Name	Builder	Commissioned	Date of loss or Disposal
<i>Beaver</i> (ex- <i>Aztec</i>)	Gardner & Cox, Crescent Shipyard, Elizabeth, N.J.	1. 4.41	25. 8.45
<i>Caribou</i> (ex- <i>Elfreda</i>)	Defoe S.B. Co., Bay City, Mich.	9.10.40	4. 9.45
<i>Cougar</i> (ex- <i>Breezing Thru</i>)	George Lawley & Sons, Neponset, Mass.	11. 9.40	26.11.45
<i>Elk</i> (ex- <i>Arcadia</i>)	Newport News S.B. Co.	10. 9.40	4. 9.45
<i>Grizzly</i> (ex- <i>Machigonne</i>)	Consolidated Shipbuilding Corp., N.Y.	17. 7.41	30.12.44
<i>Husky</i> (ex- <i>Wild Duck</i>)	Defoe Boat & Engine Works, Bay City, Mich.	23. 7.40	28. 8.45
<i>Lynx</i> (ex- <i>Ramona</i>)	Newport News S.B. Co.	26. 8.40	14. 7.43
<i>Moose</i> (ex- <i>Cleopatra</i>)		8. 9.40	24. 8.45
<i>Otter</i> (ex- <i>Conseco</i>)	Robt. Jacob, City Is., N.Y.	4.10.40	26. 3.41
<i>Raccoon</i> (ex- <i>Halonia</i>)	Bath Iron Works, Bath, Me.	12.40	1. 9.42
<i>Reindeer</i> (ex- <i>Mascotte</i>)	Newport News S.B. Co.	25. 7.40	4.10.45
<i>Renard</i> (ex- <i>Winchester</i>)	Bath Iron Works	5.40	15.11.45
<i>Tison</i> (ex- <i>Avalon</i>)	Pusey & Jones Corp. Wilmington, Del.	5.10.40	6.11.45
<i>Wolf</i> (ex- <i>Blue Water</i>)	George Lawley & Sons, Neponset, Mass.	2.10.40	22.12.45

b. Miscellaneous:

Name	Builder	Commissioned	Date of loss or Disposal
<i>Ambler</i>		14. 5.41	31. 1.46
<i>Sans Peur</i>	John I. Thornycroft & Co. Ltd., Southampton		17. 6.47

3. Auxiliary Minesweepers:

a. Suderoys:

Displacement, 252 tons; overall length, 119'; extreme breadth, 23' 9"; draught fwd., 12'; main engines, steam reciprocating; I.L. and S.A. mine-

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sweeping gear. (These vessels were operated on charter from the Norwegian Government.)

Name	Builder	Commissioned	Date of loss or Disposal
<i>Star XVI</i>	Oslo, 1930	8.41	2.11.45
<i>Suderoys II'</i>	Oslo, 1930	6.41	2.11.45
<i>Suderoys V</i>	Oslo, 1930		2.11.45
<i>Suderoys VI</i>	Smith's Dock Co., Middlesbrough, England, 1929.	3.41	2.11.45

b. Miscellaneous:

These vessels differed in size and eventually in function. All were requisitioned in the early years of the war as auxiliary minesweepers. They served as such for varying periods and then most of them were converted for less arduous local duties.

Arleux, Arras, Bras D'Or, Ocean Eagle, Rayon D'Or, Reo II, Ross Norman, Standard Coaster, Venosta, Viernoë.

4. Patrol Boats:

a. Fishermen's Reserve:

The particulars of these vessels varied. They were armed very lightly if at all. Those marked with an asterisk were fitted with oropesa mine-sweeping gear.

Allaverdy, Barkley Sound, B.C. Lady*, Billow, Camenita, Cancolim, Cape Beale*, Capella, Chamiss Bay, Comber*, Crest*, Dalehurst*, Departure Bay*, Early Field*, Ehkoli, Fifer, Flores, Foam, Howe Sound I, Joan W. II*, Kuitan, Leelo*, Loyal I, Margaret I, Merry Chase, Mitchell Bay*, Moolock, Moresby III, Nenamook*, Ripple, San Tomas, Santa Maria, Sea Pride II, Seiner, Signal*, Skidegate, Smith Sound*, Spray*, Springtime V*, Takla*, Telapus*, Tordo*, Valdes, Van Isles, Vencedor, West Coast, Western Maid*.*

b. Miscellaneous:

The particulars and armament of these vessels varied greatly.

Acadia, Adversus, Andamara, Anna Mildred, Bantie, Cartier, Cleopatra, Fleur de Lis, French, Interceptor, Leola Vivian, Lil II, Macdonald, Malaspina, Meander, Nitinat, Norsal, Scatarie, S.O. 9.

APPENDIX II

THE MACHINERY OF PORT DEFENCE

In war-time some ports and all naval bases are provided with defences in accordance with their importance and the anticipated form and scale of enemy attack, and with due regard to their natural characteristics.¹ Ports

¹ Forms and Scales of Attack were periodically drawn up at the highest level of planning. They were assessments of the nature and strength of the forces which an actual or potential enemy might use for attack, and they governed the type and disposition of port defences.

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may need protection from bombardment by capital or smaller ships, from air attack, from submarines, motor torpedo boats, mines, and torpedoes. Means of protection comprise fixed defences which include guns, and other devices mostly of an underwater character, and mobile defences consisting of air and sea patrols in the approaches to a port. All ports cannot be defended against all forms of attack, and the forces and material available must be disposed to provide sufficient protection where it is most needed. Port defences are the responsibility of all three Services, and while each has its own specific duties close co-operation is necessary to provide efficient defence. In Canada, as is the general practice in Great Britain, the navy is responsible for fixed underwater defences, for the identification and control of traffic entering and leaving a port, and for patrols and minesweeping in its approaches. Army responsibilities include the provision of anti-ship and anti-aircraft guns and of forces sufficient to repel a landing force if it should get ashore. The air force is responsible for general reconnaissance and for air action against attacking enemy sea, land, and air forces.

Coast-defence batteries are invariably part of the defences of a port. On the perimeter of the defences are the counter-bombardment guns, large enough to sink a cruiser and to be a considerable deterrent to capital ships.² Nearer to the harbour are the close-defence guns, of medium calibre, for defence against ships lighter than cruisers. Finally, installed in the vicinity of the inner entrance, are the anti-motor torpedo boat guns, comprising in most cases, twin six pounders. Two types of searchlight are used with coast-defence batteries: movable lights with concentrated beams function as observation and fighting lights; and fixed lights with beams horizontally dispersed to cover a wide arc are employed to illuminate the water area within the fire of A.M.T.B. or close-defence guns. Anti-aircraft batteries and searchlights are also part of the defences of a port, and may be situated wherever they are considered to be most effective. The anti-ship and anti-aircraft batteries of a port comprise what is known as a fortress, and are under an army fortress commander.

There are various kinds of underwater and floating devices designed either to detect, stop, or destroy, an enemy attacking from the sea. The most common of these defences are booms and nets of which there are several types. The anti-submarine net consists of a single or double line of heavy wire net, suspended from steel buoys and balanced with heavy concrete blocks in such a way as to permit it to yield on impact. It is placed across the entrance of a harbour and usually has a gate operated by two gate vessels. Anti-torpedo nets, also of single or double construction, but lighter and of finer mesh, are often placed in an overlapping position in such a way as to prevent a torpedo, travelling in a straight line, from entering a harbour, at the same time leaving a circuitous channel for ships. They may also be used to protect important port installations or valuable ships at anchor. The anti-boat boom, often used as a floating defence in shallow water, varies in design; it may be constructed of heavy steel or timber floats equipped with some impaling device, usually spikes, or it may consist of light "tablecloth" nets, supported by floats, to entangle unwary propellers. Whatever the design, its purpose is to prevent the

² Major fleet anchorages or very important harbours were sometimes provided with guns capable of sinking a battleship—e.g. Singapore.

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entry of motor torpedo boats or other light fast craft, and it is frequently employed to block unused entrances to a harbour. In some cases these various types of boom and net may be combined. Light indicator nets are sometimes used to advertise the presence of submarines but are of no value in stopping one. An early form of indicator net was used at Halifax and Sydney during the First World War, but no use was made of them at Canadian ports in the Second World War. Many kinds of fixed obstruction are used to block unused passages and are usually improvised on the spot. Various episodes indicated the weaknesses of the earlier forms of anti-submarine net defence, and they underwent extensive elaboration with a view to blocking a harbour entrance from shore to shore.³

Fixed underwater devices for detecting submarines or surface craft are of two general classes: indicator loops and harbour defence asdics. Indicator loop is the name given to a system of electric cables laid on the sea bed, so arranged that the passage of a ship within a certain distance is recorded by instruments on shore. The systems are arranged to cover as great an area as possible, and the disposition of patrol craft is correlated with them. Harbour defence asdics act on the same general principle as those carried in ships, but with modifications in the general lay-out to adapt them to the altered conditions and slightly different objects to be achieved.

The development of radar has greatly simplified the detection of approaching ships and aircraft, particularly in thick weather. In Canada shore radar stations for the detection of surface craft have usually been an army responsibility. Radar proved very useful as a rapid and accurate means of range-finding for fixed artillery defences, and it was found in practice that one station could serve both purposes. Fixed radar beams trained on the area covered by loops were helpful in determining whether a loop crossing is made by a ship or a submarine. One of the fixed defence devices for destroying enemy surface or under-water vessels, was the controlled minefield. The mines used in such a field were fired electrically from a control station on shore. These fields might be disposed in various ways to ensure the maximum defence possible according to the conformation of the sea bed, the topography of the adjacent shores, and any points requiring special defence. Other devices for destroying the enemy included torpedo tubes mounted on shore and the elaborate oil-fire defence installed on the coast of England during the war.

