

Building Submarines for Russia in Burrard Inlet

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The story of the two Seattle-built submarines that were purchased in August 1914 by Sir Richard McBride, Premier of British Columbia, just as Britain's ultimatum to Germany was expiring, was widely reported at the time and is an oft-told tale. But a later episode in the Great War — the construction of eleven submarines in Burrard Inlet for the Russian government — was shielded from public notice so successfully that it has remained virtually unknown. James Venn Paterson, the man who smuggled the submarines across the international border in 1914, and who headed the shipyard that had built them, was also responsible for the building of the submarines in the Inlet, and access to a segment of his papers now makes it possible to describe the circumstances of their construction in some detail.¹

Paterson had had an interesting career. Born in Scotland in 1867, he studied naval architecture at the University of Glasgow and served his apprenticeship in shipyards on the Clyde. In 1892, when only twenty-five years of age, he was appointed consulting architect to the International Navigation Company, operators of the American Line, and arrived in Philadelphia to supervise the construction of the new liners *St. Louis* and *St. Paul*, two of the largest and fastest ships afloat at the time of their completion. In 1902 the American Line became part of J. P. Morgan's huge Atlantic combine, the International Mercantile Marine. Paterson stayed on for a time as its naval architect, but in 1906, possibly because all the more interesting new liners for the IMM were being built in Britain or Ireland, he seized an opportunity to become part owner and general manager of the Moran shipyard in Seattle. Six years later the company was reorganized as the Seattle Construction and Dry Dock Company, and Paterson became its president as well as its manager.²

¹ The papers were acquired by the Special Collections Division of the Library of the University of British Columbia in 1984, and I am much indebted to Mrs. Anne Yandle, Head of the Division, for access to them.

² On Paterson see *The National Cyclopaedia of American Biography* (New York, 1909), vol. 17, and various references in Gordon Newell, ed., *The H. W. McCurdy Marine History of the Pacific Northwest* (Seattle, 1966).

The Moran brothers had been active and enterprising builders, and their yard had produced many river, sound and deep-sea vessels, including the first steel ships built in Puget Sound. Their last and most ambitious undertaking had been the building of the 16,000-ton battleship *Nebraska*, launched in 1904 and still fitting out when the yard changed hands. In this venture their reach had exceeded their grasp, as financial problems arising from the contract made the sale necessary.

Under Paterson the yard was equally active. He designed and built, among other vessels, five steel passenger ships for service in Puget Sound, the last of which was the *Tacoma*, famous in her day for her consistently fast times on the Seattle-Tacoma run. More important in the present context, in 1910 Paterson turned to the construction of submarines. Two F-class boats were completed for the United States Navy in 1912, and a third submarine, of the much improved H class, followed in 1913. Finally, in 1914, came the two submarines ordered originally by Chile but sold by Paterson to the government of British Columbia. All five had been designed by and ordered initially from the Electric Boat Company, of Groton, Connecticut, holders of the Holland submarine patents; the Seattle Construction and Dry Dock Company had built them as subcontractors. And this contact between Paterson and Electric Boat was only one of the many links in an astonishing complex of corporations that were involved in the building of the Russian submarines in Burrard Inlet.

The Electric Boat Company had brought together for a time two unusual personalities, John Philip Holland and Isaac Leopold Rice. Holland had developed and patented many of the features essential in a successful submarine. Oddly enough, his original motivation had been enmity against Great Britain. An Irish-American and ardent Fenian, he hoped to build submarines that could be shipped across the Atlantic and used to attack warships in British harbours. (One of his first efforts at submarine building had been named *Fenian Ram*.) In 1898 Holland completed the *Holland*, a much improved boat, and this attracted Rice's attention. Rice, a successful corporation lawyer and promoter, was later best known as a chess enthusiast who developed a new opening that became famous as the "Rice gambit." In the 1890s he had become interested in electrical inventions and was involved in half a dozen companies, one of which dominated the storage battery market, while others promoted the use of electricity for light and power and its application to vehicles and small craft. In July 1898 Rice made a venturesome dive in the *Holland*, became convinced that submarines had a future, formed the

Electric Boat Company and early in 1899 purchased Holland's patents.³

Rice was soon thinking in terms of a world market for submarines. In 1900 he went to England, where he negotiated an agreement with the great armaments firm of Vickers, granting it a licence to build submarines, using Holland's patents, for a period of twenty-five years. Agreements followed with other countries, including France, Germany and Russia. Rice's next move was to gain assured access to a well-equipped shipyard, and in 1904 he entered into an agreement with the Fore River Ship and Engine Company, of Quincy, near Boston, which undertook to build submarines for the Electric Boat Company.

Vickers acted promptly to exploit its licence. The British Admiralty was interested in submarines, and Vickers launched its first Holland-type boat in 1901. No fewer than forty had been built by the end of 1907. In America it was another story. Rice had persuaded the United States Navy to purchase the *Holland* — its first submarine — but thereafter interest languished. During the Russo-Japanese War of 1904-05 Electric Boat built five submarines for Japan which were shipped overseas in knock-down form — the procedure that would be followed later for the submarines built in Burrard Inlet for the Russians. But lack of orders soon had the company in financial difficulties, and for some years only royalties from its licences and loans and share purchases by Vickers kept it afloat.

Two subsidiary companies were next added to the corporate network. The Royal Canadian Navy came into existence in 1910, and the government was anxious to see a naval shipyard established in Canada. A building programme of four cruisers and six destroyers was envisaged, and with official encouragement and orders for some of these ships in prospect, Vickers established Canadian Vickers in Montreal. It was a well-equipped yard, with building ways, engineering and boiler shops and a dry dock. (Unfortunately the hoped-for orders for cruisers and destroyers never materialized.) About the same time the Electric Boat Company, back on its feet financially, thanks to orders from the United States Navy, also acquired a subsidiary — the New London Ship and Engine Company, which manufactured engines and other equipment for its submarines.

Finally, the giant Bethlehem Steel Corporation, the creation of Charles

³ There are articles on both Holland and Rice in the *Dictionary of American Biography* and on Rice in *The National Cyclopaedia of American Biography*, vol. 11. The Electric Boat Company, now a division of the General Dynamics Corporation, built the world's first nuclear submarine for the United States Navy in 1952-54, and has built many others since.

M. Schwab, appeared on the scene. Schwab had developed a worldwide trade in armaments, and in addition to guns and ammunition his shipyards built warships for more than a dozen countries. His yards included the old-established Union Iron Works in San Francisco, which produced a great variety of warships, including submarines. Electric Boat's building partner, the Fore River Company, had joined in the armaments trade and had built warships of many types from torpedo boats to battleships. It continued to build submarines, but one gains the impression that they were being crowded out. Thus it was in 1910, the year Fore River secured an order for a battleship from the Argentine, that Electric Boat subcontracted the two F-class submarines to Paterson's Seattle yard. And the Argentine order had a further important result. Just as the building of the *Nebraska* had crippled the Moran yard, so the Argentine order proved to be beyond the financial means of Fore River. Schwab capitalized on its difficulties and bought the yard in 1913, acquiring with it the submarine-building agreement with Electric Boat.

