Charlestown Navy Yard, 1890-1973

by

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The Boston Navy Yard in the 1930s.

CULTURAL RESOURCES MANAGEMENT STUDY NO. 20

Volume II of II

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THE YARD IN THE GREAT DEPRESSION

The twenties constituted a decade of decline for the Boston Navy Yard. No new construction followed completion of Whitney in 1924, the volume of repairs dwindled, and the work force contracted in size. The early 1930s saw a worsening situation. Economic developments subsequent to the collapse of Wall Street dealt the yard a blow, as the federal government pursued a program of general retrenchment and austerity. The London Naval Treaty of 1930 extended the moratorium on capital ship construction to the end of 1936 and led to the scrapping of three more American battleships and ninety-four destroyers.[1] Because of the persistence of fears of Japan, the Navy continued deployment of the bulk of the fleet in the Pacific. With little prospects of new construction, fewer ships arriving for repairs, and reductions in funds, navy yards faced perilous times. Rumors circulated about abandoning certain shore establishments, and a proposal was made in the early 1930s to close the Boston Navy Yard.

For both the yard and the economic system of the nation, the winter of 1932-1933 was something of a nadir. However, there the parallel largely ends. The country's economy recovered at a slow pace, but the yard began to bounce back more rapidly, and in a way that had not been anticipated. In 1932, Boston

1. Richard W. Leopold, The Growth of American Foreign Policy: A History (New York, Alfred A. Knopf: 1962), pp. 447-8; Donald I. Thomas, "The Four-Stackers," U.S. Naval Institute Proceedings, vol. VII (July 1950), p. 754.

administrators succeeded in underbidding five other government and private yards for the construction of a destroyer. Well before completion of that ship, the yard received a contract for a second destroyer, and others soon followed, as a new president enlarged the fleet, both to stimulate the economy and to keep pace with the growth of foreign navies. The 1930s transformed the Boston Navy Yard into an activity primarily engaged in shipbuilding, a role it would retain until the last years of World War II.

New Deal measures respecting the depression and the threatening international scene led to the recovery of the Boston Navy Yard, the Navy´s other industrial activities, and the nation´s private shipbuilding industry. A provision in the National Industrial Recovery Act of 1933 authorized expenditures, "if in the opinion of the President it seems desirable, for the construction of naval vessels within the terms and/or limits established by the London Naval Treaty...." Franklin Delano Roosevelt, long a champion of a large Navy, set aside $280 million in NIRA funds for thirty-two warships, including sixteen destroyers. Two of the destroyers were built by the Boston Navy Yard. Through a separate section of the National Industrial Recovery Act and by the terms of other legislation, small sums became available for public works at navy yards. Of long-range importance was passage of the Vinson-Trammel Act of 1934, which committed the nation to a definite program of enlarging the fleet to treaty strength. Congressional decree and Navy Department policy provided that, with the exception of aircraft carriers, half of the new ships be built at government

yards.[2]

These measures created the new role for the Boston yard. As early as December 1933, Commandant Henry H. Hough described his facility as "almost exclusively engaged in building." And in the following spring, the Navy Department issued a policy statement which explicitly established Boston's primary mission as construction of destroyers and its secondary function as manufacture of cordage and anchor chain. That statement specifically asserted that "it is not contemplated to overhaul vessels" at Boston.[3] Building destroyers required an expansion of the labor force, and by the middle of 1939, more than 5000 people worked at the Boston yard.

Although the 1930s transformed Boston, both in terms of its chief activity and its general health, the period was a troublesome one. This is especially true for the early years, but slowdowns and layoffs occurred even later in the decade. Not until the outbreak of World War II was the yard safely out from under the shadow of economic hard times.

A CLOSING SCARE

The Boston Navy Yard suffered a closing scare in the early 1930s. In his annual report for 1930, Secretary of the Navy Charles Francis Adams stated that "there are more navy yards on

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2. P.L. 67, Jun. 6, 1933, SAL, vol. XLVIII, p. 201; Mitchell, p. 348; Annual Report, Secretary of the Navy for 1934 (Washington: GPO, 1935), p. 2.

3. Commandant, Boston Navy Yard to Commandant, First Naval District, Dec. 3, 1933, 181-40, Box 303, A-1; Acting Secretary of Navy to All Bureaus, Commandants, etc., May 3, 1934, 181-40, Box 346, A1-2.

the East coast than can be economically maintained." Generally, the administration of President Herbert Hoover took the position that all naval building and repair work for the Atlantic seaboard could be accomplished at Norfolk and Philadelphia and that the yards at Portsmouth, Boston, New York, and Charleston were unnecessary. No actual move was then made to close any of the yards, although the press continued to report President Hoover's hostility to maintaining operations which entailed high overhead costs and relatively low production. In the summer of 1930, it appeared that smaller yards and bases, such as those at Charleston, South Carolina, and Key West, Florida, were the most likely candidates for temporary or permanent closing. Later, President Hoover and administration spokesmen indicated that the effort to economize might result in shutting down other facilities, including the Boston yard.[4]

In October 1931, a specific proposal to close Boston emerged from a White House Conference, touching off a storm of anger and activity in Boston and Massachusetts generally. Fifty thousand signatures were collected on petitions of protest; the move was condemned by the mayor, governor, both senators, and most of the state's congressional delegation; a meeting was called by the Chamber of Commerce; and a committee formed to campaign against the closing. The protestors made a number of points. Since the proposal mentioned no other yards, the obvious question was "Why Boston?" Abandoning the facility would result in joblessness for the yard's 1540 workers, plus an estimated 5000 men employed by

4. New York Times, May 14, 1931, p. 4; Aug. 29, 1930, p. 35.

PHOTOGRAPH NO. 13: The Boston Navy Yard during the 1930s. Several barges occupy Dry Dock No. 1, and an unindentified vessel has been hauled out by the marine railway. Dry Dock No. 2 appears dewatered, but empty.

commercial establishments dependent on the yard. The general contraction of the yard's work force during the 1920s had produced a body of mechanics, many of whom were more than forty-five years of age and who would thus have great difficulty in obtaining work elsewhere. Moreover, it was argued that shutting down the yard would produce little savings, since Boston had been assigned one of the five destroyers in a current construction program. If not built at Boston, that vessel would have to be constructed someplace else, resulting in no reduction in the Navy's expenditures.[5]

The yard was not closed as a result of the proposal made in October 1931, although the threat lingered on for several years. In the following spring, Secretary Adams appeared before the House Naval Affairs Committee and listed Boston as among the yards and bases that might be discontinued. The possibility of closing yards persisted after the inauguration of the new president in March 1933. Doubtless because of concern for the Boston Navy Yard, Massachusetts Congressman John W. McCormack approached the Navy Department in April and was advised that no East Coast yards "would be abolished at the present time." However, in the following month, Secretary of the Navy Claude Swanson announced a drastic cut in Navy funds and laid down certain "general principles" to govern expenditures on shore establishments. The yards at New York, Norfolk, Mare Island, and Puget Sound would be maintained for service to the fleet. "The status of the Navy Yards at Portsmouth, Boston, Philadelphia, and

5. New York Times, October 25, 1931, section III, p. 6.

Charleston is dependent upon availability of funds for new construction."[6] Perhaps this was a political move to win support for the administration's proposal to include funds for new construction in a bill aimed at stimulating industrial recovery. That measure, the National Industrial Recovery Act, was passed in June. Boston received the assignment of building two destroyers as part of the NIRA program. As events turned out, neither the Republican nor Democratic administrations closed any major navy yard during the depression. But for several years, apprehensions existed that the Boston Navy Yard might be shut down.

YARD WORKERS IN AN ERA OF HARD TIMES

The Great Depression affected the Boston Navy Yard in a variety of ways. Both the Republican Hoover and, at least initially, the Democratic Roosevelt had ambivalent views of navy yards, regarding them as areas in which funds could be saved and as instrumentalities for promoting economic stability, if not recovery. The government's response to the economic collapse had an impact on the Boston yard's civilian workers, administrative organization, plant, and industrial activity.

Early in the depression, Navy appropriations were cut, and in allocating its meagre fiscal resources, the Navy sought to provide for forces afloat by curtailing expenditures on shore establishments. That policy most directly affected the number of navy yard employees. Continuing the trend of the 1920s, the Boston Navy Yard's labor force contracted from 2847 at the end of

6. New York Times, May 4, 1932, p. 18; Apr. 21, 1933, p. 37; May 12, 1933, pp. 1, 5.

1928 to 1533 in 1932. The latter figure represents almost the minimum set for Boston. To promote "employment stabilization," the Navy Department fixed minimum, or basic, and maximum limits for the labor force of each of its yards. Essentially, the yards fell into four groups. Charleston was assigned a basic force level of 500 and a maximum of 600; Boston and Portsmouth, 1500 and 1800; Puget Sound, 2600 and 3120; and New York, Philadelphia, and Mare Island, 3000 and 3600. Commandants received strict orders not to exceed the maximum number.[7]

The number of employees at the Boston Navy Yard declined in the first years of the depression, reaching the low of 1533 in November 1932. Through the efficiency-rating system, all workers were ranked, and employees to be discharged or furloughed were selected from those at the bottom of the list. That system gave advantages not only to the more conscientious and productive employees, but also those with long careers in the yard, so long as they were not eligible for retirement. In addition, veterans were somewhat more protected against permanent layoffs than others. Navy policy directed that during their training period of almost four years, apprentices were not to be discharged, although there was no guarantee of a regular appointment when they completed their schooling.[8]

A view of the distribution of the yard's labor force in the

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7. Assistant Secretary of Navy to Commandants, Mar. 30, 1933, 181-40, Box 304, A3-1; Yard Log, Dec. 31, 1928, 181-58; Monthly Report of Personnel Statistics, Dec. 1, 1932, 181-40, Box 270, A9-1; Assistant Secretary of Navy to Commandants, Dec. 30, 1931, 181-40, Box 233, A1-1.

8. Oral History Interview, Lyman Carlow, BNHP; Commandant's Order, Sep. 12, 1933, 181-40, Box 405 (1936), A2-5.

depths of the depression is provided by a listing sent by Commandant Louis M. Nulton to the Department of the Navy. In May 1933, because of objections in Washington to a proposal for temporarily enlarging that force, Commandant Nulton provided a detailed breakdown of the assignments of all civilian employees. At that time, Group IV(b) employees numbered 255 and manual workers roughly 1500. Mechanics, helpers, and laborers engaged in ship work included 524 involved in repairs on the cruiser Raleigh, seventy-two on Nitro, ninety-six on the two new destroyers just started, twenty-six on Coast Guard vessels in the yard, and seventy on miscellaneous projects associated with the Bureaus of Construction and Repair and Engineering. One hundred workers manned the manufacturing shops, namely the ropewalk and chain forge. The Supply Department employed thirty-seven manual workers, the power plant 255, and the other Yards and Docks shops slightly more than 200.[9]

After 1932, the labor force swelled and contracted, generally within the basic and maximum limits of 1500 and 1800. Beginning in 1935, employment figures rose steadily, only to experience a sudden and sharp decline in the second half of 1937, coinciding with a general economic reversal known as the "Roosevelt Recession." A thousand workers were laid off, and the employment rolls dropped from 3439 in June 1937 to 2471 in the following November. As the yard newspaper described the situation:

Christmas this year will not find the Boston Navy Yard

9. Commandant to Assistant Secretary of Navy, May 24, 1933, 181-40, Box 303. A-1.

> in as good a condition from an employment standpoint, as it enjoyed during this happy season a year ago .... Reductions in forces ... have continued progressively with the completion of work on various vessels ... and must unfortunately continue ..., unless additional work is assigned.... Unfortunately the business recession now prevailing throughout the country has complicated the situation by practically eliminating any prospect of employment in private industry.

The yard did obtain additional work early in 1938, and from that point the work force once more started to expand, an expansion culminating in the vastly enlarged body of employees of World War II.[10]

The early depression saw increasing use of the practice of furloughing workers or requiring them to take leave without pay. In June 1932, for example, 179 employees were in such a status, and the figure was expected to increase to 310 during the next three months.[11] Another common practice was hiring workers strictly on a temporary basis. In January 1937, the yard employed 547 such temporaries.

Although, expansion of the volume of work in the late 1930s produced a steadily increasing labor force, temporary layoffs still occurred. A worker hired in 1937, and still employed at the yard when it closed in 1973, recalled that employment was irregular when he started. "Some of the time," employees "didn´t work the full week" and "would have a week off or something of

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10. Boston Navy Yard News, Dec. 9, 1937. The size of the work force can be traced in a report regularly sent from the yard to Washington. The report has several names, such as "Personnel Statistics: Number of Civilian Personnel" and "Monthly Report of Civil Personnel Statistics." For the 1930s, most of these reports are found in 181-40, A9-4.

11. Personnel Statistics: Number of Civilian Employees, Jun. 1932, 181-40, Box 270, A9-4.

that nature." Two hundred mechanics engaged in the construction of the destroyers Trippe and Mayrant were discharged in February 1938, because of the Navy's delay in preparing and forwarding to the yard needed plans for those vessels.[12]

Respecting the wages and salaries of civilian employees, the government and the Navy Department pursued ambivalent policies. On the one hand, federal authorities sought to contribute to national "wage stabilization" by refraining from cutting the pay of workers. On the other, the desire to reduce expenditures led to trimming payment to government employees. By 1935, the contradiction between these two policies was resolved in favor of wage stabilization. But that resolution came only after several years of confusion resulting from manipulation of wages and salaries and of the length of the work week. The most consistently followed practice was cancellation of proceedings of local yard wage boards. Had the usual yearly wage board methods been employed, navy yard wages would have been lowered so as to be in conformity with the declining rates paid by commercial firms. To avoid further depressing the wage levels in the nation, the traditional wage-fixing process was abandoned between 1930 and 1940.

Several secondary authorities, relying too heavily on the wage schedules, do not accurately describe circumstances surrounding navy yard wages and salaries during the depression. In his highly useful administrative history of the Navy during

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12. Oral History Interview, Albert Mostone, BNHP; Boston Navy Yard News, Mar. 10, 1938.

World War II, Admiral Julius A. Furer explains that the 1862 wage-fixing system was in use

> until 1930 when the law was temporarily suspended by Congress, largely ... because wages in industry, due to the depression, had fallen below those paid in the naval shore establishments. By 1940, however, the wages in industry had again risen to the point where it was thought that they might be higher than those paid in Navy yards. The Wage Board procedure was therefore again put into effect ....

That the situation was somewhat more complicated is indicated in a World War II study of the history of wages and salaries paid to the Navy's civilian employees. That study states:

> During the period January 1, 1930, to February 14, 1940, [the] wage board procedure was not used because of the downward trend of industrial wages; and statutory prohibitions against reduction in compensation and administrative promotions in the acts of Congress ... also necessitated the continuance of the 1929 schedule. Section 23 of the act of Congress of March 28, 1934 ... relating to rates of wages and hours of labor had the effect of giving for forty hours' work the 48 hours' pay formerly given for 44 hours' work and the fixing of the rate of wages on the level of the wage schedule in effect on June 1, 1932, viz., the 1929 schedule.

Although basically correct, this description is somewhat misleading and certainly oversimplifies events.[13]

The usual wage-fixing mechanism was suspended, and the 1929 schedule did become the basis for determining wages during the decade. Beginning in 1930, the Secretary or Assistant Secretary of the Navy each July or August directed that navy yard wage boards not be convened and that the current wage schedule be continued for another twelve months. This meant that the wage schedule for 1929 prevailed throughout the depression. The only changes occurring in wage schedules resulted from the inclusion

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13. Furer, p. 910; McPherson and Watts, p. 4.

of new ratings. For example, the Navy Department accepted the Boston yard's recommendation to add the rating of temperer and to assign it the wage of $.90 per hour.[14]

However, the decade-long abandonment of the traditional wage-fixing mechanism is only part of the story. By congressional action, wages and salaries of federal employees were reduced. Moreover, between 1931 and 1934, there was continued tinkering with the length of the work week, mainly by repeated alterations of the schedule for Saturdays.

The first change in hours benefitted government workers. In an act approved on March 3, 1931 and effective immediately, Congress declared that for employees of the government "four hours ... shall constitute a day's work on Saturday throughout the year, with pay or earnings for that day the same as on other days when full time is worked ...."[15] Generally, that act tended to decrease the need to discharge or furlough workers, since it spread the same volume of work over a longer period of time. In practical terms, it means that employees worked five and a half days and were paid for six, in effect increasing the hourly and daily rates of pay and the unit rates for piecework. As directed by the Secretary of the Navy, Commandant Nulton immediately placed the Boston Navy Yard on a five-and-a-half-day

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14. For examples of the annual cancellation of local wage board operations, see Press Release, Aug. 9, 1930, 181-40, Box 203, L16-1; Secretary of Navy to Navy Yard, Boston, Aug. 2, 1934, 181-40, Box 353, L16-1; Assistant Secretary of Navy to Commandants, Aug. 17, 1936, 181-40, Box 422, L16-1; Secretary of Navy to Commandant, Jan. 3, 1936, 181-40, Box 422, L16-1.

15. P.L. 784, Mar. 3, 1931, SAL, vol. XLVI, p. 1482; Commandant's Order No. 14, Mar. 4, 1931, 181-40, Box 405 (1936), A2-5.

week, with Saturday hours from 8:00 a.m. to noon.

Sixteen months later, Congress enacted the Legislative Appropriations or Economy Act of June 30, 1932. That legislation cut the work week to five days and cut wages by one-eleventh. Pay raises due to length of service or promotion were suspended. Employees reaching retirement age were compelled to retire. Overtime, Sunday, or holiday work no longer received a higher rate, and annual leave with pay was eliminated entirely. Otherwise, the act prohibited any reduction or increase in the compensation of federal employees.[16]

The new work week became effective at the Boston Navy Yard at once, and beginning July 9, the facility was closed on Saturdays. Navy yard commandants interpreted the new regulations in different ways. At Mare Island, a furor resulted when the yard went on a program of five days' pay for five days' work. Admiral Nulton, at Boston, attached another meaning and issued a chart to convert the former hourly and daily wage rates to the new schedule. For example, a worker previously paid $.75 an hour or $6.00 a day, now received $.90 per hour and $7.20 per day. Similarly, Nulton ordered new piecework rates instituted in the chain shop. According to his understanding, employees should receive five and a half days' pay for five days of work.[17]

Admiral Nulton's interpretation apparently was correct for per diem and salaried employees, but the Navy initially viewed

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16. P.L. 212, June 30, 1932, SAL, vol. LXVII, pp. 382-407.

17. Lott, p. 197; Commandant's Circular No. 79, Jul. 18, 1931, 181-40, Box 283, L16-4; Commandant to Accounting Officer, Jul. 19, 1931, 181-40, Box 283, L16-1.

the new piecework rates as "a revision upward," which "cannot be considered at this time," since it violated the terms of the Economy Act. Nulton argued against the Department's ruling, because it "in effect deprives the piecework employee of the compensation previously allowed for Saturday afternoons, in addition to depriving him of the compensation for the Saturday forenoons not worked." "In other words," he continued, "the piecework employee loses compensation for the entire Saturday, whereas the per diem employee only loses compensation for half the day."[18]

The Boston commandant ultimately won his argument. More importantly, the exchange underscores the fact that, although the 1929 schedule was in effect, all manual workers, both per diem and piecework, received less income after July 1, 1932, than they had before that date. And further wage cuts lay ahead.

On March 20, 1933, during the hectic "Hundred Days," a reluctant Congress, responding to the insistence of the president, passed the New Deal's Economy Act. That provided for pay cuts for all federal employees of up to fifteen percent. Moreover, a five-and-a-half-day work week was reestablished. In the following June, orders were issued, only to be rescinded before they went in effect, to furlough all per diem workers on Saturday. The decision to curtail work on Saturday mornings was made "because of the necessity for economy in expenditures ..., and to obviate discharges by spreading available work among

18. Assistant Secretary of Navy to Commandant, Aug. 6, 1932, 181-40, Box 283, L16-1; Commandant to Assistant Secretary of Navy, Sep. 15, 1932, 181-40, Box 283, L16-1.

employees as far as practicable." The order was rescinded because the administration was soliciting bids for new construction, and private shipbuilding firms, whose employees worked more than forty hours a week, would have a competitive advantage over government yards, since they could promise earlier delivery dates.[19]

In March 1934, Congress rebelled against the president and passed over his veto the Independent Offices Appropriations Act. That measure drastically amended the Economy Act of the previous year and provided for a three-step elimination of the reductions. The basic objective was to return all employees to the wages and salaries they had received on June 1, 1932, that is before enactment of Hoover's Economy Act, which had initiated the policy of reducing the pay of federal workers. Another change in the spring of 1934 was a resumption of the forty-hour week.[20]

By the summer of 1935, wages and salaries at the Boston Navy Yard had returned to the levels of the early years of the decade. This is evident in a comparison of two documents, an "organization personnel pamphlet" dated April 1, 1931, and a similar statement for July 1, 1935. These pamphlets list every position in the yard and, for each of the civilian positions, the classification or rating, the daily wages or annual salary

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19. P.L. 2, Mar. 20, 1933, SAL, vol. XLVIII, p. 13; Commandant's Order No. 39, Apr. 7, 1933, and Commandant's Order No. 43, Jun. 6, 1933, both in 181-40, Box 405 (1936), A2-5; New York Times, Jun. 25, 1933, p. 10.

20. P.L. 142, Mar. 28, 1934, SAL, vol. XLVIII, pp. 521-2; Secretary of Navy to All Naval Stations, Mar. 31, 1934, 181-40, Box 353, L16-4; Secretary of Navy to All Navy Stations, Apr. 6, 1934, 181-40, Box 353, L16-4; New York Times, Apr. 7, 1934, p. 6.

attached, and, in the case of supervisory personnel, the name of the incumbent. For all positions, the wages or salaries paid in 1935 were identical to those four years earlier. The following are examples of supervisors holding the same positions and receiving the same pay in 1931 and 1935:

> Chief Clerk, Commandant's Office, P. W. Walsh (CAF-6), $3400; Sergeant of Police, Military Department, W. J. Gibbons, $1920; Supervising Draftsman, Drafting Section, Planning Division, A. Svenson (P-3), $3800; Metallurgist, Metallurgical Laboratory, Production Division, C. G. Lutts (P-3), $3700; Leadingman Ropemaker F. B. Christensen, $7.60; Master Shipfitter J. L. Carroll, $17.04; Quarterman Machinist C. C. Nispel, $9.92; Master Boatbuilder W. C. Nicholls, $14.00; Pilot and Tugmaster B. P. Kemp, $3200.

That wages and salaries for nonsupervisory personnel were the same in 1931 and 1935 can be seen in the positions of

> stenographer-typwriter, Commandant's Office (CAF-3), $1920; laborer, classified, Medical Department, $4.48; design draftsman (ship), Drafting Section, Planning Division (P-3), $3400; painters, $7.12; blacksmiths, heavy fire, $7.84; riggers, $7.20; boatbuilders, $7.20; ropemakers, $6.16; shipfitters, $7.04; plumbers, $7.20; molders, $7.68; machinists, $7.04; electricians, $7.60; and under stockman, Supply Department (CAF-1), $1500.

Some employees received higher wages and salaries in 1935 than in 1931, but this resulted from promotions, such as from leadingman to quarterman, and not because of alterations in the wage or salary schedules.[21]

Although wages and salaries made their way back to the pre-1932 levels, overtime remained severely limited, and the five-day week prevailed. The manual labor force worked eight hours each day, and Group IV(b) employees eight hours during the first four

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21. Organization Personnel Pamphlet, Apr. 1, 1931, 181-40, Box 234, A3-1; Organization Personnel Pamphlet, Jul. 1, 1935, 181-40, Box 376, A3-1. In the examples given for Group III, all ratings are for first-class mechanics.

days of the week and seven on Fridays.[22]

At the end of 1932, the size of the Boston Navy Yard's work force was at its lowest point, 1533 persons. Approximately, 200 were in Group IV(b) and the remainder in Groups I, II, III, and IV(a). Veterans totaled 592 and women thirty-four. Thereafter, as the number of employees began to increase, veterans continued to constitute roughly one-third of the work force, the number of women increased only slightly, and Group IV(b) workers comprised an increasingly smaller proportion of total employees. For example, at the end of 1938, there was a force of 3745 persons, which included 394 IV(b) workers, 1062 veterans, and forty-three women.[23]

The Hoover administration as well as the New Deal sought to use navy yards as instrumentalities to contribute to economic stabilization and recovery. In addition to manipulation of navy yard wages and salaries and the maintenance of employment levels, the federal government funded public works, including improvements at the Navy's shore establishments. Public works projects provided jobs in the building and construction trades and also acted as an economic stimulus by increasing the demand for building materials.

In 1931, the Boston Navy Yard began its role in combating the depression. A deficiency bill passed by Congress in February

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22. Secretary of Navy to All Naval Stations, Apr. 12, 1934, 181-40, Box 353, L16-4.

23. Monthly Report of Personnel Statistics, Dec. 1, 1932, 181-40, Box 270, A9-1; Monthly Report of Civil Personnel Statistics, Dec. 1938, 181-40, Box 9, A9-4.

and covering the balance of the fiscal year provided funds for "emergency construction" by the Navy's Bureau of Yards and Docks. Slightly more than a half million dollars went to the First Naval District, and the yard's share was $230,000. That money financed a half-dozen moderate-sized public works projects at the Charlestown site. Those projects created work for 170 employees of the Public Works Division who otherwise would have been laid off.[24]

The New Deal's approach was more extensive and, in addition to public works, included shipbuilding and work relief. During the Hundred Days, Congress created the Federal Employment Relief Administration (FERA) and the Public Works Administration (PWA). The latter was established by the National Industrial Recovery Act, which also provided funds for naval construction. Utilizing FERA and PWA funds, the Civil Works Administration (CWA) briefly supervised a work relief program in 1934. The following year, the Works Progress Administration (WPA) emerged as the New Deal's principal work relief agency.

The NIRA had an impact on the Boston yard in the second half of 1933. Work on $75,000 worth of plant improvements began in September, being performed by yard labor and private contractors. Also, NIRA funds for shipbuilding became available and were used for preliminary work on construction of two destroyers, manufacture of chain and appendages, building eleven boats, and installation of machine tools. As of December 1933, the Boston

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24. Navy Public Works Projects to Aid Employment, Boston Navy Yard, Jan. 26, 1931, 181-40, Box 233, A1-1; Annual Report, Chief, Bureau of Yards and Docks, 1931, 181-40, Box 238, A9-1; P.L. 611, Feb. 6, 1931, SAL, vol. XLVI, pp. 1064-83.

Navy Yard was paying fifty-four workers under the NIRA shipbuilding program.[25]

The number of workers at the Boston Navy Yard employed in connection with the New Deal's antidepression schemes steadily grew. This doubtless was most true for those covered by the NIRA shipbuilding program, since the yard constructed a pair of destroyers utilizing funds from that source. In addition, public works projects gave employment to a large number. In November 1938, for example, 1406 WPA employees were engaged in a variety of plant construction and improvement activities.[26]

The Public Works Officer was the yard administrator primarily concerned with FERA, CWA, PWA, and WPA employees. However, since the Public Works Division was part of the Industrial Department, the manager had overall supervision of relief workers. In July 1935, Manager R. P. Schlabach observed eight FERA employees loafing and smoking outside a building. In a memorandum to those on the FERA employment rolls and to the officers in his department, Captain Schlabach sought to remind all that relief workers were expected to follow the same rules respecting work habits and fire safety as the yard's regular

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25. Chief, Bureau of Yards and Docks to Commandant, Aug. 30, 1933; Assistant Secretary of Navy to Commandant, First Naval District, Oct. 9, 1933; U.S. Department of Labor to Commandant, Nov. 6, 1933; Commandant to Bureau of Engineering and Bureau of Construction and Repair, Dec. 12, 1933, all in 181-40, Box 303, A1-3.

26. Employment Report of Federal Civil Works Projects, Apr. 25, 1934, 181-40, Box 340, A1-3; Relief Labor at Naval Stations, Nov. 14, 1934, 181-40, Box 340, A-1; Medical Officer to Chief, Bureau of Medicine and Surgery, Dec. 6, 1938, 181-40, Box 9, A9-4.

employees.[27]

Particularly in the early years of the depression, unions and other employee organizations appear somewhat inactive at the Boston Navy Yard, at least with respect to seeking to influence decisions on wages and other terms of employment. This resulted from several developments. Abandonment of the traditional wage-fixing apparatus removed an important area in which workers' organizations previously had been active. Moreover, with Congress and the president deciding issues of wages and salaries, local protests would have been relatively ineffective. In addition, the 1920s had not been friendly to organized labor, and both public officials, most notably the Republican leadership in Washington, and public opinion were decidedly anti-union. Probably, the economic collapse resulted in some confusion within the ranks of labor as to a course of action.

The strain on worker solidarity is evident in an incident involving the Boston Navy Yard's most important civilian employees, master mechanics and foremen. Those men were organized in a local Master Mechanics and Foremen's Association, which was part of a larger group, the National Association of Master Mechanics and Foremen of Navy Yards and Naval Stations. During a convention in Washington in May 1930, the national body adopted a sweeping set of demands, including a fifty percent increase in wages. One of the national officers and a signer of the proposal was James L. Carroll, master shipfitter at the

27. Office of the Manager, Memorandum for Officers of the Industrial Department and All ERA Employees, Jul. 18, 1935, 181-40, Box 374, A2-5.

Boston Navy Yard. However, Carroll had been instructed by the local association not to support the demands of the national organization. During the convention, he had spoken and voted against the proposal. Moreover, Boston's master mechanics and foremen made certain that their commandant and manager were informed of their disagreement with the national association.[28]

The New Deal displayed a more favorable attitude toward organized labor than its Republican predecessors, an attitude most dramatically evident in a section of the National Industrial Recovery Act, which required employers covered by the NRA codes to grant their workers the right to organize and to bargain collectively. Although navy yard workers were not allowed collective bargaining, the Navy Department did seek to reinvigorate the system of shop committees. In a circular letter in March 1935, the Assistant Secretary of the Navy outlined the department's policy. That policy specifically approved of the existence of shop committees. The letter urged "all employees ... fully to participate in the elections" of committeemen and "to utilize their commmitteemen." Moreover, "since the Department recognizes the right of shop committees to speak for the men in the shops they represent, it is interested in being sure that the committees do so speak." The system was designed to provide an opportunity for management and workers to meet together for a variety of purposes, including "to discuss

28. Assistant Secretary of Navy to National Association of Master Mechanics and Foremen, Jun. 3, 1930; Assistant Secretary of the Navy to Commandants, Jun. 7, 1930; Master Mechanics and Foremen of the Boston Navy Yard to Commandant, Aug. 12, 1930, all in 181-40, Box 203, L16-1.

questions pertaining to work, to make and receive suggestions for the improvement of physical working conditions; to promote mutual cooperation, understanding and confidence."[29]

At the Boston Navy Yard, the Assistant Secretary's action resulted in a commandant's order more rigid in its tone and content than the circular letter. For example, committees were not to take up with yard officials matters which could be settled by individual employees. Emphasis was placed on communication between workers and management "through proper channels." This meant that committees or individuals should take their suggestions and grievances first to "their immediate supervisors, coming only to their Superintendents, Heads of Division, Manager, and finally the Commandant, when a satisfactory arrangement cannot otherwise be made." When it was necessary for a shop committee to meet with the commandant, "a comprehensive general statement of the questions... should be submitted," and, of course, through proper channels. Shop committeemen were instructed not to concern themselves with disciplinary actions taken by the commandant against individual employees.[30]

It does not appear that following the Navy Department's circular letter and the commandant's order, shop committees became active entities at the Boston Navy Yard. However, other employee groups obtained greater visibility in the yard. This may have resulted from the establishment of a vehicle for pub-

29. Assistant Secretary of Navy to All Navy Yards and Stations, Mar. 16, 1935, 181-40, Box 375, A2-11.

30. Commandant's Order, Instructions for Shop Committeemen, 1935, 181-40, Box 374, A2-5. See also Commandant's Order No. 13, Jan. 15, 1936, 181-40, Box 405, A2-5.

licizing the activities of shops, yard-based unions, and other groups. In accordance with a vote among employees, a newspaper, The Boston Navy Yard News, began its career in January 1936.