The use of booms for harbour defence dates back to early times; it was with the advent of the torpedo, however, that nets were first used in conjunction with them, and this practice began in the Royal Navy about 1900.⁴ During the First World War the menace of the submarine resulted in the development of devices for countering its tactical advantage of invisibility. Particular attention was paid to the protection of harbours, and the means used for this purpose included a form of anti-submarine net suspended from floats or small vessels, and light indicator nets which were sometimes combined with contact mines. Shore-controlled minefields were also installed, and by 1918 were effective enough to destroy the

³ See R.C.N.M.R. No. 36.

⁴ Before 1900 nets had been fitted to ships in an attempt to provide protection both while under way and in harbour. The first anti-torpedo net was patented in 1869. (C.B. 1928 (34), Textbook of Boom Defences).

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U. 116 when it attempted to enter Scapa Flow in October of that year. Fixed hydrophones, operated from shore and similar in function to the harbour defence asdics which later replaced them, were also developed by the Royal Navy, and those installed at Scapa Flow plotted the course of the *U. 116* for eighty minutes before she was destroyed.⁵

The First World War devices were considerably improved in the interval between 1918 and 1939, and the indicator loop and the harbour defence asdic were added to them to provide a much more efficient means of underwater detection; the principle of the loop also made possible a more reliable controlled minefield. The effectiveness of all under-water devices, however, was subject to hydrographic and topographical conditions which varied from port to port, and which in some cases might render one or more of them unsuitable or limit the positions in which they could be installed to those which failed to accord with other tactical requirements. In laying under-water defences, therefore, many factors had to be considered, and in each case the tactical advantage had to be weighed against the difficulties likely to be encountered.

Many types of naval vessel might be assigned to the protection of a port and its approaches, but in most cases local naval patrols consisted of small vessels equipped for anti-submarine warfare and used for reconnaissance, for escort duties in the immediate vicinity of a port, and as a striking force. Minesweeping vessels were employed if necessary to keep the channel clear of mines, and harbour-defence patrol craft were stationed within the harbour to deal with any enemy submarines, human torpedoes, or other special craft that might conceivably elude the outer and inner defences. Where indicator loops were installed a special patrol was maintained, vessels assigned to this duty being equipped with a device which transmitted a special code signal to the loop station as the vessel crossed the loop, thereby avoiding frequent alarms.

The identification and control of naval and merchant ships entering a defended port were effected through a port war signal station and an examination service. The port war signal station, established at all important defended ports likely to be used by warships, was situated on shore some distance from the inner harbour and where it commanded a full view of the approaches. It was a signal station, and was responsible for identifying and controlling all major warships requesting entrance. War watching stations were sometimes placed farther along the coast to give added vision to the port war signal station. Whenever possible defended ports were notified of the intended arrival of warships by one or more of the following means: by signal from the port of departure, by wireless message from the ship itself in circumstances where it was safe to transmit, or by visual signal from the ship to a coastal war watching station and then by land-line to the port. When a warship arrived within sight of a harbour the port war signal station challenged it by visual signal, and upon receiving the proper identification signal in return, notified the responsible port defence officers that the ship was friendly. Upon hearing from them that the minefield had been put to safe, that all batteries had been informed, and that the boom gate was in readiness to open, the port war signal station gave permission for the ship to enter.

⁵ The *U-116* which was equipped with wire cutters passed straight through the anti-submarine nets in Hoxa Sound, Scapa Flow, without being detected.

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The examination service was responsible for identifying and controlling all merchant vessels and minor warships.⁶ It comprised an examination anchorage and an examination vessel; the latter was on duty near the entrance to the port at all hours except when the port was closed, and identified and controlled all traffic of the kinds mentioned. Any vessel not easy to identify was ordered to the examination anchorage for more detailed inspection. In most cases the examination vessel was unarmed, but was supported by one of the shore batteries which had been assigned an examination rôle and was so situated as to command the whole area. Confidential and Public Traffic regulations, drawn up at each port, governed the details of the entry and control of vessels.

In most cases the naval officers responsible for mercantile activities were apprised of the expected arrival of merchant ships. Sometimes, however, a ship might be diverted while at sea, or have to seek a port of refuge in circumstances where it was not possible to supply the port with advance notice. Small coastal vessels were often unpredictable in their movements and might turn up unheralded. Every merchant ship, therefore, on approaching a port had to report to the examination vessel, and on being identified it hoisted a special signal provided by the latter which informed the port authorities that it was friendly, and all necessary steps were then taken to permit its entry. If the vessel was not identified it was ordered to the examination anchorage for further examination. Any reluctance on the part of the merchant vessel to obey orders brought a warning shot across its bows from the examination battery; and if it still persisted it was assumed to be hostile and all batteries within range opened fire.

The efficient operation of port defences required the closest co-operation, not only between the Services but between the various arms of each of them; and of course depended upon the receipt, from all available sources, of Intelligence concerning enemy activities and accurate information on the movements of friendly warships and merchant vessels. The fixed defences of a port were the responsibility of the N.O.I.C. and the army fortress commander. Under the former came the Extended Defence Officer (X.D.O.), and the Chief Examination Officer, and under the latter were the fire commanders. The X.D.O. controlled the naval seaward defences and the Chief Examination Officer was in charge of the examination service. The fire commander was the army officer in command of a tactical unit, of which there might be several in a fortress. An army liaison officer, known as the Selected Military Officer, transmitted to the fire commanders information received from the X.D.O. or any of the units under his command; he also passed information from the military authorities to the X.D.O. Private telephone communications were set up between all the Port Defence units and the officers responsible for co-ordinating their activities, so that information might be passed immediately. Under normal procedure fire commanders opened fire on approaching vessels only on the request of the X.D.O., or in the case of the examination battery when the examination vessel called for it. When a ship was obviously hostile, however, the fire commander might engage it on his own initiative.

⁶ Minor war vessels are small warships not provided with the special recognition signals used by major war vessels.

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APPENDIX III

FUEL OIL SUPPLY

The supply of fuel oil was a matter of particular concern to those responsible for the planning of bases established outside the principal ports. In some important respects, moreover, the problems of fuel supply were common to all bases. Nothing is more necessary to a modern industrial state at war than its supply of oil; and the provision of fuel oil at naval bases is inevitably part of the more comprehensive problem of oil supplies in general. The most important factors governing oil supply are an adequate source of crude oil, available means of transportation, and refining and storage facilities. Before the war Canada imported most of its crude oil from the United States and South America; and as a large consumer of oil products it had a well-developed oil-refining and distributing industry, and adequate storage for its peace-time needs. The Canadian oil industry was organized on a regional basis, each region having its own refineries and sources of crude oil. The west coast received its supplies by sea from California and Peru; the mid-western Provinces relied on domestic production in Alberta; while central Canada drew its supplies across the Great Lakes from Illinois and the surrounding districts. The refineries at Montreal, feeding the St. Lawrence River area, and those at Halifax which served the east coast and Newfoundland, imported their crude oil by tanker from South America and eastern Texas.¹ Both east and west coasts of Canada, therefore, relied on sea transport for their supplies of crude oil. Moreover, the distribution of finished products from the refineries at Halifax and Vancouver was also effected by coastal tanker. The dependence of the Dominion on outside sources of crude oil was a possible source of concern in war-time: particularly vulnerable to enemy attack was its means of supply and distribution on the east and west coasts, both widely separated from alternative sources of supply. Comparatively speaking, however, Canada was fortunate in her proximity to several of the world's richest oil fields.²

The flow of crude oil to Canadian refineries remained uninterrupted until the early months of 1942, when U-boat sinkings along the Atlantic seaboard assumed alarming proportions. While this menace was under control by 1943, and overcome by 1944, the greatly increased needs of the Allies for oil of every description strained existing production and transportation facilities in the western hemisphere, and only just enough crude oil continued to be available for Canada's own war needs. For the first nine months of the war no special machinery was set up to co-ordinate the supply and distribution of oil. Following the fall of France in June 1940, this function was assumed by an Oil Controller, appointed by the Canadian Government and placed under the newly formed Department of Munitions and Supply. Included in the Oil Controller's duties was the responsibility of arranging that sufficient naval fuel oil was released to meet naval

¹ I.C.C.P. to C.S.C., Feb. 2, 1942, "Sources of Supply and Reserves of Petroleum Stocks in Canada", N.S. 1044-13-1 (2).

² Of the 2077 million barrels of crude oil produced in the world in 1939, 1,265 million barrels came from the United States, 322 millions from South and Central America, and 8 millions from Canada. Nearly four-fifths of the world's oil production was situated in North and South America. Canada in 1939 consumed 51 million barrels of crude oil. [M. and S., *The Industrial Front* (Ottawa 1944)].