In his study of Schwab's submarine-building activities, Gaddis Smith remarks upon his incessant travelling in search of orders for armaments. "Wherever there was war, revolution, or martial ambition, Schwab could be found."⁴ October 1914 therefore found him on the liner *Olympic*, bound for Britain, where he hoped to secure orders for munitions from the War Office. But the *Olympic* happened to be near the battleship *Audacious* when the latter struck a mine, and this disaster brought Admiral Jellicoe to the scene. A few weeks earlier, a single German U-boat had sunk three British cruisers, and submarines had become a major pre-occupation of the Royal Navy and in particular of Lord Fisher, the First Sea Lord. Jellicoe asked Schwab if he could build submarines, and when Schwab answered in the affirmative, Jellicoe advised him to see Fisher. Within days Schwab and Fisher had come to terms, and Schwab left for America with an order for twenty submarines.

Schwab was well aware that he might run into difficulties in fulfilling the contract because of American neutrality regulations, and he hurried to Washington to secure a ruling on the matter. He found a sympathetic listener in Robert Lansing, Under Secretary of State, who ruled that Schwab's plan to ship the submarines in parts, which would have to be assembled abroad, would not be a violation of American neutrality. But William Jennings Bryan, the Secretary of State, and President Wilson

⁴ Gaddis Smith, *Britain's Clandestine Submarines 1914-1915* (New Haven, Conn., 1964), 27.

disagreed. Nothing daunted, Schwab and engineers from Fore River made a quick trip to Montreal and inspected the Canadian Vickers yard. They liked what they saw, and Schwab sailed at once in the *Lusitania* (destined to become a submarine victim only five months later) to discuss a revision of his contract with Fisher. The result was an arrangement whereby the British Admiralty leased Vickers' Montreal yard and turned it over to officials from Fore River and the Union Iron Works as of 1 January 1915. As Canadian Vickers could only build ten submarines at a time, Schwab decided to go ahead with work on the other ten at Fore River, in the hope that ways and means would be found to export them. Components began to flow to Montreal so promptly that six keels had been laid by 14 January.

Still uneasy about neutrality restrictions, Schwab sent his general counsel to Washington early in February to secure clarification. Fortunately Bryan was out of town, and his discussion was with Lansing. Gad-dis Smith describes the outcome:

The specific point on which an understanding was needed was the definition of what constituted parts of submarines. When Cravath [Schwab's counsel] left Lansing's office, such an understanding had been reached: if the materials being shipped to Canada required further fabrication before a submarine could be launched, then the State Department would consider the materials as ordinary commercial products and not as component parts of vessels of war. This understanding was never put in writing and Secretary of State Bryan may never have been aware of its existence, but Lansing was. In all subsequent discussions the understanding was followed as faithfully as if it had been written into law.⁵

All this is relevant because it was upon this same understanding that the Electric Boat Company and other suppliers were able to export components when Paterson set about building submarines in Burrard Inlet. And another parallel applies. During the negotiations regarding Canadian Vickers and the building of submarines in Montreal the utmost secrecy was observed. The government of Canada was not informed, and it seems only to have become fully aware of what was happening when it learned that, in order to give top priority to submarine construction, work had been halted on a badly needed icebreaker that Canadian Vickers was building for the Department of Marine.⁶ The same secrecy was to shroud the initial developments in Burrard Inlet.

⁵ *Ibid.*, 88-89.

⁶ This was the *J. D. Hazen*. Like the submarines built in Burrard Inlet, she was destined to go to Russia. Soon after completion in 1916 she was sold to the Russian

Early in the Great War Russia found itself in need of submarines for defence against the German Navy in the Baltic and Turkish forces in the Black Sea. European shipyards were working to capacity, and, no doubt with the Montreal precedent in mind, the British suggested that the Russians approach the Electric Boat Company. Its H-class design, first developed for the United States Navy and being followed in the boats under construction for the Royal Navy in Montreal, was later described by *Jane's Fighting Ships* as "one of the most successful submarine types ever evolved."⁷ It would be represented, in slightly modified and improved versions, in half a dozen of the world's navies. With specifications for a proven boat available, all Electric Boat needed was a foreign shipyard that could complete work on the submarine parts that Lansing's ruling would allow it and its associated companies to export. Canadian Vickers' order book was full, but there seemed to be possibilities in British Columbia. Paterson's Seattle Construction and Dry Dock Company had built one H-class submarine and was therefore familiar with construction details. A yard in nearby Burrard Inlet would solve the problem, and it would have the added advantage that boats would be shipped in knockdown form directly from Vancouver to Vladivostok, whence they could reach the Baltic and Black seas by rail.

As it happened, this was a plan that James Paterson had already considered in another connection. In August 1914 he had accompanied the Chilean submarines on their delivery voyage to Esquimalt and had there met Premier McBride, with whom he afterwards corresponded. Bearing in mind possible defence needs on the B.C. coast and the facilities available at the shipyard at Esquimalt (founded by the Bullens and sold to the Yarrows in 1912), he had written to McBride late in November:

When I saw you at Esquimalt I expressed the opinion that the Coast defense of British Columbia could be secured by the establishment of a submarine torpedo boat flotilla of eight boats distributed on the coast and operating from convenient bases. It is within our rights under the law to construct war vessels here and ship them in pieces ready for erection in Canada. I proposed to Mr. Bullen some time ago that it might be possible to arrange to have Yarrows, in the event of our receiving an order for

government for service in the White Sea. Later she fell into French hands and was bought back by Canada in 1923. She served in the icebreaker fleet under her Russian name, *Mikula*, until she was retired in 1937.

⁷ *Jane's Fighting Ships*, 1924 edition, 323.

submarines, to ship the vessels and their equipment complete to their plant at Esquimalt and rebuild and complete them there.⁸

This proposal came to nothing, and by the spring of 1915, when Paterson received an order from the Electric Boat Company for five submarines for Russia, shipyards in B.C. were busy with other work. His solution was to organize the British Pacific Construction and Engineering Company, incorporated in British Columbia with offices in Vancouver. British Pacific would build the submarines in Burrard Inlet, watched over by Paterson and a representative of the Electric Boat Company.⁹

British Pacific's president, manager and nominal head was Charles S. Meek, but there was never any doubt that Paterson was the man in actual control. Meek was the son of one of Toronto's leading barristers. He had been educated at Upper Canada College and the University of Toronto, from which he graduated with a degree in electrical engineering. He was first employed by electrical firms in New York and Montreal and later by various manufacturing industries in the latter city. In 1909 he had come to Vancouver, where he organized Standard Securities Limited. Its business is said to have been with bonds and investments, but it seems clear that he had been attracted to the West by the real estate boom then prevailing. Directory entries show that his interests extended to coal properties, timber lands, farm sites and railway townsites. In 1912 he was listed as selling agent for the Canadian Northern Pacific's much-touted townsite at Port Mann. But by the fall of that year the boom had collapsed. Meek was soon listed as an export grain broker, and for a time was president of the Vancouver Grain Exchange. His engineering and business experience could be useful to Paterson, and Meek may have been glad to grasp at the straw offered by British Pacific, even though the company's life would probably be a short one.¹⁰

British Pacific's immediate problem was to secure a site for a building yard. This was found at Barnet, on the southern shore of Burrard Inlet, about nine miles east of Vancouver's business district. Meek gained possession of it about 20 August. Paterson was well and favourably known to the Electric Boat Company, and was on terms of personal friendship

⁸ Paterson to McBride, 28 Nov. 1914. This and all other letters from or to Paterson are in the Paterson Papers.

