

Labour and the Unions in a Wartime Essential Industry: Shipyard Workers in BC, 1939-1945

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Introduction

Shipbuilding, was perhaps the most remarkable feature of the Canadian, as it was of the American, industrial war effort. Starting from very small beginnings the Canadians established by 1943 an output of merchant shipping only fractionally less than that of the United Kingdom. Nor was this achieved at the expense of warship construction, to which roughly half of Canada's shipyard capacity was devoted throughout the war.¹

The Canadian shipbuilding labour force exploded from 3600 in 1938 to a peak of 75,900 in 1943 to meet the demands of the Second World War.² Its output — 487 warships and 438 merchantmen — made a substantial contribution to the Allied war effort.³ Indeed, shipbuilding became British Columbia's largest war industry, with a workforce of 31,300 in 1943 compared to 968 four years earlier.⁴ This phenomenal wartime surge was made possible by substituting mass-production techniques for more labor-intensive work regimes. The hastily-recruited labour force therefore required training only in specific skills, which was fortunate since the war years were also marked by a relative labour shortage.⁵ At the same time, union membership grew rapidly and a new legislative framework was created for collective bargaining. These developments were reflected in the relatively high wages earned by BC shipyard labour and the successes of well-led unions in negotiating better contracts and winning themselves new roles in labour relations. This essay will examine wartime shipbuilding labour in BC by first discussing briefly the factors that facilitated the rapid expansion of the workforce and then exploring the history of wartime wages. This will be followed by a discussion of the growth of unions and an assessment of their effectiveness during the conflict.

Wartime shipbuilding in Canada for the most part involved the construction of relatively standard ships. Large merchant vessels — 256 of which were produced in BC and formed the bulk of tonnage built in the province — were constructed to a British design for 10,000-ton freighters that could be driven at eleven knots by an obsolete reciprocating engine of only 2500 horsepower.⁶ A total of 2700 "Liberty Ships" of the same basic design were built in the US; because the engines were interchangeable, some

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received Canadian machinery and *vice versa*. Similarly, the warships built in Canada were of simple design. The famous corvettes, the first naval vessels ordered from BC yards in 1940, had been designed to follow merchant shipbuilding practices and classification rules rather than more stringent naval standards.⁷ They had reciprocating engines, thus using the same technology as the freighters. Production of such ships in quantity was well-suited to assembly-line methods.

Shipbuilding was organised by the federal government through the War Supply Board (later the Department of Munitions and Supply) under the hard-driving C D . Howe. A crown corporation, Wartime Merchant Shipping Limited, was responsible for merchant construction (after 1944 for all ships), while the Naval Shipbuilding Branch looked after warships. In both cases the agency negotiated contracts not only for the ships but also for components. Howe's department also provided substantial capital assistance to enable shipyards to expand. In addition, government helped by permitting accelerated depreciation for capital improvements, enabling firms to write-off generous percentages of such expenditures.⁸ Under the War Measures Act labour was regulated by the federal rather than provincial governments. By the third year of the conflict demands from the military on one hand and rapidly expanding industries on the other had created acute labour shortages. Under a National Selective Service scheme, first instituted in March 1942, the Department of Labour decided which industries were essential and allocated manpower accordingly. After October 1941 the Department set wages as well as prices. Shipbuilding and other essential war industries were thus financed and controlled by a system of state capitalism. In practice, it was the Department and not shipyard operators who determined wages and hours of work.

When war came in 1939 Canadian shipyards had not built any large vessels for twenty years and had been kept afloat by repair work. Through early 1941, three main activities provided welcome business for B. C. yards: the arming of British merchant ships; the conversion of liners to auxiliary cruisers for the Canadian and British navies; and a modest naval construction program to produce ten corvettes and sixteen minesweepers. The labour force grew steadily. Warship contracts were spread among five shipyards to make use of existing facilities. Because this resulted in only a few ships of each type being built in each yard, and since at that stage there was at yet no experience with mass production, these warships were fabricated using traditional methods.⁹

Early in 1941, however, the British government placed orders in BC and Québec for a number of 10,000-ton freighters, which provided the initial impetus for substantial expansion. Within a few months the Canadian government became directly involved by launching its own ambitious programme to construct large numbers of standard 10,000-ton freighters and larger warships. Shipbuilding was rationalised nationally and warship construction was concentrated in certain yards to achieve economies of scale. Yarrows in Esquimalt became the BC warship yard and was organised to build frigates, a more complicated class of vessel but still designed to merchant standards, on a production line.¹⁰ The four other shipyards in BC now focused on building identical freighters, and two new yards were brought into production in Vancouver.

Traditional methods of fabricating large ships frame-by-frame and plate-by-plate on a slipway have been likened by Correlli Barnett to building medieval cathedrals." But large numbers of craftsmen were not available and could not be trained quickly. Different

methods were thus needed to produce large numbers of ships rapidly. This forced the industry to adopt techniques already standard in large-scale manufacturing. Their application in BC yards has been described by J.S. Marshall:

Ships were pre-fabricated in various shops within the yard area and outside and put together in berths. Mass production methods were used and these made it possible to break down each job into a number of comparatively simple operations. By repeating these simple operations endlessly, the worker soon became a specialist. He might know little or nothing of ship construction, generally, but he knew his own task and was able to discharge it quickly and efficiently.¹²

A combination of traditional riveting and, on increasing scale, of welding was used in ships pre-fabricated in Canadian yards. Welding required relatively more skilled workers (who however could be easily trained than riveters) and fewer low paid "helpers." Assembly-line techniques thus required changes in the composition of the workforce; as well, new pre-fabrication facilities and heavier cranes had to be ordered.¹³ Far more shipyard workers were now required both because of the ambitious building programmes and the new methods of shipbuilding that were introduced.