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requirements. From the beginning of the war the placing of orders for naval fuel had devolved on the Director of Naval Stores, where it rested until a Directorate of Fuel was set up at N.S.H.Q. in January 1943. To help in co-ordinating the oil requirements of the three armed Services an Interdepartmental Co-ordinating Committee on Petroleum was set up in March 1941,³ and in May of the following year, when the question of protecting oil tanks from possible bombardment or bombing had become pressing, a Director of Protection of Petroleum Reserves was appointed, under the Department of Munitions and Supply.⁴

The primary concern of the Naval Service was with the storage and delivery of fuel oil at bases used by its warships, and throughout the war it relied as much as possible on existing commercial facilities. Closely related to its requirements in this respect were the fuel needs of the merchant marine. The dislocation of trade routes as a result of war, and the institution of convoys, tended to strain commercial stocks at strategically important ports; a strain often already increased by the demands of warships. The development of naval bases at ports not normally supplying fuel to merchant ships in any quantity, as at St. John's, also presented problems of fuel supply. Finally the possibility of a temporary interruption in the delivery of crude oils to Canadian refineries raised the question of strategic reserve storage, as existing storage was predicated on a constant flow of crude oil to the refineries.

The first year of hostilities presented no serious problems of fuel supply. The hurried base-planning of the fateful summer of 1940 included the construction of reserve tankage at Halifax, as well as provision for naval fuel storage at Sydney, Gaspé, Shelburne, and Botwood, Newfoundland, and during the next two years these plans were largely implemented, except at Botwood. The events of December 1941 altered and complicated Canada's fuel-oil problem. Almost immediately following the entry of the United States into the war, U-boats attacked shipping off the Atlantic seaboard and seriously threatened the supply of crude oil in that area. By the spring there was a critical shortage of naval fuel oil. In the last week of April, Halifax and St. John's between them had only 45,000 tons, and their combined requirements at that time totalled 21,000 tons a week.⁵ On the west coast of Canada the extension of the war to the Pacific had no immediate effect on sea transport, but it emphasized the tenuous nature of fuel supplies in that area.

The shortage of naval fuel on the east coast was not allowed to become so acute as to interfere with Operations. However, to prevent its recurrence and a similar development on the west coast, the Naval Service drew up an ambitious programme to provide storage for strategic reserve stocks of fuel oil. The largest installations for reserve storage under this programme were to be constructed at Holyrood in Newfoundland and at Prince Rupert

³ Minutes of I.C.C.P., Mar. 10, 1941, N.S. 1078-12-18 (2).

⁴ P.C. 4107, May 16, 1942.

⁵ C.S.C. to Mins., Apr. 30, 1942, N.S. 1044-12-1 (1). Fuel oil was measured by the British and Canadian navies in long tons. In North America the oil industry computes oil stocks in terms of barrels. This form of measurement was used by the Naval Service in dealing with shore tankage at naval bases. In converting the measure of volume to the measure of weight the ratios of 6.6 barrels to the ton for naval fuel oil and of 7 barrels to the ton for diesel fuel were accepted by the R.C.N. The results were approximate only, as the weight of a barrel varies slightly according to the quality and temperature of the fuel oil it contains. Gasoline was measured in gallons because of the smaller quantities involved.

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in British Columbia, in order to provide adequate reserves in these areas of naval activity which were least accessible to sources of supply. Co-ordinated with this programme were plans for operational supplies of diesel fuel and high-octane gasoline to meet increasing operational needs. Naval storage requirements for high-octane gasoline, however, were greatly reduced by a reciprocal arrangement with the air force whereby the facilities of each Service were to be made available to the other.

The programme as finally submitted to Council was based on one month's operational requirements and strategic reserves for three months, and called for the construction of storage tanks for 1,249,116 barrels at a cost of \$6,215,750, and the leasing of tanks for 377,628 barrels at an annual rental of \$35,261. All new construction was to be placed underground for protection against bombardment and bombing. The building programme was to be spread over two years with priority given to light-fuel storage, and facilities were to be leased for a three-year period.⁶

Before this programme was well started, however, circumstances altered in such a way as to make much of it superfluous. During 1943 the strategic position of the Allies steadily improved, the submarine menace on the east coast reached its climax and then subsided, and tanker construction overtook and surpassed tanker sinkings. Furthermore the Allies began to take the offensive, and the critical area of conflict moved farther from the coasts of North America. The ever-increasing demands for oil for overseas consumption so depleted current stocks in the United States that it appeared unlikely that sufficient oil could be released to fill reserve tankage. Moreover, labour and materials in Canada could ill be spared for work that was not absolutely essential. Finally, by the summer of 1943, fuelling at sea had changed from a doubtful experiment to an established practice, and this development further reduced the amount of reserve fuel needed at naval bases. In October 1943, therefore, the Naval Service decided to abandon all projects not already under construction, except that for Prince Rupert which was to proceed on a reduced scale.⁷

During the war the R.C.N. operated several small auxiliary tankers, to assist in transporting fuel oil and in its distribution at naval bases. Two "Hopper" barges were acquired in December 1940, and converted to fuel-oil carriers. Commissioned at H.M.C.S. *Moonbeam* and H.M.C.S. *Sunbeam*, these ships served as lighters at Halifax and St. John's, and were occasionally employed as transports. In 1942 the Naval Service authorized the construction of two auxiliary tankers, which came into service the following year as H.M.C.S. *Dundalk* and H.M.C.S. *Dundern*. These ships delivered oil from the Halifax refineries to bases on the east coast and in Newfoundland, and also occasionally served as lighters. On the west coast the Department of Public Works transferred the dredge *Mastodon* to the R.C.N. which converted it to an auxiliary tanker. Placed in service early in 1943 as H.M.C.S. *Mastodon*, it delivered oil to naval shore tanks and helped in the distribution of commercial oil products when the tanker shortage became acute in that area.

⁶ Min. to Council, Mar. 25, 1943, N.S. 1044-12-2 (3).

⁷ Min. (M. and S.) to Min., Aug. 13, 1943, N.S. 1044-13-1 (1); Naval Staff Minutes, Aug. 30 and Nov. 15, 1943. For total tankage built or rented by R.C.N. during war see App. IV.

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APPENDIX IV

NAVAL TANKAGE

Maximum owned or controlled by the Naval Service
during the Second World War*

(Figures supplied by the Directorate of Fuel)

Built and owned by the Naval Service:

ESQUIMALT	Bunker Fuel	130,816 bbls.
	Diesel Fuel	6,000 bbls.
	Gasoline	151,000 gals.
PRINCE RUPERT	Bunker Fuel	93,408 bbls.
HALIFAX	Bunker Fuel	85,000 bbls.
SYDNEY	Bunker Fuel	70,000 bbls.
	Diesel Fuel	6,000 bbls.
	Gasoline	96,000 gals.
SHELburnE	Bunker Fuel	35,000 bbls.
	Gasoline	96,000 gals.
GASPÉ	Bunker Fuel	21,000 bbls.
	Diesel Fuel	6,000 bbls.
	Gasoline	96,000 gals.

Built by the Naval Service, but owned by the Admiralty:

ST. JOHN'S, Nfld.	Bunker Fuel	279,000 bbls.
	Diesel Fuel	12,000 bbls.

Rented by the Naval Service:

POWELL RIVER, B.C.	Bunker Fuel	23,000 bbls.†
OCEAN FALLS, B.C.	Bunker Fuel	35,000 bbls.†
BURNABY, B.C.	Bunker Fuel	80,000 bbls.†
SYDNEY, N.S.	Bunker Fuel	25,000 bbls.
QUEBEC, P.Q.	Bunker Fuel	55,000 bbls.
SAINT JOHN, N.B.	Bunker Fuel	15,000 bbls.

* Certain commercial tankage and R.C.A.F. gasoline stores were also available.

† Rented and maintained as an emergency reserve.

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APPENDIX V

Officers and Men Serving at Canadian Naval Bases
1941—1945*

(Weekly Strength Reports N.S. 1015-5-26 (1); N.S. 30-8-43 (1-3))

OFFICERS AND MEN

BASES	July 1941	Mar. 1942	July 1942	Jan. 1943	July 1943	Jan. 1944	July 1944	Jan. 1945	July 1945
Montreal	455	972	1,382	1,125	2,260	2,431	3,907	3,011	5,005
Quebec	205	79	216	246	319	294	469	332	370
Gaspé .....	...	59	209	277	585	370	588	385	220
Sydney	310	515	665	695	1,857	1,850	2,017	2,475	2,327
Saint John.....	240	166	216	290	296	373	511	462	672
Halifax†.....	6,290	6,548	7,781	10,522	12,207	12,597	14,709	17,191	16,887
Shelburne.....	...	51	116	257	474	821	1,390	2,116	2,141
St. John's, Nfld.....	900	992	1,254	2,344	3,020	3,635	4,096	5,006	3,041
Esquimalt.....	2,996	3,380	3,665	5,937	6,050	3,623	2,642	2,648	4,445
Prince Rupert.....	39	71	175	518	546	574	626	804	668
Vancouver.....	298	210	235	279	425	987	482	567	636
Totals.....	11,733	13,043	15,914	22,490	28,039	27,555	31,437	34,997	36,412

* No figures are available for the period prior to July 1941, and for the subsequent 18 months they are recorded only at irregular intervals. From December 1942 until the end of the war the record is complete.

† The figures for Halifax include those of H.M.C.S. "Cornwallis" until it moved to Deep Brook, N.S. in the spring of 1943.