⁹ The documents relating to incorporation have been destroyed and the date of incorporation is not on record. Registrar of Companies, Victoria, to the writer, 26 Jan. 1986.

¹⁰ On Meek see Howay and Scholefield, *British Columbia* (Vancouver, 1914), vol. 4, 573-74.

with Francis W. Hibbs, its Supervising Constructor. Hibb's confidence in Paterson was such that the Memorandum of Agreement — the contract for the submarines — was not finally drafted until 11 September, and the specifications intended to be part of it were not sent to Paterson until 15 October, by which time Hibbs had received photographs showing that three of the submarines were already fully framed. Even then the specifications were sent subject to "any suggestions of changes or additions" that Paterson might consider necessary. Hibbs's letter continued: "I know that this is rather late to forward these specifications, but we have been very busy here lately and have not had a chance to get at it. However, the confidence and good will that exists between us all make the attachment of the specifications a matter of formality I trust."¹¹

The contract was with the Seattle Construction and Dry Dock Company, not with British Pacific; the latter was entirely Paterson's responsibility, created to build the submarines in Canada beyond the jurisdiction of American neutrality regulations. And "assemble" rather than "build" would perhaps be a better term to describe what was taking place at Barnet. Canadian Vickers was producing completely equipped submarines in Montreal; the ten it built for the Royal Navy crossed the Atlantic under their own power — the first submarines to do so. Paterson's contract was only for submarine hulls, which would be shipped to Vladivostok in knockdown form, accompanied by engines, batteries and other equipment that Electric Boat and its associated manufacturers would send to Vancouver crated and ready to be loaded aboard ship. In the words of the Memorandum of Agreement, "The work" consisted "generally of the steel hulls of five units of the Electric Boat Company's design 602-F" and was "to cover the fabrication of all steel hull material and the assembly and erecting thereof to the greatest extent deemed practicable and expedient for 'knock-down' shipment and completion at a distant point." It went on to state that "all steel materials, plates, shapes, rivets, hull castings and forgings" were to be delivered by Electric Boat to the building yard at Barnet.

In spite of the secrecy being observed, by the first days of September rumours that submarines were being built at Barnet had reached Ottawa. As neither the Department of Marine nor the Naval Service had been informed, the Chief Commissioner of Police wrote to Malcolm Reid, Immigration Inspector in Vancouver, asking him to investigate. A copy

¹¹ Hibbs to Paterson, 15 Oct. 1915. Copies of the Memorandum of Agreement and the draft specifications are in the Paterson Papers.

of Reid's response, dated 18 September, was sent to the Intelligence Branch of the Naval Service, and the Superintendent of the naval dockyard at Esquimalt was immediately instructed to secure further details. This second inquiry was entrusted to Lieut.-Commander Bertram Jones, R.N. — an excellent choice, as he was an experienced submarine officer and at the time was in command of one of the Chilean submarines that McBride had acquired for the Canadian Navy. Jones submitted two reports, both dated 22 October, one describing British Pacific's shipyard and the activities there, and the other giving some details of the submarines he found under construction. Charles Meek accompanied both Reid and Jones to Barnet, and Reid reported that he was fully cooperative and would "furnish us with any information required at any time." As for secrecy, Jones noted that "the fact of submarines being built is kept secret; it is supposed that oil barges are being constructed."¹²

Reid described the yard briefly: "The works are surrounded by a high barbed wire fence, and search lights are being erected on the machine shops. There is a military guard of nine men there loaned by the Military, and already five submarines are laid down and well under way" — all this after only four weeks' possession of the site. Jones added details: "The works . . . lie between the C.P.Ry. line and the sea, with a water frontage of some 800 feet, the position being well suited for construction works. . . . Since taking over the land, it has been graded, a branch line run in from C.P.Ry. tracks, machine shops and furnaces installed." The work force had totalled 218 at the time of Reid's visit; Jones noted a month later that 460 men were employed, working day and night shifts.

Jones added that "construction work appeared to be good, and certainly progress made was excellent." Ottawa had asked for "every detail obtainable as to the type and characteristics of the submarines," to which Jones simply replied that they were "similar in all respects to the ones recently built at Montreal," about which he was sure the Naval Service had full information. He understood that the submarines were destined for the Black Sea, but, as will appear later, they were shipped instead from Vladivostok to Petrograd, where they were completed for service in the Baltic. Construction was being supervised on behalf of the Electric Boat Company by G. H. Eggleton, who was expected to travel to Russia and look after the assembling and outfitting of the boats there.

¹² All three reports and relevant correspondence are in a National Defence file devoted to the building of submarines for Russia in Canada in 1915-1918: Public Archives of Canada, RG 24, vol. 4019, file 1062-10-4. Cited hereafter as PAC RG 24.

The expectation was that three of the submarines would be completed and ready to be knocked down and crated for shipment in December, and this schedule appears to have been met. The other two were to follow early in 1916. In answer to a query from Ottawa, Admiral Story, Admiral-Superintendent at Esquimalt, reported in March that British Pacific had informed him "that the last shipment, consisting of parts of engines for the submarines" had been shipped "and that the work was completed."¹³