In expanding to meet urgent wartime requirements, shipbuilders were able to draw on similar experiences from twenty years earlier. BC shipyards boomed during and immediately after the First World War, building what Geoffrey Taylor called an "astonishing 135 deep-sea vessels," including forty-five large freighters between 1917 and 1921. Fifteen thousand workers had been employed, with a further 5000 engaged in producing auxiliary equipment.¹⁴ The bulk of tonnage comprised thirty-three identical 8800-deadweight-ton craft. These ships had been fabricated, using traditional methods, in record time — the freighter *Indus* was built at False Creek in 66.5 days from the laying of the keel to trials.¹⁵ By comparison, the fastest Canadian time in the Second World War using pre-fabrication was fifty-eight days.¹⁶ Many skilled workers who had come from other parts of Canada or had been specially imported from Britain during the First World War remained in BC. Some returned to the shipyards, often as foremen and charge hands, in 1941 and 1942.¹⁷

National unemployment in 1939 had been fourteen percent, so there were no difficulties in finding shipyard workers (although many were inexperienced) during the initial phase of wartime expansion, especially since the yards paid competitive wages. Indeed, when government began gearing up the national war effort, BC was anxious not to be excluded and there was optimism that labour could be found to expand the yards. As early as April 1940, the *Vancouver Province* was reporting that shipbuilding could create 20,000 jobs and match lumbering as a leading employer. "Skilled labour may have to be diluted to some extent but in the last war capable workers drifted here from all over the West and they will do it again should demand justify such an influx."¹⁸ But manpower shortages developed rapidly in 1942 once mass production developed momentum. This led to such expedients as employing teenagers. The government proclaimed National Selective Service for civilians in March 1942. While this measure took time to implement,

it required unemployed males to register and enabled the Department of Labour to shift workers to fill vacancies in industries classified as essential to the war effort.

Shortages of shipyard labour created vacancies that were filled by male students and teachers during the summers: a newspaper story in August 1942, for example, reported that the two Victoria shipyards would lose 200 workers when the schools re-opened in September. By now it was obvious that surplus labour was becoming scarce and women began to be hired at the Burrard Yard in North Vancouver and soon thereafter in Victoria as well. While females were at first restricted to tasks requiring limited skill, they soon became plate makers, jitney drivers, crane operators, painters, tackle-riggers, bench workers, lathe operators and helpers in various other crafts, and later some became welders and charge hands. Table 1 shows that by 1944 six percent of the BC shipyard workforce was comprised of women. Indeed, female shipyard workers were relatively more important in BC than elsewhere in Canada because shortages of male labourers were more acute. The demand for workers continued to increase and by 1943, when shipyard hirings peaked and Canada achieved "full employment," white collar workers were being recruited by the Vancouver Selective Service Office to work one shift three nights per week. Efforts earlier that year to recruit more workers on the prairies and in Québec had been unsuccessful, and among measures to close the labour gap entailed increases in the number of females in the yards.¹⁹

Table 1
Growth of Shipbuilding Labour Force in British Columbia, 1938-45

Year	Labour Force	
	Total	Females
1939	968	
1940	3,800	
1941	8,400	
1942	23,840	89
1943	31,268	1,328
1944	22,913	1,419
1945	19,127	886

Notes: Figures for 1940 and 1941 have been extrapolated as the *Annual Industry Reports: Shipbuilding* were not published in those years.

Source: Dominion Bureau of Statistics (DBS), *Annual Industry Reports: Shipbuilding* (Ottawa, 1939-1945).

Learning on the job involved hands-on training by charge hands and foremen and government-funded courses to teach specific skills, like welding.²⁰ Assimilating new workers into the workplace was not without frustrations. Syd Jopling was a charge hand responsible for teaching inexperienced workers:

They didn't have anyone there that had bent frames of this size before, or knew enough about bending frames to be able to handle the job, so I was loaned out to Dominion Bridge for a month to break in men to bend frames. Well, that was one of the worst Jobs I ever had. I was given about twelve helpers. The first shift we were on we bent two frames, and I think I practically bent the bar myself. These were quite long, forty-five, fifty feet, sixty feet long, some of these frames, fifteen inch channel bars, which required a large hunk of material, with a bunch of green hands trying to bend. Anyhow, things got better, they had to get better, but as soon as I got a half decent gang going, they'd take the gang away from me...and give me six more green men.²¹

Building ships involved working in noisy conditions around heavy plates, often on staging high above the ground. There were many other hazards due to the large numbers of workers in separate gangs burning, cutting, riveting, and welding in close proximity to each other and often in confined spaces. Safety items, such as hard hats and reinforced boots, were not worn.²² The rapid growth and sketchy training resulted in accidents:

There were quite a number of accidents, of course...in those days, because there were a lot of people there who hadn't worked in industry. There were people who came from the Prairies who used to wonder where the water went when the tide went out...And there were a few tragedies that took place.²³

A shipwright elaborated on this theme:

And the workers had their own concepts of what was safe and what was not. We had many bad accidents over that. And we had some circumstances where the workers themselves did not always do the things right. When two planks were required, they'd only shove out one. This was wrong. We didn't always live up to our own concepts of what should be one, on an individual basis, and this caused some difficulty.²⁴

Planning inefficiencies also contributed to the on-going labour shortage. Wartime expansion and the introduction of assembly-line techniques were not free of problems. Some workers viewed redundant manpower as a deliberate ploy by management to increase profits because the contracts were on a cost-plus basis. For example, Bill Schwartz, who became a shipyard worker to organise for his union, later recalled "This resulted in a lot of men standing around," since "work wasn't prepared."²⁵ Bill White, a natural leader who soon became active in union affairs, recounted that:

somebody put their thinking cap on somewhere along the line and decided that the wartime situation with its cost-plus called for a different method of doing business — there should be six guys doing the work of

two — and Jesus, before we knew it that place [shipyard] was jammed with bodies. Over seven thousand at the peak, in a yard half the size of a city block. Just like an anthill. They'd take guys and give them four bolts, and their days work was to put in those four bolts. The guys would put those bolts in, tighten them up, undo them, put them in upside down, take them out and shine them up, try them in different holes, see if they could bust them off...It's worse than being overworked, having to look busy when you've got nothing to do, you know. They'd have whole gangs of men hiding in behind bulkheads, doing nothing for weeks at a time but playing cards and telling stories.²⁶

Wages in BC were generally higher than elsewhere in the country throughout the war. Unfortunately, only comparisons that lump wages and salaries together are available, but these show that remuneration was consistently at least eight percent higher in BC and the difference reached 11.6% in 1943, the year of the greatest national labour shortages (see table 2). The data also demonstrate that wages in BC shipyards were constantly higher than in manufacturing elsewhere in Canada.

Table 2
Average Weekly Earnings in Canadian Manufacturing Industries, by Workers at Yarrows Shipyard, Esquimalt, and Average Weekly Wages and Salaries in BC, 1939-1945

Year	Manufacturing Industries	Yarrows Shipyard	Average Wages and Salaries	
			BC	Canada
1939	\$22.23	\$25.74	\$26.01	\$23.44
1940	24.82	27.46	27.24	24.94
1941	27.72	30.37	28.81	26.65
1942	31.75	34.48	31.23	28.62
1943	33.80	42.37	34.37	30.79
1944	34.95	43.52	34.53	31.85
1945	35.04	N/A	34.72	32.04

Sources: F.H. Leacy (ed.), *Historical Statistics of Canada* (Ottawa, 1983), tables E 49-59, "Average Weekly Wages and Salaries by Province," and E 60-68, "Average Weekly and Hourly Earnings in Manufacturing Industries." These Yarrows records are in the Maritime Museum of British Columbia, fde 993-051-0073.

Another comparison — this time with wages paid to Vancouver construction workers — is possible (table 3). This shows that when the yards first started expanding in 1940, their wages compared favourably with those in construction. Electricians commanded the highest shipbuilding wages, followed by certain types of boilermakers and iron workers. A "boilermaker" could have one of several specific skills necessary to fabricate a steel ship. The highest paid boilermakers were the loftsmen, who produced the templates used by "platers" to cut individual plates, and the "frame benders," who were in charge of the exacting process suggested by their title. Platers, riveters, burners,

welders and their "helpers" fastened the plates, frames, and other components. In addition to these trades, there were shipwrights, engine fitters, machinists, plumbers, pipefitters, riggers and painters. The BC Industrial Conciliation and Arbitration Act of 1940 gave employees the right to organise. The diversity of the trades involved in shipbuilding is suggested by the fact that at a typical yard, Yarrows, there were nine separate unions early in the war.²⁷

Table 3
Comparisons of 1940 BC Shipbuilding and Vancouver Construction Industry
Hourly Wages

	Burrard Shipyard North Vancouver	Victoria Machinery Depot	Vancouver Construc- tion Industry
Shipwright	\$.83 - 1.00	\$.90	\$.83
Boilermaker	\$.90 - 1.00	\$.90	
Welder	\$.90 - 1.00	\$.90	
Plumber	\$.90 - 1.00	not known	\$1.00
Electrician	\$1.00 - 1.05		\$.93
Labourer	\$.50 - .75		\$.48

Notes: Vancouver construction wages for "shipwright" are for carpenters. The Burrard contract was with the War Supply Board to build corvettes and is in the Burrard Company Records at the North Vancouver Archives. The VMD agreement is reprinted in Robert Macintosh, *Boilermakers In British Columbia* (Vancouver, 1976), 79.

Sources: Burrard Contract, dated 11 March 1940; VMD Agreement With Boilermakers' Union, dated 1 April 1940. Leacy (ed.), *Historical Statistics of Canada*, table E 248-267, "Hourly Wage Rates In Selected Building Trades By City."

Wages and inflation both increased steadily during the war (table 4). Cost-of-living adjustments were standard features of agreements in shipyards even in 1940. Interestingly, while the various consumer price indices rose by ten percent during the first two years of the war, wages in Canadian manufacturing increased by twenty-five percent. BC shipbuilding wages rose by eighteen percent. The government imposed wage-and-price controls in October 1941, under which settlements were supposed to match those of 1926-1929, although cost-of-living bonuses could be added.²⁸ Table 4 shows that wages in BC shipyards and construction climbed faster due to a combination of factors, especially the pressure to produce ships quickly and the steady increase in labour requirements in a period when workers were becoming increasingly scarce and more militant. In addition, building contracts were negotiated under a "cost-plus" formula; in practice, decisions about wages were made not by management but by the National War Labour Board.