APPENDIX VI

Approximate Cost of Naval Bases in Canada

From September 1939 to March 31, 1946

(Figures supplied by Chief Treasury Officer, Naval Service)

Base	Construction of Buildings	Harbour Defence	Purchase of Machinery	Purchase of Land and Buildings	Total
Halifax, N.S.	\$24,167,000	\$618,000	\$1,915,000	\$918,000	\$27,618,000
Sydney, N.S.	11,240,000	312,000	346,000	109,000	12,007,000
Saint John, N.B.....	509,000	458,000	12,000	19,000	998,000
Shelburne, N.S.....	4,084,000	218,000	493,000	6,000	4,801,000
Gaspé, P.Q.	1,461,000	128,000	76,000	9,000	1,674,000
Montreal, P.Q.	219,000	.....	2,000	121,000	342,000
Quebec, P.Q.	99,000	.....	5,000	1,000	105,000
Esquimalt, B.C.	4,971,000	263,000	577,000	509,000	6,320,000
Prince Rupert, B.C.	1,743,000	390,000	49,000	15,000	2,197,000

NAVAL SERVICE OF CANADA

APPENDIX VII

ACCOMMODATION AND RECRUITING AT R.C.N.V.R. DIVISIONS September 1939 — August 1945

Divisions	Retained Old Headquarters	Bought or Leased New Building	New Construction in Part or Entire	Accommodation	Enlistment of Officers & Ratings
Halifax, N.S. "Haligonian"	Halifax Dockyard	Transferred to Sydney & then Back to Halifax where Quarters were Leased Dec. '43			2510
Charlottetown, P.E.I. "Queen Charlotte"	Leased Premises			50 Men Sleeping 50 Men Messing 100 Men Training	1260
St. John, N.B. "Brunswicker"		Leased New Premises June '40	Began Dec. '43 & Completed Nov. '44	125 Men Training	2292
Quebec, P.Q. "Montcalm"	Leased Premises	Leased New Premises Dec. '39 Leased Winter Club Nov. '41		120 Men Sleeping 120 Men Messing 120 Men Training	1474
Montreal, P.Q. "Donnacona"	Leased Premises	Bought Winter Club Sept. '42		250 Men Sleeping 325 Men Messing 325 Men Training	8125
Montreal, P.Q. "Cartier"	Leased Premises			No Training	2341
Ottawa, Ont. "Carleton"	Leased Premises		Began Feb. '42 & Completed Dec. '43	200 Men Sleeping 200 Men Messing 200 Men Training	4620
Kingston, Ont. "Cataragui"	Leased Premises Dec. '39	Leased Badminton Club for Drilling, Administration & Messing July '42		125 Men Sleeping 125 Men Messing 125 Men Training	3211
Toronto, Ont. "York"	Leased Premises		Began May '43 & not Completed by End of War	1200 Men Sleeping 1200 Men Messing 1200 Men Training	14183
Hamilton, Ont. "Star"	Leased Premises		Began Oct. '42 & Completed Oct. '43	125 Men Sleeping 125 Men Messing 125 Men Training	7202
London, Ont. "Prevost"	Leased Premises	Leased New Premises Nov. '39		100 Men Sleeping 100 Men Messing 150 Men Training	4480
Windsor, Ont. "Hunter"	Leased Premises Feb. '40	Bought Additional Building for Drilling & Messing Oct. '42		160 Men Sleeping 160 Men Messing 160 Men Training	3981
Port Arthur, Ont. "Griffon"	Used Port Arthur Armoury Sept. '39	Leased Premises Jan '40: Purchased same Premises April '42	Began Oct. '43 & completed June '44	125 Men Sleeping 125 Men Messing 125 Men Training	2412
Winnipeg, Man. "Chippawa"	Leased Premises	Bought Winter Club Aug. '42		250 Men Sleeping 350 Men Messing 500 Men Training	7736
Regina, Sask. "Queen"	Used Regina Armoury	Leased Wascana Winter Club Sept. '41		110 Men Sleeping 110 Men Messing 110 Men Training	2698
Saskatoon, Sask. "Unicorn"	Leased Premises		Began May '43 & completed June '44	100 Men Sleeping 100 Men Messing 100 Men Training	3573
Calgary, Alta. "Tecumseh"	Used No. 2 Police Station Sept. '39	Leased Premises Jan. '40	Began May '43 & Completed Jan. '45	200 Men Sleeping 200 Men Messing 375 Men Training	3899
Edmonton, Alta. "Nonsuch"	Leased Premises		Began Aug. '42 & Completed Nov. '43		3588
Vancouver, B.C. "Discovery"	Leased Premises		Began July '42 & Completed Sept. '44	250 Men Sleeping 250 Men Messing 250 Men Training	7221

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APPENDIX VIII
 PRODUCTIVITY OF NAVAL SCHOOLS
 (Statistics obtained from Directorate of Personnel Records, N.S.H.Q.)
 ENGINE ROOM

DATE	Chief E.R.A.	Chief E.R.A. (M)	E.R.A. (1-5)	Chief Motor Mechanic	Motor Mechanic	Chief Stoker	P.O. Stoker	Ldg. Stoker	Ldg. Stoker (M)	Stoker (M)	Stoker (1-2)	Ldg. Stoker (D)	Stoker (D)	C.P.O. Stoker (F.F.)	P.O. Stoker (F.F.)	Ldg. Stoker (F.F.)	Stoker (1-2) (F.F.)	Chief Plumber	Plumber (1-5)	
Nov 30 - Nov 40	17	257	87	144	192	1211	7	14	10											
Nov 40 - Nov 41	64	7 433	94	151	410	2216	102	146	34											
Nov 41 - Nov 42	23	0 1153	76	213	376	3020	113	127	109											
Nov 42 - Nov 43	20	9 1091	130	316	725	2137	148	406	124											
Nov 43 - Nov 44	85	10 1313	60	85	440	977	270	43	51											
Nov 44 - Aug 45	.33	142	92	28	425	1660	105	-1660	7											

NAVAL SERVICE OF CANADA

GUNNERY

DATE	Gunner's Mate	Control Rating 1/Cl.	Control Rating 2 Cl.	Control Rating 3 Cl.	Layer Rating 1/Cl.	Layer Rating 2 Cl.	Layer Rating 3 Cl.	Anti-Aircraft 1 Cl.	Anti-Aircraft 2 Cl.	Anti-Aircraft 3 Cl.	Anti-Aircraft 3 (O).	Anti-Aircraft 3 (C.X.)	Anti-Aircraft Lewis	Gunnery Lieutenant's Writer	Chief Ordnance Artificer (1-2)	Ordnance Artificer (1-5)	Radar Control 1/Cl.	Radar Control 2 Cl.	Radar Control 3 Cl.	Quarter's Rating 1/Cl.	Quarter's Rating 2 Cl.	Quarter's Rating 3 Cl.	C.P.O. D.E.M.S.	P.O. D.E.M.S.	Ldg. Seaman D.E.M.S.	A.B. & Ord. Seaman D.E.M.S.		
Nov/39 — Nov/40	27	4	28	10	46	203	6	23			43	4	4	4	1	28				5	94	304						
Nov/40 — Nov/41	22	7	2	3	5	-5	301	13	79		47	3	3	1	43					2	175	54						
Nov/41 — Nov/42	6	7	-8	16	-3	10	199	9	19	333	28	172	11	4	100					17	-5	77						
Nov/42 — Nov/43	13	-7	-3	39	11	12	237	9	95	772	4	-65	0	6	90					13	328	307						
Nov/43 — Nov/44	6	0	2	-1	-3	9	-48	8	132	487	69	51	-130	9	14	82				29	13	102	11	99	212	1147		
Nov/44 — Aug/45	-5	2	21	-3	2	-15	23	8	251	158	-88	24	-43	-17	8	21		7	49	50	131	-52	4	19	-5	122		

APPENDICES

ANTI-SUBMARINE

TORPEDES

DATE	Torpedo Gunner's Mate	Ldg. Torpedoman (L.P.)	Ldg. Torpedoman	Scaman Torpedoman	Torpedo Lieutenant's Writer	Chief Electrical Artificer	Electrical Artificer (1-5)	C.P.O. & P.O. Electrician	Electrician	Electrician	Submarine Detector	Higher Submarine Detector	Submarine Detector	Submarine Instructor	Chief A/S Artificer	A/S Artificer	A S Officer's Writer
Nov 39 -- Nov 40....	18	1	101	289	2	3	52		59		116	19	1				
Nov 40 -- Nov 41....	17	10	95	440	1	0	85	16	52		304	59	2				2
Nov 41 -- Nov 42....	19	9	81	107	1	7	86	19	225		469	113	2				0
Nov 42 -- Nov 43....	15	16	145	879	4	5	363	14	108		778	192	25				2
Nov 43 -- Nov 44....	11	10	140	144	2	0	630	14	228		106	33	2		14	8	0
Nov 44 -- Aug 45....	16	-2	131	145	-4	13	79	-33	2		194	-18	2		6	12	

APPENDICES

APPENDIX IX

Capacity of principal Loading Ports as of Dec. 31, 1944

(*Canada Year Book*, 1945, p. 684; "Summary of Canadian Port Facilities" (D.T.D. records)).