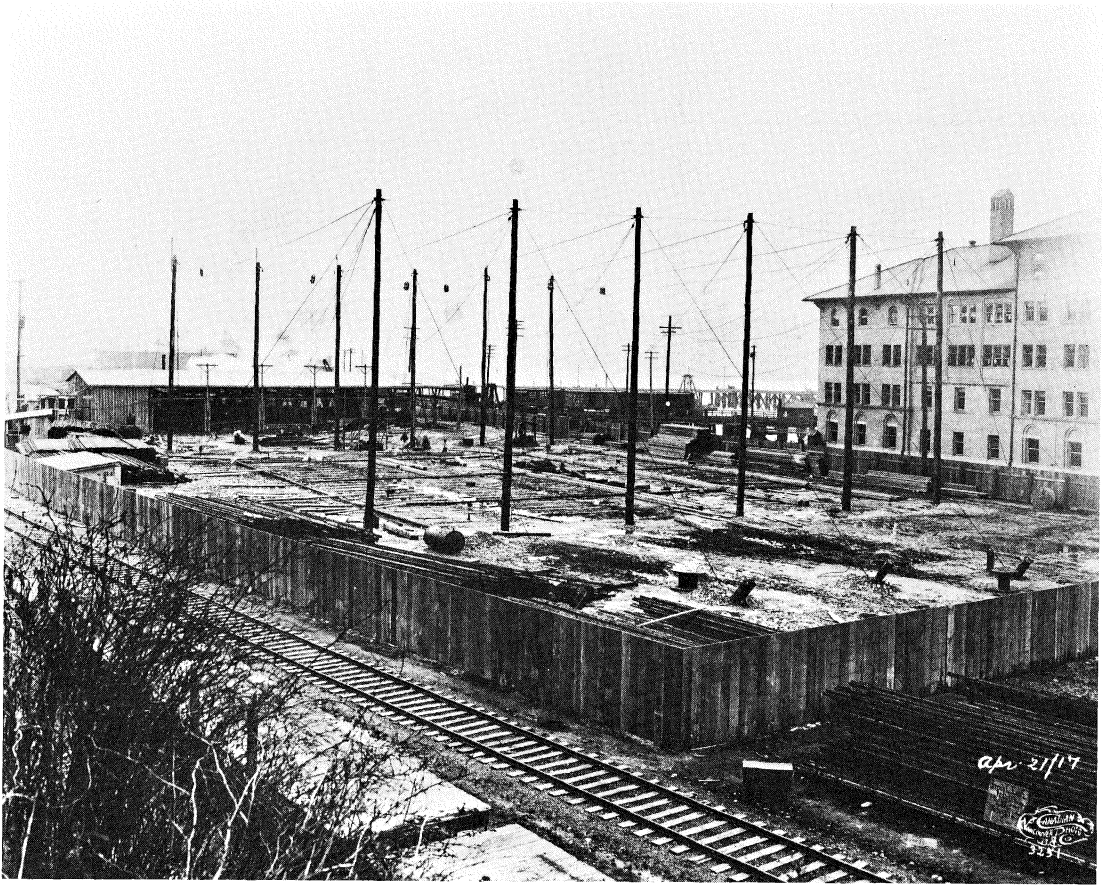
The Admiral's informant was Thomas Skinner, a partner in the Seattle Construction and Dry Dock Company, who added the interesting news that the company "had orders to build three more boats (for whom he could not say), and that they had the steel assembled, but owing to a dispute about the land [at Barnet], the owner of which held them up for \$1600.00 per acre, they closed down, shipping everything away to St. John, N.B., where they will commence work as soon as possible." The reference to Saint John (which in some of the correspondence was confused with St. John's, Newfoundland) was incorrect, but it prompted confidential inquiries there by the Naval Service. The steel from Barnet had, in fact, stopped short at Montreal. Canadian Vickers had completed the ten submarines ordered by the British Admiralty, and could undertake construction of the three hulls. Skinner was prevaricating when he said he did not know for whom they were intended, as he must have known that they were part of a second order from the Russian government. Three more boats were soon added, making a total of six. The first three were shipped from Vancouver to Vladivostok in December 1916;¹⁴ the second three left the Vickers yard at the end of March 1917.¹⁵ All were intended for service with the Russian Black Sea Fleet.

James Paterson's personal connection with the building of these six hulls ended when the steel for the first three had been shipped to Montreal and the yard at Barnet had been dismantled. He soon had other things on his mind. The Seattle Construction and Dry Dock Company was being sold to the Todd Shipbuilding Corporation, and Paterson retired when the actual transfer took place in October 1916. By that time he was busily engaged in promoting the construction of a dry dock at Vancouver. This was the revival of a project that had first attracted him in 1910, when the

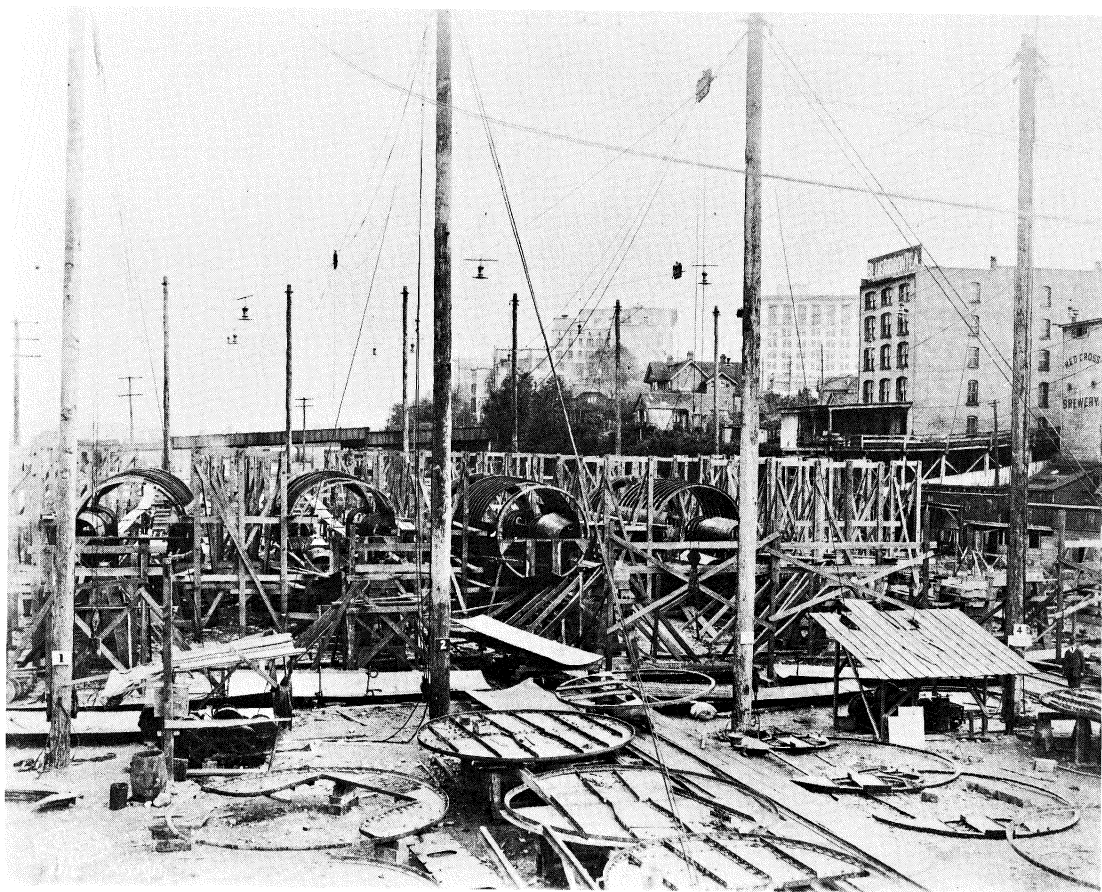
¹³ Admiral Story to Secretary of the Naval Service, 6 March 1916. PAC RG 24.