Sponsored by the yard's Quartermens and Leadingmens' Association and published on the second Friday of each month, the paper had the approval of the administration. Lt.(jg) M. G. Vangelli, attached to the Production Division, acted as the representative of the commandant and reviewed all articles before publication. The first issue contained a message from Commandant Walter R. Gherardi, who perceived the purpose of "this little publication" as "to promote the interests of the Boston Navy Yard and thus at the same time to promote the interests of the Navy." Admiral Gherardi further contended, "There should be no place in it for contentious or destructive criticism; there should be no personalities tending to hurt feelings...."[31]

During the remainder of the 1930s, The Boston Navy Yard News included articles about bills under consideration by Congress affecting naval expansion and improvements in the yard's physical plant, assignment to the yard of new construction and the progress of vessels then being built, and the arrival and departure of officers in the yard's administration. Most of the space was devoted to reports on employee organizations and on social activities, personnel matters, athletic teams, and the industrial work of the various shops.

For example, the initial issue of the News carried

31. Boston Navy Yard News, Jan. 10, 1936; Manager's Memorandum, Dec. 23, 1935, 181-40, Box 375, A2-1.

information about recent meetings of the Navy Yard Chapter, No. 17, Disabled Veterans of the World War; International Boiler Makers, Local 304; Navy Yard Lodge No. 82, American Federation of Government Employees; Navy Yard Mutual Benefit Association; International Brotherhood of Boiler Makers, Iron Ship Builders and Helpers of America, Local 685; and a newly organized Sheet Metal International Association, Navy Yard Local No. 395. Later issues reported the activities of such other organizations as the Master Mechanics' Association; Retirement Association; Charlestown Metal Trades Council; the Navy Yard Employees' Band; Alumni Apprentice Association; Federation of Civil Service Employees, Local No. 6; National Federation of Federal Employees, Local 524; Navy Department Police Association; and Bunker Hill Lodge, International Association of Machinists.[32]

A standard feature in each issue of the yard newspaper was coverage of the activities and personnel of the shops. A column about the Electrical Shop in the issue of March 1936 reported the promotion of one of its mechanics to leadingman; the efforts of two electricians to lose weight; the retirement of another "Old Timer"; and a shop banquet held at the Ritz Plaza. As the yard's labor force enlarged in the second half of the 1930s, there was an increase in social activities, usually sponsored by the shops for their members, former workers, and their families or guests. Such activities as banquets, dinner dances, picnics, and outings became quite common. The yard commandant, manager, or another

32. Boston Navy Yard News, Jan. 10, 1936; Feb. 14, 1936; Mar 13, 1936; Feb. 8, 1940; May 9, 1940; Dec. 12, 1940.

officer was frequently a guest of honor at the banquets, which also featured a master of ceremonies, entertainment, and music by popular bands from the Boston area.[33]

Some of the social events included the entire yard. In June 1937, Local 685 organized "the first annual" moonlight cruise, to which all employees were invited. The Charlestown Metal Trades Council, a federation of unions based on the yard, sponsored an installation-wide annual ball. In April 1938, that event was held in the Charlestown State Armory and offered a "big apple" and other dance contests, the selection of a "Miss Boston Navy Yard," a fifty-dollar door prize, and the music of Dick McGinley and his orchestra.[34]

Civilian employees of the Boston Navy Yard had much to celebrate as the thirties drew to a close. If wages remained the same as a decade previous, the work week had been reduced and navy yard workers received better pay than employees in the private sector. Reductions in force were rare and temporary, and the yard's unions and other employee groups had little to grumble about. The nation's naval expansion program promised a secure future, and the hard times of the early 1930s were receding into memory.

YARD ADMINISTRATION IN THE THIRTIES

The depression, the decline of repair activities, and the emphasis on new construction had the consequence of altering the

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33. Boston Navy Yard News, Mar. 13, 1936; Feb. 8, 1940.

34. Boston Navy Yard News, Jun. 10, 1937; Mar. 10, 1938; Apr. 14, 1938.

composition of the personnel of the Boston Navy Yard and modifying slightly its administration. Most of these changes become visible when comparing the organization and personnel of the yard in 1931 and 1935.

In both years, approximately 1920 people were at work in the yard. Navy personnel remained constant, there being eighty-eight officers in 1931 and eighty-two four years later. What changed was the ratio between manual workers and IV(b) employees. In the early years of the depression, an eleven percent reduction occurred in the IV(b) force and a thirty-two percent loss among Groups I, II, III, and IV(a). However, after November 1932, when the work force began to increase, IV(b) workers were not added as rapidly as other categories of employees. As a consequence, there were 355 IV(b) workers in 1931, and only 277 in 1935. In addition, a reduction had occurred among manual workers not actually engaged in productive work. This means that the number of men in the shops increased. That group totaled 1468 in 1931 and 1576 in 1935.[35]

The most striking increase occurred in the shops most directly involved in ship construction. The structural shop expanded from 215 to 482 men and the inside machine shop from 109 to 198. Several shops not engaged in shipbuilding, such as the chain and anchor forge and the Preparation Service Shop,

35. The figures for total yard personnel do not include the officers and enlisted men of the Marine Corps garrison or of the receiving ship or station. Organization Personnel Pamphlet, Apr. 1, 1931, 181-40, Box 234, A3-1; Organization Personnel Pamphlet, Jul. 1, 1935, 181-40, Box 376, A3-1; Cdr. Alfred W. Atkins to Commandant, May 1, 1933, 181-40, Box 304, A3-1.

acquired only a few additional men. The outside machine shop, much of whose work was repair of vessels, declined from 100 men in 1931 to 75 in 1935. All three of the Public Works shops also had fewer men in 1935 than in 1931. The Building Trades Shop experienced the greatest decline, going from 347 to 142. Probably the yard's plant did not suffer from the smaller Building Trades Shop, since a large number of relief workers were engaged in the maintenance, repair, and improvement of buildings.

Because of the redistribution of its personnel, the Boston Navy Yard became leaner, with fewer clerks, planners, draftsmen, inspectors, plant maintenance personnel, and others who constituted the yard's overhead costs. The result was increased productivity, but also an overworked office staff.

Doubtless the depression stimulated the Navy Department's constant quest for greater efficiency in the organization of its yards. No major administrative change came until the end of the decade and the emergence of the Bureau of Ships. In the 1930s, the basic yard structure continued to consist of a commandant and several departments, namely Military, Industrial, Supply, and Accounting. Some modest changes did appear, including removing the Supply Department from the Industrial Department and placing it directly under the commandant. Also, the Supply Department was reorganized, so as to consist of four functional groups: service, incoming stores, outgoing stores, and storage. Reorganization of the Supply Department at the Boston Navy Yard resulted in fewer employees, both manual and office workers. Another change saw the transfer of the yard's chemical laboratory from the Supply Department to the Production Division of the

Industrial Department, already the administrative home of the metallurgical laboratory.[36]

A change somewhat overdue was decommissioning of the receiving ship Southery and assigning its functions to a Receiving Station, housed in Frazier Barracks (Building No. 33). The captain of the yard, head of the Military Department, served as commanding officer of the Receiving Station as he had of Southery before she went out of service.[37]

Several modifications took place respecting the Industrial Department. The confusing title of "Engineering Division" was discontinued and replaced with "Planning Division," the "Engineering Superintendent" now being called the "Planning Officer." No actual changes accompanied the semantic reform, except for the inclusion of a radio section in the new Planning Division. In 1933, the clerical forces of the Planning and Production Divisions were consolidated. However, the change proved unworkable, and by 1935 each division again had its own force of clerks, stenographers, typists, and messengers.[38]

Except for alterations in the size of their work forces, shops retained the same internal organization throughout the decade. The Shipsmith Shop, which manufactured chain and anchor, was redesignated as the Forge Shop. An attempted merger involved

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36. Commandant's Order No. 31, Mar. 31, 1932, 181-40, Box 405 (1936), A2-5; Organization Personnel Pamphlet, Apr. 1, 1931.

37. Report of Activities, First Naval District, Jul. 1, 1932 to Jun. 30, 1933, 181-40, Box 309 (1933), A9-1, p. 3.

38. Commandant's Order No. 31, Mar. 31, 1932, 181-40, Box 405 (1936), A2-5; Manager's Order, Jun. 26, 1933, 181-40, Box 304, A3-1; Organization Personnel Pamphlet, Jul. 1, 1935.

three of the shops of the Production Division. In 1934, the personnel of the paint shop and the sail loft were transferred to the riggers and laborers shop. Consolidation reduced costs, since it eliminated the master sailmaker, master painter, and other positions in the shop expense groups in the former sail loft and paint shop. The change was a permanent one for the yard's few sailmakers and upholsterers. However, within a few years, the paint shop reappeared as a separate entity.[39]

In 1934, a single-billeted safety engineer appeared at the Boston Navy Yard. Previously, the shop superintendent had been the officer responsible for the yard's safety program. Apparently, Lt. T. Southall served as the first full-time safety engineer. Although operating out of the office of the manager of the Industrial Department, his duties extended to the entire yard and included fire protection, inspection and testing of fire-fighting equipment, and the investigation of all fires as well as matters more directly involved with safety. Orders of the commandant required the safety engineer to make frequent inspections of the whole yard, giving particular attention to "stagings, the proper use of goggles, helmets and other articles of protective clothing," to "unsafe electric wiring, accumulation of rubbish and oily rags, conditions of slings in weight handling, unsanitary conditions," and to "dangers of poisoning from work in confined spaces and carelessness on the part of employees." The safety engineer had the duty of investigating

39. Commandant's Order No. 52, Apr. 17, 1934, 181-40, Box 405 (1936), A2-5.

all accidents to employees and filing the various reports required in the event of on-the-job injuries.[40]

In his orders detailing the duties of the safety engineer, Commandant Gherardi called on officers and employees to cooperate in the safety program, noting that the Boston Navy Yard was "in competition with all other Navy Yards in safety work, and improvement in accident prevention is of material benefit to the Government and its employees." Efforts to make employees safety conscious consisted of awards to shops and supervisors with records of no lost-time accidents and by frequent articles in the yard newspaper.[41]

However, employees with long careers at the yard recalled a genuine concern with safety as appearing during the years of World War II. According to one, in the decades before Pearl Harbor, the safety program was "non-existing" and "was in name only." Another recollected that "there wasn´t much emphasis on safety at the time" and that "it seemed to me that everyone was supposed to look after himself." Not until the war did hard hats become common, "and then you´d only see people wearing them when it rained." Perhaps one hindrance in the development of safety habits, such as wearing of helmets, resulted from the "macho" image navy yard workers had of themselves. One employee, who

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40. Roster of Officers, Jun. 30, 1934, 181-40, Box 345, A9-4; Commandant´s Order, Rough Draft, Duties of Safety Engineer, 181-40, Box 374 (1935), A2-5; Organization Personnel Pamphlet, Jul. 1, 1935. A finalized version of orders regarding the safety engineer appears in Commandant´s Order No. 16, Jan. 1936, 181-40, Box 405, A2-5.

41. Boston Navy Yard News, Apr. 8, 1937.

started in 1936, commented, "When I first came around to the shipyard, it was regarded as an industry of rugged men....The guys were accustomed to doing things with sledge hammers."[42]

During the 1930s, major problems confronting yard administrators consisted of keeping down costs, obtaining work for the yard, insuring that there were sufficient employees on hand to do the work, and completing jobs promptly. When the Democrats first took over the government in Washington, the Navy Department displayed great reluctance in approving the addition even of temporary employees, if such an increment produced a work force exceeding the maximum limit. That reluctance created difficulties for the Boston Navy Yard in the spring of 1933.

In May, the yard had orders from the Bureaus of Construction and Repair and Yards and Docks to complete several undertakings before the expiration of the fiscal year on June 30. That work included overhaul of the cruiser Raleigh, equipage manufacture, a number of plant improvements, and as much work as possible on the destroyer MacDonough, whose keel had been laid on May 15. To meet the demands of the bureaus, Admiral Nulton estimated he would have to expand the work force, then numbering 1760 workers, and requested permission to hire 100 temporaries, which would result in a force forty workers larger than the yard's maximum of 1800. The Navy Yard Division, the agency in Washington with oversight of civilian employees, refused authorization to hire

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42. Oral History Interview, Lyman Carlow, BNHP, pp. 10-11; Oral History Interview, John Langan, BNHP, p. 23; David Himmelfarb, Ropewalk Master, "A Talk about the Ropewalk", Jul. 17, 1984, BNHP

the additional hands. Nulton responded that the only way the yard could complete Raleigh would be by moving men engaged in other projects, and he sought directions as to what work should be slowed down or abandoned to finish the cruiser on time. After an exchange of correspondence, the matter was thrashed out by telephone.[43]

That conversation, between Nulton and Adm. H. L. Brinser of the Navy Yard Division, highlighted the Navy Department's chief organizational difficulty, namely that one agency in the department was often ignorant of orders sent to yards by the other agencies. Brinser explained to Nulton that his office objected to the hiring of additional temporary workers, since after July 1, there would be "practically no work" for Boston, requiring a layoff of roughly 1000 men. Nulton acknowledged that possibility, but argued it made little difference "whether we discharge 1000 or 1100." Moreover, stated the commandant, "I am between the devil and the deep sea ...." He had instructions to finish Raleigh by June 26, and to do that required additional mechanics, including twelve structural workers and thirty-five plumbers and pipefitters. The structural workers could be provided by halting work on MacDonough, but "the Bureau of C & R have informed us they want the work to be pushed to the utmost during this fiscal year." Similarly, plumbers to work on the cruiser could be furnished by switching men from repair of the

43. Commandant to Assistant Secretary of Navy, May 18, 1933; Assistant Secretary of Navy to Commandant, May 22, 1933; Commandant to Assistant Secretary of Navy, May 24, 1933; Telephone Conversation, May 27, 1933, all in 181-40, Box 303, A-1.

yard's heating system, a project Yards and Docks ordered finished by June 30. Nulton also considered temporarily closing down the ropewalk, discharging its workers, and in their stead hiring mechanics to work on Raleigh. That maneuver, however, would not result in a sufficient number of men, would interfere with needed equipage manufacture, and would "have more serious effects as to kicks." By "kicks," Nulton probably meant protests from workers and possibly from congressmen. Nulton added that the temporary workers he sought were men who "have been in previously on temporary call, and in most cases are out of work and will be very grateful for a few days work."

Admiral Brinser began to recognize the basic problem and to appreciate the dilemma of the Boston yard. He stated, "We know nothing about what the Bureaus are urging," adding "that is the trouble with this organization." He also admitted, "We can't set here in an office and tell you how to run your job." The matter was resolved with immediate authorization from the Navy Yard Division to Boston to hire the additional men required. Because of the enlarged work force, Raleigh left as scheduled, and the other work was completed or went forward. As events turned out, it was necessary to discharge only several hundred workers at the expiration of the fiscal year, not the thousand that had been anticipated.

Throughout the early 1930s, more common than insufficient manpower was the prospect of insufficient work. With fewer ships coming to the yard for repairs, administrators leaped at the opportunities to obtain new construction assignments. Boston's most striking successes were contracts for the destroyers

MacDonough, awarded in February 1932, and Monaghan, in the following October. However, additional work was sought, since more than a year would pass between the contract awards and the laying of the keels. The yard built two tugs, YMT-15, completed in March 1932, and YMT-119, in April 1933. Through newspaper articles, Commandant Henry H. Hough learned that the Treasury Department had obtained NIRA funds for the construction of a number of revenue cutters and tugs for the Coast Guard. The tugs, he understood, were to be "practically duplicates of the YT-119." Hough advised the Department of the Navy of his interest in obtaining the assignment of constructing one or more of the Coast Guard's new tugs, since that construction "at this yard would, of course, increase the force somewhat, and by providing additional direct labor would be of material assistance in keeping the total indirect [costs] of the Yard down." Despite the cooperation of the Navy Department, Boston was unsuccessful in gaining a Coast Guard contract for any of its new vessels.[44] Several months later, the yard was awarded construction of two more destroyers, and it appeared that the future was reasonably secure, so long as Boston demonstrated it could successfully compete with other shipbuilders.

Once the naval building program was launched, officials in Washington and administrators at navy yards occasionally applied pressure to insure prompt completion. That the Department of the Navy had complaints became clear in June 1935. At that time, the

44. Commandant to Assistant Secretary of Navy, Sep. 6, 1933, and Assistant Secretary of Navy to Commandant, Sep. 12, 1933, both in 181-40, Box 303, A1.

Chief of Naval Operations drew attention to the "considerable delay in final completion and joining the Fleet" of "navy yard built ships." The CNO focused exclusively on the various stages at the end of the actual building process, that is on commissioning, builder's trials, shakedown cruises, inspections, official trials, post-trial examinations, and such repairs and alterations as these various tests, trials, and inspections indicated were required.[45]

In the following September, the rate of actually building ships came under fire. Secretary of the Navy Claude Swanson sent a letter to all commandants declaring that he was "not satisfied with the progress being made on new construction at Navy Yards." He announced that beginning with fiscal year 1937, the Navy Department would no longer be required to assign fifty percent of its new construction to government yards, which henceforth would be obliged to enter into competitive bidding with private builders. Moreover, Swanson noted that because of the London Naval Treaty, the contemplated building program for the next several years would be smaller than that of fiscal years 1934, 1935, and 1936. The Secretary urged all commandants "to expedite new construction in every practicable way" and concluded with the injunction that no "answer to this letter is expected; action is desired."[46]

At the Boston Navy Yard, Swanson's letter produced a

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45. Chief of Naval Operations, New Construction -- Procedure for after Completion, Jun. 28, 1935, 181-40, Box 5 (1943), A4-1.

46. Secretary of Navy to Commandant, Sep. 16, 1935, 181-40, Box 374, A-1.

memorandum from Manager Schlabach to be read by shop masters to all workers under their supervision. He noted that the yard had recently been awarded two more destroyers (Mugford and Ralph Talbot), which he credited to the "very good record on MacDonough and Monaghan. However, he pointed out that the record was not being maintained on Case and Conyngham, then under construction at Boston. "In fact," stated Schlabach, "our labor costs show every indication of running well behind those of Norfolk and Philadelphia." His explanation for the higher costs at Boston was simply that "the average out-put per man at this Yard is less than that of other Yards." Unless the situation changed, he predicted that "when the next `letting of contracts´ is passed around, either Boston will be left out, or we will have the amount of work reduced."[47] Probably both Secretary Swanson and Manager Schlabach magnified the delays and costs somewhat in an effort to speed up completion of the vessels. However, hints of reduction in navy yard work doubtless had an impact on employees because of continuing high unemployment rates throughout the nation.

In the second half of the 1930s, it became clear that deficiencies in plant, namely a shortage of proper shipbuilding sites and facilities, was preventing the Boston Navy Yard from delivering ships at a more rapid rate.

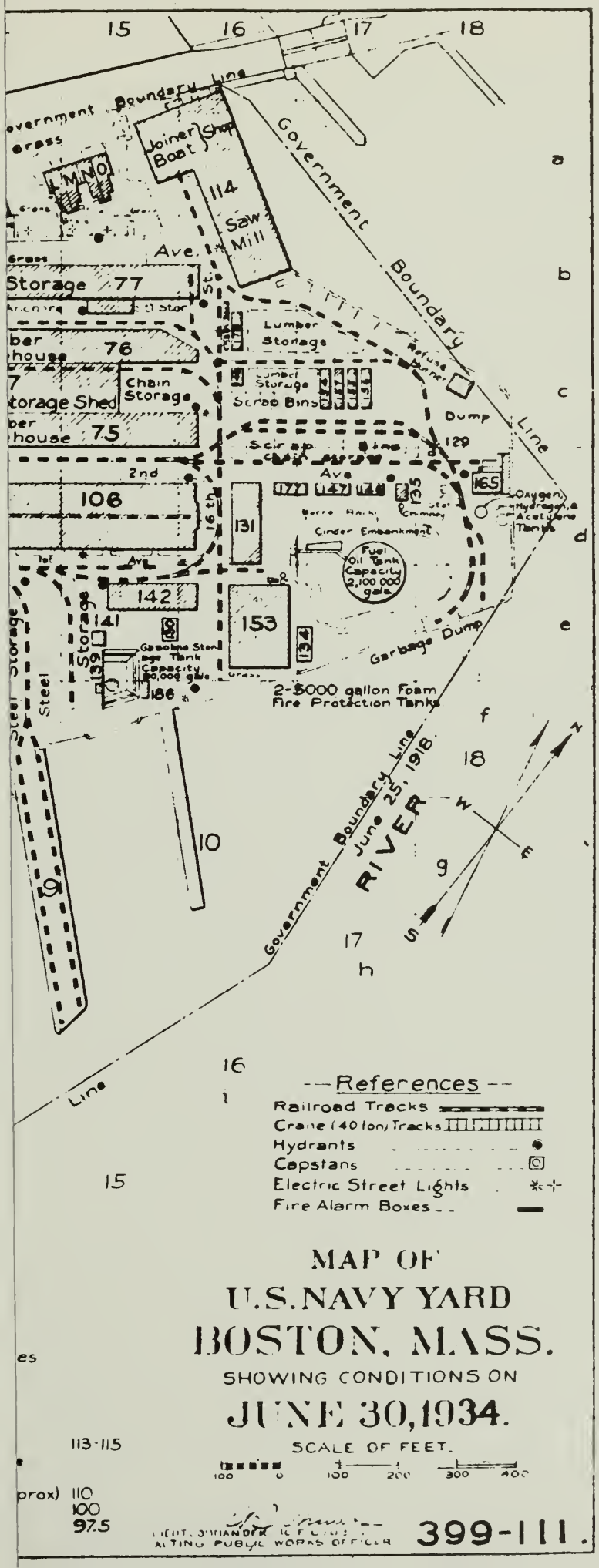
THE YARD´S PLANT DURING THE DEPRESSION

For more than a decade and a half following World War I, the physical plant of the Boston Navy Yard remained essentially

47. Manager´s Memorandum, Oct. 25, 1935, 181-40, Box 375, A2-11.

CHART NO. 4: MAP OF U.S. NAVY YARD, BOSTON, MASS., SHOWING CONDITIONS ON JUNE 30, 1934.

NOTE: Chart No. 4 reveals the impact of the government's austerity programs during the 1920s and the early years of the Great Depression. The only new buildings erected since 1920 were No. 191, the pump house for the salt-water circulating loop, and No. 192, an electric substation. Piers remain the same as during World War I and were not extended to the bulkhead line. Some of the temporary, portable buildings erected during the war were eliminated, such as Nos. 151, 152, 158, 159, 160, 161, 162, 168, 179, 181, 182, 183, and 188. Others were moved to different locations. For example, Nos. 154-156, originally erected south of No. 42, are here shown at the east end of the yard (location c-17). The southern half of the area generally between Building No. 42 and Dry Dock No. 2 has been cleared of structures and trackage and converted to an athletic field. Other changes since 1920 include elimination of buildings on Pier No. 1, except for No. 109 (substation), all that remained of the former coaling plant; double trackage on Piers No. 2, 3, 4, 6, 8, and 9, and triple on No. 5; and multiple tracks into the west end of Building No. 105, used as a crane and locomotive roundhouse.

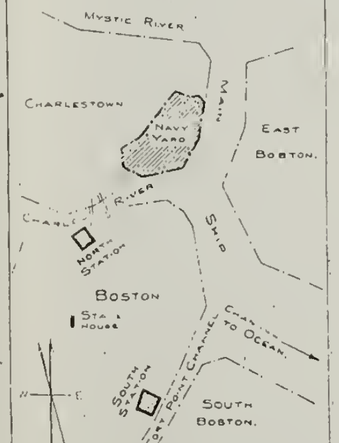

15
16
17
18
Government Boundary Line
Joiner Boat Shop
114
Saw Mill
Government Boundary Line
Storage 77
76
Chain Storage
Storage Shed
75
Lumber Storage
Scrap Bins
Dump
129
2nd Ave.
106
16th St.
131
165
Oxygen, Hydrogen, Acetylene Tanks
Cinder Embankment
Fuel Oil Tank Capacity 2,100,000 gals.
142
141
153
134
Gasoline Storage Tank Capacity 20,000 gals.
186
Garbage Dump
2-5000 gallon Foam Fire Protection Tanks
Steel Storage
Government Boundary Line June 25, 1918.
RIVER
10
9
18
17
16
15
References
Railroad Tracks
Crane (40 ton) Tracks
Hydrants
Capstans
Electric Street Lights
Fire Alarm Boxes
MAP OF
U.S. NAVY YARD
BOSTON, MASS.
SHOWING CONDITIONS ON
JUNE 30, 1934.
SCALE OF FEET.
100 0 100 200 300 400
113-115
prox) 110
100
97.5
LIEUT. COMMANDER
ACTING PUBLIC WORKS OFFICER
399-111.

P.W. • Public Works Dpt., E. • Engineering Dept., Prod. • Production Dept., S.D. • Supply Dept., M.&S. • Medicine & Surgery, U.S.M.C. • U.S. Marine Corps.

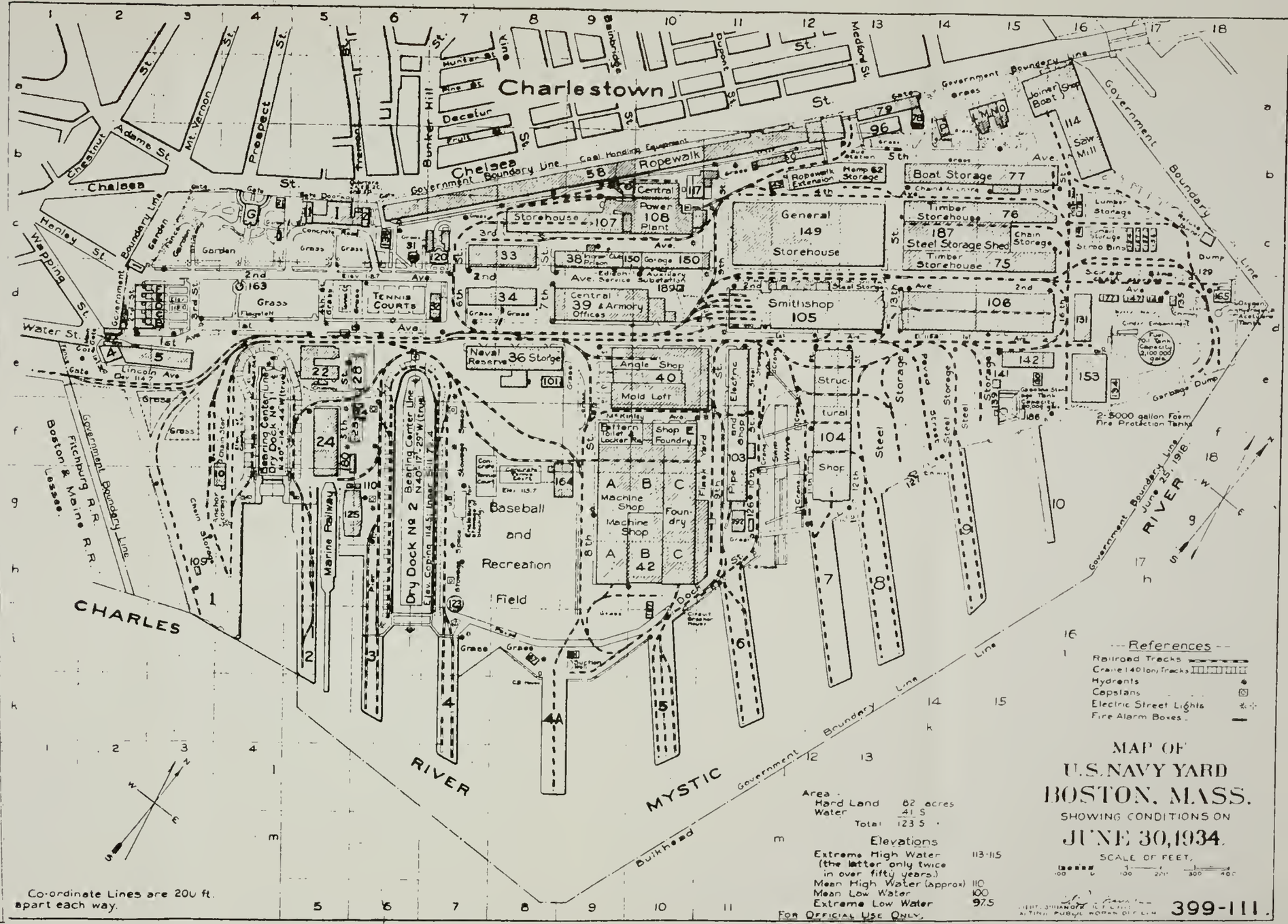
No.	Location.	Officers' Quarters.
A	d 2	No longer used as Quarters.
B	d 3	Planning Superintendent.
C	d 3	Aid to the Commandant.
D	d 3	Production Superintendent.
E	d 3	Shop Superintendent.
F	d 3	Supply Officer.
G	c 4	Commandant.
L	a 14	Manager.
M	a 15	Public Works Officer.
N	a 15	Hull Mach Superintendent
O	a 15	Medical Officer.
P	a 14	Captain of the Yard.
120	c 7	Pharmacist.
1	c 5	Lieut.Col. (Commanding Officer) U.S.M.C
2A	c 6	Lieutenant, U.S.M.C.
2B	c 6	Post Adjutant
2C	c 6	Captain
2D	c 6	Lieutenant
		Barracks.
1	c 5	Barracks, U.S.M.C.

No.	Location	Dept. occupy.	Shops, Storehouses, etc.
	32	PW	Garage Officers
4	e 2		Vacant.
5	e 3	Chaplain	Chaplain, Commissary Stores, & Band Room, U.S.M.C Rifle Range.
10	g 4	Capt.	Laundry.
19	e 5	S D	Yard Scales.
21	c 4	PW	Greenhouse
22	e 5	Various	Storage
23	f 5	PW	Water Closets.
24	f 5	Prod	Riggers, Laborers, New Work
28	e 6	PW	Restaurant Office
31	c 6	PW	Telephone Exchange.
32	d 7	PW	Yard Disbursing Office
33	c 8	PW	Shop Offices, Joiner, Plumber and Roofing Shops, Laborers.
			Storage for Furniture and Old Building Material.
		Prod	Sail Loft, Upholstery Shop.
			Storage.
34	d 8	Various	Post Office, Chemical and Photographic Laboratories Metallurgical Laboratory. Trade School Storage.
36	e 8	Prod. Navy Rec.	1st & 4th Floors Storage. 2nd 3rd & 4th Floors Naval Reserve Offices, Drill Hall Storage
38	e 9	Cpt.	Ingraham Club, Prison (not used)
39	d 9	Various	Offices Commandant First Naval District, Captain of Yard and Manager. Offices, Accounting, Engineering Production and Public Works Depts., Local Offices Coast Guard, General Court-Martial, Labor Board.
40	e 10	Prod	Angle Shop, Mold Loft.
42A	g h 9	Prod	Machine & Erecting Shops
42B	g h 10	Prod	Machine Shop, Offices Instrument Room
42C	h 10	Prod	Steel and Iron Foundry.
42E	h 10	Prod	Pattern Shop & Pattern Storage, To let & Locker Rooms Brass Foundry Torpedo Testing Room.
47	i 8	Cpt.	Assistant to Captain of Yard
58	b 9	Prod	Ropewalk.
60	b 12	Prod	Tarring House for Ropewalk.
62	b 13	Prod	Ropewalk Extension
		S D	Storage for Hemp & Rope.
75	c 15	S D	Storehouse for Timber.
76	c 15	S D	Storehouse for Timber.
77	b 15	S D	Storage for Small Boats & Equipment.
78	a 4	PW	Garage Officers
79	a 15	Prod	Storage.
96	a 13	S D	Storehouse
97	e 2	PW	Gate House, Main Entrance to Yard, Yard Police
101	e 9	Prod	Storage
103	f 11	Prod	Pipe & Electric Shop, Radio Laboratory
104	f 12	Prod	Structural Shop
105	d 12	Prod	Smith Shop
		PW	Locomotive & Crane Roundhouse
106	d 15	Prod	New Ship Construction
		S D	Storehouse
107	c 9	S D	Storehouse
		PW	Printing Office
108	c 10	PW	Central Power Plant
109	h 3	PW	Electric Substation
110	g 6	Prod	Pitch House.
114	a 14	Prod	Saw Mill Joiner & Boat Shops
117	b 12	PW	Garage Officers
120	c 7	M.&S.	Dispensary
123	h 7	Prod	Pump Well for Dry Docks Nos. 1 & 2
124	f 6	PW	Water Closets
125	g 5	Prod	Paint Shop.
		PW	Electric Substation.
126	g 11	PW	Water Closets.
127	f 14	PW	Water Closets.
129	d 18	Cp. Yd.	Unused.
130	e 15	S D	Storehouse, Misc. Material.
131	d 16	S D	Storehouse, Paints & Oils.
134	e 17	PW	Electric Substation.
135	d 17	PW	Storage.
136	c 6	U.S.M.C.	Administration Building.
139	e 13	S D	Pump House for Gasoline.
141	e 15	S D	Pump House for Fuel Oil.
142	e 15	S D	Storehouse, Condemned Stores.
145	b 12	PW	Water Closets.
146	d 17	S D	Storehouse, (Steel, portable)
147	d 17	S D	Storehouse, (Steel, portable)
148	c 16	S D	Storehouse, (Steel, portable)
149	c 12	S D	Storehouse, General.
150	c 10	PW	Yard Garage, Edison Auxiliary Service, Substation.
153	e 16	Prod	Battery Charging Station.
154	c 17	S D	Storehouse (Steel, portable)
155	c 17	S D	Storehouse
156	c 17	S D	Storehouse
157	c 17	S D	Storehouse
163	d 4	PW	Band Stand.
164	g 9	Prod	Storehouse and 'Clearing' House
165	d 18	Prod	Acetylene Plant
167	i 10	Prod	Air House (Steel, portable)
177	d 16	S D	Storehouse
178	c 16	S D	Storehouse
180	f 5	Prod	Storehouse
191	i 9	PW	Pump House, Circulating Loop
192	g 11	PW	Electric Substation.