At the outbreak of the war the large numbers of trades involved in the shipyards were being paid at a number of different rates (a March 1940 Burrard contract lists sixty-four different trades and classes of worker and twenty-two different rates of hourly pay).²⁹ A shipwright employed by Burrard later recalled:

At that time, the shipwrights and joiners, as compared to journeymen in other trades, our journeymen were receiving less money. And there was quite a lot of dissatisfaction in all hands regardless of whether they were the old-timers or the new men. There was desire for uniform wages, and that was 90 cents an hour, against somewhere in the bracket of between 80 cents and 85 cents. I can't just remember the exact amount.³⁰

Labour was able to achieve uniform rates for journeymen within some classifications as early as 1940, but inequalities between entry-level workers — known as "helpers" — and labourers remained a problem until dealt with by the Richards Commission in 1942."

Table 4
Wartime Increases in Consumer Price Indices
Compared with Wage Increases in BC Shipbuilding and Other Industries

Category	1939-41	1941-43	1941-44	1939-44
Consumer Price Index (CPI)	10%	6.4%	7%	18%
Vancouver CPI	9%	8%	8.8%	19%
Cost of Living Index	10%	6.7%	7.2%	18%
Wages, Canadian Manufacturing	25%	14.5%	26%	57%
Wages: Vancouver				
- Carpenter	3.6%	30%	30%	35%
- Plumber	13%	5%	5%	19%
- Electrician	11%	17%	21%	35%
- Construction Labourer	4%	42%	46%	48%
- Yarrows Shipyard	18%	39%	43%	47%
Average				(1939-44)

Note: The 1939 Vancouver CPI was extrapolated from the 1939-1940 change for Canada as a whole. Since reliable figures for Yarrows wages in 1945 are not available, the increase is shown to 1944.

Sources: Leacy (ed.), *Historical Statistics of Canada*, tables K 8-18, "Consumer Price Index;" tables K 23-32, "Consumer Price Indexes for Regional Cities," tables K 1-7, "Cost of Living Index;" and tables E 248-267, "Hourly Wage Rates In Selected Building Trades by City," Yarrows Census of Industry Shipbuilding Returns.

The traditional large number of trades and skill levels earning different rates had resulted in a well-defined wage hierarchy. Figures are available showing that the pay distribution at Yarrows became more uniform during the war years. Table 5 shows that the proportion of workers earning close to the average wage at the yard increased from

twenty to forty-two percent between 1940 and 1944. In 1940 forty-eight percent earned more than the average wage (there was even thirty-two percent that was paid at least fifty-four percent more than the average weekly wage of \$27.46). By 1944, the group being paid close to the average had doubled to forty-two percent, and only twenty-two percent received more. The wage distribution was now more concentrated around the mean, reflecting both the changing composition of the workforce (e.g., riveting gangs composed of four or more skill levels replaced by two skill levels: welders and helpers) and steady efforts by labour to raise lower rates of remuneration.

Table 5
Distribution of Wages in Yarrows Workforce

1940	
Average Wage, Canadian Manufacturing Industries	\$24.82
Average Wage, Yarrows Workers	\$27.46
Percentage of Yarrows Workers Earning \$22-23/week (i.e., 18% less than Yarrows average)	24%
Percentage Earning \$27-28/week (i.e. Yarrows average)*	20%
Percentage Earning \$40-45/week (i.e. 54% more than Yarrows average)	32%
Proportion of Male Workforce in above three groups	76%
1944	
Average Wage, Cdn Manufacturing	\$34.95
Average Wage, Yarrows Workers (Male and Female), 1944	\$43.52
Average Wage, Male Yarrows Workers, Feb. 44	\$41.99
Percentage Yarrows Male Workers Earning \$30-40/week (i.e. 19% below Yarrows male average)	26%
Percentage Earning \$40-50/week (i.e., Yarrows male average or slightly higher)	42%
Percentage Earning \$50-60/week (i.e., 26% more than Yarrows male average)	17%
Proportion of Male Workforce in above three groups	85%
Average Wage, Yarrows Female Workers, Feb. 44	\$35
Percentage of Women Earning \$30-40/week (i.e. 20 percent less than male average wage)	60%
Percentage of Women earning \$40-50/week (i.e. same or more than average male wage)	10%
Proportion of Female Workforce in above two categories	70%

Note: No workers were reported as earning between \$24 and 27 per week.

Sources: Leacy (ed.), *Historical Statistics of Canada*, table E 49-59; and Yarrows Shipyard Census of Industry Shipbuilding returns.

A typical War Labour Board ruling in May 1942 illustrates how labour was able to modify pay distribution over time by winning incremental adjustments. The union representing certain workers in the North Vancouver yards had applied for two increases. The first argued that riggers merited a better basic wage scale because their skills were equivalent to those of workers in other shipyard classifications with higher basic rates. The Board ruling was a compromise: a new sub-classification of "high rigger" was created with a basic pay level twenty percent higher. The second approval was for an increment of 1.25 to 1.5 times basic pay for cleaning in confined spaces.³²

The unions supported pay equality for female workers. A record that has survived of wages at Yarrows during one week in February 1944 shows that the average female wage — \$32.43 — was only seventy-seven percent of the \$41.99 average for males (table 5). As for males, the wage distribution among females was concentrated toward the middle of the range. Sixty percent of women were paid between \$30 and \$40 per week, and ten percent received between \$40 and \$50 (i.e., the same or more than the average male).³³ But table 5 also shows that for 1944 as a whole the mean pay for female workers at Yarrows — \$43.45 per week — was virtually identical to that of males (\$43.53). This convergence was probably due to a combination of improved women's wages and larger numbers of females becoming qualified for higher-paying jobs — by 1944 there were female journeymen welders and electricians and some charge hands. Unfortunately, figures showing the actual wages paid shipyard workers are fragmentary, and this conclusion requires more hard data for confirmation.