¹⁴ Hibbs to Paterson, 27 March 1917.

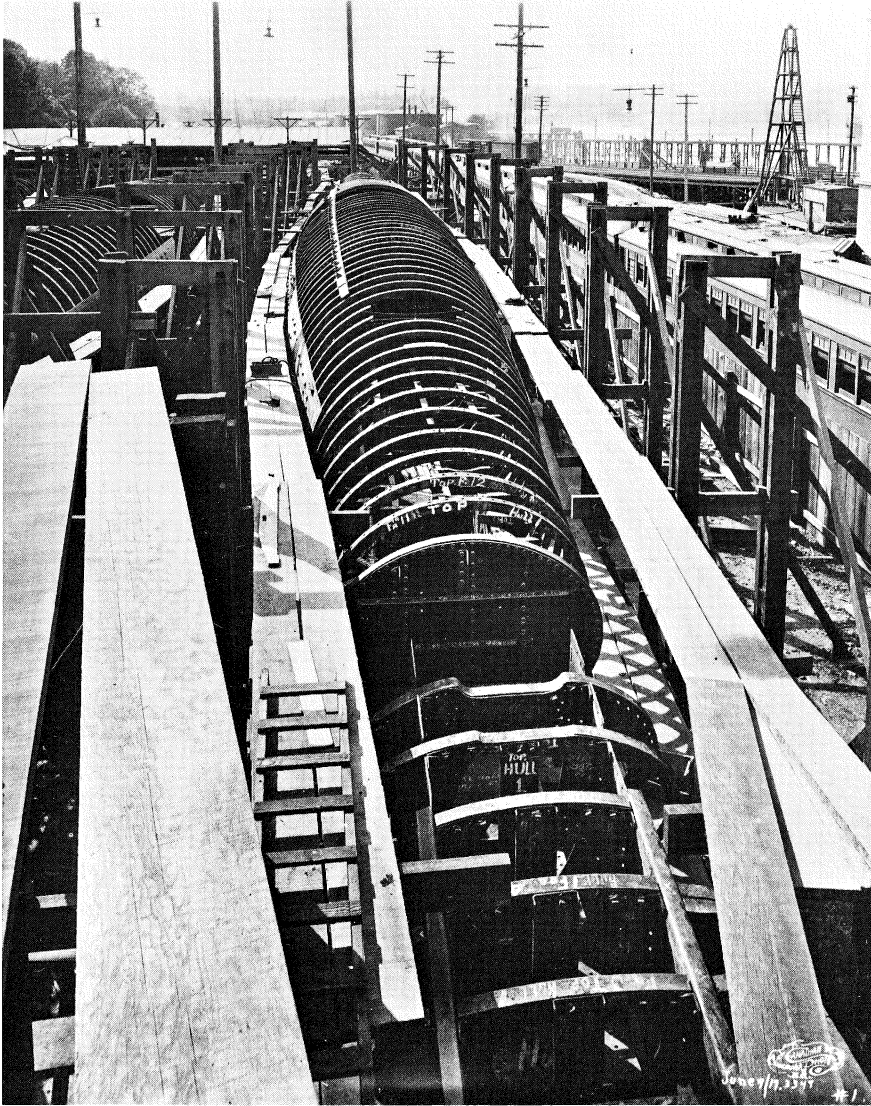
¹⁵ Canadian Vickers to the Chief of Staff, Naval Service, 1 May 1917. PAC RG 24.



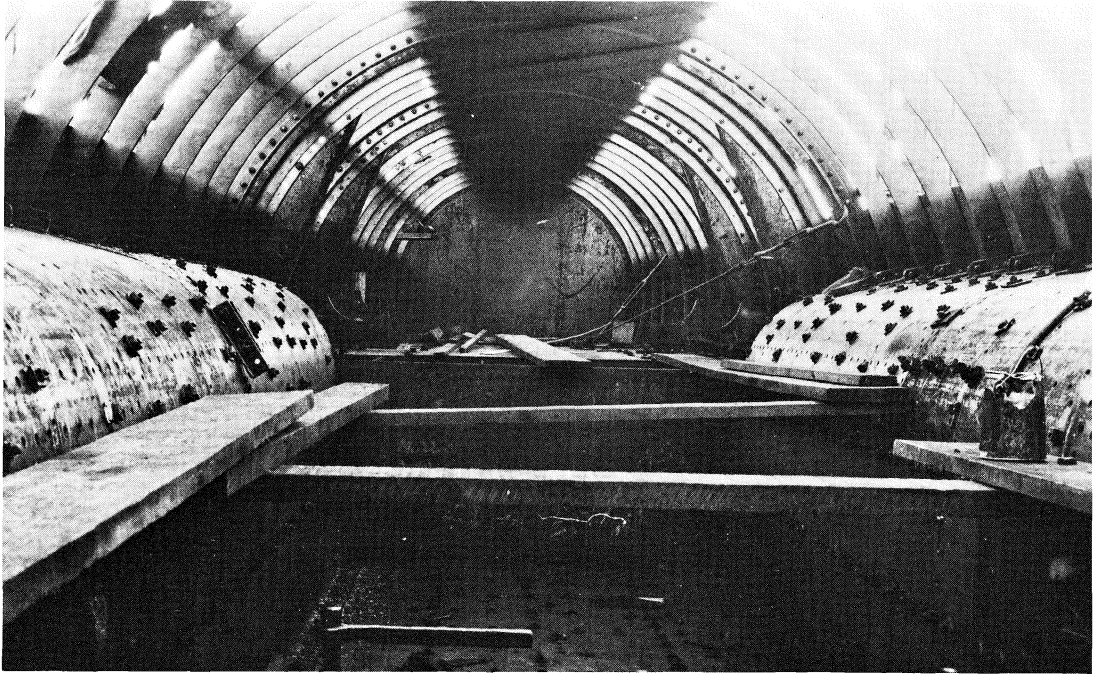
The British Pacific Company's submarine yard on the Vancouver waterfront. The federal government's immigration building (since torn down) is to the right.



Work under way on four of the six hulls assembled in Vancouver.



Hull No. 1.



Hull interior.

Parliament of Canada passed the Dry Docks Subsidies Act. At that time he proposed to build not one dock but two — one at Esquimalt and the other at Vancouver. The Vancouver proposal progressed as far as a formal agreement with the government, but in the end the required subsidy was not forthcoming.