Small temporary and portable buildings on piers used for Stock, Tools etc., Field Offices and for heating ships are not shown



LOCATION PLAN.
SCALE
NAUTICAL MILES.



Area -
Hard Land 82 acres
Water 41.5
Total 123.5

Elevations

Extreme High Water (the latter only twice in over fifty years.)	113-115
Mean High Water (approx)	110
Mean Low Water	100
Extreme Low Water	97.5

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References

Railroad Tracks
Crane (40 ton) Tracks
Hydrants
Capstans
Electric Street Lights
Fire Alarm Boxes.

MAP OF U.S. NAVY YARD BOSTON, MASS.

SHOWING CONDITIONS ON

JUNE 30, 1934.

SCALE OF FEET.

399-111.

unchanged, there being no substantial alterations or additions at the Charlestown site or the South Boston annex. Because of the decline of industrial activity at the yard during the 1920s, major problems did not then arise. However, in the 1930s, as the yard began to build ships at a regular rate, the facilities proved less than adequate. Although primarily engaged in constructing destroyers, Boston lacked a proper building site and used its dry docks for new construction. Moreover, the structural, pipe, and sheetmetal shops, activities essential to the shipbuilding program, had poor layouts and insufficient space. The yard revealed other deficiencies. Piers had not been extended to the 1918 harbor line, out-of-date equipment had not been replaced, and structures and services had not been properly maintained. The period of neglect ended in the early 1930s, as the federal government turned to a policy of funding public works to combat the national woes of high unemployment and the slump in industrial productivity. A major breakthrough for the Boston Navy Yard came in mid-1938 when Congress approved funds for a sizeable addition to the structural shop and the restoration of the shipbuilding ways. Those projects initiated the expansion of facilities associated with World War II.

At the outset of the 1930s, plant improvements at the Boston Navy Yard, the First Naval District, and the Navy's shore establishments became involved in the government's efforts to fight the depression. Compared to its successor, the Hoover administration's program appears tentative and restrained. However, the essential strategy was identical, utilization of federal public works projects to stimulate the production of

building materials and to reduce joblessness.

The regular naval appropriations act of June 1930 provided $76,000 for further improvements in the Boston Navy Yard's waterfront and $68,000 to continue work on the power plant. Two deficiency acts, both passed the following February, contained additional funds for the yard as "emergency appropriations for the purpose of increasing public employment." The first of these two measures authorized expenditure of $80,000 to reroof the shipsmith shop (Building 105); $60,000 for additional paving; $50,000 more for the waterfront; $150,000 for improvements in the electrical distribution system; and $50,000 for crane facilities at the marine railway. The second contained yet $100,000 more for work on the waterfront. It was anticipated that these projects would provide work for 200 men during the remainder of the fiscal year.[48]

The two deficiency acts of February 1931 assigned a total of $7,800,000 to the Bureau of Yards and Docks to be spent at the Navy's shore establishments throughout the nation. The Relief and Construction Act of July 1932 provided Yards and Docks with $10 million to be used in the same fashion. By contrast, the New Deal's NIRA allocated $28 million for naval public works, and the relief appropriations passed by Congress, 1934 to 1937, nearly $100 million.[49] The Boston Navy Yard's share of these funds is

48. P.L. 345, Jun. 11, 1930; P.L. 612, Feb. 6, 1931; and P.L. 745, Feb. 28, 1931, SAL, vol. XLVI, pp. 569, 1072, 1444; Navy Public Works Projects to Aid Unemployment, Jan. 26, 1931, 181-40, Box 233, A1-1.

49. Annual Report, Chief, Bureau of Yards and Docks, 1938, 181-40, Box 9, A9-1.

undetermined, but the rate of plant improvement at the yard quickened. A consideration of conditions in the yard for the period 1935 to 1937 suggests that substantial progress had been made and also that there remained a sizeable backlog of needed repairs, improvements, alterations, and additions.

Buildings throughout the yard were generally in fair structural condition, except for a number of relatively small storehouses, many erected for temporary use during World War I. To provide space for a new salvage stores building (No. 193), Nos. 154, 156, and 157, "old wartime sheds," were removed in fiscal year 1937. The Public Works Officer recommended other structures be eliminated. These included Nos. 146, 147, 148, 164, 167, and 177, all built in the World War I era; No. 101, constructed in 1900 and most recently used for storage; No. 127, built in 1904 and housing a latrine three decades years later; and No. 130, a thirty-five-year-old iron-framed storehouse.[50]

Although structurally sound, the major buildings of the Boston Navy Yard revealed neglect in the maintenance of their exteriors, interiors, wiring, plumbing, and equipment. Exterior masonry needed to be repointed and brick walls sandblasted. Money was sought to repair existing elevators in shops and storehouses so as to meet safety code standards; to replace elevators in Frazier Barracks (No. 33), the post office and laboratories (No. 34), and the sawmill and joiner and boat shops (No. 114);

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50. Information about the condition of the yard in the years 1935, 1936, and 1937 is primarily from Progress of Repairs and Improvements, Jan. 30, 1935, 181-40, Box 374, A1-3; Annual Inspection of Public Works, Nov. 16, 1937, 181-40, Box 445, A9-1.

and to install new elevators in the machine shop (No. 42-A) and the riggers and laborers shop (No. 24). Necessary electrical repairs included removing wiring defects and modernizing interior lighting and power circuits. Improved lighting was required in the machine shop and foundry (No. 42), Public Works shops (Nos. 33 and 108), pipe and electric shops (No. 103), mold loft (No. 36), angle shop (No. 40), and the Construction Office (No. 39). Several shops, storehouses, and offices needed additional fire protection equipment and overhaul of plumbing, piping, and ventilation. Up-to-date toilet and washroom facilities were lacking in the paint shop (No. 125), shipsmiths shop (No. 105), ropewalk storehouse (No. 62), structural shop (No. 104), pipe shop (No. 103), machine shop (No. 42-A), power house (No. 108), metallurgical lab (No. 34), mold loft (No. 40), and the mold loft annex (No. 36). Interior walls had not been repainted for some time, particularly in shops.

During the twelve-month period ending June 30, 1937, WPA workers reconditioned Building No. 5, used for an armory and by the Naval Reserves; converted half of No. 38 to a garage and a motion picture theater for enlisted men; started extensive repairs and alterations on No. 107, Public Works shop; began overhaul of No. 109, an electric substation; constructed an incinerator at the power plant; and completed the new salvage store building, No. 193. Yard labor or contractors reconditioned No. 4, also used by the Naval Reserves; remodeled No. 22, which housed tinsmiths and shipwrights; began modernization of the lighting systems in the structural shop (No. 104) and sawmill and joiner and boat shops (No. 114); remodeled the ordnance

storehouse (No. 79); and completed reconstruction of No. 165, the acetylene plant.

All of the major industrial, office, and storage buildings were serviceable. Prior to its reconstruction before World War I, Building No. 42, which contained the foundry and the machine and pattern shops, presented major structural problems. A listing of its defects in 1937 suggests no serious challenges. Probably workmen assigned to the building would list providing adequate heating and ventilation and overhauling and modernization of toilet and locker rooms as the most pressing needs. Many panes of glass in the skylights were broken, and the roof leaked in a section of 42-B. The Public Works Officer recommended removal of a narrow, unneeded stairway in one part of the building and replacing a ladder with stairs in another part. Old doors at the south end of No. 42 barely functioned. Repairs suggested by the Public Works Officer amounted only to $12,000, a modest figure given the size and complexity of the structure.

As a structure, the ropewalk (No. 58) celebrated its centennial in 1936. Among the repairs it required was laying nonabrasive steel plates over the concrete floor to prevent the chafing and cutting of rope. Floor repairs were also needed in the second story. Surface water ran through basement windows on the Chelsea Street side of the building, resulting in a flooded basement. The spinning room lacked adequate lighting and ventilation. In an annex of the ropewalk, ventilation was even a greater problem. The Public Works Officer recommended installation of a forced draft to remove fumes from the tarring

house (No. 60). The hemp and rope storehouse (No. 62) had recently acquired new fireproof lighting and a new sprinkler system. The floors in that building were described as "very old, and worn through in places," and steel floor plates were recommended. The fourth building in the cordage manufacturing complex was No. 62, the ropewalk extension. Recent improvements to it consisted of painting and the installation of rolling fire-shutters and fireproof lighting. Overhaul of the dust collecting apparatus and minor repairs to the roof were the only additional work the building required.

An interesting view of the Boston Navy Yard generally and of the ropewalk plant before World War II is provided in an 1981 interview with David Himmelfarb, who started work at the laboratory in 1936 as an associate of Mr. C. G. Lutts and went on to become master ropemaker. With degrees in chemical engineering and chemistry, Himmelfarb had been employed at laboratories of the United States Army and the State of New York before arriving at Boston. "My first impression," he stated about the yard in general,

> was of an archaic institution....The buildings looked as though they were built in the Civil War days. Everything looked archaic, to me particularly, because the furniture was not really modern office furniture.

When he made his initial visit to the laboratory in Building No. 34:

> my impressions became even more dismal when I saw the furniture around .... It apparently had been taken off wardrooms of older ships. Mr. Lutts, I remember, had a telephone on his desk with the little green wires coming out of the receiver.... It looked like it had gone back almost to the days of Alexander Graham Bell!

Himmelfarb's observations were conditioned by his previous

employment in a "laboratory located in a modern building, with modern and new equipment.[51]

As for the ropewalk, Himmelfarb recalled:

> It was a sort of kaleidoscope of a lot of noise and a lot of moving machinery and people bent at their tasks as though they'd been doing it for centuries....There was the feeling of walking into a sort of grim, unbelievable world of old buildings, musty old smells, people hoary with age,...overriding a pervasive odor of grease and oil and tar. I suppose this generation would call it a bunch of "icky" smells, and a lot of noise, walking into a page of history of the past. Everything was dark, dim and dingy and just hoary with age....

Doubtless, Himmelfarb's perception of the laboratory and ropewalk, that he was "slipping backwards" in time, was equally applicable to some other parts of the yard.

Beginning in 1926 and periodically thereafter, officers at the Boston Navy Yard urged the construction of a new structural shop, because of the inadequacy of the existing building, No. 104. Not until 1938 were the needed funds appropriated, although in 1933, the yard commandant recommended that the proposal be given a high priority. In the meantime, the yard had to struggle along with the existing plant. Building No. 104 was regarded as "too small and not properly laid out or equipped to handle successfully either repair work under war conditions or new construction." It was further argued that the shop's facilities were not "on a par" with those of the other repair and construction shops in the yard. The sheetmetal shop was located in the same building and occupied two galleries on either side of the central bay. Such an arrangement hindered the efficient movement of sheetmetal work from one part of the shop to the

51. Oral History Interview, David Himmelfarb, BNHP

other.[52]

While waiting for Congress to appropriate funds for a new shop, Building No. 104 had to be maintained. In 1936 and 1937, the lighting system was modernized, but some $50,000 in other repairs had yet to be performed. Part of the floor in the first story was "in poor condition, unsafe and dangerous." The power distribution system appeared "in very poor condition, unsafe and inadequate." The shop needed improved ventilation to remove welding and furnace fumes. Windows and doors were not effectively insulated, and the slate stair treads were "dangerously worn."

Of the major industrial buildings in the yard, those in the worse condition in 1937 appear to have been the structural shop, the pipe and electric shops (No. 103), and the shipfitters shop (No. 106). In No. 103, heating was inadequate, poor drainage allowed the floor to be flooded, part of the floor had settled unevenly, the roof leaked, and the power distribution system was frankly labeled "a fire hazard." Since its completion in 1904, new utilities had been introduced into the building without removal of old systems. Thus in the 1930s, "old lighting holes" had not been plastered over, and "many old gas and oil outlets at work benches need sealing...." The shipfitters of Building No. 106 had to contend with poor heating, inadequate lighting, and

52. Development Program, Boston Area, May 4, 1933, 181-40, Box 303, A-1; Local Shore Development Program (Boston Area), Annual Report, Nov. 21, 1934, 181-40, Box 34, A1-1; Commandant to Commandant, First Naval District, Dec. 21, 1933, 181-40, Box 303, A-1; Local Shore Station Development Board (Boston Area), Annual Report, Dec. 2, 1937, 181-40, Box 1, A-1.

the absence of a ventilating system "to carry off heavy, poisonous and obnoxious gases from metal cutting and welding operations."

Fairly sizeable sums of money had been appropriated for use in the improvement of the waterfront of the Boston Navy Yard. Such funds had been expended chiefly on maintenance with the result that in 1937, both dry docks, the marine railway, and all of the piers were in service. No enlargement of facilities had occurred or had been recommended, except for proposals to extend some of the piers and to enlarge and refurbish the yard's building ways, last used in the construction of Whitney. The repairs required by Dry Docks Nos. 1 and 2 during the mid-1930s appear routine. Both caissons needed repainting and new gaskets and that for Dock No. 2 replacement of its wooden deck. In 1937, Dry Dock No. 1 was declared in "good condition," except for its sill. When the caisson was placed on the outer sill, cracks caused excessive leakage. Dry Dock No. 2, at that time being used for the construction of two destroyers, also suffered from leakage, water entering the dock through the wing walls of the entrance way. A WPA project, then in progress, was repointing all of the entrance.

Work on the marine railway early in the decade had included replacement of underwater wooden members damaged by limnoria or other marine borers and repairs to the sea walls. An accident to the marine railway in 1934 placed the mechanism out of commission for a brief period. The yard log records that on March 10, a link in the hauling-out chain broke, causing the cradle to run down to

a point eighty feet beyond the outboard end of the track. Repairs were funded by the NIRA and consisted of hauling the cradle back up the track and installing new chain. Unlike the original wrought-iron chain, the replacement was made of cast-steel marine links, which increased the hauling strength by thirty-six percent.[53]

In 1933, it was proposed that Piers Nos. 4, 4-A, 5, and 6 be reconstructed and extended to the pierhead line of 1918. Such pier extension did not occur until the outbreak of war. During the 1930s, work on wharves consisted of rebuilding several of the wooden piers as well as Pier No. 1, an all-masonry structure. Repairs seemed to have been routinely made, so that in 1937, all of the piers were serviceable, a decided improvement over the 1920s.

As early as 1933, Commandant Hough pressed the necessity of modernizing and extending the existing shipbuilding ways in order to provide the yard with a proper shipbuilding facility. However, in the following year, the Secretary of the Navy ruled against repair of idle ways in all navy yards "until the need for same is foreseen."[54] That time did not come for the Boston Navy Yard until 1938, and all of the destroyers launched at Boston before 1940 were constructed in dry dock.

During the 1920s, the Central Power Plant (No. 108) had

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53. Yard Log, 181-58; Mary Jane Brady and Crandall Dry Dock Engineers, Inc., pp. 11-3.

54. Commandant to Commandant, First Naval District, Dec. 21, 1932, 181-40, Box 303, A-1; Acting Secretary of Navy, Policy for Industrial Navy Yards, May 3, 1934, 181-40, Box 346, A1-2.

benefitted from regular funding, and it continued to be improved in the following decade. In 1935, the building itself was in good condition. However, much of its equipment needed overhaul, repair, or replacement. Overhauling was recommended for the salt water pump, instruments, and stokers. Some of the boilers, compressors, and turbo-generators could be repaired, but others required replacement. The system for distributing the electrical power, steam, heat, and compressed air produced at the power plant also needed attention, as did the yard's water mains.

A fairly high priority was given in the Thirties to improvements at the Dry Dock, South Boston Annex. Particular emphasis was placed on proposals for providing housing for the Marine guard, the enlargement of the service building, additional blocking and fittings for the dock, and the removal of a large rock in the approach to the dock's entrance. However, most of these projects were not realized. The WPA constructed a building to accomodate twelve guards, not thirty-two as had been requested. Dry Dock No. 3 was in good condition, there being none of the leakage problems that bedeviled the older docks at Charlestown. Unlike the wharfs at the main yard, the two approach piers at the annex had decking so rotted that driving vehicles on them became hazardous. In 1937, the pumping plant and electrical distribution system at South Boston functioned properly, but the water supply and sewage disposal systems required attention.[55]

Nineteen-thirty-eight appears as a significant year in the

55. P.L. 36, Apr. 15, 1935, SAL, vol. XLIX, p. 155.

history of the physical plant of the Boston Navy Yard. In June Congress enacted a deficiency appropriations bill that assigned more than $1,000,000 to public works at the yard. Perhaps more important than the amount of the funds was the nature of the projects to be undertaken. Those projects consisted of improvement of shipbuilding ways ($250,000), replacing shipway cranes ($150,000), improvement of power plant ($175,000), improvement of electrical lines to the waterfront ($150,000) and of power circuits in shops ($100,000), extension of services to Pier No. 1 ($100,000), improvement of shop cranes ($60,000), and work on weight-handling and transportation equipment ($67,000).[56] Through general funds awarded the Bureaus of Construction and Repair and Yards and Docks, money was acquired for a two-story, steel frame addition to the structural shop and for new machinery for that shop and the foundry and machine and pipe shops. Essentially, this congressional enactment launched the yard on a course of plant expansion and growth and permitted the continued rise of new construction as the major activity.

FROM REPAIR YARD TO CONSTRUCTION YARD

The most striking alteration in the Boston Navy Yard during the 1930s was its transformation into one of the nation's important builders of warships. Construction of destroyers, which began in 1933, is essentially part of the yard's World War II history and will be covered in the following chapter. This section discusses the yard's industrial activity in the 1930s, including the change from repair to shipbuilding. A decline in

56. P.L. 723, Jun. 25, 1938, SAL, vol. LII, p. 1140.

the yard's repair work preceded and accompanied its emergence as principally a building yard.

The desire to economize funds combined with the requirements of the London Naval Treaty to further reduce the fleet of the U.S. Navy. In fiscal year 1931, eight new ships entered service, but a total of sixty were taken out of commission. Contraction of the fleet meant fewer ships arriving at yards for repairs. As the depression deepened, the Navy made even further efforts to lower expenditures for repair of its ships. Those efforts included extending the interval between overhauls for vessels in commission from twelve to eighteen months; utilizing "alongside tender" repairs; and shelving plans for ship improvements. The Navy also ordered that ships do as little steaming as possible. To achieve that end, fleet problems and gunnery and engineering exercises were sharply curtailed. In the spring of 1933, the Navy Department announced a scheme to place one-third of the fleet on rotating reserve. Because of criticism, that scheme was promptly scratched in favor of another calling for scheduling three-month-long overhaul periods for all vessels, during which ships' crews would perform as much of the work as possible.[57]

The decline in repair activity at the Boston Navy Yard is evident in the drydocking records. In the 1930s, the marine railway was the most extensively used of the yard's docking facilities. Prior to 1940, two-thirds of all dockings consisted of hauling out vessels on the marine railway. This resulted from

57. Annual Report, Bureau of Construction and Repair, 1931, 181-40, Box 238, A9-1; Annual Reports of Department of the Navy, 1932 (FSS #9696), pp. 9, 38, 124; New York Times, June 10, 1933, p. 2.

a combination of circumstances. The bulk of the vessels in the yard for repairs were destroyers, submarines, and other relatively small ships within the 2000-ton capacity of the marine railway. After May 1932, one or both of the dry docks at Charlestown were employed as ship building facilities and thus unavailable for ship repairs. Dry Dock No. 3, at the South Boston Annex, saw service only in infrequent docking of a battleship or of the few commercial vessels, such as Leviathan, which came to Boston for work.

In the 1930 calendar year, the yard engaged in approximately 120 drydockings, including barges, tugs, and caissons, as well as larger vessels. The number steadily dropped during the next four years, reaching a low of twenty-one in 1934. In the year following, ships and other craft entered dry dock on approximately fifty-four occasions, but the increase proved temporary, and the annual total fluctuated during the remainder of the decade. The yard's activity in 1938 included twenty-six dockings, and in 1939 forty-three.[58]

That fewer ships docked in the thirties is partly explained by utilization of Dry Docks No. 1 and No. 2 for new construction. However, less use was also made of the marine railway, which hauled out approximately sixty-five vessels in 1930 and only twenty-one in 1934.

The pattern of declining repair work is further evident in

58. The number of dockings for a period in the mid-1930s can not be determined because of a hiatus in the Yard Log 181-58. Data for 1938 and 1939 is provided in George O. Q. Mansfield, Historical Review, Boston Naval Shipyard, Formerly Boston Navy Yard, 1938-1957 (Boston: Boston Naval Shipyard, 1957), p. 100.

the annual reports submitted by the yard's Industrial Department. Those reports listed the number of naval vessels by type, not including yard and district craft and ships belonging to parties other than the Navy. According to the report for the fiscal year ending on June 30, 1931, the yard "repaired or altered" forty-three ships, the number of days all ships were worked on totaling 1562. Two years later, the number of ships "repaired, altered or fitted out" was down to twenty and the total days of ship repair work to 641.[59]

Early in the 1930s, the Boston Navy Yard worked on light cruisers and destroyers more than any other types. Twelve cruisers were in the yard in fiscal 1931 and four in 1933, counting the heavy cruiser Portland. The light cruisers had been commissioned in 1923 and 1924, being in the classes from CL-4 to CL-13. Work performed by the yard consisted of overhaul of Raleigh and repairs and modest improvements on the others. Those improvements included modification of battle telephone systems; equipping steering gear with auxiliary storage batteries; removal of certain guns; providing for stowage of fragmentation bombs; and installation of new catapults, soot blowers, and antiaircraft machine guns. Some of the light cruisers were assigned to the cruiser division of the Scouting Force, but others were attached to the Battle Force and left for the Pacific Coast between 1932 and 1934.

The Boston Navy Yard outfitted Portland, built by the

59. Report of Activities, Industrial Department, Jul. 1, 1930 to Jun. 30, 1931, 181-40, Box 230 (1931), A9-1; Report of Activities, Jul. 1, 1932 to Jun. 30, 1933, 181-40, Box 435 (1934), A9-1.

Bethlehem Steel Company, Shipbuilding Division, Quincy, and commissioned in February 1933. Within two years, the ship steamed through the Panama Canal for duty off California. The transfer of cruisers to the Pacific further reduced repair work for East Coast yards.

Usually, fewer than ten Navy destroyers were in the Boston Navy Yard during any year of the early 1930s. Since the United States built no new destroyers for one and a half decades after World War I, nearly all of the destroyers arriving at the yard for repairs in the early 1930s had originally been commissioned in the years from 1916 to 1921. A few had initially entered service even earlier, such as Paulding, completed in 1910. During the 1920s and early 1930s, many of the destroyers had undergone periods of being out of commission, usually at Philadelphia or San Diego. Others had been transferred to the Coast Guard and then back into the hands of the Navy. At the time the destroyers were ordered to Boston for repairs, most of them were on duty with the Scouting Force or the Special Service Squadron. Babbitt, Hamilton, Herbert, and Leary were based on Newport. Several, such as the original Connyngham (DD-58) and the twenty-year old Paulding, were near the end of their careers and would be scrapped in a few years.

Repair of a destroyer by the Boston Navy Yard in most instances was routine and on the average took less than a month. The machine shop performed some notable work on two ships during fiscal year 1930. Following overhaul of Bainbridge, a post-repair run indicated malfunctioning of the reduction gear. A lengthy investigation determined that the failure resulted from

the cumulative impact of several minor faults and departures from original specifications. After consultation by the yard with the Westinghouse company, the defective parts were reworked. The turbine of Paulding was received in the machine shop in a badly wrecked condition, caused by a fracture of a shaft, which resulted in a crumpling of blading and the destruction of gear teeth.[60]

In the middle of the decade, recently constructed destroyers began to arrive in the yard. Farragut, America's first new destroyer since the World War I era, was built by Bethlehem Shipbuilding and entered commission on June 18, 1934. The ship spent sixteen days on the marine railway in the following July and two days at the end of August. Bath Iron Works constructed Dewey, which was also hauled out by the marine railway shortly after the vessel was commissioned in October 1934.

Other warships in the Boston yard for repairs during the period 1930 to 1934 included small numbers of battleships, submarines, minelayers, gunboats, and patrol boats. In 1931, the battleship Arizona entered Dry Dock No. 3, during the course of eight days of repairs. The same facility received Idaho in February 1935, following completion of a lengthy modernization at the Norfolk Navy Yard, similar to the changes made by Boston to Florida and Utah. Idaho received minor repairs at South Boston prior to her departure for the trial course off Rockland.[61] In

60. Commandant to Bureau of Engineering, Jul. 12, 1930, 181-40, Box 191, A9-1.

61. DANFS, vol. III, p. 416.

1930 and 1931, the yard at Boston worked on three "O"-class and six "S"-class submarines.

Ships in the Boston yard for repairs included a wide range of auxiliaries, such as the fuel ships Brazos and Salinas; the ammunition ship Nitro; cargo carriers Sirius and Vega; transports Chaumont and Henderson; minesweepers Chewink and Quail; the submarine rescue ship Falcon; the storeship Bridge; and tenders Whitney and Bridgeport. In addition the yard repaired Constitution; Southery, the receiving ship until 1933; and the Massachusetts nautical training ship, Nantucket.

As in the past, the Boston Navy Yard performed work on vessels other than those belonging to the Navy. These consisted of ships of government agencies, steamship companies, and foreign navies.

Second only to the U.S. Navy, the yard's best customer was the Coast Guard. During the 1920s, a large number of destroyers had been transferred to the Treasury Department for use by the Coast Guard. In some years, Coast Guard destroyers were more frequently in the yard for repairs than destroyers of the Navy. For example, in 1932, Coast Guard destroyers accounted for twenty dockings and those of the Navy for only four. It is also true that the repairs to the Navy's own vessels were more substantial and that work on the Coast Guard ships involved only brief dockings on the marine railway. Among the Coast Guard destroyers were Herndon, Wilkes, Cassin, Tucker, Wainwright, Davis, and the original Conyngham (DD-58), all of them being four-stackers of World War I vintage. In addition to its destroyers, the Coast Guard sent to the yard numerous cutters and other smaller craft,

such as Achusnet, Active, Aggassiz, Antietam, and Argo. Beginning in 1920, the Treasury Department bore some of the responsibility for enforcement of Prohibition and used its vessels against rumrunners. The repeal of the Eighteenth Amendment in 1934 led to a reduction in the Coast Guard's fleet.

The Treasury Department also managed the nation's lighthouses and lightships. The Boston Navy Yard repaired lighthouse tenders, such as Azuela and Shrub, and the lightships Pollack and Nos. 86, 106, and 117. Among the ships of other government agencies repaired at Boston were Albatros, which belonged to the Bureau of Fisheries, and Boat No. 4, the property of the Department of the Interior.

Until the mid-1930s, Leviathan, the huge passenger liner, continued to arrive at the South Boston Annex for docking in Dry Dock No. 3. In 1930, the Boston Navy Yard performed an overhaul of the liner, which included utilizing newly developed electric welding techniques to repair large, heavily pitted areas on her propellers. The docking of the ship in 1932 required the services of two navy yard and ten civilian tugs.[62] Two other steamships in the yard in the early 1930s were Lurline and Montery. Somewhat out of the ordinary was the arrival in 1930 of two foreign warships, HMS Durham and a French sloop of war, Ville d'Ys.