In summary, shipyard pay compared favourably with construction wages from the beginning of the war and increased steadily as the demand for workers grew sharply. By 1944 average shipyard pay was forty-seven percent higher than in 1939. At the same time, wages in Canadian manufacturing had increased by fifty-seven percent, suggesting the interplay of shortages and demand in plants essential to the war effort. By contrast, the consumer price and cost-of-living indices increased by roughly eighteen percent. Pay dispersion between trades and within classifications narrowed, partly because of steady efforts by labour and partly because pre-fabrication altered the composition of the workforce. Data from one shipyard suggests that by 1944 women workers were paid the same as men, but this finding must remain tentative without further evidence.

These pay increases were achieved by militant union, notably the Boilermakers and Iron Shipbuilders Union, Local No. 1, of Vancouver. This union, soon the largest of its kind in Canada, set the pace for changes in industrial relations in BC yards, but had only 200 members in 1940. There was a radical tradition in Vancouver shipyard labour, which had supported the "One Big Union" (OBU) movement in 1919-1920. The boilermakers returned to their craft union when support for the OBU dissipated, but in 1927 when a new congress of industrial unions, the All-Canadian Congress of Labour (ACCL), was created a group of Vancouver boilermakers broke away to form a new industrial union. At the start of the war the ACCL unions and chapters of CIO unions in Canada merged to form a new Canadian Congress of Labour (CCL).³⁴

For many new shipyard workers wartime jobs provided opportunities to act collectively after the harrowing Depression. Since their numbers included men experienced in protest, the new workers soon changed the outlook of the workforce:

In this period, naturally the main core of workers in there were people who had worked in the industry for some years, part-time, and some of them were full time, but they were the mainstay. And because of that fact, they felt a little differently towards the new men who had come into the industry. The old-timers were more conservative in their outlook, more company-orientated. The new people brought in a certain newness into the industry, a certain feeling of democracy, new ideas, and the desire to implement a little higher form of struggle, as to conditions and so forth.³⁵

Capable organizers, many with radical backgrounds, moved into Local No. 1 and by recruiting adept shop stewards soon turned it into a feisty and effective body.³⁶ By 1942 the local had 13,000 members.³⁷

The unions acted to improve working conditions and pay for specific classifications; there were brief strikes concerning both. There were also work stoppages connected with demarcation conflicts.³⁸ The unions contested two major efforts by management to alter production methods — the introduction of piecework rates for riveters and the scheduling of shifts under "continuous production," i.e. operating the yards seven days a week by working three shifts in a twenty-four hour period.

Riveting was the traditional method of constructing steel ships and thus the technology common in Canadian shipyards.³⁹ Since plans for the 10,000-ton freighters originated in Britain, they specified riveting. Conventional methods of fabrication were also used initially because BC yards had few of the heavy-lift cranes and large assembly areas needed to pre-fabricate ships in sections. Riveting was labour-intensive — each 10,000-ton freighter required 400,000 rivets. Gangs consisted of four workers: the riveter, who operated the rivet gun; a "holder-on," who placed a second gun against the rivet on the opposite of the plate; a "heater," who brought the rivet itself to the required temperature; and a "passer," who caught the red-hot rivet tossed by the heater and placed it in the rivet hole. The riveting gang was preceded by a driller who created the hole and was followed by rivet testers, caulkers and chippers.⁴⁰ A newer method was welding.⁴¹ This was faster; welders, paid the same wages as riveters, also needed less training (a three-week course for one wartime welder) and fewer helpers and passers.⁴² Welding involved not only a restructured workforce with relatively more highly-paid workers but also was more capital-intensive.⁴³

There was pressure to produce tonnage as rapidly as possible and assistance was available from the government to improve facilities. This drove efforts to increase production and to increase steadily the amount of welding.

Piecework was introduced for riveting gangs in the new Burrard South Yard in January 1942. It was reported that output per gang rose from an average of 228 rivets per shift to 425, and that some gangs averaged 600 to 700.⁴⁴ When the Boilermakers Union voted against piecework, it was discontinued in the South Yard (output dropped to 203 rivets per gang) but continued at two other Vancouver yards. The piecework controversy dragged on and the Burrard President, Clarence Wallace, speculated about reducing the amount of rivetting by welding the upper-deck housing separately.⁴⁵ Increased welding was probably being planned in any case because of a shortage of riveters, but this is an

interesting case of new technology involving different skills being introduced at a time when workers with old skills were resisting efforts to increase output. In the event, piece-work was eventually accepted in all yards in the wake of changes in working conditions recommended by the Richards Royal Commission of 1942.