Facilities	Vancouver	Montreal	Three Rivers	Quebec	Halifax	Saint John, N.B.
Accommodation						
Anchor ocean vessels	no. 70	10	3	28	145	5
Dry dock ocean vessels	no. 2	1†		2	2	3
Berthing— for all types of vessel	ft. 32,364	51,060	8,690	32,505	33,416	15,175
Sheds	sq. ft. 1,547,464	2,063,033	173,000	743,642	1,236,804	812,000
Cold Storage	cu. ft. 1,312,000	4,628,000		500,000	1,050,000	880,000
Grain elevators loading	bu. 18,716,500 bu. per hr. 312,000	15,162,000 400,000	5,000,000 32,000	4,000,000 90,000	2,200,000 75,000	3,000,000 150,000
Coal Docks	tons (*)	1,380,000	300,000	215,000	108,000	55,000
Oil Docks	gals. 112,676,729	30,000,000		26,280,000	115,921,083	9,418,000

* Ships usually coaled at Nanaimo or Union Bay.

† There were also two medium-sized dry docks.

NAVAL SERVICE OF CANADA

APPENDIX X
Canadian and British-Canadian Trade Convoys Operated in Western Atlantic
(Based on Statistical Summary of Convoys (D.T.D. records))

Convoy	Between	First Convoy	Last Convoy	Total		REMARKS
				Convoys	Ships	
HX	Halifax-United Kingdom.....	16.9.39	13.9.42	207	8,501	Speed: to Jan., 1942, 9 to 14.9 kts.; thereafter 10 to 14.9 kts. (to Feb. 16/40, 17 of these convoys had "fast" sections of 11 to 15 kts.) SHX Section from Sydney 31.7.40 to 21.8.41 (except for winter season) WHX section from Newfoundland.
	New York-United Kingdom.....	17.9.42	25.5.45	151	10,214	Sections SHX (after 1.5.44), WHX, and HHX (from Halifax). Between 13.4.44 and 21.9.44 convoys of three speeds, 8, 9 and 10 kts. sailed from New York replacing HX and SC. These were HXS, HXM and HXF (included in these figures).
	Sydney-United Kingdom.....	15.8.40	31.7.42	94	3,652	Sailed from Halifax during winter season. Speed: to Jan. 1942, 7.5 to 8.9 kts.; Jan./42 to July 8/42, 7.5 to 9.9 kts. Thereafter 8 to 9.9 kts.
SC	Halifax-United Kingdom.....	4.8.42	19.9.42	11	318	Sections SSC from Sydney and WSC from Nfld.
	New York-United Kingdom.....	19.9.42	20.3.43	20	1,184	Sections SSC, WSC, and HSC (from Halifax).
	Halifax-United Kingdom.....	31.3.43	26.4.45	53	2,328	Between 18.4.44 and 16.9.44 HXS (8-kt.) convoy from New York replaced the SC convoy. (HXS included in HX figures).
ON	United Kingdom-New York.....	28.7.41	29.5.45	178	7,482	Terminated Halifax until September 1942.
ONS	United Kingdom-Halifax.....	29.7.41	22.5.45	221	10,986	
BS	Corner Brook-Sydney.....	21.5.42	24.12.44	143	5,837	No sailings during winter season.
	Sydney-Corner Brook.....	19.5.42	30.12.44	104	237	No sailings during winter season.
SB				98	188	

NOTE: Total dead-weight tonnage convoyed in HX-SC convoys: 235,104,836

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Convoy	Between	First Convoy	Last Convoy	Total		REMARKS
				Convoys	Ships	
BW WB	Sydney-Wabana..... Wabana-Sydney.....	11.9.42 15.9.42	23.5.45 23.5.45	162 147	711 793	No sailings during winter season. No sailings during winter season.
BX XB	Boston-Halifax..... Halifax-Boston.....	20.3.42 18.3.42	22.5.45 23.5.45	191 196	3,511 2,166	
CL LC	St. John's, Nfld.-Sydney..... Sydney-St. John's, Nfld.....	28.2.42 5.4.42	18.6.43 4.6.43	66 55	368 227	After June, 1943 sailed with BW/WB convoys.
PH HF	Saint John, N.B.-Halifax..... Halifax-Saint John, N.B.....	18.9.42 13.9.42	23.5.45 20.5.45	196 158	901 905	
HJ JH	Halifax-St. John's, Nfld..... St. John's, Nfld.-Halifax.....	22.5.42 21.5.42	25.5.45 31.5.45	151 186	458 614	
HS SH	Halifax-Sydney..... Sydney-Halifax.....	16.5.42 15.5.42	21.5.45 25.5.45	216 245	1,439 1,382	No sailings during winter season.
JN NJ	St. John's, Nfld.-East Coast Nfld. and Labrador..... East Coast Nfld. and Labrador-St. John's, Nfld.....	5.6.42 6.6.42	7.5.45 9.5.44	38 35	106 103	Intermittent.
LN NL	Quebec-Labrador..... Labrador-Quebec.....	25.6.42 4.7.42	26.10.44 4.11.44	28 30	96 99	Intermittent.
QS SQ	Quebec-Sydney..... Sydney-Quebec.....	17.5.42 17.5.42	14.12.44 19.11.44	93 90	976 666	Intermittent.
HT TH	Halifax-Trinidad..... Trinidad-Halifax.....	22.5.42 4.6.42	30.6.42 4.7.42	3 3	12 16	
HA AH	Halifax-Aruba..... Aruba-Halifax.....	5.7.42 27.7.42	19.8.42 2.9.42	4 3	57 35	
Special	Various ports.....	14.5.42	8.5.45	49	90	

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APPENDIX XI
Principal American Trade Convoys Operated in Western Atlantic

Convoy	Between	First Convoy	Last Convoy	Total		REMARKS
				Convoys	Ships	
CU	Caribbean-United Kingdom	20.3.43	30.5.45	74	2,402	From Aruba-Curaçao until Nov. 1943. Thereafter from and to New York. Fast tankers and cargo vessels. There was also an intermittent tanker convoy OT-TO between Aruba and Dakar in 1943 and 1944.
UC	United Kingdom-Caribbean	16.2.43	25.5.45	71	2,413	
GU	Gibraltar-United States	13.12.42	29.5.45	119	5,381	
UG		United States-Gibraltar	13.12.42	27.5.45	124		6,161
GAT	Guantánamo-Aruba-Trinidad	3.9.42	13.5.45	209	3,769	
TAG		Trinidad-Aruba-Guantánamo	29.8.42	13.5.45	203		3,831
GK	Guantánamo-Key West	1.9.42	13.5.45	163	1,135	
KG		Key West-Guantánamo	15.9.42	13.5.45	166		1,451
GN	Guantánamo-New York	1.9.42	13.5.45	200	4,257	
NG		New York-Guantánamo	27.8.42	6.5.45	207		4,097
GZ	Guantánamo-Panama	31.8.42	14.5.45	121	1,006	
ZG		Panama-Guantánamo	3.9.42	3.5.45	118		940
HK	Galveston-Key West	5.9.42	10.4.45	176	2,260	
KH		Key West-Galveston	11.9.42	12.5.45	142		988
JT	Rio de Janeiro-Trinidad	9.7.43	7.3.45	70	988	There were a number of preliminary KN-KS convoys between Key West and Norfolk, June-August, 1942. During July and August there were preliminary convoys WAT-TAW between Key West and Aruba I, Trinidad.
TJ		Trinidad-Rio de Janeiro	25.7.43	8.3.45	68		865
KN	Key West-New York	8.9.42	13.5.45	179	2,080	
NK	New York-Key West	28.8.42	10.5.45	164	1,349	
GS	Greenland-Sydney	6.7.42	14.7.44	51	200	Intermittent. Assembled by N.C.S.O. Sydney but protected by American escorts.
SG	Sydney-Greenland	4.9.42	26.7.44	40	138	

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APPENDIX XII

Simplified table showing Merchant Ships registered or built in Canada,
September 1939—September 1945

(Based on figures supplied by the Canadian Shipping Board)

(Ocean-going ships of over 1,000 gross tons)

	Sept. '39—Sept. '45		As of Sept. '45	
	No.	Total D/Wt. Tons	No.	Total D Wt. Tons
Registered in Canada, Sept. 1939	41	290,099		
Acquired in prize or by purchase	10	95,076		
Total	51	385,175		
Losses (sunk or sold) ¹	32	256,000		
			19	129,175
Built in Canada and operated by Park S.S. Co.				
10,000 ton dry cargo	114	1,140,000		
4,700 ton dry cargo	26	132,200		
10,000 ton tankers	13	130,000		
3,600 ton tankers	6	21,600		
Total (a)	159	1,423,800		
Losses (sunk or sold) ²	5	43,600		
			154	1,380,200
Total Can. M.M. exclusive of following:			173	1,509,375
Built in Canada for allied use, <i>10,000 ton dry cargo</i> ³				
Sold to U.K.	2	20,000		
Sold to U.S.A.	90	900,000		
Mutual aid to U.K.	99	990,000		
<i>4,700 ton dry cargo</i>				
Mutual aid to U.K. ⁴	15	70,500		
Mutual aid to Australia	2	9,400		
	36	370,800		
Total (b)	244	2,360,700		
Total built in Canada (a plus b)	403	3,784,500 ⁵		

FOOTNOTES TO APPENDIX XII (Next Page)

NAVAL SERVICE OF CANADA

APPENDIX XIII

Naval Staff Branch Reorganization

(Sec. N.B. memo., June 1, 1943, N.S. 1070-1-30)

1. *Organization and General Responsibilities*

The Naval Staff, which is an advisory body, works under the orders and direction of the Chief of the Naval Staff (or in his absence the Vice Chief of Naval Staff) assisted by the Assistant Chief of the Naval Staff.

Briefly the general responsibilities of the Naval Staff as a group may be defined as follows:

¹ Including the following ships lost in action (by s/m attack except where indicated). (D.T.D. records).