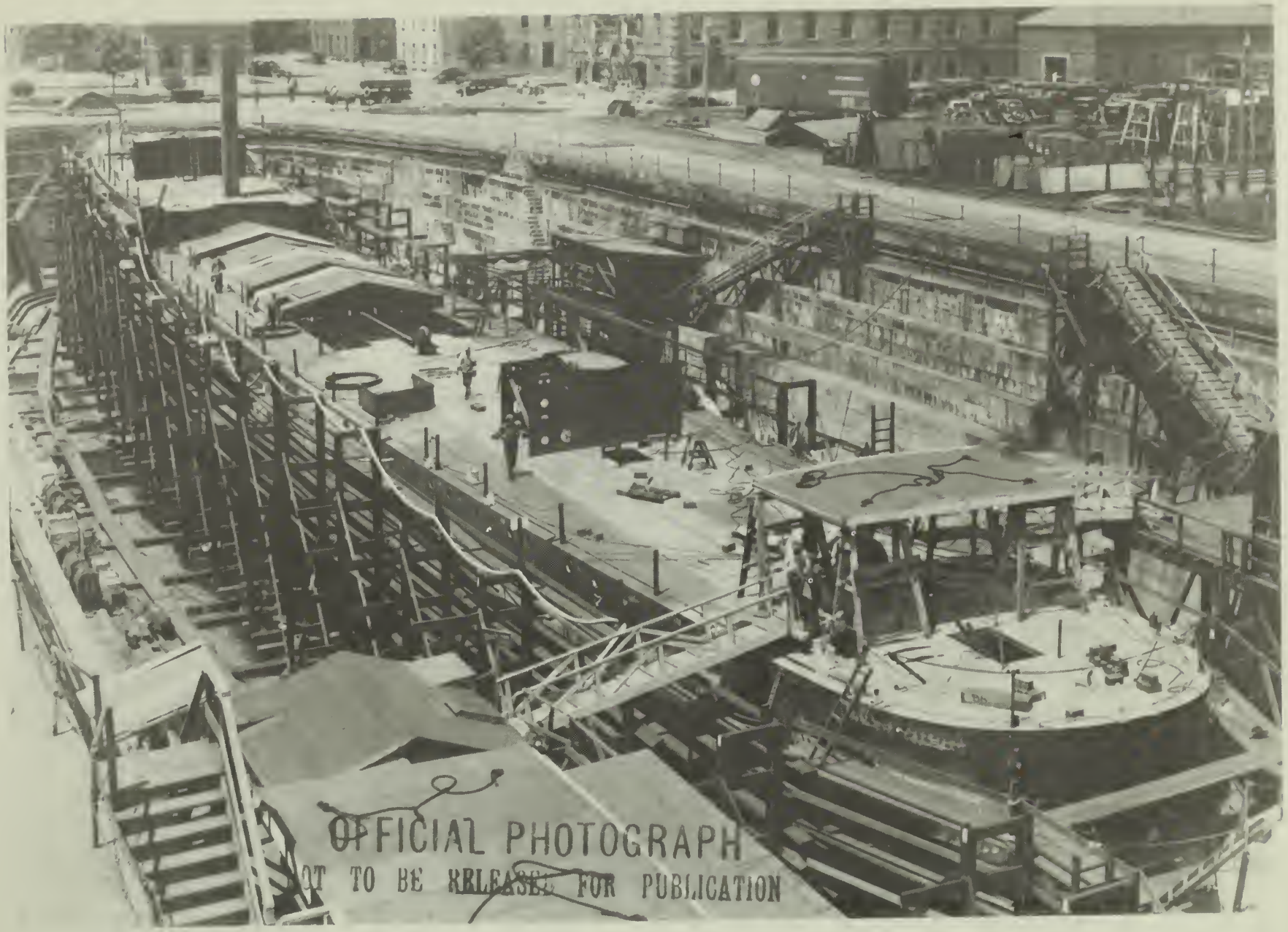
As the volume of repair work decreased, the Boston Navy Yard grew dependent on new construction. Building destroyers became

62. Commandant to Bureau of Engineering, Jul. 12, 1930, 181-40, Box 191, A9-1.

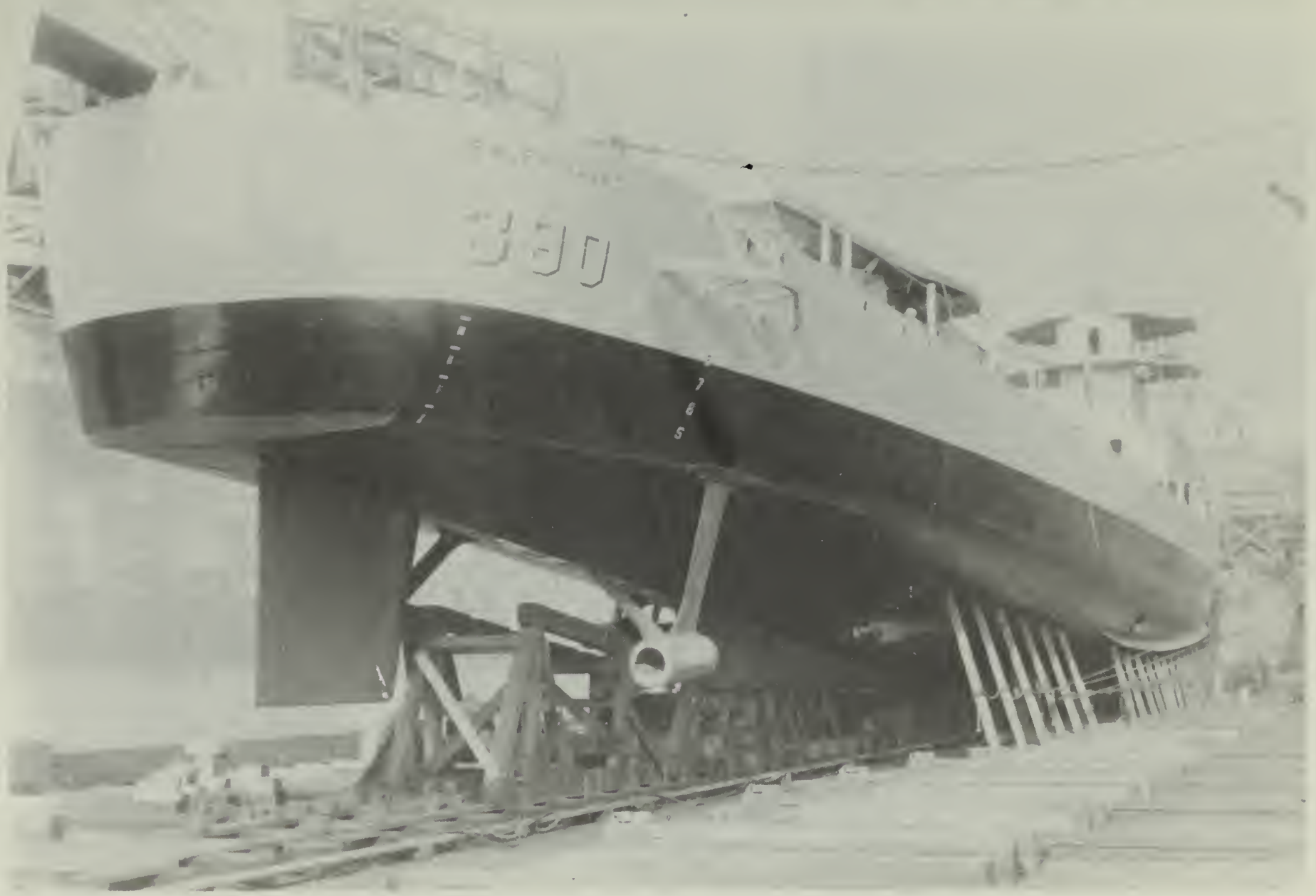
the yard's primary mission, but that activity was preceded by the construction of two tugboats, YMT-15 and YMT-119. The first, a sixty-five-foot, motor driven, all-welded tug was built in the structural shop, Building No. 104. Commissioned on March 11, 1932, YMT-15 left the same day for Portsmouth to serve there as a yard tug. Dry Dock No. 1 began its career as a shipbuilding facility in June 1932, when on its floor was laid the keel of YMT-119. Boston's second tug measured 119 feet in length and had a propulsion system consisting of two McIntosh and Seymour Diesel engines and General Electric generators and auxiliaries. Like YMT-15, she was of all-welded construction. After extensive trials, YMT-119 sailed from Boston on April 4, 1933, for Honolulu. During a brief lull in the destroyer program, the yard produced a third tug, YT-128, also built in Dry Dock No. 1 and launched in June 1938.[63]

Between the spring of 1933 and the spring of 1940, the Boston Navy Yard constructed fourteen destroyers in its two dry docks and two on the shipbuilding ways. The keel of MacDonough was laid in Dry Dock No. 1 in May 1933, and that of Monaghan in Dry Dock No. 2 in the following November. Upon, the launching or undocking of MacDonough in August 1934, Monaghan was shifted

63. Annual Report, Chief, Bureau of Construction and Repair, 1931, p. 5, 181-40, Box 238, A9-1; Commandant to Bureau of Engineering, Jul. 3, 1931, 181-40, Box 238, A9-1; Production Superintendent to Engineering Superintendent, Jun. 15, 1932, 181-40, Box 269, A9-1; Report of Activities, Jul. 1, 1932 to Jun. 30, 1933, 181-40, Box 345 (1934), A9-1; Production Officer to Planning Officer, Jun. 6, 1933, 181-40, Box 309, A9-1. Information about building sites, keel laying, and launching is found in three notebooks maintained by foremen of the Shipwright Shop, Construction Notebooks, 1933-1946, BNHP, RG 1, Series 40A.

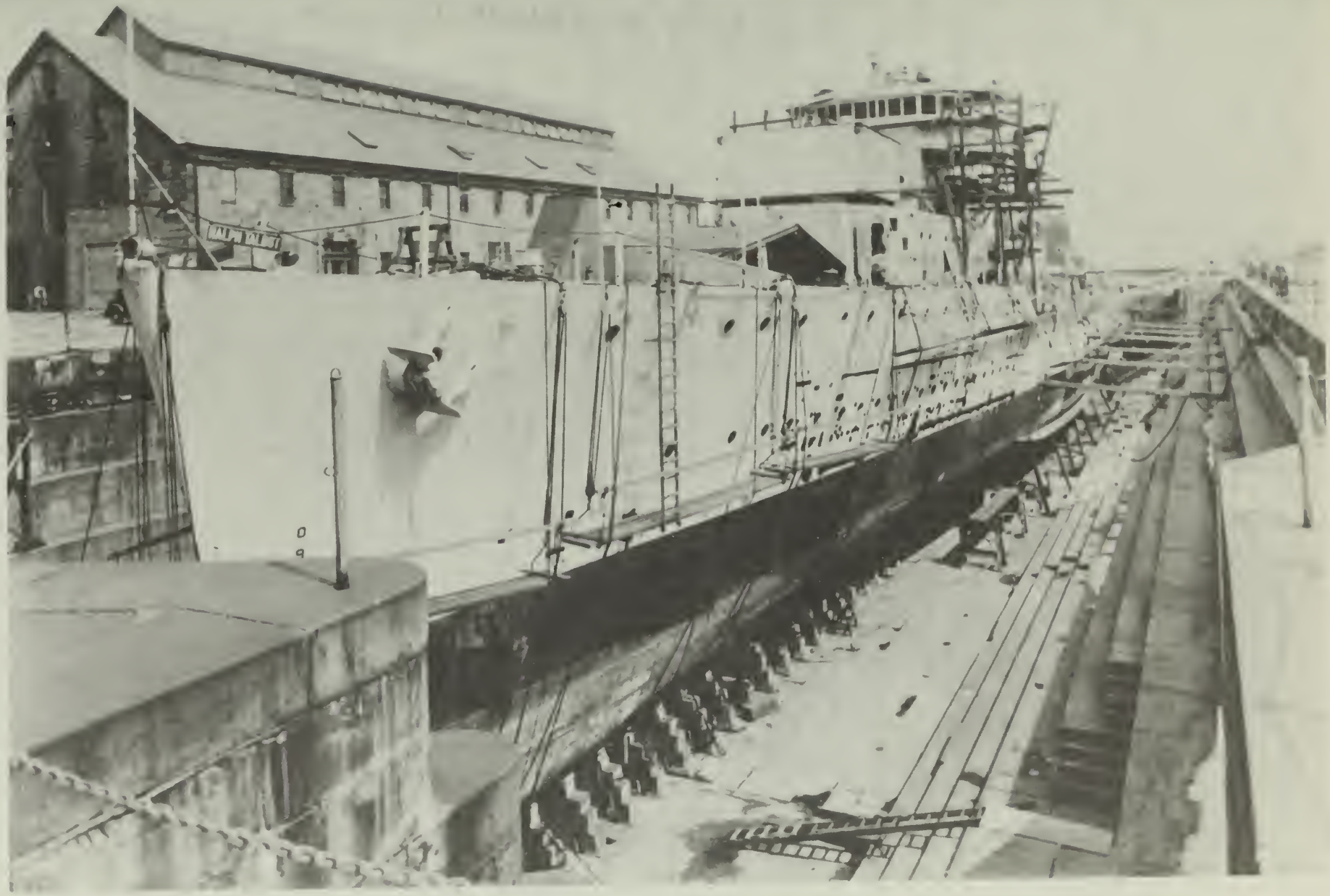


PHOTOGRAPH NO. 14: USS Talbot on July 1, 1936, under construction in Dry Dock No. 2, Boston Navy Yard. The seaward end of the dock, not included in the photograph, contains Mugford. Photographs Nos. 15-17 show later stages in the building of Talbot.



PHOTOGRAPH NO. 15: Ralph Talbot, October 29, 1936, in Dry Dock No. 2, Boston Navy Yard, two days before launching.

PHOTOGRAPH NO. 16: Ralph Talbot and Mugford, October 31. 1936, afloat after launching (floating), Boston Navy Yard.



PHOTOGRAPH NO. 17: Ralph Talbot, July 1, 1937, being fitted out in Dry Dock No. 1, Boston Navy Yard.

from No. 2 to No. 1, where she was completed. This left the larger dock free for construction of two new ships, Case and a new Conyngham. Until 1939, all subsequent new keels were laid in Dry Dock No. 2, with the exception of tug YT-128. Dry Dock No. 1 was thus generally available for repair work and for outfitting and otherwise completing the new destroyers after their launching from No. 2.

During 1933, 1934, and 1935, the yard laid two new keels each year. Utilization of Dry Dock 2, enabled pairs of destroyers to be built simultaneously at the same site. After construction began on Mugford and Talbot in October 1935, a short break occurred in the rate of shipbuilding, no new keels being laid until April 1937. In that month, work began in Dry Dock No. 2 on Mayrant and Trippe. Following the launching of those two ships in May 1938, keels went down simultaneously in December 1938 in Dry Dock No. 2 for O´Brien, Walke, Madison, and Lansdale. The last pair of destroyers built in No. 2 during the 1930s were Wilkes and Nicholson. In the meantime, the shipbuilding ways had been renovated and extended, and in June 1939, it received the keels of Meredith and Gwin. Thus Dry Dock No. 2 was the most active building site in the Boston Navy Yard during the 1930s. In the enormous shipbuilding boom of World War II, construction continued in No. 2 and on the shipbuilding ways and was resumed in No. 1. Moreover, the yard´s ship construction capacity became enlarged with the completion of a second building ways and a building dry dock.

Clearly, the most important development in the history of the Boston Navy Yard during the 1930s was its direct

participation in the nation´s naval expansion program. That development accounts for the yard´s recovery from the slack times of the depression, the steady increase in the number of employees, and the readiness of Congress to appropriate funds for plant improvement and enlargement. The increasing size of the American fleet also invigorated other activities at the yard, such as the commissioning and outfitting of new ships and the manufacture of equipment, most dramatically seen in the work of the chain forge.

Dielock chain was developed by the metallurgical laboratory and the chain shop of the Boston Navy Yard in the second half of the 1920s and was quickly recognized as superior to chain made of cast iron or cast steel. However, before dielock became available for widespread use in the Navy, methods had to be devised to manufacture it in a variety of sizes on a production basis. This happened essentially in the early 1930s. The period also saw advances in the quality of steel utilized in the manufacture of dielock and cast steel links.

At the end of the 1920s, the smithshop began the production of two-and-one-half-inch dielock chain for use in one light cruiser. It also made some three-quarter-inch and one-inch shots of dielock on an experimental basis. Between 1930 and 1932, the manufacture of the new chain on a production basis began in sizes of one, one and five-eighths, two and one-half, and two and three-quarter inches. The volume of manufacturing increased with enlargement of the shop´s work force and the acquisition of additional equipment. In the autumn of 1930, fourteen men worked

in the shipsmith shop. Within six months, the number had expanded to thirty-seven. The installation of gas furnaces and new drop hammers had the effect of both expanding production and lowering labor costs.[64]

By mid-1932, drop-forged, nickel-steel dielock chain had been provided for two light cruisers, seventy-seven destroyers, and nine smaller ships. Service tests had demonstrated the superiority of this type of chain over others and led to its becoming standard for ships' cables in the smaller sizes. The Bureau of Construction and Repair declared dielock as having greater uniformity and as being fifty percent stronger than cast steel chain. Although stronger, dielock chain was one-third cheaper to manufacture. However, alloy cast steel chain was retained for eighteen large ships and eighty-nine smaller ones, including thirty-two submarines.

Progress was steady during the remainder of the decade. In fiscal year 1933, the manufacture of dielock chain on a production basis was extended to the three-inch size, and

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64. Information about chain production in this paragraph and those which follow is found in Ivas, Millen and Palmer, "Development of Die-Lock Chain," pp. 18-20; Commandant to Bureau of Construction and Repair, Sep. 10, 1928, 181-40, Box 118, A9-1; Commandant to Bureau of Construction and Repair, Aug. 16, 1929, 181-40, Box 155, A9-1; Annual Report, Chief, Bureau of Construction and Repair, 1932, 181-40, Box 269, A9-1; Production Superintendent to Engineering Superintendent, Jun. 15, 1932, 181-40, Box 269, A9-1; Production Officer to Planning Officer, Jun. 6, 1933, 181-40, Box 309, A9-1; Report of Activities, Jul. 1, 1932 to Jun. 30, 1933, 181-40, Box 345 (1934), A9-1; Commandant to Secretary of Navy, Oct. 12, 1934, 181-40, Box 353, L16-1; Secretary of Navy to Commandant, Mar. 16, 1936, 181-40, Box 422, L16-1; Secretary of Navy to Commandant, Jul. 18, 1936, Box 422, L16-1; Chief, Bureau, Construction and Repair to Secretary of Navy, Aug. 27, 1937, 181-40, Box 445, A9-1; Chief, Bureau, Construction and Repair to Secretary of Navy, Aug. 29, 1938, 181-40, Box 8, A9-1.

the Boston chain shop produced 150 tons of three-inch, seventeen tons of one and one-eighth, 106 tons of one and five-eighths, and forty-five tons of one-inch dielock chain. Two years later, the chain forge produced a three-inch dielock anchor cable for the new carrier Enterprise . By 1936, dielock chain had superceded other types for all sizes. At that time, there were ninety-eight ships in commission with cast-steel chain and ninety-three with dielock. Service records showed ten failures in the cast-steel chains and only one for dielock. All of the failures had occurred in chain of smaller sizes.

Commercial chain manufacturing companies, eager to benefit from the nation´s naval building program, pressed the Navy Department to increase its use of cast-steel or NACO chain. This produced a series of comparative tests, conducted in 1939 in the Boston chain shop and a NACO plant in Pennsylvania. These tests confirmed the decided superiority of dielock and cleared the way for use of Boston-made chain in most of the ships built by and for the Navy during the huge construction program associated with World War II. The development of dielock chain and of the techniques for its production on a large scale rescued the chain shop from the near oblivion it had faced in the early 1920s.

By September 1939, when Hitler initiated World War II by his attack on Poland, the Boston Navy Yard was a flourishing industrial institution. Primarily because of its shipbuilding activities, the yard had rapidly left the doldrums of the depression. In the summer before the war began, the yard employed more than five thousand workers, was embarked on a program of plant expansion, and had six ships then actually

under construction. However, these were only hints at the enormous industrial effort the yard proved capable of in the years 1939 to 1945.

Chapter VII

SIX THOUSAND SHIPS AND FIFTY THOUSAND WORKERS: THE BOSTON NAVY YARD AND WORLD WAR II, 1939-1945

How many vessels the Boston Navy Yard built, repaired, overhauled, converted, reconverted, or outfitted during the years 1939 to 1945 can only be approximated. Perhaps 6000 is on the conservative side. If that figure seems high, consideration should be given to the fact that by the end of the World War II, the United States Navy had in commission 68,936 ships, vessels, and craft of all sorts.[1] It is not improbable that, during a seven-year period, one-tenth of that number should have been directly served by what was for a time the second busiest navy yard in the nation. In addition to ships of the U.S. Navy, the yard also repaired Allied vessels. Whatever the grand total, World War II was the high point in the entire career of the Boston Navy Yard.

YARD ADMINISTRATION AND ITS ADDITIONAL BURDENS

The chief changes in navy yard administration associated with the World War II era resulted from the merger in 1940 of the Bureau of Construction and Repair and the Bureau of Engineering. That consolidation placed the manager of the Industrial Department of the Boston Navy Yard under the authority of a single bureau, the Bureau of Ships. It eliminated bureaucratic clashes about cognizance in most areas of ship construction and repair and doubtless reduced the volume of paper work required of

1. Hanson W. Baldwin, The New Navy (New York: E.P. Dutton, 1964), p. 11.

yard officers. The new bureau became the dominant agency in the yard, but it did not exercise full authority until three months after the end of the war, when a major restructuring of all navy yards occurred. The emergence of the Bureau of Ships in 1940 required no reorganization of the administration of the yard at Boston.

Essentially, the yard prosecuted its war work with the same basic structure which had prevailed during the 1920s and 1930s. The commandant had general oversight of activities in the yard and its various annexes. Directly connected with his office were a number of units, the most important of which were a Personnel Classification Board, the Labor Board, and the Chief Clerk. The remaining components of the yard fell under the authority of one of four departments: military, industrial, supply, and accounting.[2]

The captain of the yard headed the Military Department. Units in his charge included the Marine Corps detachment, shore patrol, civilian security forces, the Dispensary or what previously had been the Medical Department, and the yard post office. Other officers and matters in the charge of the Military Department were the Fire Marshal, Chaplain, Disbursing Office, Naval Intelligence, Communications Section, all enlisted personnel, a Ships Service Section, and the Pre-Commissioning Detail. The captain of the yard had an assistant at the main yard as

2. This discussion of the yard administration is based on an organizational chart of 1938 in Mansfield, p. 9; Regulations, Boston Navy Yard, Jan. 1, 1944, 181-40, Box 294, A2-5.

PHOTOGRAPH NO. 18: The Boston Navy Yard in June 1940. Penciled notes indicate location of Building 197, erected during the following year as an electrical shop.

well as a subordinate captain of the yard at South Boston.

The most important of the Boston Navy Yard's four departments was the Industrial Department, headed by the Industrial Manager, its chief executive. The divisions of Planning, Production, Public Works, Conversion, and Personnel Relations constituted the major parts. The chief subordinates of the Manager were the Planning and Production Officers. With respect to ship work, the Planning Officer had responsibilities for planning and estimating; issuance of job orders; and drafting, including redesigning or alterations in existing installations. He also had cognizance of radio and underwater sound materials. Arrival and departure conferences between yard personnel and officers of ships being repaired were arranged by him. When required, the Planning Officer initiated the ordering of materials from the Supply Department.

The largest division in the yard in terms of its officer corps and civilian employees was the Production Division of the Industrial Department. The Production Officer had the charge of carrying out the job orders issued by the Planning Division and within the time and budgetary restraints imposed. His principal assistants were the Shop, Hull, and Machinery Superintendents. The conditions of war reduced the importance of a fourth assistant, the Progress Superintendent. To each ship under construction or repair, the Hull and Machinery Superintendents assigned officers, who had supervision of the work on that vessel under their cognizance. The Production Officer, assisted by the Hull Superintendent, arranged the schedules for the dry docks at

PHOTOGRAPH NO. 19: The South Boston Annex of the Boston Navy Yard, July 21, 1941. A British battleship, either Rodney or Nelson is in Dry Dock No. 3.

the main yard and the annex.

Three other divisions of the Industrial Department were not directly involved in the yard´s ship work. As in the past, the Public Works Officer had responsibility for the design, construction, repair, maintenance, and inspection of all public works, that is buildings, other structures, grounds, roadways, rail system, and vehicles. He also had similar functions respecting the yard´s public utilities and had charge of the power plant and yard transportation systems and services.

Contracts for the work on American and Allied warships and auxiliaries in private yards within the First Naval District were handled by the Conversion Division. The Conversion Officer, in 1944 also referred to as the Assistant Industrial Manager, had general responsibility for alterations, repairs, and conversions performed at commercial establishments. He was particularly charged with supervising the installation of ordnance equipment in ships at private yards.

The Personnel Relations Division of the Industrial Department had superintendence of industrial or labor relations, employee services, safety, and training programs. His cognizance included all employees in the yard, not only those in the Industrial Department.

That department was the chief employer in the yard, having supervision of all shops. Except for three, the shops were in the Production Division. The Public Works Division included the Power Plant, Building Trades Shop, and Transportation Shop, all of which were in the charge of the Public Works Officer. The vast bulk of the yard´s shops and their workers came under the

general supervision of the Production Division's Shop Superintendent, with master mechanics exercising direct management. No separate shop structure existed for the Naval Dry Dock at South Boston, and masters at the main yard had responsibility for the activities of their shops at the annex.

Theoretically, the Industrial Manager's authority extended to those activities of the Supply and Accounting Departments involving work on ships. Indeed, in the mid-1930s, the Accounting Department did not have a separate existence, but was part of the Industrial Department and in the charge of the Industrial Manager. In practice, during the war, both the Supply and the Accounting Departments operated independently of the Manager.

Until 1945, the Commandant of the Boston Navy Yard also served as Commandant of the First Naval District. However, the district had a staff, which, except for its head, did not include officers of the yard. In December 1940, the Headquarters of the First Naval District moved out of Building No. 39 in the yard to quarters in the North Station Industrial Building, 159 Causeway, Boston. District and yard activities impinged, indeed overlapped, one another in a number of areas, such as personnel relations, pre-commissioning, degaussing, and outfitting ships with stores.

Although, the administration of the Boston Navy Yard during World War II had the same general outline as in the 1930s, it differed substantially in size. On March, 1, 1939, seventy-three officers managed the yard and its various annexes. By the end of

1943, the complement of officers reached a peak of 633. Nineteen-forty-three was the period of most rapid growth. In April 1943, the allowance for the yard was 216, with 201 officers actually on board. During the next seven months, the number of officers at the yard tripled. Officers in the Industrial Department outnumbered those in all other departments and offices combined. The yard's commissioned personnel in March 1945 consisted of 232 officers in the Production Division, ninety-eight in Planning, twenty-five in Personnel Relations, and sixteen each in Conversion and Public Works. At that time, the Medical Division had forty-eight officers, the Supply Department ninety-one, and the Military Department thirty.[3]

If the officers were many, sometimes their tours were brief. The rapid expansion of the Navy, both afloat and ashore, probably caused frequent reassignment of officer personnel. During two periods of World War II, the Boston Navy Yard may have suffered because of a quick turnover in officers. In the nine-month period beginning July 1942, the yard had three commandants and three managers. Respecting both positions, the turnover resulted from the assignment to the yard of officers who served only six months before being ordered elsewhere. Rear Adm. Wilson Brown

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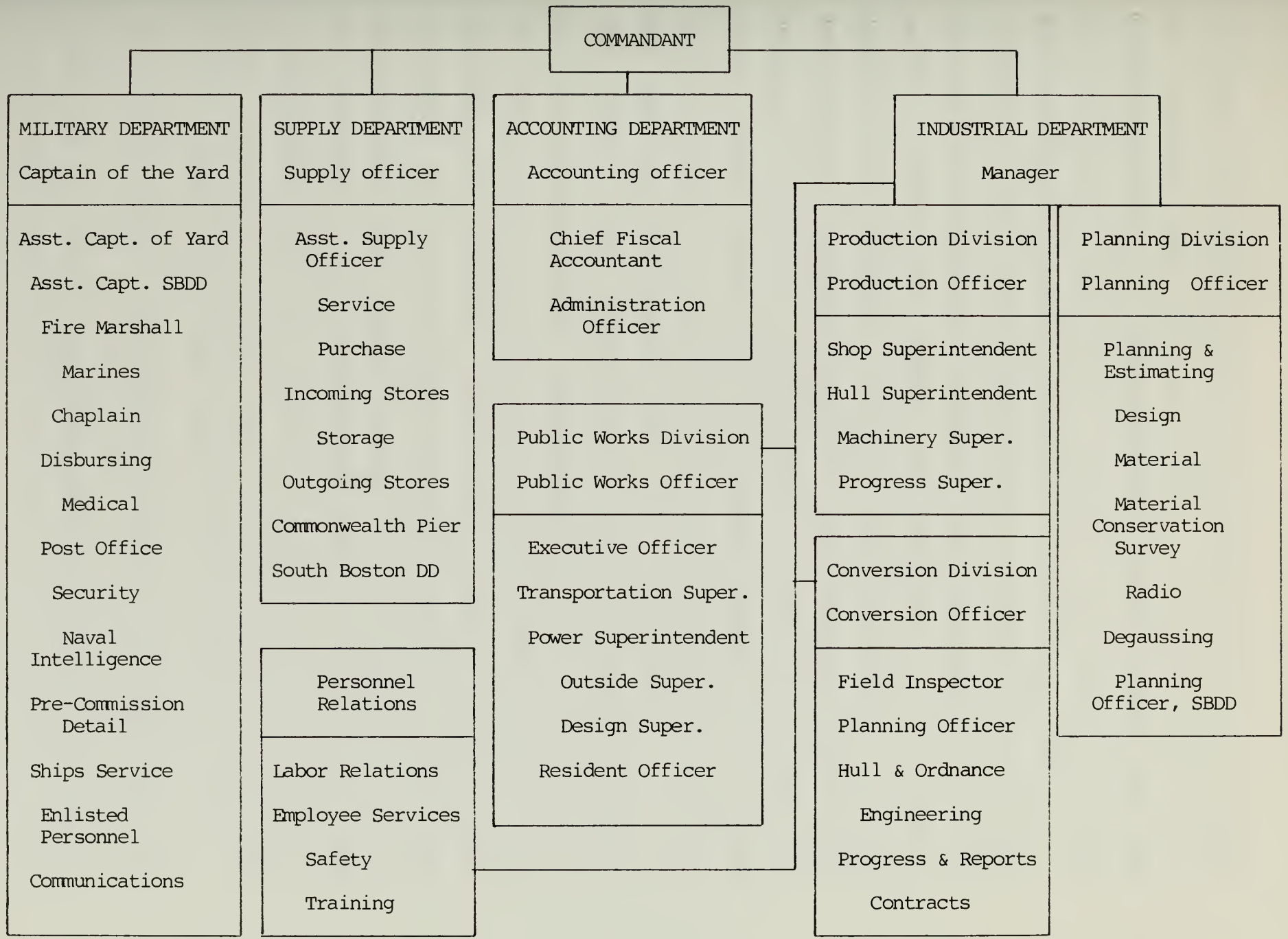
3. N. T. Dana, "High Spots in the History of the Boston Navy Yard from 1 January 1939 to 30 June 1945," p. 1. The "High Spots" is a section in Lt. Dana's World War II "History of the Boston Navy Yard," July 22, 1945. All parts of Dana's history are in 181-40, Box 314, A-12. For data on the number of yard officers, see also Commandant, IND, to Chief, Naval Personnel, April 12, 1942, U.S. Naval Administration, World War II: First Naval District (11 vols; Historical Section, First Naval District), vol. II, p. 11; Roster of Officers as of Oct. 31, 1943, 181-40, Box 11, A9-4; Roster of Officers, Mar. 1, 1944, 181-40, Box 297, A9-4.

Administration Table No. 6, BOSTON NAVY YARD, 1944



assumed command of the Boston yard in July 1942 and was replaced in the following January. Similarly, Capt. Earl F. Enright took up his duties as manager in October 1942, only to leave in April 1943.[4]

A Navy inspection board surveying the yard in November 1944 reported that during the previous few months, the commandant, captain of the yard, supply officer, and medical officer had changed. Also the yard lost several experienced officer assistants to the shop superintendent. The board further found that "there have been three Planning and Estimating Officers in six weeks, two design Superintendents in six weeks, etc." Actually, the officer turnover in 1944, at least at the upper echelons of yard administration, was not as severe as the board implied. Changes did occur, but the departing officers had completed tours of duty of reasonable length, given the conditions of war. Commandant Robert Theobold left in 1944, after serving a year and eight months; Captain of the Yard R. C. Grady, after five years; Supply Officer W. C. Wallace, after one year and nine months; and Medical Officer W. H. H. Turville, after fourteen months. One key position in the administration was occupied by the same man for the entire war. Captain G. T. Paine, Production Officer, arrived in the yard in July 1940 and remained until July 1945.[5]

Navy yard administrators faced tremendous challenges during

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4. For lists of the yard's officers and their tours, see Mansfield, pp. 54-62.

5. Industrial Survey Division, Report No. 3, Nov. 25, 1944, 181-40, Box 294, A3-1.

World War II. Those challenges arose chiefly because of the huge volume of ship work, the rapid changes by the Navy Department in its priority lists, the pressure to expedite all jobs, and the vastly enlarged labor force. Moreover, some chores which had been slight or nonexisting tasks in the prewar years became heavy burdens. In Boston, all departments, except accounting, were involved in activities carried on at sites other than the main yard. The Naval Dry Dock at South Boston and its two annexes are prominent in this respect, but there were additional locations: Chelsea Annex, Lockwood's Basin, the Fuel Annex in East Boston, Commonwealth Pier No. 5, other off-yard storage facilities used by the Supply Department, and the many commercial yards engaged in the repair of ships through contract with the Navy or under the supervision of the navy yard.

In addition to ship work performed by private establishments for the navy yard, other commercial establishments were engaged to undertake manufacturing processes that would ordinarily have been done at the yard. This system, known as "farming out," focused on small businesses. In part, the purpose of the program was to allow navy yards to concentrate on new construction and repairs by reducing manufacturing activities. Although the arrangements lessened the demands on certain Production Division shops, oversight of Navy work at the private firms by yard officers constituted another administrative chore.

During the war, a number of new Navy units appeared at the Boston yard, which at a minimum had to be provided with space for their activities and quarters and messing for their personnel. The Navy Department established several training programs at the

yard, including a submarine training activity, antisubmarine school, Fire Fighting School, and Ship Repair Training Unit. Some of these instructional programs did not involve the yard's regular officers, but the last mentioned was placed under the control of the Industrial Manager and was administered by the Production Division.[6]

The Ship Repair Training Unit, established at Boston in October 1943, was designed to equip navy enlisted men with the skills necessary to make ship repairs operating from advanced bases, repair vessels, and tenders. Trainees were berthed and messed at Frazier Barracks, Building No. 33 in the main yard, and were instructed by civilian supervisors in the yard's shops and on ships in the yard for repairs. On one occasion, during a shortage of electricians in the yard's civilian work force, the trainees took over and completed the electrical wiring system on a destroyer escort under construction. By August 1945, when the training unit was disbanded, a total of 2883 men had received instruction at Boston.[7]

Some of the new nontraining activities had little or nothing to do with routine navy yard affairs. The Net Depot, located at the South Boston Annex, serves as an example. That operation was essentially a military one, the defense of Boston Harbor. However, besides providing space and accomodations for the depot, the yard also supplied labor, and a small group of

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6. Administration Division, Training, to Commandant, Dec. 6, 1944, 181-40, Box 293, A3-1.