Starting in the spring of 1942 the scheduling of shifts to achieve continuous production developed into another major confrontation. The government eventually enacted a seven-day shift system under an Order-in-Council on 1 May, but the unions proposed an alternative.⁴⁶ Discontent with the government's scheme and the fact that it had been imposed with little input from labour grew. In June a Joint Shipyard Trade Union Conference representing 20,000 Vancouver workers drafted a new plan and appealed to workers to cooperate with the government while a better alternative was being proposed.⁴⁷ The unions presented their own schedule (essentially a six-day work week); when this was not accepted by management, the workers sent a delegation to Ottawa to meet with the Minister of Labour. A Royal Commission was appointed in July to examine the government plan and labour's alternative, as well as other factors "impeding production in the shipyards of British Columbia." The Commission, headed by Justice Richards of the Manitoba Court of Appeal, included equal representation from management and labour, held thorough hearings in Vancouver and Victoria, and travelled to the US Pacific Northwest to study continuous operation there. The Commission's operations are an example of how organized labour succeeded in having its voice heard.⁴⁸ Several union recommendations were adopted. Although the continuous production shift system eventually implemented was not what labour advocated, they had won other concessions. One of the problems addressed had been absenteeism on weekend shifts. A compromise designed included paid holidays for workers who had accumulated a certain number of months on the job. One union president, Damon Eisenman, a shipwright, saw the outcome in a positive light:

We did win gains in conditions. The first general industry holidays with pay were granted and improved classifications for various sections of the industry...I think that labour in British Columbia generally, benefited. Holiday pay became a recognized condition of work. The differentials for shift work were recognised. Shorter hours, more pay, and so on.⁴⁹

A third significant issue illustrating the growing effectiveness of unions was an attempt in 1943 to achieve a closed shop at West Coast Shipyards on False Creek in Vancouver:

West Coast was the most modern of the years because it was the last built. This, therefore gave it an advantage in the latest equipment. It was also an Open Shop, having a huge sign at the front gate to prove it. The sign invited all and sundry to apply for work. No union affiliation necessary. Our Union had a number of members there but the very nature of the yard attracted non-union elements. Organising here was a mammoth task because they paid the Union scale of wages but would not officially sign an agreement.⁵⁰



Figure 1: Seven Oaks Park, one of the 256 10,000-ton freighters built in BC during the war, ready for launch at Victoria Machinery Depot's Ogden Point Yard in 1945. Note the "A" frame for minesweeping paravane on the bow and shipyard workers on deck.

Source: British Columbia Archives and Record Services (BCARS), photo F-09699.



Figure 2: Victoria Machinery Depot employees (both men and women can be seen) on scaffolding outside the hull of a freighter. The vertical steel beams are the frames to which the hull's plates will be attached by riveting (rivet holes visible in the frames).

Source: BCARS, F-09695.



Figure 3: Female workers, including a welder, at the Victoria Machinery Depot.

Source: BCARS, F-09694.

The issue was considered by an Arbitration Board which in November 1943 anticipated the spirit of the Rand Formula of 1946. The Board refused to agree to a closed shop but recommended that workers who became union members maintain their affiliation with the union as a condition of continued employment.⁵¹

In conclusion, three aspects of the history of BC shipyard labour during the war are of particular interest. First, rapid expansion and large-scale production was possible because the industry switched to pre-fabrication. While this required large numbers of workers, they could be trained quickly in specific skills. The method of pre-fabrication — a combination of welding, representing new technology, and riveting, a traditional technique — required a mix of old and new skills. The new techniques required a larger proportion of high-skill positions than earlier methods. Labour shortages resulted in the employment of teenage boys and then women, who became proportionately more important in BC than elsewhere in Canadian shipbuilding.

Second, wages in Canadian manufacturing increased by fifty-seven percent during the war, reflecting labour shortages coupled with the new power of unions. Wages in BC shipbuilding, higher than those for manufacturing overall at the beginning of the war, increased by forty-seven percent. By contrast, the consumer price and cost-of-living indices increased by roughly eighteen percent. Spreads of pay between shipbuilding trades diminished, partly due to changes in the composition of the workforce and partly because of the effectiveness of the unions.

Third, the growth and increased power of shipyard, and particularly industrial, unions reflected the new strength and effectiveness of unions in Canada during the war. Since shipyards were financed and controlled by government, and because manpower and wage controls were negotiated with government rather than shipyard operators. The sudden wartime demand for shipyard labour came after many workers had been radicalized by bitter experiences during the Depression. These men were therefore supportive of unions and membership grew rapidly, particularly in industrial unions like the boilermakers. Capable labour leaders emerged who were skilled at negotiating better conditions and wages and were able to achieve a larger role for unions in labour relations.

NOTES

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1. H. Duncan Hall and C.C. Wrigley, *Studies of Overseas Supply* (London, 1956), 52.
2. Dominion Bureau of Statistics (DBS), *Annual Industry Reports: Shipbuilding* (Ottawa, various years).
3. J. de N. Kennedy, *History of the Department of Munitions and Supply* (Ottawa, 1950), 237,
4. DBS, *Shipbuilding*. In addition, there were 5000 engineering workers making parts. For example, the Vancouver Iron Works produced boilers and other plants manufactured masts, rudders, gun mountings, cargo winches, and propulsion shafts; Geoffrey W. Taylor, *Shipyards of British Columbia: The Principal Companies* (Victoria, 1968), 109. There were 22,500 *workers in* Vancouver, concentrated in four large shipyards;

gives the total number of cargo ships built for the Canadian, British and US governments as 391; ships begun during the war but completed after the peace have been added to arrive at 438.

the largest was Burrard, with 7000 in North Vancouver and 4000 at a new yard on the Vancouver side of the harbour, followed by North Vancouver Shipyard with 6000 and West Coast Ship on False Creek with 5500.