In 1916 the story was much the same, but with some variations, one being the participation of Charles Meek. In October 1916 a Memorandum of Association forming Vancouver Dry Docks Limited was drawn up; the five signatories included Meek and his wife. In November Paterson completed negotiations for the sale of two million dollars of 6 percent dry dock bonds, always providing that a subsidy was received. As in the case of the British Pacific Construction and Engineering Company, Paterson's name did not appear, but a letter to Hibbs shows that he was once again the key person: "I spent a lot of time in the East trying to secure a Subsidy for a drydock to be built here [Vancouver]. I secured the money from Messers. Breed, Elliot & Harrison of Chicago etc., their financing of the enterprise being conditioned upon the granting of the subsidy of 3½% on the cost of the work; but I failed to get the Subsidy."¹⁶

Submarines suddenly again loomed large on Paterson's horizon early in 1917, when the Russian government ordered another six boats from the Electric Boat Company. Following the Barnet precedent, the company wanted Paterson to look after construction at a temporary yard in Burrard Inlet. On 5 March he settled various contract details with W. R. Sands, Electric Boat's Manager for the Pacific coast, and the next day he wrote to Sands mentioning two points still in doubt. The company wanted construction time to be four months, but Paterson hesitated to agree to this until he had had time to investigate the state of the labour market. A site for the yard was another problem. He hoped to lease part of the Canadian Pacific's rail yard on the Vancouver waterfront, but final approval had not yet been given by the vice-president responsible.¹⁷ The area he had in view lay between the four-storey immigration building near the water and the bluff to the south and extended several hundred yards to the west.

Both doubts were quickly cleared up. Canadian Pacific agreed to the lease, and Paterson described the site to Hibbs: "The plant is being located on the property of the C.P.Ry., at the yards of the Railway Co.,

¹⁶ Paterson to Hibbs, 11 Sept. 1917.

¹⁷ Paterson to Sands, 6 March 1917.

close to the pier-head devoted to the Oriental service of the C.P. Steamship Co. The ground is level: it lies between the tracks serving the large freight-yard: it is supplied with the light and power lines of the B.C. Electric Co.: it has the protection of the military guard detailed to watch the C.P.Ry. lines and wharves: and its position in the city should help us greatly in getting the men to and from their work without the loss of time and the constant trouble about transportation suffered at Barnet."¹⁸ Later Paterson added: "The boats are to be built all six abreast: there is an Aerial cable-way over each boat-berth and an electric winch for each pair of boats."¹⁹

Labour proved to be much less of a problem than Paterson seems to have anticipated. He was able to secure an experienced foreman for each of the trades, and "plenty" of skilled and unskilled workers were available, "all except the laborers having been on submarine work." The fitters included "most of the men who worked at Barnet."²⁰

By the middle of March steel castings and hull forgings for the submarines were being manufactured at Montreal, and terms of the contract were worked out in time for it to be signed on 23 March. As Paterson no longer represented the Seattle Construction and Dry Dock Company it took the unusual form of an agreement between the Electric Boat Company and Paterson personally — a further indication of the company's trust and confidence in him. Some of the financial arrangements are of interest. The Electric Boat Company undertook to pay the "actual net cost" of materials and wages and of out of pocket expenses for such items as light and power. Overhead was set at \$285 per week, which was to cover the salaries of Meek and Thomas Skinner, "the proportion of Administrative expenses properly chargeable to the contract" and rent for the building site — evidence that the Canadian Pacific had made it available at a very modest rental. Paterson's personal profit was to be \$18,000 per boat or a total of \$108,000 in all.

The next step was the signing of a contract between Paterson and the British Pacific Construction and Engineering Company. Paterson explained to Hibbs why this was necessary: "as the company could not take

¹⁸ Paterson to Hibbs, 1 April 1917.

¹⁹ *Ibid.*, 12 April 1917.

²⁰ Paterson to Sands, 16 March 1917. Paterson quotes some of the wage rates he would be paying. Fitters, in the top category, would receive 62½¢ an hour, riveters and caulkers 56¼¢, punch men 50¢ and labourers 37½¢. Overtime would be paid at time and a half until 10 p.m. and at double time thereafter. The working day was eight hours.

the contract, I arranged to take it myself and give that company the order to do the work under my direction."²¹ This sub-contract was signed on 29 March. The work was to be done under Paterson's direction and "subject to inspection of and approval by the Representative of the Electric Boat Co. of New Jersey." A careful eye was to be kept on expenditures. "Weekly bills for materials, wages, supplies for the plant, rent, and actual overhead charges, all the foregoing at actual cost," were to be rendered. Upon completion of the work, Paterson was to pay Meek \$5,000, over and above his participation in British Pacific.²²

At this point an unexpected complication delayed the project briefly. On 10 March the Commissioner of Customs in Ottawa informed the Naval Service that British Pacific had received a further order for six submarines and, for some reason that does not appear, requested that "an urgent cable be sent to the Admiralty enquiring if the British Government has any objection" to their construction.²³ On 9 April, very conscious of the havoc being wrought by the unrestricted submarine warfare declared in February by Germany, the Admiralty replied: "If labour and material is available for building vessels at Vancouver it is very desirable to use it for producing Merchant ships or small ships for anti-submarine work."²⁴ It took a few days to make it clear that the material supplied to British Pacific was "not suitable for other purpose" and was "supplied to them already cut for submarines."²⁵

Construction arrangements were completed quickly. Malcolm MacNaught, who had represented the Electric Boat Company at Canadian Vickers in 1916, when the contract for submarine hulls was transferred from Barnet to Montreal, arrived to watch over operations in Vancouver. The contract had set construction time at four months as from 15 April, the date by which Electric Boat hoped to deliver the "bulk of the steel material." It was able to keep to this schedule; records of rail car movements show that twenty-two cars left Montreal on 20-22 March and that they arrived in Vancouver 7-11 April.

A few days later Paterson received a wire from Hibbs proposing a

²¹ Paterson to Hibbs, 21 May 1917.

²² Copies of both contracts are in the Paterson Papers. The agreement with Electric Boat is a formal and very detailed document; that with British Pacific is a letter from Paterson to the Company. The weekly statements of expenses for the period 11 April to 18 July are also in the papers.

²³ PAC RG 24.

²⁴ Admiralty to the Naval Service, Ottawa, 9 April 1917. Ibid.

²⁵ Superintendent, Esquimalt dockyard, to Naval Service, 13 April 1917. Ibid.

substantial change in the building plans: "We are considering utilizing for contract six naught two R²⁶ certain fabricated hull steel at Fore River which has [was] got out for previous contract of identical design. Amounts to about seventy percent of total each for two units. We can deliver at Vancouver about May fifteenth and send you full and complete inventory. . . . Wire if you see any objection to proposition and what change in existing terms would be satisfactory." To which Paterson replied the next day: "I could arrange to use the fabricated material you refer to. . . . I cannot say what if any change could be made in the terms of agreement . . . but if it would benefit your company to use it I am willing to do everything I can to assist and would at the end of the work be able to determine fairly upon the question of modified terms."²⁷ Later Hibbs raised the estimate of the material "already fabricated and ready to set up" to over 90 percent, and in view of this it appeared to him "as if there would be no delay on account of this change in program."²⁸

On this occasion Electric Boat fell a little behind schedule. The twenty-two cars laden with hull components did not leave the Fore River yard until 18 May. Paterson found that "a great amount of sorting and identification" was necessary, but, as Hibbs hoped, the more advanced state of the steel compensated for the delay, and no change in the completion date — 15 August — became necessary.