7. Dana, "High Spots," p. 12; Dana, "History of the Boston Navy Yard (Industrial Department): Ship Repair Training Unit."

employees were carried as an unnumbered shop at that facility.[8]

Technical developments required additions to the administrative and physical resources of the yard, as evident in the phenomenon of deperming or degaussing. Early in the war, Germany laid mines in England's Thames Estuary, which were triggered not by contact with a hull, but by a ships' magnetic field. Degaussing and deperming refer to techniques of minimizing or neutralizing a vessel's magnetic field, thus enabling it to pass closer to a magnetic mine than otherwise would be the case. This was accomplished by either magnetic treatment of a ship or by the installation of degaussing coils, which reduced the ship's field by generating a magnetic current in the other direction. Administratively, degaussing came under both the navy yard and the First Naval District, and there were seven degaussing stations in the Boston area, the most important one being at the Boston Navy Yard. First located on Pier No. 1, it was moved in April 1942 to Pier No. 11. Facilities included the new 500-foot pier, a two-story building, and a magnetic "garden" of approximately fifty underwater instruments and other pieces of equipment. Before the end of the war, the yard station depermed 1100 vessels.[9]

The state of war raised problems of security for the yard and its administrators. Those problems included the actual

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8. "U.S. Naval Dry Dock, South Boston, Massachusetts," May 1945, p. 3. This is a description of the South Boston Annex, prepared by the Assistant Maintenance Superintendent, South Boston Dry Dock and is included in the history of the yard assembled by Dana.

9. U.S. Naval Administration During World War II, First Naval District, vol. VIII, Appendix C, pp. 1-6.

defense of the yard against air attack; protecting the plant and ships from sabotage; the elimination of suspect persons from the yard labor force; and preventing the careless disclosure of sensitive information by workers.

With the Japanese attack on Pearl Harbor, a Shipyard Defense Bill went into effect, and on December 10, 1941, the Boston Navy Yard had its first air raid drill and blackout. Subsequently, the Army installed antiaircraft batteries on the roofs of Buildings No. 197, the new electrical shop, and No. 149, the original Supply Department storehouse. These two structures were among the tallest in the yard. Army personnel, housed in barracks constructed on those roofs, constituted the gun crews.[10]

Beginning with the first exercise in December 1941, air raid drills became common. Thirty years later, the master of the ropewalk recalled the yard's civil defense measures:

> We had evacuation drills in case of attack, we had equipment given to us to handle incendiary bombs, we had drills. On the sound of ... an emergency whistle, we were supposed to stop all work, stop all machinery, herd our people into assembly points, and then on to air raid shelters after securing the building....

Each shop had a squad of its workers designated to deal with emergencies, such as the removal of incendiary bombs.[11]

Something of a dilemma arose, since air raid drills seemed appropriate, especially at a military installation. On the other

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10. Mansfield, p. 15.

11. Oral History Interview, David Himmelfarb, p. 24; Oral History Interview, Albert Mostone, p. 14.

hand, they disrupted the progress of work. The yard newspaper, doubtless reflecting the views of the administrators, included in a December 1942 issue an article "WHAT TO DO IN AN AIR RAID." In addition to providing directions for such an event, the article emphasized the necessity to have the least interruption of work. It stated:

> Remember that this is a WAR OF PRODUCTION. Your work must continue every possible minute. Special precautions have been arranged to enable you to do this and have the maximum protection.

The same issue contained an explanation of the dim-out program, which called for the reduction of outside lighting along the entire East Coast during nighttime hours to minimize Allied shipping being clearly silhouetted and thus visible to German submarines.[12]

Blackouts and dim-outs were other wartime procedures that could impede prosecution of the yard's work. Blackouts apparently became less common. In fact, when one employee was interviewed several decades after the war, he could remember no such exercises. He did recall that "they started to brick up all the windows ... to stop the light from going out and ... to protect the people on the inside if anything did happen." Defensive measures at the yard also included painting the walls of buildings facing the water in an effort to camouflage them.[13]

The tightening of security precautions began as early as May of 1938, when restrictions were imposed on visitors, and certain areas of the yard were closed to all unauthorized persons. By

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12. Boston Navy Yard News, Dec. 12, 1941.

13. Oral History Interview, Albert Mostone, pp. 14-5.

January 1940, the Marine Corps detachment had been reduced, and civilian guards took over the duties of manning the gates and patrolling the waterfront and the yard perimeter. In the summer of that year, the commandant appointed a board of five officers to consider the matter of yard security and make recommendations for its improvement. Those officers held regular meetings and produced a twenty-eight page report. Each employee was issued a button or badge for ready identification as well as a check pass bearing his or her photograph. Master mechanics were frequently advised to take steps to insure that unauthorized persons were not permitted in their shops or in other areas where their employees worked.[14]

A program of insuring the loyalty of yard workers went into effect prior to Pearl Harbor. On May 27, 1941, President Roosevelt proclaimed an unlimited national emergency. In that proclamation, which was subsequently telegraphed to navy yards, Roosevelt called "upon loyal state and local leaders and officials to cooperate with the civilian defense agencies of the United States to assure our internal security against foreign directed subversion." The president's actions apparently triggered a process already initiated in the yard, and on May 29, the commandant suspended a number of workers for security reasons.[15]

Although the suspensions must have resulted from steps

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14. Record of Security Board, Jul. 22, 1940, 181-40, Box 2, A-8; Production Division Notice No. 1344, Sept. 25, 1942, 181-40, Box 16, A-8.

15. The proclamation is quoted in SEC NAV To ALNAV, May 30, 1941, 181-40, Box 2, A2-8. Correspondence concerning the suspended employees appears in a file "Suspension of Unfriendly Persons," 181-40, Box 12 (1941), A8-5.

already taken by yard administrators or the Navy Department, the proceedings reveal a rushed and ad hoc quality. When and how information was collected is not clear. In a letter to a congressman, who intervened on behalf of Albert Petrelli, one of the suspended workers, Commandant W. T. Tarrant described the procedure:

> Shortly after the United States recognized an emergency, instructions were received to investigate all employees in the Yard. If any employees were found to be associated with societies inimical to the Government, or if they made remarks which were inimical to the Government, they were placed on certain lists. In June instructions were received to discharge those on the lists above referred to. The name of Mr. Petrelli was on one of those lists in the Yard, therefore, he was suspended and a report made to the Navy Department.
>
> The final action will be taken by the Navy Department, presumably within a short time.

Commandant Tarrant's letter confuses two procedures. Suspension temporarily prevented an employee from working and thus resulted in a loss of pay, unless leave days could be used. Discharge meant permanent separation from navy yard employment.[16]

While the Secretary of the Navy was deciding on "the final action" respecting the suspended workers, the Navy Department issued further orders dealing with personnel loyalty. According to a transcription of a telephone conversation between the Boston yard and Washington, these included the requirement that all employees submit notarized affidavits "on Communism, etc." In the same conversation, a yard official also brought up the

16. Commandant to Honorable Thomas A. Flaherty, Jul. 7, 1941, 181-40, Box 12, A8-5.

subject of

> removals or suspensions [of] subversives or suspected subversive activities. We have been holding hearings and investigations and there are a number of them for which we have not found justification of continuing the suspension.

Boston administrators sought authority for the commandant to reinstate employees when it appeared to yard review boards that the initial suspension had been unwarranted.[17]

Beginning in October, the situation began to stabilize, and at least twenty-two of the men originally suspended suffered "summary removal" on orders of the Secretary of the Navy, following his review of their particular cases. To each, the commandant sent a memorandum explaining the Navy's actions. In late November, Julius Gobstoob, a driller, was informed:

> You have been reliably reported to have been active in the membership and to have participated in furthering the purpose of organizations reputed to have policies directed at the breakdown of the principles upon which the Government of the United States is founded, particularly the organization known as the Independent Workingmen's Order, which is believed to be a Communist Front Organization. You are reported to have been active in Camp Unity, Franklin, Mass., reported to be a training school for the Young Communist League. You are alleged to have been active in May Day celebrations and in Communist protest meetings and to have been instrumental in formenting Communist inspired strikes in the Provision Industry.

Gobstoob was advised that he could personally appear before the Commandant or "his authorized representative" at 10:00 o'clock, December 4, and "again have the foregoing reasons for your discharge submitted to you in writing." Also, he was invited to furnish statements or affidavits pertinent to his case, which

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17. Confirmation of Telephone Conversation, Jun. 26, 1941, 181-40, Box 12, A8-5.

carried the implication that his discharge might be further reviewed.[18]

Most of the men summarily removed from employment at the yard allegedly had connections or views associated with the ideological extreme opposite of that identified with Gobstoob. Karl Freisinger, sheetmetal worker, was reported to have "a sympathetic attitude toward the existing Nazi administration of the German Government." In addition, his "former German military service" and his "relation to German nationals" indicated to the Navy that he "would be amenable to pressure in furtherance of Nazi policies toward this country." Doubts arose about the "wholehearted loyalty to the United States" of electrician George Henry Geisser, because of his reported "enthusiasm for and sympathy with the policies and methods" of Nazi Germany. Moreover, he allegedly "insulted the uniform of the United States Army" and "referred to a fire in the Navy Yard Boston as being caused by a bomb, and that [he] proposed to do a better job."[19]

Some of the men discharged for security reasons sought to defend themselves against the charges and secured the intervention of clergymen and congressmen. Ralph Samuel Sanborn, a rigger, contended that the report of his membership in the Bund had its origins in his failure to cooperate with a "certain

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18. Gobstoob apparently did appear on Dec. 4, and the files contain a memorandum to him bearing that date and quoting from the earlier memorandum. Commandant to Julius Gobstoob, Nov. 24, 1941; Memorandum to Julius Gobstoob, Dec. 4, 1941, both in 181-40, Box 12, A8-5.

19. Commandant to Karl Freisinger, Oct. 15, 1941; Commandant to George Henry Geisser, Dec. 4, 1941, both in 181-40, Box 12, A8-5.

forced collection" extracted in the riggers shop for the benefit of injured workers. Joseph Jaffe claimed to be the victim of anti-Semitism.[20]

The discharge of suspected disloyal workers in the second half of 1941 was an unpleasant affair. Among those ordered removed were men with long periods of yard employment, Joseph Jaffe having worked for fifteen years. It appeared to some officers that no warrant existed for the discharges in several cases. Hearsay collected from unknown informants often seemed to constitute the evidence against the workers in question.

Ultimately the Boston Navy Yard had a program for an initial screening of new workers. All civilian employees were fingerprinted and the prints checked against criminal records and the suspect files of the Federal Bureau of Investigation. Prospective workers were also checked against the records of the Civil Service Commission. No other investigation preceded actual employment. After a new employee started work at the yard, a so-called "voucher check" was conducted by mail with the individual's references and former employers and with the police, FBI, and Army and Navy intelligence. If the voucher check indicated reasons for suspicion and in the cases of all aliens and all persons of Japanese origins, further investigations were undertaken as each instance warranted. Special procedures, including individual investigations, were used for certain positions, such as those involved in yard or personnel security

20. Ralph S. Sanborn to Honorable George Holden Tinkham, Jul. 17, 1941; Joseph Jaffe to Congressman Tinkham, n.d., both in 181-40, Box 12, A8-5.

(guards, firemen, watchmen, and Labor Board employees), those handling classified material or equipment (draftsmen, naval architects, engineers, instrument makers, and tool and gauge designers), and those involved in communications (telephone operators).[21]

During the war, administrators waged a constant campaign against civilian employees' divulging, through careless talk, sensitive information about ship movements and other matters. Orders prohibiting discussion of yard activities with unauthorized people were issued by the Secretary of the Navy and the commandant, and signs reminding workers of the dangers were posted around the yard. In April 1942, the yard newspaper carried a notice from R. C. Grady, Captain of the Yard, in which he included a letter reporting a yard worker, who in public discussed a ship preparing for departure. Captain Grady added that the letter was typical of many that he had received. About the same time, the commandant issued a circular on the subject, stating that he had reports of "leaks of information of great value to the enemy." He held: "There is too much loose talk -- too much confiding of naval business in wives, families and friends."[22]

A month after the United States became a belligerent, a problem of speech of a different kind arose. The commandant

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21. Headquarters, First Naval District to all Shore Activities, Aug. 16, 1943, 181-40, Box 10, A8-5.

22. Boston Navy Yard News, Apr. 9, 1942; Commandant's Circular No. 432, Mar. 23, 1942, 181-40, Box 16, A-8. See also Boston Navy Yard News, Feb. 12, 1942.

complained about some workmen speaking a foreign language in the yard. He claimed that "the use of a foreign language, especially of that of a country with whom we are at war, leads to suspicion and distrust." Accordingly, he directed that "English only will be used in the Yard or on any ship or property under the control of the Commandant."[23]

In the early stage of the war, as the prohibition of foreign languages suggests, there was excessive concern with security and patriotism. This had unfortunate consequences at least in one instance. "Due to the secrecy about the movement of ships" in June 1941, several vessels arrived at the Boston Navy Yard for stores, ammunition, and other articles "without any notice to the Captain of the Yard, the Supply Officer, or anybody else that they were coming, what they wanted, when they wanted it, and how they wanted it...." This resulted in the yard's inability to service the ships as rapidly as the Navy desired.[24]

Although they created problems, the various security measures pursued by the yard seem to have generally worked. It is also possible, of course, that spies, saboteurs, and subversives never constituted a grave problem. The administrative history of the First Naval District, whose intelligence section handled such matters, states that only a small number of cases of sabotage were discovered in the district, none being enemy-inspired. And the few acts which were uncovered centered on

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23. Commandant's Circular Letter No. 395, Jan. 2, 1942, 181-40, Box 16, A-8.

24. Confirmation of Telephone Conversation, Jun. 26, 1941, 181-40, Box 12, A8-5.

persons motivated by hostility toward a superior, feebleminded-ness, or other personal or petty reasons. One incident involved enlisted men aboard a British vessel at the Naval Dry Dock who sabotaged the ship´s engine to delay departure from Boston. It appears a similar episode occurred at the main yard in connection with some newly completed LSTs, probably in mid-winter of 1943-1944. The British crews had taken over the vessels, which were scheduled to go to sea. However, during the night before the actual departure, the engine room valve for flooding the normally dry fire main system would "accidentally" open. By the following morning, the main had frozen and ruptured, causing a week´s delay. When the yard and the ships´ officers discovered what was happening, guards were posted and the problem disappeared.[25]

Apparently, the most serious wrongful disclosure of information occurred at South Boston, and involved a radio operator, Christopher Core, who was either employed by a private company or by a commercial shipping line. Core "knowingly and wilfully" discussed matters of a confidential nature pertaining to his employment. For that act, the Secretary of the Navy disapproved of Core´s employment on ships of United States registry and his employment by radio communications companies. The Secretary noted that Core´s actions "may have been predicated upon emotional instability as a result of enemy action."[26]

Most of the problems encountered by yard officers in

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25. U.S. Naval Administration During World War II: First Naval District, vol. VI, p. 40; Oral Interview, Lyman Carlow, p. 12.

26. Secretary of the Navy to Commandants, Apr. 20, 1943, 181-40, Box 10, A-8.

matters of wartime security paled in comparison with the task of recruiting and maintaining a monumental work force to carry out the yard's mission of ship repair and construction. At the height of the war effort, that force never seemed adequate for the volume of ship work at hand or sufficient to match the capacity of the yard's plant.

WARTIME DEVELOPMENT OF THE YARD AND ANNEXES

During the era of World War II, the plant of the Boston Navy Yard was more heavily used than at any other time in its history. This held true for all components, not only the main site in Charlestown. The war sparked the rapid development of the South Boston Annex into a major facility for ship repair and conversion. In addition, industrial activity was carried on at the Chelsea Annex and Lockwood's Basin. Also to be considered as part of the yard's plant was the Fuel Depot in East Boston. Plant improvements made between June 1939 and August 1945 cost a total of $50 million: $15 million for the main yard; $27 million for South Boston, $800,000 for Chelsea Annex; and almost $7 million for the fuel depot.[27]

At the beginning of 1940, according to a report of the Public Works Officer, the buildings and industrial facilities of the main yard were in fairly good condition, and important additions were then under construction. Those additions as well as deterioration resulted in the removal of several older structures and plans to raze others. The west end of the angle

27. Dana, "History of the Boston Navy Yard. Chapter I, Development of Facilities," Jul. 22, 1945, p. 11, 181-40, Box 314, A-12.

shop and mold loft (No. 40) had been demolished to make space for an extension to the machine shop. Structures totally removed in recent years included an electric substation (No. 134), three storehouses (Nos. 147, 148, and 186), a pump house for fuel oil (No. 141), and an air house (No. 167). The Public Works Officer considered beyond repair several of the temporary structures, Nos. 127, 130, and 146, erected for storage purposes during World War I.[28]

Many of the older buildings required repairs, but no major reconstruction or remodeling seemed necessary. As usual, the roof of the foundry, machine shop, and pattern shop (No. 42) needed extensive work, but the structure itself was rated as "fair to good." The buildings in the best condition were those, of course, which had been recently constructed. These included a new pump house for fuel oil, which retained the same number as the one it replaced (No. 141); a store house for paints and oils (No. 131); a structure for salvage stores (No. 193); the pipe shop and shipfitting shop (No. 195); and the ship machinery testing plant (No. 196). The toolroom for outside machinists (No. 101) had received extensive repairs in 1939. Other improvements had included the installation of new or additional elevators in the paint shop (No. 125), Public Works shop (No. 107), and sawmill, joiner, and boat shop (No. 114).

In 1940, all major units of the waterfront of the main yard were in service, including the eleven wharves. The Public Works

28. Information in this and the following paragraphs is taken from Annual Inspection of Public Works and Public Utilities, Mar. 20, 1940, 181-40, Box 8, A9-1.

Officer described Piers 1, 2, and 9 as in "good" condition and the remainder as "fair." He rated the dry docks as "good," although both of them needed attention. The outboard portions of Dry Dock No. 1 had deteriorated over the years and required reconstruction, a project estimated as costing $200,000. Dry Dock No. 2, then being used for the construction of destroyers, was not available for docking. The stone and concrete of No. 2's seaward end had severe leaks, which were not remedied by repairs performed by yard labor. Proper repairs, according to the Public Works Officer, might necessitate a cofferdam and the expenditure of $500,000. Fortunately, this proved unnecessary. Generally, those portions of the marine railway above low water were in good condition, but other parts needed work. The Public Works Officer had requested $100,000 for the renewal of the railway above the piles, replacing some of the main frames in the cradle, and the construction of steel piling bulkheads as "permanent protection against further ravages by limnoria and possible future teredo attack."

An important addition to the waterfront was then under construction. Work on Shipbuilding Ways No. 1 had progressed to the point where it was possible to begin building two 350-foot destroyers. The launching section of the ways was completed in 1941. Construction of the shipways required the removal of parts of the structural shop (No. 104) and Pier No. 7.

The yard had twenty-one cranes: three at the dry docks; three floating cranes; and fifteen locomotive cranes. The condition of the weight-lifting equipment varied from "poor" to

"excellent." Most of the yard's eight miles of railroad track needed work.

At the beginning of the war in Europe, the South Boston Annex remained relatively undeveloped. Moreover, much of the existing plant was in poor condition. Both approach piers and many of the buildings needed repairs. The caisson of the dock had recently undergone a major overhaul, and the dock itself was generally in good condition. Four suction gratings had entirely rusted away and needed to be replaced immediately, since debris might be sucked into the pumps and cause major damage.

In light of the tremendous expansion in the labor force at the Boston Navy Yard during World War II and the great volume of work performed, the changes in physical facilities at the main site seem fairly moderate. In part this resulted from the yard's being too congested for a major program of plant expansion.

A dozen new buildings appeared, many of them somewhat small and not used by the Industrial Department. The Electric Shop (No. 197), seven stories and 186 by 134 feet, was a sizeable and significant addition to the yard. Even larger was a new storehouse, No. 199, built in two sections. The original, a concrete structure, nine stories and measuring 173 by 195 feet, was finished in October 1941. Subsequently, it was enlarged by a seven-story steel addition, 173 by 200 feet. Other new structures included two additional storehouses (Nos. 198 and 201), a Public Works Building (No. 200), a garage and transportation office (No. 204), incinerator (203), deperming station (No. 205), locker building (No. 206), decontamination building (No. 207), two first

aid centers (Nos. 208 and 209), and a salvage building (No. 210). Buildings which were extended during the war years included the machine shop (No. 42-A), power plant (No. 108), the new pipe and shipfitters shop (No. 195), administration building (No. 39), telephone building (No. 31), Frazier Barracks (No. 33), the old pipe shop (No. 24), and ropewalk (No. 58).[29]

The vastly increased labor force accounted for some changes in the yard's plant, such as additional lockers and lavatories, including those for women. Also, to facilitate traffic in and out of the yard, especially when shifts were changing, another gate was created at Henley Street by removing a portion of the granite wall. Thereafter, the new gate, No. 2, was the exit from the yard, and No. 1 served as the entrance.

During World War II, the Boston Navy Yard's primary industrial activity centered on the construction of 174 destroyers, destroyer escorts, LSTs, LSDs, submarines, and auxiliaries. That undertaking could not have been accomplished without a remarkable expansion in the yard's shipbuilding facilities. When the yard began to participate in the naval building program in the early 1930s, it had no bona fide construction facilities in operation and employed its two dry docks. Dry Dock No. 1 had a relatively brief career as a construction site, but between 1934 and 1940, twelve destroyers were built in Dry Dock No. 2. Although adequate for construction purposes, the docks lacked the crane and other services required

29. Improvements at the yard and the various annexes are discussed in Dana, "Development of Facilities," and Mansfield, pp. 13, 26.

for expeditious shipbuilding, and they were too far removed from the structural shop, Building No. 104. The enlargement of the yard's shipbuilding capacity began with congressional funding in 1938, which provided for the modernizing of Shipways No. 1 and equipping it with new cranes. By June 1939, work had progressed sufficiently to permit the laying of the keels for the destroyers Gwin and Meredith

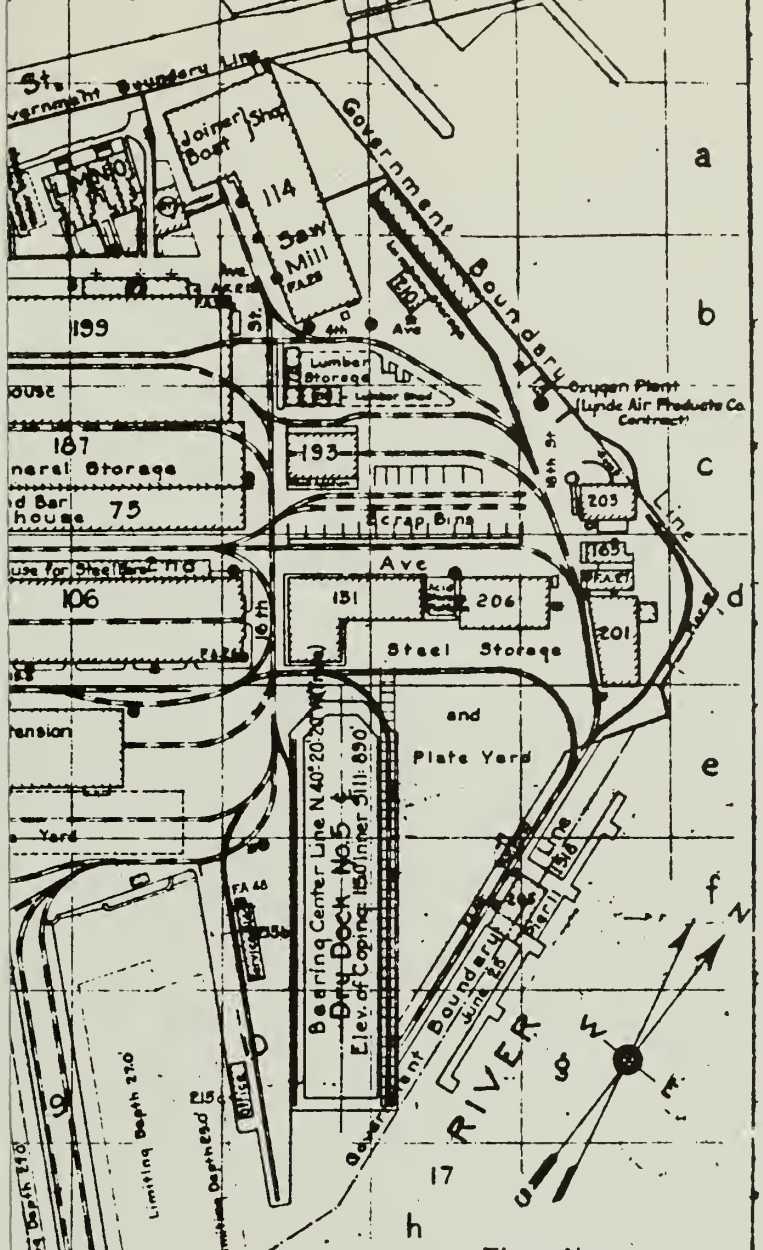
The yard also acquired two other construction sites. Shipways No. 2, 495 feet long, was built east of and parallel to Shipways No. 1. The second building ways went into service in January 1941, when work began on Forrest and Fitch, both destroyers. With two ways available, utilization of Dry Dock No. 2 for new construction ceased following the launching of Wilkes and Nicholson in May 1940. A third shipbuilding facility began operations in the spring of 1942. Originally referred to as "the basin" or Shipways No. 3, it ultimately evolved into a shipbuilding dry dock and after the war was designated Dry Dock No. 5. Dry Dock No. 5 was constructed in connection with the destroyer escort program, and in April 1942, it received the keels of the the first ships of this type built at the yard. The dock was 518 feet long and ninety-one wide and had a depth over the blocks of seventeen feet. The new facility was of the relieving type, equipped with weep holes to allow the ground water to flow into the dock, where it was removed by drainage pumps. The urgent need for escorts resulted in the dock being hastily built "at the expense of construction standards." Its pumps lacked capacity, and it sometimes took twenty hours to

CHART NO. 5: MAP OF BOSTON NAVAL SHIPYARD, BOSTON, MASS., SHOWING CONDITIONS ON JUNE 30, 1946.

NOTE: This map reveals changes in the Charlestown yard made during the era of World War II. Changes in the waterfront include lengthening of piers east of Dry Dock No. 2; enlargement of Piers No. 5 and 10; elimination of the former Pier No. 7; construction of Pier No. 11; construction of Dry Dock No. 5; and construction of Shipbuilding Ways No. 2.

Among the new buildings shown on the map are No. 193, salvage stores, built by the WPA; No. 195, Pipe Shop, Assembly and Welding Shop, Boiler Shop, and Shipfitting Shop; No. 196, Ship Machinery Testing Plant; No. 197, Electrical Shop and Outside Machinists Shop; No. 199, General Storehouse; No. 201, Storehouse; No. 206, Locker Building; and numerous Industrial Service Buildings (Nos. 211-A, 211-B, 211-C, 212-A, 212-B, 212-C, 213-A, 213-B, 213-C, 214-A, 214-B, 215-A, 215-B, and 215-C), mostly located on Piers No. 5, 6, 7, and 8. The construction of Shipbuilding Ways No. 2 required the removal of the southern part of the former Shipfitters Shop (No. 104) and the addition of an extension on the east side. The Machine Shop, No. 42-A, was extended northward.

As a result of the plant expansion during World War II, the yard became more congested than ever, with the elimination of former open spaces, such as the baseball and recreation field, now occupied by Buildings Nos. 197 and 195, and the tennis courts, the site of No. 198.



MAP OF
BOSTON NAVAL SHIPYARD
BOSTON, MASS.

SHOWING CONDITIONS ON

JUNE 30, 1946

P.W.-Public Works Dept. E.-Engineering Dept. Prod.-Production Dept. S.D.-Supply Dept. M.&S.-Medicine & Surgery U.S.M.C.-U.S. Marine Corps.