<i>Date</i>	<i>Ship</i>	<i>G.R.T.</i>	<i>Approx. position</i>
<i>1940</i>			
June 14	<i>Erik Boye</i>	2238	Off Land's End
Oct. 26	<i>Saint-Malo</i>	5779	North Atlantic
<i>1941</i>			
Feb. 14	<i>Maplecourt</i>	3388	U.K. waters
Feb. 21	<i>Canadian Cruiser</i>	7178	By raider off Mombasa
Feb. 22	<i>A. D. Huff</i>	6219	By raider mid-Atlantic
Mar. 17	<i>J. B. White</i>	6869	U.K. waters
Mar. 27	<i>Canadolite</i>	11309	Captured, sunk by R.A.F. 1944
May 3	<i>Europa</i>	10224	Burnt out in air-raid, U.K.
July 15	<i>Lady Somers</i>	8194	N. Atlantic
Oct. 15	<i>Vancouver Island</i>	9179	Western Approaches
Nov. 25	<i>Proteus</i>	10653	Off U.S. Atlantic Coast
Dec. 12	<i>Nereus</i>	10647	Probably by U-boat, between St. Thomas and Portland, Me.
<i>1942</i>			
Jan. 19	<i>Lady Hawkins</i>	7919	Off U.S. Atlantic Coast
Feb. 4	<i>Montrolite</i>	11309	N.E. of Bermuda
Feb. 5	<i>Empress of Asia</i>	16909	Bombed, Singapore
Feb. 10	<i>Victolite</i>	11410	N.W. of Bermuda
May 5	<i>Lady Drake</i>	7985	N. of Bermuda
May 9	<i>Calgarolite</i>	11941	W. of Grand Cayman Is., Caribbean Sea
May 30	<i>Liverpool Packet</i>	1188	Off Cape Sable, N.S.
Aug. 17	<i>Princess Marguerite</i>	5875	E. Mediterranean
Sept. 5	<i>Lord Strathcona</i>	7335	Wabana anchorage
Oct. 9	<i>Carolus</i>	2245	N.E. of Father Point
Oct. 29	<i>Bic Island</i>	4000	Western Approaches
Nov. 2	<i>Rose Castle</i>	7803	Off St. John's, Nfld.
Nov. 3	<i>Chr. J. Kampmann</i>	2260	W. of Grenada, B.W.I.
<i>1944</i>			
Dec 3	<i>Cornwallis</i>	5458	Gulf of Maine

² Including the following:

July 6, 1943	<i>Jasper Park</i>	7168	Torpedoed, S.W. of Madagascar
Jan. 4, 1945	<i>Nipawin Park</i>	2373	Torpedoed, off Halifax. Hulk salvaged and sold.
Feb. 23, 1945	<i>Point Pleasant Park</i>	7168	Torpedoed, N.W. of Capetown
April 12, 1945	<i>Silver Star Park</i>	7243	Collision and fire, off New York. Hulk sold.
May 3, 1945	<i>Greenhill Park</i>	7168	Explosion and fire, Vancouver. Hulk sold.

³ These were principally "Fort" ships of which thirty-five were lost during the war.

⁴ Two of these ships, the *Taber Park* and the *Avondale Park*, were lost in U.K. waters.

⁵ Dead-weight tonnage of new-construction ships varied in individual vessels as much as two or three hundred tons above or below the nominal dead-weight tonnage which is shown in this table.

APPENDICES

- (a) The Naval Staff determines Naval requirements. Subject to approval of Naval Staff recommendations by competent authority the rest of Naval Service Headquarters is concerned only with supply and administration, be it ships or men, material or money.
- (b) The operation of H.M.C. Ships and provision of adequate control and protection of shipping.
- (c) Consideration and preparation of plans.
- (d) Co-ordination of all measures necessary to put such plans into execution.

These responsibilities must be construed in their widest sense, for example (c) must be interpreted as including all requirements of Personnel, Training, Offensive and Defensive Weapons, Bases (including accommodation, stores, wharves, magazines, repair facilities, etc.), Accommodation, Defensive Measures, etc.

2. The "Naval Staff" will comprise C.N.S., V.C.N.S., and under them A.C.N.S. and the following:

Under A:C.N.S.

Director of Operations
Director of Plans
Director of Warfare and Training
Director of Trade Division

In the Naval Staff Branch, also under A.C.N.S. (though not members of the "Naval Staff") are the following:

Director of Signal Division
Director of Naval Intelligence
Hydrographer

Also reporting direct to A.C.N.S., though not a separate Division or Directorate, will be O.I.C. (Operational Intelligence Centre).

3. *Directors of Divisions*

Each Division of the Naval Staff is under the immediate charge of a Director who is authorized to act without further approval of A.C.N.S. in cases where the policy has already been approved, informing A.C.N.S. as requisite of any action taken.

All proposals for consideration by the Naval staff are forwarded in the first instance to A.C.N.S.

4. *Organization of Divisions*

The internal organization of each Division is the responsibility of its Director subject to the directions for each Division given herein.

The Director of Warfare and Training is to be kept informed of the organization in use and is always to be consulted with regard to intended changes affecting relations with other Divisions or Branches of Naval Service Headquarters.

5. *Co-ordination of Divisions*

In order to avoid overlapping and duplication of work and to ensure adequate co-ordination each Division must communicate

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freely with all other Divisions concerned with the matter in hand, care being taken that none is omitted.

6. *Co-operation of Naval Staff with other Branches*

Close touch must be maintained by Divisions of the Naval Staff with the Personnel, Technical, Supply and Engineering Branches, which translate approved policy into action, in order that policy recommended may be compatible with material developments and that the direction of developments may be guided by the requirements of policy.

7. Full meetings of the "Naval Staff" will be held as may be directed by the Chief of Naval Staff.
8. The following are the principal duties of the various members of the Naval Staff Branch.

C.N.S.

The Chief of the Naval Staff is the responsible adviser to the Minister on all questions of Naval policy and maritime warfare, and, as such, he is charged with the direction of the Naval Service.

He carries in particular, responsibility for the following:

- (a) General direction of operations of war.
- (b) Fighting and seagoing efficiency of the Fleet.
- (c) General direction of the work of the Naval Staff.

9. *V.C.N.S.*

The V.C.N.S. acts in general as Deputy to the C.N.S. and in the absence of the C.N.S. assumes the responsibilities in all respects.

He is particularly charged with the responsibility of the implementation by the Personnel, Supply and Engineering Branches of approved recommendations of the Naval Staff Branch.

He is responsible for establishing the Naval need for all financial expenditure and for obtaining approval thereof.

10. *A.C.N.S.*

A.C.N.S. is responsible to C.N.S. (or in his absence to V.C.N.S.) for the unification of all the activities of the "Naval Staff Branch" and is thus responsible for the conduct of anti-submarine warfare.

All matters for consideration by the Naval Staff are referred to A.C.N.S. in the first instance.

He issues all relevant directions and information consequent on the decisions of the Chief of Naval Staff to the appropriate authorities for action.

He is active in the origination of Staff proposals.

He exercises discretionary power in determining Naval requirements in matters of minor import, but refers major questions for the consideration of a group of the "Naval Staff" or of the Naval Staff as a whole.

He maintains close touch with National Defence Headquarters, and Air Force Headquarters, as may be directed by the C.N.S. (or in his absence the V.C.N.S.).

APPENDICES

APPENDIX XIV

Principal Councils and Committees

(Outside the Naval Service but relevant to its work)

Defence Council

A high-level official body instituted by Order in Council, P.C. 1252 of June 20, 1922. Replacing the older Militia Council, it was composed of the Minister of National Defence (and the additional Service Ministers in war-time), the Deputy Minister(s) and professional heads of the three armed Services, with at times some other senior officers as associate members. Its function was to advise the Minister(s) on all matters of defence.

Council of Defence Ministers

Council of Deputy Ministers

Chiefs of Staff Committee

“Established for the purpose of co-ordinating effort in pursuit of a common policy . . . to ensure co-operation of the forces . . .”

Joint-planning Subcommittee

Naval Member — D.P.D.

Joint Intercommunications Subcommittee

Naval Member — D.S.D.

Canadian Joint Intelligence Committee

Naval Member — D.N.I.

Inter-Service Camouflage Committee

Inter-Service Priority Committee

Naval Member — D.N.O.

Inter-departmental Committee on Priorities in Defence Construction

Naval Member — C.N.E.S.

R.D.F. [i.e. Radar] Committee

Naval Members — D.S.D. and another officer.

Principal Supply Officers Committee

Naval Member — D.N.O.

Personnel Members Committee (later called Principal Administrative Officers Committee)

Naval Member — C.N.P.

British Admiralty Technical Mission, Ottawa

This organization was concerned with obtaining supplies of many sorts, and it worked in liaison with the technical and supply branches and directorates at N.S.H.Q.

British Admiralty Delegation, Washington and

Combined Chiefs of Staff, Washington in touch with

Canadian Joint Staff, Washington

Naval Member — a Rear Admiral.

Permanent Joint [with U.S.A.] Board on Defence

Naval Member — Deputy or Vice C.N.S.