5. Bryan D. Palmer, *The Working Class Experience* (Toronto, 1992), 278.

6. S.C. Heal, *Conceived in War, Born in Peace: Canada's Deep Sea Merchant Marine* (Vancouver, 1992); and L. A. Sawyer and W.H. Mitchell, *The Liberty Ships* (2nd ed., London, 1985), 2.

7. Peter Elliot, *Allied Escort Ships of World War II* (London, 1977), 15.

8. Dollar figures can be misleading without a context, but Canada's total war production cost \$10.5 billion. By comparison, the nation's GNP in 1945 was \$11.9 billion; Michael Bliss, *Northern Enterprise* (Toronto, 1990), 448. Shipbuilders and component parts manufacturers were paid about \$1.18 billion (eleven percent). Capital assistance to the industry totalled \$38 million; Kennedy, *History*, 503; and Bliss, *Northern Enterprise*, 451.

9. Construction was done in existing shipyards (Burrard and North Vancouver Shipyard in North Vancouver; Yarrows and the Victoria Machinery Depot [VMD] in Victoria; and Prince Rupert Dry Dock and Shipyard) and required no new slipways. Unfortunately, continuous employment figures for BC yards are not available, since no reports were published in 1940 or 1941. The workforce at Yarrows, which was busy with all three activities, grew from seventy in 1939 to 496 in 1940 and 831 in 1941. See Maritime Museum of British Columbia, file 993-051-0076, Yarrows Shipyard Annual Income Tax returns. National shipyard employment was 3596 in 1939, 9707 in 1940 and 21,240 in 1941, with the beginning of freighter construction.

10. *Victoria Times*, 1 December, 1941, 1. Norman Yarrows had returned from Ottawa with a contract to build frigates and explained that Yarrows was to be one of four Canadian yards to concentrate on naval construction.

11. Traditional British shipbuilding methods during the war have been described as follows: "The ships themselves were built and fitted out much as had been medieval cathedrals — by

swarms of craftsmen of many skill, and by masses of the unskilled or semi-skilled deployed in working gangs." Connelli Barnett, *The Audit of War* (London, 1986), 107.

12. J.S. Marshall, *The History of Burrard* (3 vols., Vancouver, 1964), II, 219.

13. Gary Weir, "A Truly Allied Understanding: The Progeny of Britain's *Empire Liberty* 1931-43," in S. Howarth and D.G. Law (eds.), *The Battle of the Atlantic 1939-1945* (London, 1994), 105.

14. Taylor, *Shipyards*, 11 and 104.

15. Heal, *Conceived in War*, 194. As in the First World War, the initial impetus towards building steel freighters was provided by orders from the British government, which also sent shipbuilders down to the level of foreman. Where the large numbers of riveters that must have been involved were found (possibly from railway repair, bridge-building or steel fabrication plants) is unknown.

16. Kennedy, *History*, 496. This was achieved in 1943 in Montréal United Shipyard, a large new yard designed for mass production. At the time Burrard was building ships on average in 151 days; the best time was 112. George Edwards, *Waterfront to Warfront: Burrard Dry Dock Company During World War II* (Vancouver, 1995), 35.

17. Taylor, *Shipyards*, 104. The labour pool did not contain large numbers of workers but included experienced shipbuilders, originally trained in Scotland or on the Tyne, who would become foremen and charge hands. *Almost* all shipbuilding skills were transferable to other industries — heavy steel fabrication, for example, was required in the construction of hydro-electric plants — but their application to ship fabrication was sufficiently unique that a source of tradesmen capable of becoming foremen was of critical importance.

18. *Canada Year Book 1940* (Ottawa, 1940), 751; and *Vancouver Province*, 20 April 1940. By mid-1941 unemployment had been cut in half.

19. *Victoria Times*, 29 August 1942; Edwards, *Waterfront to Warfront*, 21; Marshall, *Burrard*, II, 217; Lori Haddon, "Hand Lotion on the Wrench — Women Shipyard Workers in the Second World War" (Unpublished paper, University of Victoria,