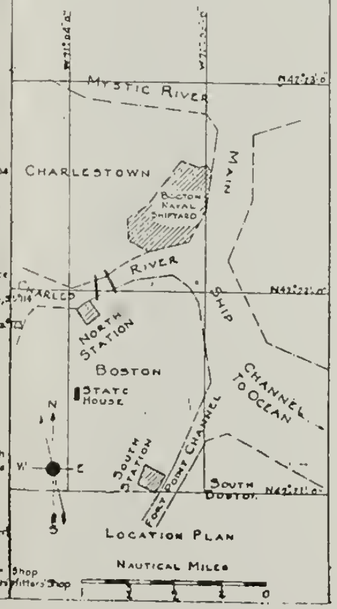
No.	Location	Officers' Quarters
A	d2	Emergency Plumber
B	d3	Planning Officer
C	d3	Aide to Comdt. 1st Nav Dist.
D	d3	Production Officer
E	d3	Repair Supt.
F	d3	Supply Officer
G	c4	Comdt. 1st Nav Dist.
L	a14	Commander, Shipyard
M	e15	Public Works Officer
N	e15	Administrative Officer
O	e15	Medical Officer
P	e16	Commandant, U.S. Naval Base
120	c7	
		U.S. MARINE CORPS
1	c5	Post Executive Officer, U.S.M.C.
2A	c6	Post Mess Officer,
2B	c8	School Officer,
2C	c6	Post Police-Athletic and Brig Officers
2D	c8	Junior Marine Officers' Emergency Quarters
1	c5	Barracks, Mess Hall, Post Exchange, Barber Shop

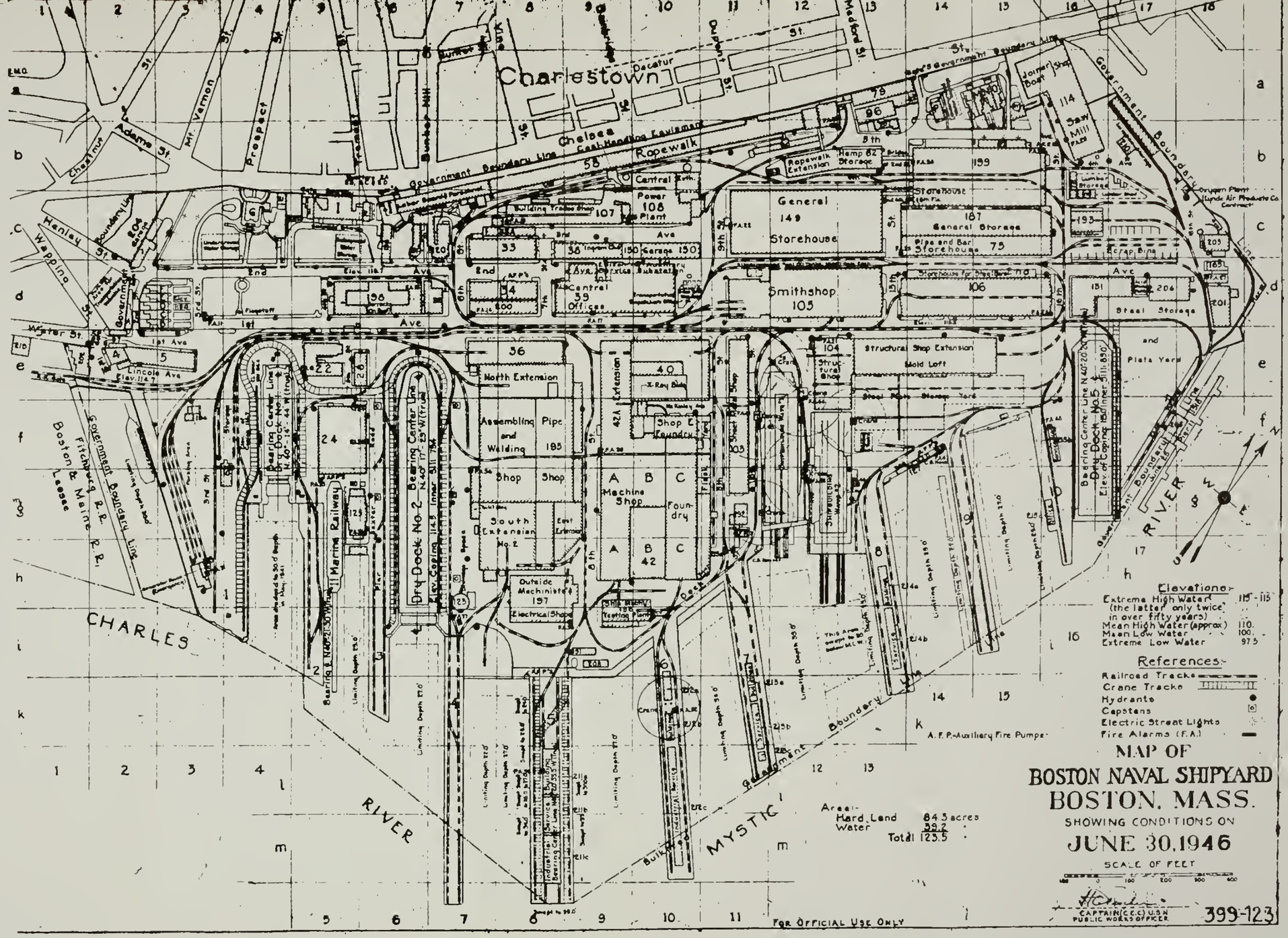
No.	Location	Dept. occupy	Shops, Storehouses, Offices, etc.
1	d2	P.W.	Garage, Commandant, Officers, Henley St
4	e2	Capt. Yd	Yard Police
5	e3	Capt. Yd	Classrooms, A.S.W., Officers' Mess & P.O.Q.
10	g4	Capt. Yd.	Laundry
13	e3	S.D.	Yard Scale house
21	c4		Greenhouse
22	e5	Various	Substation #22; New Ship Work, Prod.
24	f3	Prod	Riggers' Loft
30	a6	Capt. Yd.	Restaurant
31	c6	P.W.	Telephone Exchange, Industrial Medicine
32	d7	M.&S. Personnel	Safety Engineer (Personnel & Compensation)
33	c8	Capt. Yd.	"Tracker" Barracks & Rec. Sta.
33A	c8		Dispensary (Enlisted Men) Shop "Ye Crin Detail
34	d6	Various	Storehouse, Post Office, Chemical, Photographic and Materials Laboratories. Smoking Center
36	e8	Prod	Template Storage, Cafeteria & Sail Loft
37	e7		Substation #36
38	e9	Capt. Yd.	Ingram Club, Chaplain Repair Garage, Ship Service, Movie Hall
39	d9	Various	Offices: Commandant, Captain of the Yard and Manager, Planning and Production Divisions, Substa. #39 Radio Station, Accounting Office, Communications Office, Bond Office
40	e10	Prod	Temporary Services Shop, Toilet & Locker Rms.
42A	gh5	Prod.	Sandrat Machine Shop, Industrial X-Ray
42B	gh10	Prod	Machine Shop Offices, Instrument Room
42C	gh10	Prod	Foundry, Electric Substation #42
42E	f10	Prod	Pattern Shop and Pattern Storage, Toilet and Locker Rooms Brass Foundry
58	b1	Various	Ropewalk, Labor Foreman, Personnel
60	b12	Prod	Temporary Shop for Ropewalk
62	b15	Prod.	Ropewalk Extension
		S.D.	Storage for Hemp and Rope
75	e15	S.D.	Pipe and Bar Storage
77	b15	P.W.	Officers' Garages
79	d15	Capt. Yd.	Apprentice School
96	e15	S.D.	Storehouse, Substation #96
97	e9	P.W.	Main Gate Guardhouse, Marine Guard
103	f1	Prod	Steel Metal and Pipe Coverers Shop
104	f	Prod	Structural Shop, Mold Loft, Substation #104
105	e2	Prod	Smithshop, Roundhouse
106	d15	Prod.	Boiler Shop, Substation #106 E & #106 W
		S.D.	Storehouse for Steel Bars (Leanto)
107	c9	P.W.	Building Trades Shop, Painting Office Battery Charging Station
108	c10	P.W.	Central Power Plant
109	h3	P.W.	Electric Substation #109 Waterfront Office
110	g6	Prod	Soldering House for Riggers' Loft
114	e15	Prod.	Sawmill, Woodwork, Shipstand Spar Shops, Substa. #114
120	c7	M.&S.	Dispensary and Dermal Office
123	h7	Prod.	Pump House & #1 Drydocks Nos. 1 & 2, Substa. #123
124	f6	P.W.	Toilets
125	g5	Prod.	Paint Shop
127	h14	P.W.	Latrine
131	e16	S.D.	Storehouse: Inflammable Materials
136	c6	U.S.M.C.	Administration Building
145	b2	P.W.	Toilet and Locker Bldg (Transportation)
149	c12	S.D.	Storehouse, General, Substa. #149 Exch
150	c12	P.W.	Power Plant Switch Sta., Edison Aux. Substa., Movie
165	d10	Prod.	Oxy Acetylene Storage Building
176	c16	S.D.	Storehouse
187	e14	S.D.	General Storehouse
191	L5	P.W.	Pump House, Circulating Loop (Salt Water)
192	g11	P.W.	Electric Substation #192, Toilets
193	c16	S.D.	Salvage Stores Building
194	f3	Capt. Yd.	Fishing Station
195	f8	Prod.	Pipe Shop Assembling and Welding Shops, Boiler Shop, Pitters' Shop
196	L9	Prod.	Ship Machinery Testing Plant

No.	Location	Dept. occupy	Shops, Storehouses, etc.
197	h5	Prod.	Outside Machinists' & Electrical Shops & Offices
198	d6	Prod.	Temporary Storehouse
199	b14	S.D.	Storehouse, General
200	d8	Various	P.W. Division, Fire Station, Security
201	d15	P.W.	Storehouse
202	e1	Capt. Yd.	Ammo. Insp. Off's.
203	c16	P.W.	Incinerator Building
204	c7	P.W.	Garage, Transportation Office.
205	f16	S.D.	Salvage Storage
206	d17	Prod.	Locker Building
207	b13	P.W.	Paper Salvage Building, Paint Storage
208	L9	Prod.	Repair Supt.
209	g13		Vacant
210	b17	Prod.	Salvage Building
211a	L6	Prod.	Industrial Service Building - Pier 5
211b	L6	Prod.	Industrial Service Building - Pier 5
211c	m6	Prod.	Industrial Service Building - Pier 5
212a	k10	Prod.	Industrial Service Building - Pier 6
212b	k10	Prod.	Industrial Service Building - Pier 6
212c	m10	Prod.	Industrial Service Building - Pier 6
213a	k11	Prod.	Industrial Service Building - Pier 7
213b	k11	Prod.	Industrial Service Building - Pier 7
213c	L11	Prod.	Industrial Service Building - Pier 7
214a	h13	Prod.	Industrial Service Building - Pier 8
214b	L13	Prod.	Industrial Service Building - Pier 8
215a	h11		Vacant
215b	f13	Prod.	Industrial Service Building - Pier 10
215c	f16	Prod.	Industrial Service Building - Pier 10
216	e1	Prod.	Pattern Storage, Miscel. Storage
217	e13	Prod.	Lumber Storehouse
218	c16	S.D.	Lumber Shed
219	h5		Vacant

Credit Union
Safety Shoe Store, Lumber & Tailor Shops

Small temporary and portable buildings used for Stock, Tools, etc., Field Offices and for healing ships are not shown





unwater the dock. Moreover, its poorly designed swinging gate created a three-foot obstruction over the sill. Despite its defects, Dry Dock No. 5 proved sufficient for the construction of more vessels than any other facility in the yard.[30]

No major repairs were made to the yard's graving docks, but the marine railway was rehabilitated in 1941 and 1942. This included completely rebuilding, overhauling, or repairing the cradle, track, and supporting piles. This reconstruction increased the capacity of the track and cradle from 2,000 to 3,000 tons, but since no alterations occurred in the hauling mechanism, the working capacity of the railway remained the same. To prevent ice from hindering the operations of the marine railway during the winter months, a thawing system was installed, which included a salt-water storage tank and a connection with the yard's steam lines.[31]

The yard's wharfage increased with the extension of Piers 4, 7, 6, and 9. A new Pier No. 5 replaced the former No. 4-A. Pier No. 10 was improved in the process of construction of the shipbuilding dry dock. That construction also ultimately led to a facility known as Pier No. 11, part of the deperming station. By the end of the war, the yard possessed approximately 10,000 feet of berthing space.

The most spectacular plant improvement occurred at the South

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30. Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946, (2 vols.; Washington: GPO, 1947), vol. I, pp. 173-4; Boston Naval Shipyard, Shore Development Program, Dec. 31, 1946, 181-40, Box 365, A1-1.

31. Brady and Crandall, pp. 14-5.

Boston Annex, whose official designation became the U.S. Naval Dry Dock, South Boston. Development of that area was promoted by the circumstances of the main yard and by the natural advantages of the South Boston site. A hundred and forty years of growth left the yard at Charlestown with no space for expansion. Also, large vessels had difficulty in operating in the restricted waters of that location. On the other hand, South Boston had practically unlimited anchorage, with a great depth of water leading to Dry Dock No. 3. This made it advantageous for battle-damaged ships with increased draft. Moreover, the annex had room for additional buildings and other facilities. The original site, consisting of 66.5 acres of hard land, could be enlarged by filling and by the Navy's acquisition of adjacent tracts.[32]

In 1939, South Boston's principal facilities, in addition to the large dry dock, consisted of a pumphouse, utility building, Marine Corps barracks, and two approach piers. This soon changed, and in 1940 and 1941, Congress appropriated $10 million for improvements.[33] Those funds made possible the implementation of plans for the annex that had been first formulated in 1939. Since the Charlestown yard primarily engaged in new ship construction and the repair of medium-sized vessels, utilization of South Boston focused on outfitting, repairing, and converting large warships, auxiliaries, and transports. During the war, the

32. U.S. Naval Administration, World War II: First Naval District, vol. VIII, Appendix A, p. 6.

33. P.L. 786, Sep. 18, 1940, SAL, vol. 54, p. 956; P.L. 13, Mar. 17, 1941, SAL, vol. 55, p. 36; P.L. 22, Mar. 27, 1941, SAL, vol. 55, p. 49; P.L. 48, May 6, 1941, SAL, vol. 55, p. 163; P.L. 240, Aug. 21, 1941, SAL, vol. 55, p. 663.

annex also became a location for the fabrication of hull sections, which were transported to the main yard for the new construction programs. In addition, certain nonindustrial activities previously located in Charlestown, such as the receiving station, were moved to South Boston.[34]

By August 1945, the U.S. Naval Dry Dock, South Boston, had acquired twenty-five new buildings, including structural, machine, ordnance, subassembly, building trades, boiler, shipfitting, and riggers shops; storehouses; and structures for support services, such as administration, power, security, and dispensary buildings. Moreover, its docking capacity enlarged with the construction of a new dry dock for heavy cruisers, Dry Dock No. 4, and with the assignment to the annex of Floating Dry Dock No. 24, used for destroyers, and Floating Dry Dock No. 2, for net tenders, minesweepers, and similar craft. The waterfront changed remarkably with the construction of seven piers, each more than 900 feet in length.

Development of the waterfront of the South Boston site increased the size of the yard from 66.5 acres to almost one hundred acres of hard land and seventy-two of water. Further space was obtained by the acquisition of several tracts. The "E" Street Annex contained a plate field and storage area, a marginal wharf, and buildings for stores; and the "K" Street Annex, the Fire Fighting School and a salvage yard for the Supply Department. South Boston became the location of the Receiving

34. Assistant Maintenance Superintendent to Public Works Officer, May 2, 1945, 181-40, Box 314, A-12.

Station, formerly housed in Frazier Barracks in the main yard. Frazier Barracks could accomodate no more than a hundred enlisted men. Adequate quarters were needed for the crews of destroyers of the North Atlantic Patrol, whose vessels were in the yard for short overhaul periods. Funds were allocated in 1941 and 1942 to increase the barracks capacity of the Boston area. Part of those funds were used to enlarge Frazier Barracks and to provide quarters for almost 10,000 men at South Boston. Among the structures acquired or built there was Fargo Barracks, designated as the Receiving Station.

Another unit at South Boston was the Net Depot, which operated in Boston Harbor and included Pier 7-E, Building No. 17, and a net weaving area. Adjacent to the annex was the Commonwealth Pier, leased by the Navy from the state of Massachusetts and used by the Supply Department. In March 1945, the Naval Dry Dock expanded further with the acquisition of an additional tract of forty acres. At the end of the war, an officer responsible for the plant at South Boston stated that the site "shows signs of pains and injuries in various sections that have a raw and rough appearance." But clearly, the annex had established itself as a major industrial facility and was considered by some parties within the Navy as the most promising area of the Boston Navy Yard.[35]

During World War I, the Navy obtained a small commercial repair yard on the Chelsea waterfront, which became the Chelsea

35. Assistant Maintenance Superintendent to Public Works Officer, May 2, 1945; Industrial Activities Survey, Nov. 24, 1944, 181-40, Box 194, A3-1.

Annex of the Boston Navy Yard. Improvements began in 1940 and included the installation of two marine railways. The Navy purchased Marine Railway No. 12 from Green's Shipyard and No. 13 from the Boston Dry Dock Company, moved them to the Chelsea Annex, and made repairs upon them. Other improvements consisted of rehabilitation of one existing pier, construction of new wharves, building a sea wall, dredging, and provision for electrical, steam, air, and water services for the piers. By 1944, the Chelsea Annex had almost 2,000 feet of wharfage with depths of between nine and twenty feet. In World War II, the annex was used primarily for the repair and fitting out of small craft, and in the last three years of the conflict, repair work averaged thirty ships a month. The annex's location across the Mystic River from the main yard made it reasonably convenient.

Considered part of the main yard was Lockwood's Basin. Beginning in 1934, the Navy leased the site to the Bureau of Marine Fisheries of the Commonwealth of Massachusetts. That bureau built a marine railway for its thirty-eight-foot boat. The lease was a revocable permit, and with the outbreak of war, the Navy retook possession and developed the site for the repair of small vessels.

Because of the great volume of naval vessels coming to the Boston area during the war, an adequate fuel supply was essential. This led to the development of the U.S. Naval Fuel Annex in the Orient Heights section of East Boston, directly opposite the South Boston dry dock. By the end of 1942, the fuel depot included fuel tanks, each with a capacity of between

27,500 and 37,500 gallons; a fuel pier; pipelines; heating plant; and fire protection system. The Supply Department of the Boston Navy Yard operated the annex.

Locating the fuel depot at some distance from the yard had advantages, but the distribution of industrial activity among several sites probably resulted in inefficient operations. This was the conclusion of a Navy board which made an industrial survey of the yard in November 1944.

Following its inspection, the board prepared a report, which noted that the war made it necessary to construct new buildings on practically all available ground areas of the main yard:

> There was nothing else to do, but the result is a congested hodge-podge of shops, offices, storehouses and other structures, whose arrangement precludes good practice in efficient flow of material and of work.

The board also found the main yard deficient in other aspects. Crane service at the dry docks was adequate for normal activities, but inadequate for the new construction taking place. The power plant had become obsolescent, requiring the yard to purchase five percent of its electricity. The foundry was dark and poorly laid out, and the units of the structural shop in need of consolidation. The board further observed that the yard administration had been "extremely conservative" in ordering replacement of machine tools, with the consequence that many old machines remained in use.[36]

The officers conducting the survey found better conditions "as to space and equipment" at South Boston, and they concluded that "if not more than one Navy yard plant is needed after the

36. Industrial Activities Survey, Nov. 24, 1944.

war in the Boston area," consideration should be given to the annex.

THE YARD'S CIVILIAN WORKERS IN WORLD WAR II

During World War II, the United States Navy ranked as the largest single employer of industrial labor in the world, having three-quarters of a million workers on its payrolls at the end of the conflict. For the Boston Navy Yard, the peak period of employment was July 1943, when 50,000 people worked at the yard and its several annexes.[37] Recruitment and retention of such a huge work force constituted major challenges. Because of the great demand for shipyard labor, generated by a remarkable expansion in both commercial and military shipbuilding, experienced mechanics became scarce. Thus, navy yards had to hire workers with no skills and then train them.

The sheer size of the Navy's work force, the unfamiliarity of many of its members with industrial environments, and the obvious logistical and humanitarian advantages in maintaining vigorous workers directed the attention of the Navy Department and the administrators of its yards to safety programs. The shortage of male workers, resulting from the competition for labor as well as the demands of the selective service, led to the employment of women in navy yards, not only in clerical forces, but also as manual workers. Because of the fundamental importance of industrial manpower and the problems of securing, training, retaining, and providing for the safety of labor, the Navy administratively accepted the ideas and practices of

37. Furer, p. 882; Mansfield, p. 28.

industrial relations. As in World War I and the economic emergency of the Great Depression, regulation of wages for blue-collar workers was taken out of the hands of local yard labor boards and became matters to be decided by those in charge of economic mobilization on a nationwide level.

Consideration of civilian employees at the Boston Navy yard during World War II consists of the topics of the operations of the selective service system, labor recruitment, training, safety, labor relations, and wages. In addition, of course, the entire area of civilian employees had to be administered, both at the level of the department in Washington and in the yard itself.

The basic categories of employees persisted, manual workers being in Group I, unskilled laborers; Group II, helpers; Group III, skilled mechanics; and Group IV(a), supervisors. White-collar employees were in Group IV(b). Civil Service regulations and congressional legislation gave the Navy greater freedom in the hiring and compensating its manual labor force than Group IV(b) employees. For example, laws existed limiting the number of white-collar workers and controlling their salaries.

Because of the gradually accelerating program of naval expansion initially launched in the early 1930s, manpower considerations first became important in the years before Pearl Harbor, although it was not until midway through the war that the full magnitude of the problems became apparent.

The Navy's Apparatus for Civilian Employees

When hostilities began in Europe in September 1939, the Navy Department had a fairly complete apparatus for the administration

of civilian personnel. Early in the century, the office of the Assistant Secretary of the Navy emerged as a prominent unit in handling matters involving navy yard workers. In 1921, the Secretary of the Navy created the Navy Yard Division, under the immediate supervision of the Assistant Secretary. That agency, renamed the Shore Establishment Division in June 1934, had as one of its charges civilian personnel. An executive order of June 1938 directed all cabinet heads to establish within their departments a division for the oversight of civilian workers. The Navy responded in the following December with the formation of a Division of Personnel Supervision and Management, thus setting up a rivalry with the Shore Establishment Division. Not only did both of these units have authority respecting navy yard workers, all bureaus and the Chief of Naval Operations claimed a voice in policies and decisions affecting civilian employees.[38]

In 1939, the Secretary of the Navy gave approval to war plans developed by the Shore Establishment Division for navy yards, including arrangements respecting employees. Those plans required Naval District organizations to draft local plans, and created positions of District Civilian Personnel Officers to assist navy yard commanders in implementing them. After the United States formally took up arms, it soon became clear that the Navy had difficulties in hiring, retaining, and molding an expanding and productive industrial labor force. Early in 1942, Secretary of the Navy Frank Knox engaged a New York consulting firm, Industrial Relations Counselors, Inc., to make a survey of

38. Furer, pp. 886-7, 893.

civilian employee affairs at three navy yards, Boston being one of them, and to make recommendations for improvements.[39]

In hesitant fashion, the Navy accepted the suggestions of the consultants and after considerable delay recommended each of its major industrial facilities create a Personnel Relations Division, headed by a Personnel Relations Officer and consisting of sections concerned with labor relations, training, safety, and employee welfare and services. The Navy Department continued to alter its own administrative organization for employee matters, and in January 1944, established a Division for Shore Establishments and Civilian Personnel.

Given the ponderous, redundant superstructure within the Navy Department, it is surprising that the field units succeeded as well as they did in their efforts to recruit and manage large work forces. Most difficulty was encountered by new industrial establishments, which could not even obtain from the Navy, a manual to guide them in dealing with civilian workers. Despite the many divisions in Washington involved with personnel matters, none of them had collected the 800 department letters and circulars issued since 1910 touching on navy workers. Well-established activities, such as the Boston Navy Yard, at least had complete files and, more importantly, considerable institutional experience with the hiring and management of workers.[40]

At the outset of the war, those parts of the Boston Navy

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39. Furer, p. 908; U.S. Naval Administration, World War II: Office of Secretary of the Navy, Civilian Personnel (3 vols.; Office of Secretary of the Navy, Historical Section), vol. I, p. 500.

40. Furer, p. 899.

Yard's administration which dealt with civilian employees, other than utilization of their labor, included the Labor Board, the Wage Board, the Industrial Manager, and a Personnel Officer. The Labor Board, attached to the office of the commandant, functioned mainly in hiring of workers, liaison with the local Civil Service authorities, and as a records-keeping office. The Wage Board, not a permanent body but appointed each year by the commandant, was a familiar entity to career officers and old-time employees, although it had not been convened since 1930. The Industrial Manager had formal charge of the administration of civilian personnel affairs, and the Personnel Officer had actual direction of those affairs.

Early in 1942, a change gave responsibility for civilian personnel administration to the Shop Superintendent, an officer in the Industrial Department and thus an assistant to the Manager. The Shop Superintendent became the senior member of the Labor Board. To aid him in his new duties, he was assigned a full-time staff, which included two officers. Since the Shop Superintendent had general charge of the activities of all manual workers, except those of the Public Works and Supply Departments, giving him oversight of personnel matters had merit. On the other hand, he probably was the most overburdened division head in the yard. This arrangement prevailed until the establishment of a Personnel Relations Division in July 1943. In part, the latest organization resulted from the findings of Industrial Relations Counselors at the Boston, New York, and Puget Sound yards.

The IRC report on the Boston Navy Yard reported that a "dual

arrangement exists under which identical operations are frequently directed by both officer personnel and civilian supervisors." Those supervisors were "overburdened, inadequately trained and not kept informed of current developments." Respecting manpower procurement, the report held that "procedures for selection and hiring are not such as to satisfy present requirements." As for wages and compensation, "confusion exists...concerning promotion in pay and grade." "Unjustifiable pay differentials exist." "Pay scales are not directly related to the work performed." The consultants found little in the way of viable systems for handling workers' complaints. "The need for procedures for adjusting employee grievances...are not sufficiently recognized." Particularly in view of the anticipated further enlargement of the work force, the report found the "training program...not sufficiently comprehensive."[41]

Almost a year after receiving the report of Industrial Relations Counselors, the Assistant Secretary of the Navy issued a directive to commandants requesting all yards to take measures to strengthen their organizations for handling personnel matters and suggesting, but not ordering, the appointment of Personnel Relations Officers.

On July 8, 1943, the Boston yard commandant directed the establishment of a Personnel Relations Division, under the supervision of the Manager. However, its cognizance extended beyond the Industrial Department to include personnel matters for

41. U.S. Naval Administration, World War II: Office of the Secretary of the Navy, Civilian Personnel, vol. I, pp. 500-5.

all units of the yard. The new division was to be headed by a Personnel Relations Officer, a commissioned naval officer. The PRO served "only in an advisory capacity." The commandant's order called for five major sections in the division: Labor Relations (employee grievances, dealings with shop committees, unions, and other employee associations); Employment (hiring, separations, deferments, liaison with selective service, records and statistics, job classification analysis, annual and sick leave, retirement regulations); Training (apprentice, trade, instructor, supervisory, and technical and scientific training; indoctrination); Employee Services (assistance in transportation, housing, rationing; food service, credit union liaison; employee publications; advice on matters of personal finance, such as indebtedness and income taxes); and Safety.[42]

Administratively, the new Personnel Relations Division soon became apparent in such forms as the comprehensive training program, a system of workers' committees to stimulate interest in production, and competitions among shops and offices to reduce absenteeism. During the remainder of the war, the Boston yard retained the personnel relations organization established in July 1943.

The reform of the apparatus for management of its employees came at the same time as the yard reached its peak employment, 50,128. Although the recruitment of a work force of that size represents a major accomplishment, it had not been achieved

42. Commandant's Order No. 187, Jul. 8, 1943, 181-40, Box 5, A3-1.

without difficulty, and a serious problem was anticipated in maintaining sufficient workers for the various new construction programs and for the yard's share of repairs and conversions. In their quest for manpower, navy yards were in competition with other shipbuilding activities, war plants generally, and the selective service.

The Yard and the Selective Service

In September 1940, Congress enacted and the President approved the first peacetime program of compulsory military service in the nation's history. That program required the registration of all men between the ages of twenty-one and thirty-five, 1,200,000 of whom would be drafted for a period of a year. The first draft numbers were selected on October 29, and inductions soon began. In the following August, the service of army draftees was extended by eighteen months. During the three and a half years of the nation's actual participation in the war, selective service regulations underwent several changes. Ultimately, all males between eighteen and sixty-four were required to register, and, for a brief period, men of ages from thirty-eight to forty-five were actually drafted. In January 1943, the War Manpower Commission sought to force able-bodied adult male Americans into war-related jobs by a "work or fight" order, which eliminated military deferments for everyone who held unessential jobs, including fathers with dependent children. Congress raised a storm over that policy, and it ended in December of the same year. During much of the war, deferments were limited to the clergy, hardships cases, and to men in

essential jobs in war industries and agriculture.

With respect to government workers, it was decided that only the heads of certain federal departments and agencies could request deferments for their employees. The Secretary of the Navy delegated that authority to the chiefs of bureaus, heads of other offices in the Navy Department, commandants of naval districts, and commanding officers of certain shore establishments, including the navy yards. In the early stages of the war, commandants executed selective service deferment forms with a simple statement that the worker was necessary to the war effort. For example, early in 1942, Commandant William T. Tarrant appealed the assignment of a draft classification of "I-A" to Clayton Curley, an "experienced Gas Cutter & Burner" and employed at the yard since the previous September. Tarrant sought to retain Curley at the yard because of "the necessity of the Registrant to the National Defense Program." The fate of Curley is unknown, but lacking more ample information, many local draft boards, which had the power to grant or refuse a deferment, often drafted the man in question.[43] Eventually, much closer coordination prevailed between navy yards and selective service authorities.

Protection of the yard work force against the manpower requirements of the military services resulted in administrators' seeking to prevent or discourage needed workmen from voluntarily enlisting. Albert Mostone, who already had experience in the repair of locomotives, started work at the yard in 1937 in the

43. U.S. Naval Administration, World War II: Office of the Secretary of the Navy, Civilian Personnel, vol. I, pp. 263-4; Commandant to Local Board #99, Mar. 11, 1942, 181-40, Box 186, LAC (1).

Transportation Shop. Because of his ability to read blueprints and his general competence, he became a shipfitter in 1939 and soon advanced to the rank of first-class mechanic in that trade. After Pearl Harbor, Mostone tried to enlist in the Navy. However, as he described the situation thirty years later, "they refused to grant me permission," because "I was doing work for the government, and they said I was essential." Had he persisted, Mostone probably would have succeeded, but he was intimidated by his shop master, who said if the shipfitter left to enter the service, he would "never get another ... government job again."[44]

During the middle years of the war, cooperation between the yard and selective service authorities took the form of manning tables and replacement schedules. Manning tables were elaborate personnel inventories prepared by navy yards and other defense employers. They included a list of all positions in the yard; the number of people employed in each job; the time necessary to train people for those jobs; and a replacement schedule. Those schedules listed by name the men in the yard within the age limits liable to military service, the date at which time they could be replaced, and a list of men for whom deferments were requested. In the First Naval District, when accepted by both parties, a replacement schedule became an agreement between an employer and selective service authorities, whereby workers were released at a stipulated rate. Such an agreement allowed the employer to arrange to replace drafted personnel without serious

44. Oral History Interview, Albert Mostone, p. 6.

disruption of operations.

Despite the understandings reached with local draft officials, the Boston Navy Yard had difficulty in maintaining a labor force adequate for the work required by the Navy. The yard had proceeded on the basis that it would have to recruit a large number of inexperienced workers, men and women, and provide the training necessary to enable them to work as mechanics. Although this consumed valuable time, it nevertheless appeared as a practical scheme. Such plans were disrupted by frequent changes in selective service regulations on the national level and the necessity of local draft authorities to provide men for the military services at a more rapid rate than anticipated.

For example, at the beginning of the war, the yard recruited large numbers of young men with the idea of training them and then utilizing their services for several years before they became eligible for the draft. In November 1942, the draft age was lowered to eighteen, which immediately placed these workers in jeopardy. Moreover, the Civil Service Commission would not withhold certification for young men who would become subject to the draft within six months. This meant that when such men applied for work at the yard, they could not be refused, although by the time they were becoming of some value to the yard, they might be conscripted.

Such occurred in the case of Frank Coolidge, who started in the yard in 1941 as an apprentice molder. Then nineteen years old, Coolidge participated in the apprenticeship training program

45. U.S. Naval Administration During World War II: First Naval District, vol. II, pp. 43-9.

until he was drafted in 1943.[46]

Respecting manpower, the most critical period for the Boston yard was 1943. At a conference in the yard, local selective service authorities gave notice that they would have to take men from Navy industrial establishments to meet the needs of the military forces. At the same time, word spread that following the war, veterans would be entitled to a number of valuable benefits. Many employees resigned to enlist. During the war, 7100 workers took military leave from employment at the Boston Navy Yard, and another group of almost 6000 enlisted without the formality of a leave. The 13,000 men who left the yard during the war represent a work force equivalent to the total number of yard employees in early 1941.[47]

The selective service system had a definite impact on the Boston Navy Yard's work force, affecting both its size and composition. A new personnel statistics form, introduced in the summer of 1944, reveals that in July of that year the Boston Navy Yard had almost 42,000 workers, of whom slightly more than 34,000 were male. This does not include 6629 men on military furlough as of July 31. Nineteen-thousand and five hundred of the men then at work in the yard had ages of thirty-eight years or older. Thus, fifty-seven percent of the male workers or forty-six percent of the entire yard force was in an age category which made their being conscripted highly unlikely. Some 800 male employees were

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46. Oral History Interview, Frank Coolidge, p. 4. Coolidge returned to the yard after the war and was the foundry's last master mechanic.

47. Report of Civil Personnel Statistics, Jan. 1941, 181-40, Box 13, A9-4.

under eighteen years of age and, for the time being, ineligible for the draft. The remainder of the yard's men, those from eighteen to thirty-seven years of age, numbered 13,800. Of that number, 10,600 were physically qualified for military service. However, most of the physically fit were beyond twenty-five years. In July 1944, only 700 of the yard's employees were of an age and physical condition which made them prime candidates for the draft.[48]

Comparison of the data for July 1944 with that of June 1945 suggests two trends in the composition of the Boston yard's labor force in the last years of the war: that part of the work force made up of men was becoming older, and there were fewer and fewer men who, by virtue of their age and health, were in any danger of being drafted. In June of 1945, the yard employed only eighty-nine men between the ages of eighteen and twenty-five who were physically qualified for military service.[49]

Changes in Employment Regulations

By mid-1943, with 50,000 workers then employed at the yard, with other defense establishments in the area seeking more labor, and after several years of large draft quotas, there were few workers left to hire as replacements. Moreover, by that time, practically all peacetime limitations respecting the hiring

48. Monthly Report of Civilian Personnel for Jul. 1944, 181-40, Box 287, A9-4.

49. Monthly Report of Civilian Personnel for Jun. 1945, 181-40, Box 312, A9-4. The June 1945 report is the last one in which the section on the eligibility of men for the draft was completed.

of workers and the hours they could work had been eliminated.