Subcommittees of the
Chiefs of Staff
Committee

NAVAL SERVICE OF CANADA

ABBREVIATIONS

A	Assistant
	Acting
A.A.	anti-aircraft
A. Capt.	Acting Captain
A.C.C. (I)	Atlantic Convoy Conference minutes
A/C.N.A.S. (E)	Assistant Chief of Naval Administration and Supply (Equipment)
A.C.N.S.	Assistant Chief of the Naval Staff
A.C.S.	Distinguishing letters on files of Joint Service Committee, Atlantic Coast
A/D. Min.	Assistant Deputy Minister
A/D.N.S.	Assistant Director of Naval Stores
A.F.O.	Admiralty Fleet Order
AH	Aruba-Halifax convoy
A I.G.	Address Indicating Group
A.M. (No.)	Admiralty publication
A.M.C.	armed merchant cruiser
A N.C.S.O.	Acting Naval Control Service Officer
A.N.D.	Admiralty Net Defence
A.O.C.	Air Officer Commanding
A.R.L.	Admiralty Research Laboratory
A.R.O.	Admiralty Record Office
A.S.	anti-submarine
A. Sec.	Assistant Secretary
A/S. O. (C.O.)	Acting Staff Officer (Combined Operations)
Asst. N. Sec.	Assistant Naval Secretary
A.T.	anti-torpedo
B.A.D.	British Admiralty Delegation
B.A.S.R.	British Admiralty Supply and Repairs
B.A.T.M.	British Admiralty Technical Mission
B.D.O.	Boom Defence Officer
b.h.p.	brake horse power
BHX	Bermuda portion of HX convoy
B.M.W.T.	British Ministry of War Transport
B.M.W.T.R.	British Ministry of War Transport Representative
B.P.C.	Base Planning Committee
B.R.L.O.	British Routeing Liaison Officer
B.U.S.R.A.	British-United States Routeing Agreement
BX	Boston-Halifax convoy
B.Y.M.S.	British "Y"-Class Minesweeper
C.A.A.C.	Crown Assets Allocation Committee
C.A.M.S.	Catapult Aircraft Merchant Ships
Can. High Comm.	Canadian High Commissioner
Capt. (D)	Captain (Destroyers)
C.A.S.	Chief of the Air Staff
C.B.	Confidential Book
C.B.A.	C.B.C. broadcasting station
C.B.C.	Canadian Broadcasting Corporation
C.C.C.S.	Captain (later Commodore) Commanding Canadian Ships and Establishments in the United Kingdom
C.C.N.F.	Commodore Commanding Newfoundland Force
C.C.O.	Communications, Coding and Cyphering Arrangements
Cdr.	Commander
Cdr. (D)	Commander (Destroyers)
Cdre.	Commodore
C.G.S.	Canadian Government Ship
CHOP	Line near 47th Meridian dividing the British and Canadian areas of responsibility
C. in C.	Commander in Chief
C. in C., A. and W.I.	Commander in Chief, Atlantic and West Indies Station
C. in C., C.N.A.	Commander in Chief, Canadian Northwest Atlantic
CINCLANT	Commander in Chief, U.S. Atlantic Fleet
C.I.E.S.	Canadian Legion Educational Service

ABBREVIATIONS

C.M.S.A.....	Co-operation with the British Ministry of War Transport in the United States
C.M.S.C.....	Co-operation with the British Ministry of War Transport in Canada
C.N.E.C.....	Chief of Naval Engineering and Construction
C.N.E.S.....	Chief of Naval Equipment and Supply
C.N.M.O.....	Canadian Naval Mission Overseas
C.N.O.....	Canadian Naval Order
C.N.P.....	Chief of Naval Personnel
C.N.R.....	Canadian National Railways
C.N.S.....	Chief of the Naval Staff
C.N.W-44.....	Canadian Naval War Plan
C.O.....	Commanding Officer
C.O.A.C.....	Commanding Officer Atlantic Coast
C.O.A.V.....	Commanding Officer Auxiliary Vessels
Com. 10th Fleet C. and R.	Commander 10th Fleet Convoy and Routing (U.S.)
COMINCH.....	Commander in Chief, U.S. Fleet
Cominch C. and R.....	Commander in Chief, U.S. Fleet, Convoy and Routing
Commander (D).....	Commander (Destroyers)
Comm. of Customs.....	Commissioner of Customs
Commodore (D) W.A.....	Commodore (Destroyers), Western Approaches
C.O.N.D.....	Commanding Officer Naval Divisions
Connav. (No.).....	Navy authority, Washington
C.O.P.....	Commander of Port
C.O.P.C.....	Commanding Officer Pacific Coast
C.O.R.D.....	Commanding Officer Reserve Divisions
C.O.T.C.....	Canadian Officers' Training Corps
C.P.O.....	Chief Petty Officer
C.P.R.....	Canadian Pacific Railway
C.R.....	Control Ratings
	Central Registry
C.R.O.....	Chief Recruiting Officer
C.S. (No.).....	Admiralty file number
C.S.A.....	Consular Shipping Adviser
C.S.B.....	Canadian Shipping Board
C.S.C.....	Chiefs of Staff Committee
C.S.O.R.....	Chief Staff Officer Reserves
C. Supt.....	Commodore Superintendent
C.T.F.....	Commander Task Force
C.T.O. (N).....	Chief Treasury Officer (Navy)
cttee.....	committee
CU.....	Caribbean-United Kingdom convoy
C.V.D.....	Commercial Vessel Defensive
C.V.E.....	Carrier Vessel Escort
C.V.P.....	Convoy Programme
C.W.....	Commissioned Warrant
C.W. (No.).....	Admiralty Record Office file
C.W.S.F.....	Commander Western Sea Frontier
D.A/S.....	Director of Anti-submarine
D/C.....	depth charge
D.C.N.P.....	Deputy Chief of Naval Personnel
D.C.N.S.....	Deputy Chief of the Naval Staff
D/D.E.M.S.....	Director of Defensively Equipped Merchant Ships
D/D.S.R.....	Deputy Director of Scientific Research
D/D.W.T.....	Deputy Director of Warfare and Training
D.E.E.....	Director of Electrical Engineering
D.E.M.S.....	Defensively Equipped Merchant Ships
D.E.P.....	Director of Engineering Personnel
D.F.A.S.S.....	Director of Fleet Accounting, Supply and Secretariat
D.G.....	degaussing gear
D/G.....	degaussing
D.H. (No.).....	H.M.C.S. "Scotian", base files
D.H.D.....	Director of Harbour Defence
Dir. Gen.....	Director General
D.L.P.....	Director of Electrical Personnel
D. Min.....	Deputy Minister

NAVAL SERVICE OF CANADA

D.M.N.A.	Director of Manning and Naval Assistant
D.M.R.D.	Director of Medical Research and Development
D.M.S.	Director of Merchant Seamen
D.N.A.	Director of Naval Accounts
D.N.C.	Director of Naval Construction
D.N.E.	Director of Naval Education (prior to the war, Director of Naval Engineering)
D.N.E.S.	Director of Naval Engineering Service
D.N.H.S.	Director of the Naval Historical Section
D.N.I.	Director of Naval Intelligence
D.N.I. and P.	Director of Naval Intelligence and Plans
D.N.I. and T.	Director of Naval Intelligence and Trade
D.N.O.	Director of Naval Ordnance
D.N.O.T.	Director of Naval Operations and Training
D.N.P.	Director of Naval Personnel
D.N.R.	Director of Naval Reserves
D.N.S.	Director of Naval Stores
D.N.T.	Director of Naval Training
D.O.D.	Director of Operations Division
D. of P.	Director of Plans
D. of T.	Director of Trade
Dom. Aff.	Dominion Affairs
D.O.R.	Director of Operational Research
D. Org.	Director of Organization
D.P.B.	Defence Purchasing Board
D.P.D.	Director of Plans Division
D.P.R.	Director of Personnel Records
D.P.S.	Director of Personnel Selection
D.P.W.	Director of Prisoners of War
Drafting E.O.	Department of Public Works Drafting Engineer Officer
D.R.D.	Director of Reserve Divisions
D.S.B.	Director of Shipbuilding
D.S.D.	Director of Signals Division
	Desirable Sailing Date
D.S.P.	Director of Seaman Personnel
D.S.R.	Director of Ship Repairs
D.S.S.	Director of Special Services
D.T.C.	Discharge Transit Centre
D.T.D.	Director of Trade Division
D.T.N.A.	Director of Training and Naval Assistant
D.V.A.	Department of Veterans' Affairs
D.W.B.	Director of Works and Buildings
D W.R.C.N.S.	Director of Women's Royal Canadian Naval Service
D.W.S.	Director of Women's Service
D.W.T.	Director of Warfare and Training
	Director of Weapons and Tactics
d wt.	dead-weight
E.A.	Electrical Artificer
E.A. (No.)	Distinguishing letters on files of Permanent Joint Board on Defence
E.A.M. B.M.O.	Electrical Anti-mining Base Maintenance Officer
E. in C.	Engineer in Chief
El. A Lieut.-Cdr.	Electrical Acting Lieutenant-Commander
E.R.A.	Engine Room Artificer
E.R. Ratings	Engine Room Ratings
Ext. Aff.	External Affairs
F.D.F.	Final Discharge Establishment
F.E.	Financial Encumbrance
F.E.O.	Fleet Engineer Officer
(FF)	Fire Fighter
F.O.N.F.	Flag Officer, Newfoundland
F.R.	Fishermen's Reserve
(G)	Gunnery
GAT	Guantánamo-Trinidad convoy
G.B.M.S.	Great Britain Merchant Ships (a wireless message routine)