- 1993); DBS, *Shipbuilding*; ^, *Canadian Labour Force Estimates 1931-45* {Ottawa., 1951}, 15; and *Vancouver Province*, 21 June and 22 July 1943: "Many French-Canadians were unwilling to come to what to them was a 'foreign country.'"
20. Some workers were trained before being employed while others were re-trained later. In May 1942 the newspapers reported on a new scheme to give men already in the yards six-week courses to qualify as marine electricians, welders, platers, caulkers, and shipwrights. *Vancouver Sun*, 29 May 1942.
21. Ben Swankey (éd.), *A History of Shipbuilding in British Columbia As Told By Shipyard Workers* (Vancouver, 1977), 78.
22. Interview with retired VMD worker, 15 February 1996. Record held by author.
23. Jack Lawson in Swankey (ed.), *History*, 75.
24. Damon Eisenman in *ibid.*, 89.
25. Bill Schwartz in *ibid.*, 90.
26. Howard White, *A Hard Man To Beat* (Vancouver, 1983), 25.
27. A 1940 Burrard contract lists twenty different categories of "boilermaker." The traditional process of fabricating a steel ship is described in Swankey (ed.), *History*, by John Speers (17) and Louis Noveski (76). See also Marshall, *The History of Yarrows* (2 vols., Vancouver, 1964), II, 123.
28. The VMD agreement with boilermakers and iron workers, dated 1 April 1940, provided for quarterly adjustments. Tommy Thompson (95) in Swankey (ed.), *History*, recalls a cost-of-living escalator clause being introduced after September 1942 under which ten cents an hour was added to all wages for the duration of the war.
29. North Vancouver Archives (NVA), Burrard Company Records (BCR), contract with War Supply Board, 11 March 1940.
30. Damon Eisenman (88) in Swankey (ed.), *History*.
31. A Conciliation Board to settle a dispute at Yarrows and Burrard early in the war established a wage of ninety cents per hour for all mechanics (journeymen). Marshall, *Yarrows*, II, 123; Marshall, *Burrard*, II, 221.
32. NVA, BCR, National War Labour Board letter, 9 May 1942.
33. Unfortunately, records showing wage distributions at Yarrows have survived only for 1940 and 1944. They had been preserved in files which painstakingly record the cost of the materials and heating coal purchased each year but provide only fragmentary wage figures.
34. Macintosh, *Boilermakers*, 39.
35. Damon Eisenman (88) in Swankey (ed.), *History of Shipbuilding*, 88.
36. Bill Schwartz in *ibid.*, 90.
37. Hec Smith, a member of Boilermakers Local No. 1 recalled, arguing with fellow activists "who had fought in Spain;" Swankey (ed.), *History*, 86. Malcolm MacLeod, who became the union's secretary, started his working life in shipyards on the Clyde. He worked in mines on the Alberta border, organised on the "On to Ottawa" trek, and was active in the Workers' Unity League. Bill Stewart, elected President of the Boilermakers in 1942 when the new leadership wrested control from the "old guard," was also a Scot who had been an organiser in the hotel business. Swankey (ed.), *History*, 108 and 116. According to Bill White, the Communist Party had then "parachuted" Stewart into the IWA: "Then when they needed someone to carry their flag in the Boilermakers they pulled him out and set him up as leader of the shipyard workers, where..he didn't know a rivet from a davit." White, *Hard Man*, 40.
38. Swankey (ed.), *History*, 52; and White, *Hard Man*, 29-30.
39. National Archives of Canada (NAC), Record Group (RG) 27,415, 417, 420,423, 424, 426, 429, 430 and 436, Department of Labour, Strikes and Lockouts File, 1940-1954. Strike 322 in the two Burrard yards in September 1942 involved demands for higher wages by passer boys and pipefitters' helpers, and lasted one and one-half

days. It was settled by increases through a formula including a bonus for the passer boys and higher basic pay for the pipefitters' helpers. Strike 129 in June 1942 involved welders in a CFL union who were opposed to a closed-shop agreement; it ended when the welders agreed to join the boilermakers. The only strike on record involving female workers only is 191, which occurred at Burrard in June 1943 and illustrates how attitudes about women in the workplace have changed. An unstated number of females struck to protest the firing of a woman who had worn "tight clothing," which management said did not meet prescribed standards. The worker was reinstated and the strike ended. The *Vancouver Sun*, 3 June 1944, quoted a fellow female worker as saying that the issue "is striking at the very foundation of woman's unalienable rights. Although we disapprove of our colleague's brazen performance we cannot let an act like this go unchallenged. No matter what the conditions and circumstances, woman must retain her pre-eminent right above all things to catch her man."

40. Welding had been introduced on a small scale at Burrard at the end of the First World War; Dick Broadhurst (19) in Swankey (ed.), *History*. See also Edwards, *Waterfront to Warfront*, 31.

41. Rivets represented fifteen percent of the weight of a 10,000-ton freighter because of the need to overlap adjacent plates. In terms of material cost, this was a difference of at least three percent; Edwards, *Waterfront to Warfront*, 31.

42. Hugh Smith (75), in Swankey (ed.), *History*. Another worker (92) spoke of a six-week course, but this was probably attended part-time.

43. Ian Buxton, "British Warship Building and Repair" in *ibid.*, 96.

44. Marshall, *Burrard*, II, 222. A riveter at the South Yard, Sam Jenkins (86), stated that his gang in fact drove 1066 rivets on a shell bottom in one day and 1688 on a shear strake; *History*. He then opposed further piecework because fellow workers were being laid off.

45. Marshall, *Burrard*, II, 222. Piecework systems for rivetting gangs had also been a contentious issue during the First World War and older workers remembered these earlier disagreements; Chuck McKenzie and Carl Di Tosta (74) in *ibid.*

46. *Vancouver Sun*, 9 February 1942; Marshall, *Burrard*, II, 223-226.

47. Machinists and blacksmiths at all Vancouver yards struck on 23 June to protest the continuous work schedule (NAC, "Strikes and Lockouts," Strike 155). The role of the local Communist Party in supporting the war effort is illustrated by a story in the *Vancouver Province*, 14 July 1943, which explained that the party was urging workers to make a success of a thirty-day trial of the continuous work system.

48. When he testified to the Commission, the Boilermakers Victoria business agent stated that one of the flaws in continuous production was "a feeling by some workers that the government had failed to give labour fair opportunities to co-operate." *Vancouver Sun*, 10 August 1942.

49. Damon Eisenman (88) in Swankey (ed.), *History*.

50. Norman MacSween (98) in *ibid.*

51. *Ibid.*, 64.