Beginning with President Roosevelt's declaration of a limited national emergency in September 1939, laws and regulations governing labor had been relaxed or suspended. In the summer of 1940, the Civil Service Commission amended a number of its existing provisions. One was a regulation restricting the hiring of navy yard mechanics to men of the ages of forty-eight or younger. Thereafter, fifty-five became the maximum permissible age for the hiring of almost twenty trades, including blacksmiths, boatbuilders, machinists, diesinkers, ropemakers, shipfitters, and shipwrights. When that amendment did not produce sufficient numbers of new workers, the commission changed the top age for many trades to sixty-two.[50]

About the same time, there occurred a relaxation of Civil Service rules respecting the promotion or transfer of new workers within the same line of work. Previously, no changes could be made during the first six months, without approval of the Civil Service Commission. The new ruling enabled workers to be promoted or transferred to another position in the same trade or occupation after one month. The alteration in rules applied to the War Department, which apparently had sought a change, and was available for application to Navy industrial establishments. However, the Navy took a conservative course and did not accept the ruling until later.[51]

Yet another Civil Service rule change occurred in the summer

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50. Boston Navy Yard News, Jul. 11, 1940 and Aug. 8, 1940.

51. U.S. Civil Service Commission, Jun. 21, 1940, 181-40, Box 2, A2-7.

of 1940, when the commission stipulated that new employees of the navy yard could start work prior to the required physical examination. If that examination, when given, revealed physical defects other than communicable diseases, the new worker could continue as a temporary employee for one year.[52]

The Secretary of the Navy prevented a disruption of the recruitment of additional workers which would have occurred in the fall of 1940, because of an 1876 act of Congress. To curtail the political uses of navy yards, then in common practice, Congress had prohibited yards from enlarging their labor forces within sixty days of presidential or congressional elections, unless the Secretary of the Navy certified that increases were required by the national interest. Respecting the election scheduled for November 5, 1940, the Secretary issued the necessary certification, which was published in newspapers in Boston and other areas with navy yards.[53] Presumably, the same process occurred before the congressional elections in 1942 and the presidential contest in 1944.

Recruitment of labor for navy yards and other establishments was facilitated by the relaxation of federal and state laws affecting hours of work. At the beginning of the war, the Commonwealth of Massachusetts required for all workers one day of rest in every seven and also forbade the employment of women and minors more than forty-five hours a week and between 10:00

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52. First Civil Service District, Boston, to All Rating Boards, Jul. 16, 1940, 181-40, Box 2, A2-7.

53. Secretary of Navy, Circular Letter, Aug. 22, 1940, 181-40, Box 2, A2-11.

o´clock at night and 6:00 o´clock in the morning. Shortly after Pearl Harbor, the state legislature empowered the governor to relax these prohibitions in specific instances which would promote more effective prosecution of war work.[54]

Early in the war, major shortages occurred in the ranks of mechanics in practically all trades, and there was an acute dearth of blue-collar supervisors. Further easing of age restrictions became necessary. In January 1942, the Shore Establishment Division of the Navy Department reduced the minimum age for mechanic-learners from eighteen to sixteen. A few months later, the Personnel Supervision and Management Division raised the maximum age for the same position from twenty-five to fifty for both men and women. Also PS&M announced Civil Service approval of the Navy´s request to waive the minimum age of twenty-five for employment as leadingmen and quartermen.[55]

Because of the labor shortage, the Navy sought to restrict leaves taken by workers at its industrial establishments. A fairly generous policy had developed whereby workers received twenty-six days of regular leave each year, plus fifteen sick days. An executive order issued early in 1938 allowed employees to accrue sixty days above the twenty-six days due them in the current year. It was thus possible for a navy yard employee to acquire, by the end of any calendar year, almost three months of

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54. U.S. Naval Administration During World War II: First Naval District, vol. II, p. 37.

55. Assistant Secretary of Navy (SED), Circular Letter, Jan. 26, 1942; Assistant Secretary of Navy (PS&M), Circular Letter, Mar. 12, 1942; Assistant Secretary of Navy (PS&M), Circular Letter, Jan. 26, 1942, all in 181-40, Box 59, L16-1.

leave. During the war, navy yards such as Boston, fully engaged in rush programs to build destroyers, destroyer escorts, or landing craft, simply could not afford its workers the peacetime luxury of a long vacation. In July 1941, the commandant of the Boston Navy Yard advised the yard that the Secretary of the Navy had authorized commandants to require employees to forego vacations, if their services could not be spared. Such vital employees with accumulations of leaves in excess of sixty days would be compensated at the rate of one day's pay for each leave day.[56]

In the following April, the Navy Department issued a directive restricting all workers to no more than fifteen leave days a year. For the leave time to which they were entitled, but which the new ruling prevented them from taking, compensation would be paid to them at the time of their resignation.[57]

During the spring of 1944, the urgency of the landing craft program led the Boston Navy Yard commandant to use his authority to prevent employees from taking leave. However, he assured "faithful employees," meaning those with good attendance records, that they would be able to enjoy week-long summer vacations.[58]

Labor Recruitment

Manipulation of leave time and changes in regulations and laws respecting the hours of work and the ages of employees only

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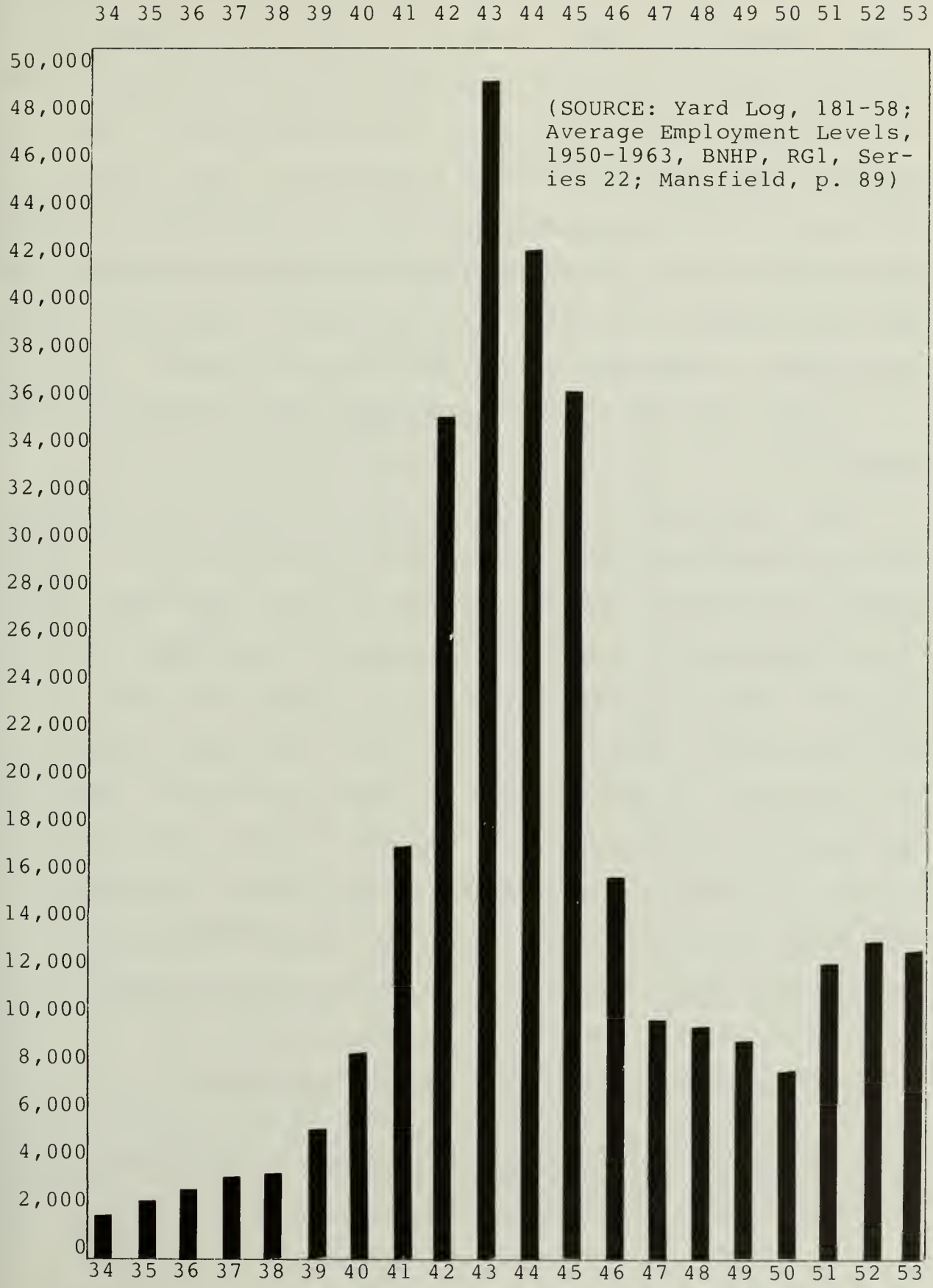
56. Commandant's Circular Letter No. 353, Jul. 21, 1941, 181-40, Box 2 (1940), A2-3.

57. U.S. Naval Administration, World War II: Office of the Secretary of the Navy, Civilian Personnel, vol. I, p. 224.

58. Boston Navy Yard News, April 18, 1944.

Table 11: TOTAL CIVILIAN EMPLOYEES ON JUNE 30, BNY, 1934-1953



indirectly dealt with the major wartime problem of recruiting large numbers of workers. War plans made in Washington and on the district and yard level did not anticipate the magnitude of the civilian labor force which would be required to meet the demands of the Navy afloat nor did they forecast the competition for labor in the shipbuilding industry. In July 1940, the United States had forty-eight shipbuilding establishments, both government and private. By 1943, there existed 522, including two new navy yards, Terminal Island and Hunter's Point, both in California, the area which saw the most bitter competition for labor.[59]

The expansion of its labor force in the World War II period by the Boston Navy Yard constitutes a remarkable story. At the beginning of 1939, the yard employed slightly under 3900 workers in all categories. That force increased to approximately 9000 by June 17, 1940, when most of the shops changed to a schedule of two eight-hour shifts. At that time, the high unemployment characteristic of the economically depressed thirties continued to linger across the nation. However, most of the unemployed lacked the skills then in demand at ship work establishments. For example, in July 1941, Congressman Thomas Flaherty wrote the Boston Navy Yard, concerning the possibilities of a position as machinist's helper for one of his constituents, who had made application and been found eligible for employment. Commandant

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59. U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships (4 vols.; Historical Section, Bureau of Ships), vol. II, p. 167.

Tarrant informed Flaherty that the man in question was "approximately No. 980" on the Labor Board's eligibility list. What the yard then needed and sought to hire were not helpers, but full-fledged mechanics.[60]

During 1941, yard workers doubled in number, from 13,000 in January to 26,000 twelve months later. At the beginning of 1942, the yard was in operation around the clock, with a schedule of three eight-hour shifts. In July 1943, the yard employed the greatest labor force in its history, 50,128 people, about 45,000 being industrial workers and the remainder in Group IV(b).[61]

In the following September, the Secretary of the Navy placed a limit of 51,000 as the yard's complement.[62] If an emergency arose in the form of a sudden increase in the volume of repair work, employees would be shifted from new construction rather than an effort made to hire more workers. The ceiling on the yard's labor force had little practical meaning, since after July 1943 the yard encountered difficulty in recruiting and retaining employees, and the number of workers began to decline. By January 1944, the work force had shrunk to 47,500, by the summer of that year to 42,000, and by August 1945 to 36,000.

As of October 10, 1943, the yard's Industrial Department

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60. Commandant to Flaherty, Jul. 30, 1941, 181-40, Box 119, LA-C (1).

61. For information on the size of the work force, see Dana, "High Spots"; Yard Log, 181-58; and the yard's regular report, Monthly Report of Civil Personnel Statistics, filed for the war years in 181-40, A9-4. Unfortunately, the reports for the crucial year of 1943 are missing.

62. Assistant Secretary of Navy to Commandant, Sept. 16, 1943, 181-40, Box 5, A3-1.

generally went on a schedule of two nine-hour shifts and six days a week. One shift began at 7:30 a.m. and stopped at 5:10 in the afternoon. The second shift worked from 8:30 in the evening until 6:10 the following morning. Workers rotated shifts approximately every three months. The ropewalk, forge and foundry shops, and the power plant continued on a three-shift schedule. Group IV(b) employees worked eight hours during the day. The new schedule reduced, but did not eliminate, Sunday work and eased the parking situation, as the two shifts did not overlap. Since the yard employed the same number of workers as before the change from three to two shifts, there was no loss of manpower. In fact, there was a gain, since most production workers put in fifty-four hours a week instead of forty-eight.[63]

In October 1940, the Secretary of the Navy condemned improper means to recruit skilled labor, practices he labeled as "scamping" and which he defined as "the stealing of men from another yard by direct or personal solicitation through promise of higher wages, better housing, etc." He noted that the Navy abjured such methods. As a matter of fact, Civil Service advertisements for government positions included a statement that applications were not desired from any persons then in the employ of private industries vital to the national defense program. It was also the policy of the Navy to object to the Civil Service certification of any applicant then at work in another defense agency of the federal government or a commercial firm engaged in

63. Boston Navy Yard News, Oct. 7, 1943.

defense activities.[64]

If the Secretary adhered to a high standard in February 1940, he had come close to advocating what was known as "labor hoarding" in the previous June. At that time, he directed navy yards to build up the number of mechanics in shipbuilding trades in which shortages, "present or prospective," existed and which were viewed as vital to the expeditious completion of new construction.[65]

Like the Navy and navy yards, the Civil Service Commission had not foreseen the wartime demand for labor. That agency had first appeared as the result of a reaction against incompetency and favoritism in government employment and over the years had developed a complex set of regulations to assure that government appointments were based on merit as determined by competitive examinations. Beginning in 1941, what the Boston Navy Yard and other Navy industrial activities needed were thousands of workers. Certainly the Navy preferred to hire employees with experience and skills, but increasingly yards were ready to accept anyone who appeared capable of being trained. In such a situation, the Civil Service emphasis on merit could become an obstruction. Another ingredient in civil service reform had been the desire to give government employees some measure of job security, especially to protect them against the ebb and flow of partisan politics. By the end of the 1930s, newly hired

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64. See example of letter from Frank Knox to private shipbuilding companies, Oct. 31, 1940, attached to Secretary of Navy to All Commandants, Dec. 19, 1940, 181-40, Box 2, A2-11.

65. Mansfield, p. 13.

government employees served a probationary period, upon the successful completion of which they received permanent appointment. For many reasons, the conditions of war rendered permanent appointments inappropriate.

In March 1942, the Civil Service Commission capitulated to the unusual wartime circumstances respecting manpower. War Service Regulations suspended conventional appointments and provided that workers hired subsequent to March 12 would hold temporary appointments, lasting for the duration of the war and six months thereafter. Also, the commission waived peacetime procedures and standards and allowed government agencies to accept the best talent available, regardless of qualifications.[66]

Navy yard labor boards, the traditional apparatus for hiring blue-collar workers showed signs of their ineffectiveness in mass labor procurement in 1940, and other techniques were employed. The Boston Navy Yard News ran an article in July 1940, which called upon current employees to become involved in recruitment and seek among their acquaintances former mechanics who had drifted away from their trades during the days when shipyard skills had not been in great demand. The article included the wages paid at the yard for first-class mechanics in the needed trades and advised readers of the recent alterations by Civil Service authorities which permitted the hiring of mechanics with ages up to fifty-five years.[67]

When prospective workers appeared at the Labor Board, it was

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66. U.S. Naval Administration During World War II: First Naval District, vol. II, pp. vi-vii.

67. Boston Navy Yard News, Jul. 11, 1940.

necessary to process them rapidly, lest they change their minds while standing in a line. This called for an enlargement of staff, and at one time 153 people manned the Boston yard's Labor Board, which had an average visiting load of 831 persons a day and made 2419 appointments a month. New forms allowed the simplification and abbreviation of the hiring process.[68]

The Boston yard had its greatest difficulty in achieving a sufficiently sizeable work force in late 1942 and in 1943. Estimates of the yard's short-handedness during the spring and fall of the latter year ranged from 6000 to 10,000. In May of 1943, the yard hired approximately 2,000 new workers, but employees were leaving at a somewhat greater rate, and the rolls went down by twenty-two people. The Navy Department in Washington was of small help. It claimed that it was not aware that Boston had a manpower problem and advised the yard to take steps, such as a recruitment campaign, which in fact had already been utilized. Washington reported that there was something of a labor surplus in Texas and that the Navy was ready to pay the railroad fare and provide subsistence for Texans recruited by Boston. However, procuring labor at a distance of 1500 miles obviously entailed immense practical problems, and the suggestion was of little value in answering the yard's immediate need of some 8,000 new hands.[69]

On June 14, 1943, with suitable fanfare and with pledges

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68. U.S. Naval Administration in World War II: Office of the Secretary of the Navy, Civilian Personnel, vol. II, pp. 636-7.

69. Digest of Telephone Conversation, Jun. 9, 1943, 181-40, Box 55, L16-2.

of support from public officials, the yard opened a branch labor office at 82 Summer Street in downtown Boston. Local newspapers cooperated and ran stories in their columns about the interesting job opportunities in the yard. In February 1944, when a large war plant in the town of Lowell suddenly closed, the Boston Navy Yard organized a special campaign to hire several thousand of the plant's former employees and established a temporary branch labor office in Lowell.[70]

In the middle years of the war, the yard seemed to be able to hire new workers, but suffered from labor turnover, because of the demands of the selective service, workers who were voluntarily enlisting, discharges resulting from misconduct or missing six consecutive musters, and employees leaving for other reasons. By October 1943, when the situation appeared acute, the new Personnel Relations Division had been established, and a practice instituted of a yard officer visiting and interviewing workers who gave notice of intention to quit. Among the explanations for the decision to leave were: (1) ill health and physical disability; (2) working hours and the inconvenience of shifts; (3) working conditions; (4) family circumstances; (5) the inability to do the work assigned; (6) insufficient wages; (7) transportation problems; and (8) unadjusted grievances. After the interview, about ten percent of the workers decided to continue their employment at the yard.[71]

The yard reached its peak employment of 50,000 in July

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70. Dana, "History of the Boston Navy Yard, Chapter III, Manpower and Industrial Relations," Jul. 17, 1945, pp. 3-4.

71. Dana, "Manpower and Industrial Relations," pp. 6-7.

1943, and thereafter significantly more workers left than were hired. In the following December, when the labor force numbered 46,412, the yard hired 562 new workers, but lost 1251. In June 1944, 1187 individuals joined the work force and 1925 were separated. In December, the figures were 594 and 1002. An Industrial Survey board inspecting the Boston facility in November stated that the situation was common to all East Coast yards. Hiring and retaining workers faced a new difficulty in the second half of 1944 in the form of word spreading through the yard of a possible layoff. That rumor probably gained currency, when the Boston Navy Yard News devoted four issues to reprinting new Civil Service regulations governing reductions in force.[72]

New Workers: Women, Blacks, the Disabled

By necessity, wartime recruitment of labor at the Boston Navy Yard included efforts to hire people in groups previously untapped. These included mechanics who were older or younger than allowed by regulations of the 1930s. In 1940 and 1941, the expanding shipbuilding industry, other defense manufacturing, and the selective service absorbed experienced mechanics of all ages. The yard then turned to the hiring of unskilled persons who were given training for positions as helpers or mechanics. These included the physically disabled, black Americans, and women.

World War II constitutes a great turning point in the history of women in America. Well over six million women entered

72. Monthly Reports of Civilian Personnel for Jun. 1944 and for Dec. 1944, both in 181-40, Box 297, A9-4; Industrial Survey Division, Report No. 3, Nov. 25, 1944, 181-40, Box 294, A3-1; Boston Navy Yard News, Sep. 9, Sep. 23, Oct. 7, and Oct. 21, 1944.

the labor force, two million taking clerical jobs and two and a half million working in manufacturing. Prior to World War II, the Boston Navy Yard had employed women almost exclusively in clerical positions, except in 1917 and 1918, when a few had worked in shops, primarily the ropewalk. During the Second World War, women composed from fifteen to twenty percent of the yard's force. The general trends respecting women employees were an increase in their numbers and in their proportion of the yard's total workers. Moreover, whereas at the outset of the war, there were virtually no blue-collar women, by the end of 1943, females in Groups II and III far exceeded those in Group IV(b).

The Boston Navy Yard employed 281 women in June 1941 and 478 in the following December. The personnel reports for that year did not provide a breakdown by sex between Group IV(b) workers and others. However, it seems clear that all of the women had clerical or office positions. That understanding is prompted by subsequent data. The yard's personnel statistics for June 1942 indicate an increase of women workers to 1232, only two of whom were not in Group IV(b). During the next six months, large numbers of women entered the shops, and in December somewhat more than 2000 of the yard's 3400 female employees were in groups other than IV(b). On November 1, 1943, their numbers peaked at 8348. Female workers became a majority, fifty-seven percent, of Group IV(b) employees, but most of the yard's women were in Groups II and III.[73]

A deliberate program to recruit women began in June 1942,

73. Mansfield, p. 29.

the original intention being to use them as replacements in slots requiring little training and less physical strength and reassigning male workers to the basic shipyard trades in which shortages existed and which were considered unsuitable for women. However, women ultimately appeared in many of the shops.

The active recruitment of women workers included use of newspapers and radio. Mary O´Brien heard the Navy´s call from those sources and also doubtless from her husband, who worked at the Watertown Arsenal and then the navy yard. Mrs. O´Brien was a twenty-seven-year-old mother of four when she started at the yard in March 1943. She later recalled that on the basis of a test administered to new employees, she was assigned to the electrical shop. Her activities at the yard consisted of three types of work. Initially she joined a number of other women in the repair of portable, temporary lights used at the yard in work on ships. Later, she was involved in a brief and rushed program to manufacture large searchlights, probably for the Normandy invasion. Her third assignment was as a one-woman attendant in a generator shack on one of the piers. Thirty years later, Mrs. O´Brien could not recall any kind of orientation program and described her training as a "more or less one-to-one" on-the-job type. She did participate in a voluntary, supplementary training program conducted during the lunch hour.[74]

Barbara Green also began work at the Boston Navy Yard in 1943. Single and seventeen years old, she first was assigned as a welder in the shipfitting shop and participated in a six-week

74. Oral History Interview, Mary O´Brien, BNHP.

training program in welding. Upon completion of her training, Green worked as a welder on the decks and stowage areas of APLs and particularly LSTs, then under construction at the yard. After six months, Green began to suffer from a condition the yard Dispensary diagnosed as asthma, but her own physician claimed was poisoning from galvanized dust and fumes. She stopped working at the yard, recuperated for several months, and in the spring of 1944 was rehired, this time as a sheet metal worker. With no training in sheet metal work, she and a number of other women were employed in the shop, chiefly in the manufacture of small units, described as "butt cans" or "butt trays." As she recalled in the late 1970s, "towards the end" of the war, "when they ran out of butt cans for us to pound..., they told us to start washing windows." When Green and other women in the shop refused to do that type of work, they were given the option of resigning, which they did.[75]

It appears that women worked in many of the Boston Navy Yard's shops during World War II. The Navy adopted a policy of prohibiting women from tasks requiring them to board ships in commission, the concern being the reaction of the crews of such vessels. Thus, women did not engage in shipboard repair work, but did participate in the new construction programs.

In a development anticipated in 1917 and 1918, the ropewalk acquired a large number of female employees during the Second World War. This resulted from at least two considerations. First of all, the nature of the work was regarded as suitable for

75. Oral History Interview, Barbara Tuttle Green, BNHP.

women. Secondly, the primary mission of the yard was the construction and repair of ships. Although the manufacture of cordage had importance in the Navy at large, it had relatively low priority in the yard. This meant that male ropewalkers were more likely than other yard workers to be drafted or to be transferred to other shops. Accordingly, women came to constitute a large proportion of the ropewalk's labor force. Ultimately, they did the same work as men, but were not expected to maintain the same productivity.[76]

In the summer of 1945, when he wrote his history of the Boston Navy Yard, Lt. N. T. Dana stated: "Experience over the past two years has proven that female employees are able to work efficiently on an equal basis with men on many jobs that were formerly considered to be men's jobs." The same author notes the consequences of the introduction of women in the ropewalk. In 1942, the shop had an average monthly production of 2,135,656 pounds. In that year, women began to replace men, who were shifted to new construction, repairs, and conversion work. Ultimately, women were forty percent of the shop's work force. Production declined in 1943 to 1,849,810 pounds and in 1944 to 1,635,241. Dana concluded that "when it is considered that ropemaking had never before, in the Yard, been attempted by female labor, the results were gratifying."[77]

Based on oral interviews conducted in the 1970s, the

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76. Oral History Interview, David Himmelfarb, BNHP, pp. 11-12.

77. Dana, "Ropewalk: Rough Draft," Jul. 18, 1945; "Manpower and Industrial Relations," p. 11. Dana apparently was unaware of women workers in the ropewalk during World War I.

introduction of women into the industrial activities of the yard seems not to have created major difficulties. "Close to 2000" women were part of the 5000 workers in the pipe shop, recalled Lyman Carlow. He noted of the women employees, "they did very well." "On things like silver soldering and assemblies in our shop, they were excellent." Albert Mostone recalled that most of the women in the shipfitters shop were helpers, although there were thirty-five or forty electric welders and acetylene burners. Mostone stated that "it was kind of strange," when the women first arrived, but that "we worked in harmony with them" and "we had no problems with them." John Langan, who started in the yard in 1919 and thus was something of an old-timer during World War II, described one male shipfitter who threatened to quit if women remained in his shop. Without elaboration, Langan also stated that "it was a very ticklish situation" and that "a lot of homes were broken up in the Navy Yard."[78]

Some differences did appear in the work habits of male and female workers. Women had a higher incidence of absenteeism and higher turnover rates, which might be explained by their responsibilities at home. Also, lower paid workers had poorer attendance records than employees receiving higher wages. The Navy's policy was to make no distinction between men and women respecting wages and salaries, but this does not mean that women were evenly distributed throughout all of the yard's wage and salaries schedules. Women had fewer lost time accidents than

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78. Oral History Interview, Lyman Carlow, p. 13; Oral History Interview, Albert Mostone, p. 10; Oral History Interview, John Langan, p. 22.

men, quite probably a result of assigning female workers to jobs not involving heavy equipment and dangerous operations.[79]

TABLE NO. 12: PROPORTION OF WOMEN IN CONTINENTAL NAVY YARD WORK FORCES, MARCH 1943

Navy Yard	Total IV(b) Workers	Women IV(b)	Per-cent	Total Other	Other Women	Per-cent
Portsmouth	1666	737	44.2	19078	1026	5.4
Boston	4864	2437	50.1	41100	2517	6.1
New York	7406	3153	42.6	56412	1946	3.4
Philadelphia	5020	2166	43.1	38842	2804	7.2
Norfolk	4457	2403	53.9	38182	1874	4.9
Charleston	3326	2018	60.7	20290	1097	5.4
Mare Island	3614	3065	84.8	32381	4232	13.1
Puget Sound	3383	1908	56.4	22888	2514	11.0
Washington	5059	2054	40.6	18471	1589	8.6
TOTAL	39,259	23,265	59.3	261,162	27,870	10.7

(SOURCE: U.S. Naval Administration, World War II: Office of the Secretary of the Navy, Civilian Personnel, vol. I, p. 247a.)

By the end of the war, the Boston yard had hired 250 handicapped or "limited service" workers. Procedures for appointment in such instances included a physical examination, a decision by the Labor Board recorder as to which shop might best utilize the services of the handicapped worker, and a conference between the individual and the shop's master or personnel assistant. Approval for appointment rested with the shop master. In seventy-five percent of such appointments, the worker was able to meet the normal standards of employment.[80]

Less celebrated than the recruitment of women at the Boston Navy Yard was the hiring of blacks. Prior to the war, the yard

79. Dana, "Manpower and Industrial Relations," pp. 11-12; Assistant Secretary of Navy, Circular Letter, Aug. 18, 1942, 181-40, Box 59, L16-1.

80. Dana, "Manpower and Industrial Relations," pp. 12-13.

had no policy of exclusion based on race, and blacks had been employed, as this report has shown. However, no records have been discovered of the distribution of employees according to race, and it appears likely that the number of black workers was small. The participation of blacks in war production became a national issue in 1941 with the March-on-Washington movement organized by A. Philip Randolph. That movement forced President Roosevelt to produce an executive order banning racial discrimination in the employment of workers in defense industries. Roosevelt also established a Fair Employment Practices Committee to handle cases of violation of the order. A small number of states, including Massachusetts, enacted fair employment practices legislation.

Neither the Navy nor the Boston Navy Yard seem to have had a specific program for recruiting black labor, but by the end of the war, records were being kept of the number of white and "nonwhite" employees. Those records for the Boston yard for September 1944 indicate that among the yard's 40,500 workers were 2216 nonwhites. Their distribution is as follows: 1048 in Group II, 769 in Group III, one in Group IV(a), and 398 in Group IV(b). By the following January, the total yard force had dropped to 31,000, but the number of nonwhite personnel had increased to 2356.[81]

One of the Group III black mechanics was Bill Richards, who started his thirty-year-long career at the yard in April 1942. As

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81. Supplement to Form NAVEXOS-695 for Sept. 1944, 181-40, Box 297, A9-4; Supplementary to Form NAVEXOS-695 for Jan. 1945, 181-40, Box 312, A9-4.

Table No. 13: CIVILIAN PERSONNEL STATISTICS, SELECT MONTHS, 1939-45

	Jan 41	Jun 41	Jun 42	Dec 42	Mar 43	Jan 44	Sep 44	Sep 45
Total Employees	12913	16693	36066	42450	45964	45883	40548	31092
Total Group I	0	0	0	0	0	0	0	0
Total Group II	--	--	--	--	--	--	8475	5497
Total Group III	--	--	--	--	--	--	24775	19008
Total Group IV(a)	--	--	--	--	--	--	1895	1822
Total Group IV(b)	1073	1618	3534	4453	4864	5639	--	--
Number of Veterans	2874	3236	4179	--	--	--	--	--
Number of Women	--	281	1232	3437	4954	7689	7744	5672
Group II Women	--	--	--	--	--	--	--	2305
Group III Women	--	--	--	--	--	--	--	603
Group IV(a) Women	--	--	--	--	--	--	--	3
Group IV(b) Women	--	--	1230	2026	2437	--	--	2761
Number of Nonwhites	--	--	--	--	--	--	2216	2356
Group II Nonwhites	--	--	--	--	--	--	1048	1119
Group III Nonwhites	--	--	--	--	--	--	769	772
Group IV(a) Nonwhites	--	--	--	--	--	--	1	1
Group IV(b) Nonwhites	--	--	--	--	--	--	398	464
Total Accessions	--	--	--	--	--	--	784	236
Accessions from Military Service	--	--	--	--	--	758		96
Total Separations	--	--	--	--	--	1287	1559	2785
Separations to Military Service	--	--	--	--	--	209	159	34
Quits	--	--	--	--	--	--	854	2352
Removals for Cause	--	--	--	--	--	--	224	65

(SOURCE: Monthly Reports of Civil Personnel Statistics, 181-40, Box 13 (1941), A-94; Box 17 (1942), A9-4; Box 297 (1944), A9-4; Box 312 (1945), A9-4; and U.S. Naval Administration, World War II: Office of the Secretary of the Navy, Civilian Personnel, vol. I, p. 247a.

an apprentice machinist, he participated in a forty-four-week training program at what is now Boston Technical High School. Richards then worked as both an inside and outside machinist. In 1978, he informed his interviewer that, when he began to work at the yard, the feelings of white workers toward him was "very bad." He stated:

> Being a black person it was quite bad...there was a lot of resentment. Many times when I went on board the ship I was asked to send the mechanic along because they didn´t want to talk to a helper.

Apprarently, his white co-workers refused to give recognition to Richards as a bona fide mechanic.[82]

Establishment of the Personnel Relations Division

The size and character of the Navy´s work force during World War II gave the area of industrial relations special importance. Doubtless the Navy concluded that proper management of personnel affairs would assist in recruiting and retaining workers and making them more productive. Of course, from their beginnings, navy yards and their officers have always been involved in labor relations. However, not until the late 1930s was it recognized that personnel affairs was a special field and not until 1943 that a more or less complete personnel relations office was included in navy yard organizations. Previous to July 1943, the Boston yard had a number of programs to give assistance to workers and to enlist their enthusiasm and talents more effectively in the prosecution of the yard´s work. But such programs became more common and better organized after the

82. Oral History Interview, Bill Richards, BNHP, p. 3.

establishment of the Personnel Relations Department.