ABBREVIATIONS

GN.....	Guantánamo-New York convoy
G.R.T.....	gross registered tonnage
GS.....	Greenland-Sydney convoy
GU.....	Gibraltar-United States convoy
Gunner (T).....	Torpedo Gunner
GZ.....	Guantánamo-Panama convoy
HA.....	Halifax-Aruba convoy
HA I.A.....	High Angle, Low Angle (gunnery)
HF/DF.....	High Frequency Direction Finding
H.M.C.S.....	His Majesty's Canadian Ship
H.M.S.....	His Majesty's Ship
H.M.T.....	His Majesty's Transport
H.Q.....	Headquarters
H.Q.S. (No.).....	Distinguishing letters on files of N.D.H.Q. (Army), Ottawa
HT.....	Halifax-Trinidad convoy
HX.....	Halifax (New York)-United Kingdom convoy
HXF.....	fast HX convoy
I.E.....	Increased Endurance
I.O.D.E.....	Imperial Order of the Daughters of the Empire
I.T.....	Instructional Technique
J.A.G.....	Judge Advocate General
J.S.C.....	Joint Services Committee
k.....	knots
K.R. and A.I.....	King's Regulations and Admiralty Instructions
K.R.C.N.....	King's Regulations for the government of the Canadian Naval Service
L.C.A.....	Landing Craft Assault
L.C.I. (L).....	Landing Craft Infantry (large)
L.C.M.....	Landing Craft Mechanized
L.C.M. (W).....	Landing Craft Mechanized (wood)
L.C.T.....	Landing Craft Tank
Lieut.....	Lieutenant
LL.....	Denotes that a ship is fitted for magnetic minesweeping
LN.....	Quebec-Labrador convoy
L.R.....	Layer Rating
L.S.I. (M).....	Landing Ship Infantry (medium)
L.S.T.....	Landing Ship Tank
L.T.O.....	Leading Torpedoman
M.A.C.....	Merchant-ship Aircraft Carrier
M. and S.....	Munitions and Supply
M.A.S.B. 1.....	Motor Torpedo Boat fitted with asdic set and depth charges
M. A/S T.U.....	Mobile Asdic Training Unit
M.C.I.....	Mercantile Convoy Instructions
M.D.G.....	Medical Director General
M.G.B.....	Motor Gun Boat
Min.....	Minister
M.L.....	Motor Launch
(MM).....	Motor Mechanic
M.O.....	Medical Officer
M.O.E.F.....	Mid-Ocean Escort Force
M.P.C.R.I.....	Mercantile Pacific Coastwise Routeing Instructions
M.P.R.I.....	Mercantile Pacific Routeing Instructions
M/S.....	Minesweeper
M/T.....	Motor Transport
M.T.B.....	Motor Torpedo Boat
M.T.E.....	Mechanical Training Establishment
M.W.T.....	(British) Ministry of War Transport
N.A. (P. and P.).....	Naval Assistant (Policy and Plans)
Nat. Def.....	National Defence
N.C.S.....	Naval Control Service
N.C.S.I.....	Naval Control Service Instructions
N.C.S.O.....	Naval Control Service Officer
N.D.A.....	Naval Discipline Act (British but made applicable to R.C.N. by Canadian legislation)
.....	Naval Distributing Authority
N.D.H.Q.....	National Defence Headquarters

NAVAL SERVICE OF CANADA

N.E.C.R.I.	Northern Europe Coastal Route Instructions
NG.	New York-Guánámó convoy
N.I. (S)	Naval Instructions to Salaried Consular Officers
N.I. (U)	Naval Instructions to Unsalaried Consular Officers
NL.	Labrador-Québec convoy
N.M.C.J.S.	Naval Member Canadian Joint Staff (Washington)
N.M.C.S.	Naval Member Canadian Staff
N.O.B.	Naval Operating Base
N.O.I.C.	Naval Officer in Charge
N.R.C.	National Research Council
N.S. (No.)	Naval Service file number
N.S.D.C.	Naval Surplus Disposal Committee
N. Sec.	Naval Secretary
N.S.H.Q.	Naval Service Headquarters
N.S.O.	Naval Stores Officer
N.S., T.S. (No.)	Naval Service Top Secret file number
N.W.R.	Naval Weekly Report
O.A.	Ordnance Artificer
O.D.T.	Office of Defence Transportation
O. i/c.	Officer in Charge
O. in C.	Order in Council
ON.	United Kingdom-North America convoy
ONS.	United Kingdom-North America slow convoy
O.R.S.	Ottawa Routing Summary
O.S.R.D.	Office of Scientific Research and Development
OT.	Aruba-Dakar convoy
P. and O.	Peninsular and Oriental Steam Navigation Co.
P. and R.T.	Physical and Recreational Training
P.C.	Privy Council
P.D. (No.)	Admiralty Record Office file number
P.D.O.	Port Defence Officer
pdr.	pounder
P.J.B.D.	Permanent Joint Board on Defence
P.M.O.	Principal Medical Officer
P.O.	Petty Officer
P.W.	Public Works
"Q" Messages.	A series of numbered messages giving changes in navigational information due to war conditions.
Q.R.	Quarters Rating
QS.	Québec-Sydney convoy
R.A. 3rd B.S.	Rear Admiral Third Battle Squadron
R.A.N.	Royal Australian Navy
R.C.A.	Royal Canadian Artillery
R.C.A.F.	Royal Canadian Air Force
R.C.M.P.	Royal Canadian Mounted Police
R.C.N.	Royal Canadian Navy
R.C.N.B.	Royal Canadian Naval Barracks
R.C.N.M.R.	"Royal Canadian Naval Monthly Review"
R.C.N.R.	Royal Canadian Naval Reserve
R.C.N.V.R.	Royal Canadian Naval Volunteer Reserve
R.C.S.C.	Royal Canadian Sea Cadets
R.D.F.	Radio Direction Finding (later Radar)
R.D.F.O.	Radio Direction Finding Officer
R.N.	Royal Navy
R.N.L.O.	Royal Naval Liaison Officer
R.N.O.	Resident Naval Overseer
R.N.R.	Royal Naval Reserve
R.N.V.R.	Royal Naval Volunteer Reserve
R.N.Z.N.	Royal New Zealand Navy
R.O.	Reporting Officer
R. of P.	Report of Proceedings
R.T.	Radio Telephony
R.Y.P.A.	Mechanical imitation for training gunlayers (Roll, Yaw, Pitch and Alter course)
S. A. S.	Superintendent, Anti-submarine

ABBREVIATIONS

(S.B.)	Special Branch (used after naval rank indicating officer carrying out technical or specialized duties other than those pertaining to ordinary branches of the navy)
S.B.D.	Superintendent of Boom Defence
SC	New York (Halifax, Sydney)-U.K. convoy
S.C.F.O. (O)	Senior Canadian Flag Officer (Overseas)
S.C.L.	Superintendent of Construction Liaison
S.C.N.O.	Senior Canadian Naval Officer
S.C.N.O. (L)	Senior Canadian Naval Officer (London)
S/D	Submarine Detector
S.D.I.	Submarine Detector Instructor
Sec. N.B.	Secretary, Naval Board
SG	Sydney-Greenland convoy
S.N.O.	Senior Naval Officer
S.O.	Senior Officer
	Signal Officer
S.O. (C.O.)	Staff Officer (Combined Operations)
S.O. Escorts	Senior Officer Escorts
S.O. (I)	Staff Officer (Intelligence)
S.O. (M)	Staff Officer (Material)
S.O. (O)	Staff Officer (Operations)
S.O. (P)	Staff Officer (Plans)
S.O. (T)	Staff Officer (Trade)
S.P. Bulletin	Senior Psychologist's (Adm.) Bulletin
SQ	Sydney-Quebec convoy
S.S.B.	Superintendent of Shipbuilding
S.T.	Seaman Torpedoman
S.T.O.	Sea Transport Officer
	Squadron Torpedo Officer
S.T.T.D.	Senior Technician, Technical Division
(T)	torpedo
T. (No.) B.	Treasury Board minutes
T.A.F.	Temporary Air Facilities
TAG	Trinidad-Guantánamo convoy
T.G.M.	Torpedo Gunner's Mate
TH	Trinidad-Halifax convoy
TO	Dakar-Aruba convoy
T.S.	Top Secret
UC	United Kingdom-Caribbean convoy
UG	United States-Gibraltar convoy
U.K.	United Kingdom
U.N.T.D.	University Naval Training Division
U.S.C.G.	United States Coast Guard
U.S.N.	United States Navy
U.S.N.R.	United States Naval Reserve
U.S.S.R.	Union of Socialist Soviet Republics
V/Chief	Vice Chief
V.C.N.S.	Vice Chief of the Naval Staff
VLR	very long range
V.R.	Volunteer Reserve
V/S	Visual Signalling
V.T.O.	Visual Training Officer
W.A.C.	War Assets Corporation
WESTOMP	Western Ocean Meeting Point
W.P.L.	Western Hemisphere Defence Plan
W.R.C.N.S.	Women's Royal Canadian Naval Service
W.R.N.S.	Women's Royal Naval Service
W.S.B.	War Supply Board
W/T	Wireless telegraphy
XB	Halifax-Boston convoy
X.D.O.	Extended Defence Officer
X.O.	Executive Officer
ZG	Panama-Guantánamo convoy

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- Air Officer Commanding, Eastern Air Command, *see* Air Force, Royal Canadian
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