Meanwhile the political situation in Russia had changed drastically. The Czarist regime, which had ordered the submarines, had been overthrown in March, and the failure of a Russian offensive prepared the way for Russia's withdrawal from the war. The Russian Committee in New York (presumably a purchasing commission) cancelled shipment, and on 30 July Electric Boat wired to Paterson instructing him not to load or ship any part of contract 602-R. Hibbs elaborated in a letter: "certain contingencies, due to present conditions, which no doubt you understand, might result in this work not being shipped as originally contemplated, [if] at all."²⁹

Hibbs mentioned a second reason for delaying shipment that seems to indicate that he still hoped that export might be possible. Some items

²⁶ The four Electric Boat Company contracts here dealt with were numbered as follows: 602-F for the boats built at Barnet; 602-GF for the three transferred from Barnet to Montreal; 602-L for the additional three built by Canadian Vickers, and 602-R for the six built at Vancouver.

²⁷ Hibbs to Paterson, 16 April 1917. Paterson replied on 17 April.

²⁸ *Ibid.*, 11 May 1917.

²⁹ *Ibid.*, 4 August 1917.

forming part of contract 602-L (the last three submarines built for Electric Boat by Canadian Vickers) had not yet left Vancouver, and he was most anxious that there should be no overlapping with any part of contract 602-R. The reason was the chaos prevailing at Vladivostok. "The authorities at Vladivostok," he explained, "pay no attention at all to the suggestions of our people regarding some of the goods; and on account of the contingencies regarding cars, storage, facilities for handling, etc. they forward the goods as most expedient to them at the time, and in each case; so that it is just as liable to be the case that items which we would expect to be shipped first will leave Vladivostok last, and items which we would naturally wish to follow in succession, or together, will be entirely separated before they reach their destination; so that we are now making no attempt to direct the successive order of the shipment but are making the latter as nearly convenient and expedient to our own interest, on this side, as possible."³⁰

In spite of the turn of events, Paterson was told to complete the six hulls, dismantle them and crate them as provided for in his contract. The target date for shipment had been the sailing of the freighter *Key West*, but her voyage to Vladivostok was cancelled and she was diverted to Japan. According to the lease, Canadian Pacific was to regain possession of the building site by 1 October, but the railway agreed to extend it on a month-to-month basis in order to provide a storage area for the crated hulls and the other components that were intended to be shipped with them. Electric Boat evidently ordered shipments to Vancouver to be held back, as a Canadian Pacific internal report dated late in December shows that only six cars of an expected total of fifty or more had then arrived. The list of missing items shows how widespread suppliers had been. The bulk of the material for the hulls had come from Electric Boat and its associated companies — Fore River, Canadian Vickers, and the rest — but engines were still to come from Indianapolis, batteries from Depew,

³⁰ Electric Boat was not the only supplier of war materials to Russia to encounter delivery difficulties. Charles Vopicka, United States Minister Plenipotentiary to Rumania, passed through Vladivostok in August 1917. "Around the harbor . . . there were great piles of merchandise and ammunition, and in the city streets we saw about three hundred large wooden boxes, which we ascertained contained automobiles of American make and were told had been there a long time." *Secrets of the Balkans* (Chicago, 1921), 129. In 1915 Russia purchased more than fifty model K Curtiss flying boats. The first shipment travelled by way of Vancouver and Vladivostok to Sebastopol. Walter Johnson, the Curtiss test pilot who was to supervise assembly and trial flights, tells the sad story of their rusted condition and deterioration in Louis S. Casey, *Curtiss: The Hammondsport Era, 1907-1915* (New York, 1981), 200. Mr. R. C. W. Percy, of Simon Fraser University, gave me these references.

N.Y., and electric motors from Bayonne, N.J. Other items had come from Seattle and Milwaukee.³¹

Hibbs moved quickly to relieve Paterson of any further responsibility for the submarines and the building yard. On 21 September, W. R. Sands, Electric Boat's West Coast representative, sent him a receipt which Paterson in his acknowledgement described as being "for Six Units of the Contract 602-R and for the buildings of the temporary plant, tools, materials, and equipment according to the signed inventories attached to the receipt."³² Sands, MacNaught and Meek then proceeded to dismantle the plant. Most of the tools and equipment went back to the United States, whence they had come originally; timber, steel and other remainders were disposed of locally.

Paterson's papers include a summary of British Pacific's expenditures relating to contract 602-R up to 5 September 1917. Plant cost had been \$60,807.26 (\$46,609.94 for materials and \$14,197.32 for labour), and the cost of constructing the six hulls had been \$162,072.15 (\$27,105.82 for materials and \$134,966.33 for labour). General outlays totalling \$27,925.42 brought the total expenditure to \$250,804.83. To this Electric Boat would add the profit of \$108,000 paid to Paterson.

There is no indication of any significant activity by British Pacific after the Vancouver plant was dismantled. Meek had twice had visions of transforming it into a full-fledged shipbuilding firm, but neither proposal came to anything. In October 1915, when Commander Jones visited Barnet, Meek had informed him, "that his company could undertake the construction and launching of submarines, destroyers or merchant vessels," and Jones thought the position of its yard was "very suitable" for the purpose.³³ Differences over ground rent ended this possibility. Between the Barnet and the Vancouver contracts Meek evidently made an effort to secure agencies that might have given the company a longer active life. In April 1917 its letterhead stated that it represented several very well known British firms in the fields of shipbuilding and engineering, including John Brown & Co.'s famous yard on the Clyde, which would later build the Cunard *Queens*, and the Atlas Steel and Iron Works in Sheffield. When, the same month, the British Admiralty suggested that British Pacific should build anti-submarine vessels instead of submarines, the

³¹ F. G. Freiser, Export Freight Agent, to G. C. Dew, Montreal, 27 Dec. 1917. PAC RG 24. A total of forty-two cars are listed (including twenty-two cars of batteries), but the number of cars bringing engines is not specified.

³² Paterson to Sands, 24 Sept. 1917.

³³ PAC RG 24.

Superintendent of the Esquimalt Dockyard informed Ottawa that in four months (in other words, when contract 602-R had been completed), the plant would be available for other work. He added that British Pacific was in communication with Ottawa and also "with parties in London regarding future building."³⁴ This was surely wishful thinking on Meek's part, as the site of its yard was only held on a short-time lease, and the plant itself was for practical purposes owned not by British Pacific but by the Electric Boat Company, which was not interested in operating in Canada. In September 1917, just as the plant was being dismantled, a new letterhead appeared, that of Charles S. Meek & Co. Ltd., steel merchants and export and shipping agents. But Meek soon disappears from the Vancouver scene, and he remains somewhat of a man of mystery. As for the British Pacific Construction and Engineering Company, it continued to exist for a time, apparently in a dormant state, and was not formally dissolved until 15 September 1921.³⁵

Free of the submarine contracts, James Paterson made a further unsuccessful attempt to build a dry dock in British Columbia. Early in December 1918 he was in touch with Premier John Oliver, asking for an option on land near Lime Bay, on the former Songhees Indian reserve, on the edge of Victoria harbour. Once again the lack of any assurance that a federal subsidy would be forthcoming was the stumbling block. The Premier replied that his government would "facilitate, as far as possible, the acquisition of the site in question by any company having a contract with and receiving a subsidy from the Dominion Government."³⁶

Paterson, long a prominent citizen of Seattle, was later a member of the United States Naval Consulting Board and for some years was vice-president of the Board of Regents of the University of Washington. He died in 1947, aged 80.

* * *

For a time the Electric Boat Company expected that it would be able to find a purchaser within a few weeks for the six submarines crated and stored in Vancouver, but one was not found for seven months. Hibbs thought the British Admiralty was seriously interested. Tending to confirm this, the Naval Service heard in January 1918 that Lieutenant

³⁴ Superintendent to Naval Service, 13 April 1917. *Ibid.*

³⁵ Registrar of Companies to the writer, 26 Jan. 1986. The reason for the dissolution is not on record.

³⁶ Oliver to Paterson, 9 Dec. 1918.

Varley, who was in charge of British submarine building in America, was to be instructed "to proceed forthwith to Vancouver to report on general state and condition of these vessels and time required to complete for commission."³⁷ Naval and other local authorities were alerted and asked to render him assistance, but he never appeared. Finally, on 9 March, the Admiralty notified Ottawa that it did not wish to acquire the submarines.³⁸ Meanwhile the Admiral-Superintendent at Esquimalt had reported that Commander Hall, of the United States Navy, had been in Vancouver inquiring about them.³⁹ His visit was followed by negotiations between the Navy and the Electric Boat Company that seem to have resulted in a purchase agreement in April, although the formal order was dated 20 May. Everything pertaining to contract 602-R was then shipped to the Puget Sound Navy Yard at Bremerton, Washington, where the submarines were completed and commissioned at various dates between 9 September and 25 November 1918.⁴⁰

All seventeen of the submarines ordered by Russia followed the highly successful H-class design first developed by the Electric Boat Company for the United States Navy in 1913. There were minor changes and improvements in the Barnet, Canadian Vickers and Vancouver groups, but in essentials they were similar. The six boats that eventually found their way into the United States Navy may therefore be taken as typical. Their length was 150 feet 3 inches and their width 15 feet 9 inches. Surface displacement was 358 tons; displacement submerged was 434 tons. For propulsion on the surface they had two 240-horsepower Nelseco diesel engines, which gave them a speed of about 14 knots. Two 300-horsepower electric motors could drive them at about 10.5 knots when submerged. They had four 18-inch bow torpedo tubes and could carry eight torpedoes. The eleven boats that reached Russia (five from Barnet and six from Montreal) were equipped with a 47mm gun, but whether this was part of their original armament or added in Russia does not appear.

In 1977 E. C. Fisher, Jr., then editor of *Warship International*, was able to tap Russian sources and to trace the later history of these eleven

³⁷ Naval Service to Esquimalt dockyard, 5 Jan. 1918. PAC RG 24.

³⁸ Admiralty to Naval Service, Ottawa, 9 March 1918. Ibid.

³⁹ Esquimalt dockyard to Naval Service, 21 Jan. 1918. Ibid.

⁴⁰ Society of Naval Architects and Marine Engineers, *Historical Transactions 1893-1943* (New York, 1945), 33 (in the historical article on the Puget Sound Navy Yard).

submarines in considerable detail. A brief summary, based on his account, will suffice here.⁴¹

The Russians designated them the AG type, an abbreviation for Amerikanski Golland, or American Holland type. The five built at Barnet, which went to the Baltic, were numbered AG-11 to AG-15. They were assembled at Petrograd (Leningrad), were entered on the Russian Navy List in June 1916, but were not completed until November. Their careers were brief. The AG-14 was lost with all hands in July 1917, and the other four were all scuttled early in April 1918 at their base at Hango (now Hanko), Finland, to prevent them from falling into the hands of the advancing Germans. One of them, AG-13, which had been renumbered AG-16 after being sunk accidentally and salvaged, was raised a second time by the Finnish Navy, but was never reconditioned.

By contrast, some of the six boats built by Canadian Vickers and sent to the Black Sea survived for almost fifty years. This was due in part to long delays in their completion. Numbered AG-21 to AG-26, they were assembled at Nikolaev, on the Dnepr-Bug estuary, and entered service at the slow rate of one boat a year from 1918 to 1923. Only two were ready in time to join the Imperial Navy. One of the two, the AG-21, fell into British hands at Sebastopol in 1919 and was scuttled to prevent capture by Communist forces. She was raised later and added to the Soviet Navy. The AG-22 sailed with Wrangel's White Russian forces in 1920 to Bizerta, where the French authorities sold her for scrap four years later.

The five boats that joined the Soviet Black Sea fleet suffered a number of name changes. At one time they received such politically inspired names as *Marxist*, *Trotskii* and *Kommunist*, but in 1934 all were given new numbers, A-1 to A-5. All were active during the Second World War, and two became war casualties. The other three are believed to have ended their days in the late 1950s as battery charging plants at Sebastopol.

A few lines on the uneventful careers of the six boats completed at Bremerton that joined the United States Navy will end this chronicle of Russian submarines built in Burrard Inlet on a quiet note. As the Navy already had three H-class submarines (two built by the Union Iron Works

⁴¹ E. C. Fisher, Jr., "The Subterfuge Submarines," *Warship International*, vol. XIV (1977), no. 3, 200-26. This article is an account of all the submarines built for various navies that followed Electric Boat's H-class designs, of which over seventy were completed. Fisher was unaware of the file in National Defence records in Ottawa, but it was known to R. H. Webb, who published a rejoinder based on it in the same periodical, vol. XVI (1979), no. 2, 99. I am indebted to Mr. David Perkins, of Dartmouth, N.S., for copies of these two articles.

and the other by Paterson's Seattle Construction and Dry Dock Company) that had been numbered H-1 to H-3, the six additions to the class were numbered H-4 to H-9. All joined the Pacific Fleet, but there was little naval activity on the west coast by the time they entered service. In 1922 they were transferred to Norfolk, Virginia, but their active days were over. They were held out of commission in reserve until 1931, when they were stricken from the Navy List at the end of February and sold for breaking up later in the year.