Both the Navy Department directive upon which it was based and the Boston commandant's order of July 8, 1943, creating the new unit, specifically assigned the Personnel Relations Officer advisory functions only. He could not force his decisions or policies on anyone. His effectiveness depended on personal powers of persuasion and, indeed, salesmanship. In fact, Lt. Cdr. P. S. Strecker, the Boston yard PRO in 1943 and 1944, likened himself to a door-to-door salesman. Strecker advised other personnel officers: "You've got to get enthusiasm; you have to have a determination that you are going to sell that job -- similar to a Fuller Brush salesman." Strecker claimed that through persistent salesmanship he had been able to persuade leadingmen, foremen, and master mechanics to attend a series of personnel management conferences. Initially, only half of the masters showed up, but ultimately he had perfect attendance.[83]

Training Programs

The Personnel Relations Department was given oversight of the several programs in the yard for training employees. A training section had first appeared in 1941 in the Production Division and under the supervision of the Shop Superintendent. The programs, as subsequently administered by the Personnel Relations Division, included the apprenticeship school; on-the-job training; supplementary training; supervisor training; and

83. Conference of Personnel Officers, 7 Through 10 August 1944; NAVEXOS 9-73, quoted in U.S. Naval Administration, World War II: Office of Secretary of the Navy, Civilian Personnel, vol. I. p. 518.

instructor training. Also the Training Division of Personnel Relations conducted an indoctrination program for new workers. All of the programs, except supplementary training, were given on government time. Classroom instruction for trainees took place in Building No. 79 in the main yard and in Building No. 16 in the annex at South Boston. The indoctrination sessions were held in the Greeting Center, Building No. 34 of the Charlestown site.

Of the training programs, the oldest and most arduous was the apprenticeship school. Apprenticeship instruction began in 1868 and was formally organized as a school and on government time in 1912. The traditional four-year program consisted of instruction and of practical work in the shop of the trade for which the apprentice was being prepared. Many officers and old employees in the yard regarded apprenticeship as the only proper way to produce competent mechanics. Therefore, they had doubts about the wartime schemes to turn out skilled workers in far less than four years. As a matter of fact, during the war the length of apprenticeship was changed from four to two and a half years, and a reduction made in hours of classroom instruction.[84]

On-the-job training was designed to produce operators or specialists to work in specific shops or to convert a worker from one trade to another. The length of the training and the proportion of classroom and shop instruction varied with the job being learned. Men and women in this training program held Group

84. Dana, "Manpower and Industrial Relations," p. 14; U.S. Naval Administration in World War II: Office of the Secretary of the Navy, Civilian Personnel, vol. I, p. 760.

II positions as helpers or "mechanic-learner," a special rating created during the war and for which there existed only one class, not three as was common in other ratings. Upon promotion from mechanic-learner, the individual became a helper.

Supplementary Training provided instruction in blueprint reading, mathematics, and trade theory to help existing employees qualify for a more advanced rating. The most serious manpower shortage at the Boston Navy Yard throughout the war was in the ranks of supervisors, leadingmen, quartermen, foremen, and master mechanics. A supervisory training course was given to improve supervision and to familiarize supervisors with the techniques of personnel management. The expansion of training activities at the yard created a demand for instructors and led to a special twenty-hour-long program. Training courses were offered for Group IV(b) employees in such technical and scientific areas as mechanical engineering, electrical engineering, marine engineering, drafting, and naval architecture. Indoctrination was a program given on their first day to all new employees, designed to acquaint them with the yard and its rules and with safe work practices.

At the end of October 1943, when the number of employees was near its peak of 50,000, the various yard training programs had a combined enrollment of 6300 people. In addition, 1068 new workers had gone through the one-day indoctrination during the month. On-the-job training, the largest of the various programs, was being given to 5678 learners, helpers, and trainees. Four hundred and sixty-eight were engaged in supplementary training in a variety of trades. During the month, 123 men had completed the

shop supervisors' training course. The scientific and technical training programs included eighty-nine Group IV(b) personnel, and the apprenticeship program, fifty-seven young men.[85]

Safety

The increase in the labor forces at navy yards produced more deliberate safety programs, and in February 1941, commandants were called upon to make greater efforts to reduce the incidence of accidents and occupational diseases. Prior to 1943, the Boston yard had a safety section, but no expert in that field. The first safety engineer was assigned to the yard in February 1943. Later in the same year, a Safety Division was established in the newly created Personnel Relations Department. Efforts were made to eliminate unsafe conditions, such as inadequately guarded machines, hazardous fumes and dust, insecure stagings and ladders, and faulty weight-handling practices. The safety program also included continuing plant inspection and education of supervisors and employees.

Employees with long careers at the yard, stretching back before Pearl Harbor, seem to agree that it was not until the middle years of World War II that the safety program began to have a conspicuous presence in the yard. That probably was owing to the establishment of the Personnel Relations Department.[86]

The Navy measured its accident prevention work in terms of a

85. Monthly Report of Employee Training, Oct. 31, 1943, 181-40, Box 11, A9-4.

86. Oral History Interview, Lyman Carlow, pp. 10-11; Oral History Interview, John Langan, p. 23; Oral History Interview, Albert Mostone, p. 10.

lost-time-accident frequency rate. In 1945, the rate for all shipyards, both private and government, was approximately 24. During the war years, the rate at Boston varied from 8.8 in March 1945 to 23.5 in December 1943. Undigested data pertinent to accidents appeared in the annual report of the yard's medical officer. For the calendar year 1942, he reported his department rendered treatment to civilian employees in 101,050 instances. During that year, there were nine industrial and two nonindustrial deaths. The report for 1943 report referred to 168,264 treatments and twelve industrial and three other deaths. Although the labor force became smaller in 1944, that year saw almost 180,000 treatments of civilian workers and a total of twenty-four deaths, eight industrial and sixteen nonindustrial. In his report for 1944, the medical officer stated that the increase in nonindustrial deaths resulted from the employment of persons in older age groups. Studies indicated that the accident rate moved upward during those periods in which the Navy exerted great pressure for the completion of new construction or of repairs.[87]

Stimulating Worker Productivity

With the establishment of the Personnel Relations Department, greater attention was given to training, safety, and other programs dealing with the civilian work force. The administration also made efforts to enlist workers in programs to increase

87. Dana, "Manpower and Industrial Relations," pp. 13-14; Annual Sanitary Report for 1942, 181-40, Box 10 (1943), A9-1; Annual Sanitary Report for 1943, 181-40, Box 296 (1944), A9-1; Annual Sanitary Report for 1944, 181-40, Box 312 (1945), A9-1.

efficiency. On orders of the commandant, a fairly elaborate system of War Production Committees went into effect in September 1943. Each shop or "other logical unit" elected from its employees three to five persons. They would join with management members, no greater in number than the employee members, to form that shop's War Production Committee. Each shop committee elected at least one of its members to serve on a yard-wide committee to coordinate the activities of the station as a whole. At a still higher level was a War Production Steering Committee, with five employee members chosen from delegates to the yard-wide committee. The senior management member of the Steering Committee was to be a naval officer and chairman. The commandant's order also called for the creation of subcommittees in the various sections and subsections of shops.[88]

The sole function of this apparatus was to decide on and place into operation programs to increase production. The committees acted in an advisory capacity to the commandant and had no executive or administrative powers. The orders stipulated that "it is to be clearly understood that the operation of such committees will in no way interfere with the prerogatives and responsibilities of Management." Nor were committees to concern themselves with employee grievances. The War Production Committees, which remained in operation until the Japanese surrender, were involved in programs to fight absenteeism, promote safety, and secure greater participation in the

88. Commandant's Order No. 193, Aug. 31, 1943, 181-40, Box 5, A3-1.

Beneficial Suggestions system.

The last mentioned was an incentive program that had been in operation since September 1941. Employees submitted concrete and practical suggestions for improvements in industrial procedures and equipment. A board reviewed the suggestions and gave awards of money for the best. The program languished for several years, but then participation increased greatly, in part because of an increase in the amount of the awards and also because of the backing of the War Production Committees.

Beneficial Suggestions and the crusades against absenteeism and for safety became involved in a number of competitions in 1944. Individuals receiving the highest and second highest Beneficial Suggestions awards each month won the right to designate the sponsors and matrons of honor in the launching of LSTs under construction in the yard. The same right was granted to the shops with the lowest and second-lowest absentee rates and to the shops with the best and next-to-best safety records. Shops winning these competitions often selected one of their women workers to participate in the launchings.[89]

Problems with Workers

Absenteeism was fought through competitions, signs in buildings, notices in the yard newspaper, and assistance in solving transportation problems. The Public Relations Department maintained a Transportation Office, where employees could obtain

89. Boston Navy Yard News, Jan. 15, 1944; Master, Sheet Metal Work Shop to Commandant, Jul. 11, 1944; Master Woodworker to Manager, Jun. 27, 1944, both in BNHP, RG 1, Series 16, Box 1.

information to assist them in finding gasoline and tires for their cars. That office also maintained lists of drivers seeking passengers for car pools and of workers in need of rides. The Boston Navy Yard News occasionally published these lists. Absentees also were subject to disciplinary action. Warning letters were sent, and the threat of discharge remained for those who missed six consecutive musters.[90]

At the first conference of navy yard Personnel Relations Officers in Washington in August 1943, one unidentified PRO, probably from New York, noted that his yard had 2000 absences a day, whereas Boston, with ninety percent as many employees, had only fifty-nine. Commander Strecker of the Boston Navy Yard indicated that the figures were faulty and suspected that Boston yard workers were using sick leave to cloak absences. He said: "I know we are not any better than any of the other yards on absenteeism on the whole." Many of the officers attending the conference favored abandoning the ancient six-muster rule, apparently because of failure to enforce it.[91]

Wartime did not seem to affect the matter of disciplinary action against individual employees, except probably in a quantitative fashion. The extant files of papers on particular employees are enormous for the World War II period, consisting of sometimes as many as three fat folders for each letter of the alphabet for each year. What follows in the next several

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90. Boston Navy Yard News, Dec. 12, 1942.

91. Record of First Conference of Personnel Relations Officers, Washington, Aug. 18, 19, 20, 1943, 181-40, Box 5, A3-2.

paragraphs is based on only a few documents found in the "C" files for 1941 and 1943. Suspension and discharge continued to be the major means by which yard administrators dealt with instances of sleeping on the job, intoxication, and other forms of improper behavior by civilian employees. Prior to the rapid expansion of the labor force after Pearl Harbor, both the Civil Service Commission and the Navy had no toleration for workers who gave false information in their job application forms, as Nicholas Carabitses discovered. Carabitses began his employment at the yard on September 18, 1940, as an electrician's helper. His application stated that he had graduated from high school, where he had received extensive training and shop experience in electricity. Moreover, he claimed to have worked for various employers in the capacities of electrician's helper and electrician. In the course of its "voucher check" in the following spring, the Civil Service Commission determined none of these claims were true, and Carabitses was promptly "discharged with prejudice."[92]

On July 5, 1941, two electricians at the South Boston Annex were discovered intoxicated, apparently from imbibing on the job. Obscene language and abusive behavior compounded their original offense. Following a fairly extensive investigation of the incident, they were discharged, despite the inquiry on their behalf of Congressman John McCormack. Congressional influence also proved unavailing in the case of two helpers caught sleeping

92. U.S. Civil Service Commission to Secretary of Navy, Jun. 18, 1941, and Personnel Officer to Nicholas L. Carabitses, Jul, 11, 1941, both in 181-40, Box 119, LA-C(1).

in a ship's compartment.[93]

Disciplinary action in December 1943 included the discharging of the following workers; a woman mechanic-learner for twenty-five and one-half days of unauthorized absences since the previous August; a chipper and calker for checking in and then leaving the yard without permission; an engineman in the Transportation Shop for "being implicated in the theft of Government property"; and a gas cutter and burner for intoxication. For sleeping in the bread locker of a destroyer, one rigger was suspended for ten days without pay. Three riggers and a shipfitter suffered three days' suspension for playing cards in a shack at South Boston. Possibly the most serious offense was committed by a buffer and polisher, who assaulted a female employee. His punishment consisted of a discharge and being deprived of payment for his accrued leave.[94]

No documents have been found for the period before the early spring of 1944, which offer a statistical insight into disciplinary action. In March 1944, the Navy Department modified its monthly form for reporting civilian personnel data and included an entry for "Removals for Cause." Another change, effective in July, broke the discharges into two categories,

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93. Commandant to Henry Campbell, Jul. 19, 1941, and C. L. Brand to John McCormack, Jul. 25, 1941, both in 181-40, Box 119, LA-C(1); Joseph Cologey to Capt. C. L. Brand, Jun. 1, 1941, and C. L. Brand to Joseph G. Cologey, Jun. 6, 1941, both in 181-40, Box 119, LA-C(1).

94. Commandant to Anna Cunningham, Dec. 21, 1943; Commandant to Patrick Cunningham, Dec. 4, 1942; Commandant to Edward L. Connors, Dec. 27, 1943; Commandant to Alphee Countre, Dec. 8, 1943; Commandant to Hubert Clark, Dec, 28, 1943; Commandant to Nicola Ciccone, Dec. 8, 1943; Commandant to Edward Correia, Dec. 31, 1943, all in 181-40, Box 187, LA-C.

"Removals for abandonment of job" and "Other removals for cause." During the months of April, May, and June of 1944, the total removals for cause rose from 302 to 356. In July, ninety-seven workers were discharged for abandoning their job and 178 for other causes. Throughout the remainder of the war, the number of discharges each month was less than that for the period of April to July 1944, and the number removed for abandoning their jobs was always less than those discharged for other causes. No other patterns seem evident. For example, in October 1944, the yard fired twenty-eight employees for abandoning their jobs and 147 for other causes. In June 1945, the figures were nine and 210.[95]

The Personnel Relations Department of the Boston Navy Yard had charge of dealings with unions and other organizations representing or consisting of yard employees. Neither of the two existing histories which cover the yard during World War II nor the wartime history of the First Naval District refer to any difficulties the yard encountered with workers' organizations. N. T. Dana reports that the yard had excellent relations with the American Federation of Labor and the few independent unions with members in the yard. The First Naval District filed reports on 240 strikes in its area, but apparently none occurred at the Boston Navy Yard.[96]

In November 1944, the general absence of union difficulties was also noted by a board of officers making a survey of the

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95. See Monthly Reports of Civilian Personnel for 1944, 181-40, Box 297, A9-4; and for 1945, 181-40, Box 312, A9-4.

96. Dana, "Manpower and Industrial Relations," p. 17; U.S. Naval Administration, World War II; First Naval District, vol. II, p. 33.

Boston yard, which reported on aspects of personnel relations as well as other conditions. The inspectors found that "labor relations, particularly with the AF of L, have been excellent." They made special note that the relaxation of trade jurisdictional lines had facilitated the increase in war production. At the time of the survey, one group, the "UFWA," was then engaged in an organizing campaign among welders and coppersmiths. This produced the "usual stressing and pressing of grievances."[97]

With respect to other aspects of the yard's policies and relations with its employees, the survey reached mixed conclusions. The authors found among employees "considerable loafing, quitting before the whistle blows, stand-by time, etc." Notwithstanding the elaborate War Production Committees, the survey claimed there were no regularly established shop committees elected by the employees of the yard. The report included no comments about training activities, except for noting that the apprenticeship school had an enrollment of only twenty-seven. The yard's safety program was deficient in a number of respects. The safety record was not satisfactory; disciplinary action against employees for safety violations was rare; safety headwear, "almost universal in private yards, are noticeable by their absence"; and guards were lacking on machines. The report stated that an eye clinic had been established to provide optically corrected goggles and to detect and reduce eye disorders. On the other hand, "goggles are not worn as they

97. Industrial Activities Division, Nov. 25, 1944.

should be." With respect to general working conditions, the survey gave the yard a rating of "only fair." It mentioned inadequate lighting in the ropewalk and too little attention paid in other shops to lighting intensity at working levels.

Wages and Salaries in Wartime

From 1939 to 1945, except briefly, the determination of wages paid to manual workers at the Boston Navy Yard rested in hands other than the yard's Wage Board and the Department in Washington. The wage board process, which centered on the concept that navy yard wages should be consistent with the prevailing rates paid in the area by commercial employers, had been set aside during the depression, with the result that yard employees received better wages than paid to workers in private establishments. By 1940, because of the nation's expanding shipbuilding industry, this was no longer the case, and the Secretary of the Navy put into operation the wage board system. Local wage boards submitted recommended schedules, the Wage Review Board in Washington acted upon those recommendations, and new schedules were ordered to take effect on November 18, 1940. However, wages thereafter were determined by agreements reached by committees of shipbuilding industry managers and labor spokesmen, with officials of the government sitting as observers.[98]

Those agreements, known as Zone Standards Agreements,

98. Furer, pp. 910-13; U.S. Naval Administration, World War II: Office of Secretary of the Navy, Civilian Personnel, vol. II, pp. 546-80.

received the support of the government, which sought to establish uniformity of wages and working conditions and thus avoid the labor piracy which had occurred during World War I. In 1942, the National Shipbuilding Stabilization Committee emerged as the body to administer and interpret the agreements. Industry, labor, and government produced agreements for four zones, Boston being in the Atlantic Coast Zone. The schedules placed in operation by the Navy in 1940 remained in effect, although subject to amendment by the Shipbuilding Stabilization Committee. Each of the four zone standards agreements contained provisions for automatic adjustments based on changes in the cost of living as measured by statistics of the government's Labor Bureau.

From August 1943 to the end of the war, the National War Labor Board had jurisdiction over pay rates in navy yards. That board delegated its authority respecting Navy blue-collar workers to the Secretary of the Navy, who in turn gave it to a Wage Administration Section in the Division of Personnel Supervision and Management and its successors. That section had a staff of only six and relied primarily on the findings of the War Labor Board, which made surveys in all geographic areas and in all industries and set bracket rates that industries were required to follow. Henceforth, separate wage schedules were not published for each yard, but reliance placed on the determinations of regional wages by the War Labor Board. Except for new positions, not covered by War Labor Board brackets, local yard wage boards were relatively inactive. Beginning in the summer of 1943, the tendency of the national government was to

resist further increases in wages.

The curtailment of wage-fixing authority by boards of yard officers and by the Department of the Navy had the tendency of restraining protests by Navy yard workers, particularly in the second half of the war. However, yard administrators were sensitive to complaints about wages, since low rates for a particular trade could result in the inability to recruit and retain workers with those skills.

Persistence in protesting wages seemed to have had results, not in securing an immediate change, but in the next round of general adjustments in a wage schedule. This appears to be the case in the wages paid Boston yard sandblasters. Before November 18, 1940, the maximum hourly wage in the yard for sandblasters was $.864. That had been increased to $.87 in the new schedule of November 1940, and that rate had been retained in a schedule adjustment made in October 1941. Shortly after the adjustment, a sandblasters' committee protested their wages in a letter to the Secretary of the Navy, who responded that rates were established on the basis of corresponding wages paid by private shipyards in the vicinity as a result of the Atlantic Coast Zone Standards Agreement. The Secretary also forwarded the protest to the commandant at Boston, who sought from the committee data to demonstrate that the yard wage was less than that prevailing in the area.

The committee produced evidence that at the Bethlehem Steel Fore River plant, first-class sandblasters received $.93 an hour, plus a bonus of between twenty and twenty-seven percent; that General Electric at Lynn paid $1.05, plus a bonus of up to six

percent; and that sandblasters at the government's Watertown Arsenal received $.98. The commandant made his own investigation, which led him to conclude that the yard rate was below that prevailing in the area and to recommend an increase. No alteration was made, however, until a general wage amendment in June 1942. Then the sandblasters received an increase of $.13, giving them an hourly rate of $1.00.[99]

The same amendment increased wages for drillers, who claimed that they had not received an improved rate in the November 1940 schedule, since they had been erroneously informed that it was not necessary for them to send a delegation to appear before the Navy's Wage Review Board. Other shipbuilding trades which had made presentations had won better wages. In the spring of 1942, the yard drillers sent a protest to the Secretary of the Navy, and they included data on wages paid at Fore River. That data, incidentally, demonstrated that, although Bethlehem Steel was paying its drillers more than the yard, the company gave its workers no paid holidays and only one week's paid vacation after three years of service and two weeks after fifteen years. In June 1942, the Boston yard drillers received an increase which brought them to the same level as most basic shipyard trades.[100]

The amendment of June 1942 applied to all groups of manual

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99. Commandant to Henry Swenbye, Sandblasters' Committee, Nov.6, 1941; Sandblasters to Commandant, Nov. 19, 1941; Sandblasters, Foundry, to Commandant, Jan. 23, 1942; Commandant to Assistant Secretary of Navy (SED), Mar. 3, 1942, all in 181-40, Box 59 (1942), L16-1.

100. Committee Representing Drillers of Boston Navy Yard to Secretary of Navy, n.d., 181-40, Box 59 (1942), L16-1; Assistant Secretary of Navy to Commadant, May 21, 1942, Box 59, L16-1.

workers and to all trades at the Boston Navy Yard. Generally, first-class helpers were assigned an hourly rate of $.83, and the standard wage for most mechanics in shipyard trades was $1.20. This constituted an increase of approximately $.15 over the rates prevailing up to November 1940. By June 1942, wage schedules had been amended to provide for unskilled workers who held ratings as mechanic-learners. Only one class existed for this category, and the wage was set at $.58, the lowest pay in the yard.[101]

In December 1942, the commandant of the Boston Navy Yard began a campaign to improve wages for foundry chippers. This was a separate rating, not to be confused with calkers and chippers, who received $.26 an hour more. That wage difference was part of the problem, because foundry chippers in the yard sought transfers to the rating of calkers and chippers, since they would earn substantially more. Also, the commandant determined that three private firms in the area paid their foundry chippers wages in excess of the $.94 rate used in the yard. The Navy Department held that the increase recommended by the commandant would not be in accord with the wage directives of the Director of Economic Stabilization.

In letters and through telephone calls to Washington, the yard sought to win approval of better wages for foundry chippers. It was noted that such mechanics, who had been employees from two to fifteen years, were working alongside recently hired women,

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101. Assistant Secretary of Navy, Circular Letter, June 16, 1942, 181-40, Box 59, L16-1.

who had attended burners school and were making $1.14, ten cents more. Moreover, the foundry chippers could go to private plants in Fore River and Hingham and be immediately hired as calkers and chippers. The yard was losing its foundry chippers, since it was difficult to hire new ones, and those already employed were serving six months and then going elsewhere at a higher rate of pay. The yard and its foundry chippers were caught in a situation created by a desire of the government to hold the line on wages and the inability simply to reclassify foundry chippers as chippers and calkers.[102]

As evident in the instance of the foundry chippers, occasionally navy yards encountered disadvantages in labor procurement because of the failure to pay prevailing wage rates. Also, private shipbuilding companies were more ready to give a new employee a rating higher than his experience warranted. In addition, the Navy did not use any scheme of wage bonuses or other system of incentives found in commercial establishments.[103]

The war years saw a number of changes in the distribution of types of workers at the Boston Navy Yard. The general tendency was to upgrade Group I laborers to Group II, and by the end of 1944, the yard had no employees in Group I. The proportion between workers and supervisors dropped, although the recruitment

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102. Commandant to Assistant Secretary of Navy, Dec. 21, 1942, 181-40, Box 59, L16-1; Assistant Secretary of Navy to Commandant, May 27, 1943; Digest of Telephone Conversation, Jun. 9, 1943, both in 181-40, Box 55, L16-2.

103. U.S. Naval Administration, World War II: Office of Secretary of the Navy: Civilian Personnel, vol. II, pp. 371-4.

of employees with little or no industrial experience required a greater, not a lesser, number of supervisory personnel.

Navy yard employees in Group IV(b) had never been covered by the wage schedules produced through yard Labor Boards, and their salaries had been established by acts of Congress. This created rigidity and resulted in white-collar employees falling behind manual workers in matters of compensation. Similarly, the categories of Group IV(b) positions were items of congressional legislation, particularly the 1930 Brookhart Amendment to the Classification Act of 1923.

The size of the Group IV(b) work force at the Boston Navy Yard increased along with the blue-collar force. Especially in its new construction program, the yard was engaged in mass production, and such industrial activity required what appeared to some as an excessive number of office personnel.

In its report, the survey board visiting the yard in November 1944 noted some inequities in the conditions prevailing among Group IV(b) employees. The classification of many in this group was such as to result in their receiving less in the way of compensation than manual workers. Also they suffered because of restrictions on overtime. These problems were not the result of policies of the yard or of the Navy, but required reforms in basic legislation. Some alterations occurred during the war. In May 1943, Congress enacted a War Overtime Act, which enabled office workers to be paid for overtime, but at the same time limited the number of IV(b) workers the Navy could employ. At the very end of the war, Congress provided for increases of about

fifteen percent in the salaries of white-collar employees of the Navy.[104]

SHIP CONSTRUCTION, REPAIR, CONVERSION

The years of World War II, 1939 to 1945, constitute the most active and productive era in the entire history of the Boston yard. Compared to previous and subsequent periods, the amount of ship work undertaken by the yard seems incredible. The facility, including its several annexes, constructed almost three hundred vessels, docked 2432, outfitted 1100, commissioned 120 constructed elsewhere, converted or reconverted seventy-four, and overhauled or repaired more than 3000.

In addition to the emergency circumstances generated first by the likelihood of and then the actual state of war, the years 1933 to 1945 are unique in the story of the Boston Navy Yard, since the facility served primarily as a site for the construction of new vessels. To be sure, the repair record is staggering, but during most of the period, more workers were engaged in building ships than in repairing them.

Several circumstances launched the yard on its thirteen-year-long career as chiefly a builder. In 1931, funds became available for the construction of ships originally authorized in the navy bill of 1916. Two Farragut-class destroyers included in this program, MacDonough and Monaghan, became the Boston Navy Yard's first new construction since completion of Whitney in 1924. Work on the destroyers did not begin until the spring of

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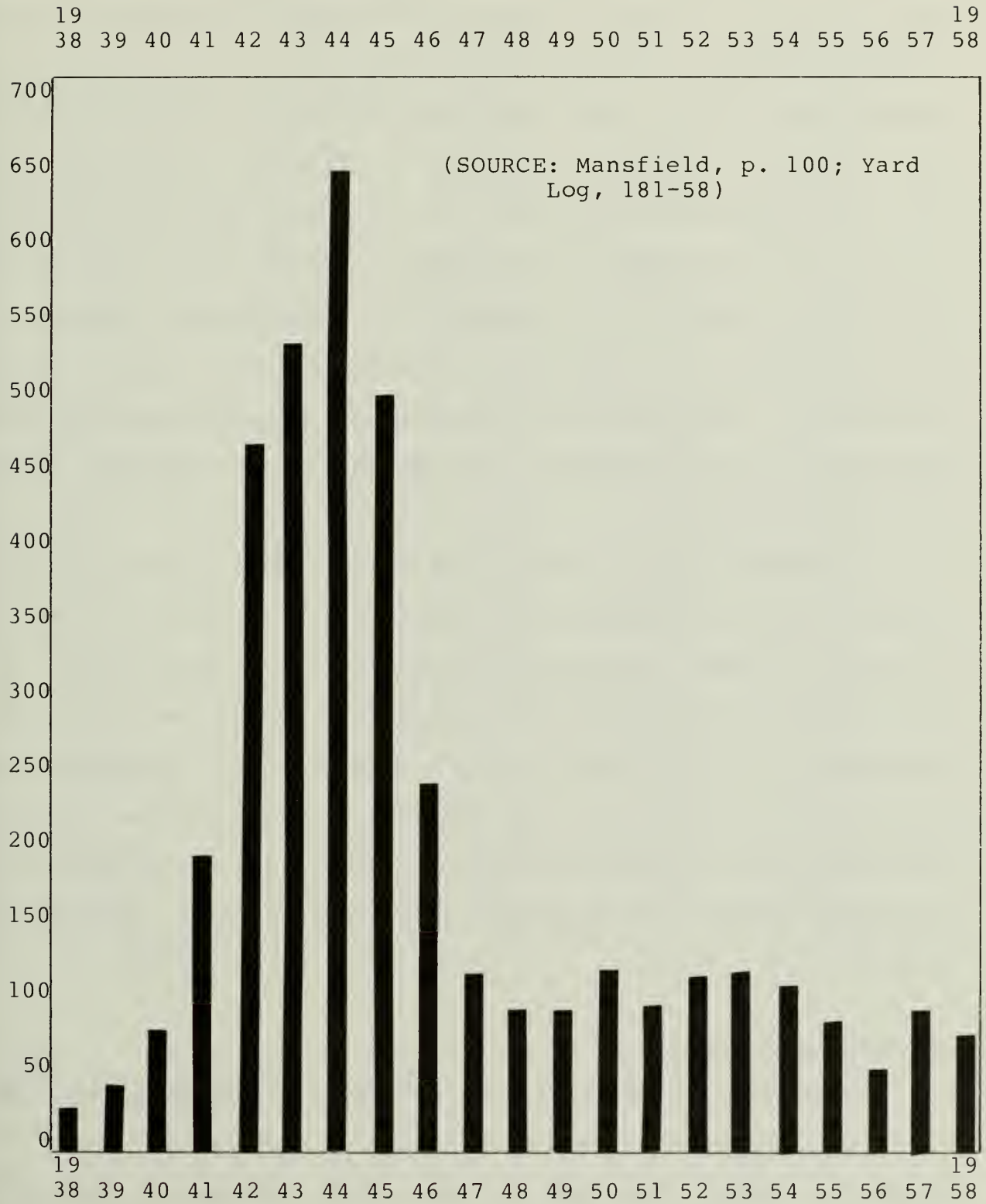
104. Civil Service Commission, Dec. 18, 1943, 181-40, Box 56, L16-4; Industrial Activities Survey, Nov. 25, 1944.

Table No. 14: TOTAL VESSELS DRY-DOCKED, BOSTON NAVY YARD, 1938-1958



1933. By that time, the nation had a new chief executive, and to combat unemployment, stimulate steel production, and revive a moribund shipbuilding industry, President Roosevelt used $281 million of National Recovery Administration funds to build ships for the Navy. That action, of course, also strengthened the American fleet, which had slipped behind the forces of other naval powers. Among the industrial activities benefitting from the NIRA program was the Boston yard, which received contracts for the destroyers Case and Conyngham. In 1934, Congress passed the Vinson-Trammel Act, providing for a continuous program of naval construction during the remainder of the decade. That legislation contained the authorization for seventeen additional destroyers built at Boston, work which was not concluded until after Pearl Harbor.

A second Vinson Act in 1938 authorized a twenty percent overall tonnage increase in the American Navy, and after the fall of France in 1940, Congress approved and appropriated funds for no less than a seventy percent increase. These measures, the Lend-Lease act of March 1940, and wartime appropriations accounted for the bulk of the new construction produced at the Boston Navy Yard during World War II. The yard's new construction consisted primarily of destroyers, destroyer escorts, and landing craft.

The Destroyer Program

Beginning with the laying of the keel of MacDonough in May 1933 and ending with the commissioning of Richard P. Leary in February 1944, the Boston Navy yard completed thirty-six

Table No. 15: DESTROYERS CONSTRUCTED AT BOSTON NAVY YARD, 1933-1945

No.	Name	Class	Date Authorized	Keel Laid	Date Commissioned
351	MacDonough	Farragut	4/20/16	5/15/33	3/15/35
354	Monaghan	Farragut	4/20/16	11/21/33	4/19/35
370	Case	Mahan	6/16/33	9/19/34	9/15/36
371	Conyngham	Mahan	6/16/33	9/19/34	11/4/36
389	Mugford	Craven	3/17/34	10/28/35	8/16/37
390	R. Talbot	Gridley	3/27/34	10/28/35	10/14/37
402	Mayrant	Benham	3/27/34	4/15/37	9/19/39
403	Trippe	Benham	3/27/34	4/15/37	11/1/39
415	O´Brien	Sims	3/27/34	5/31/38	3/2/40
416	Walke	Sims	3/17/34	5/31/38	4/27/40
425	Madison	Benson	3/27/34	12/19/38	8/6/40
426	Lansdale	Benson	3/27/34	12/19/38	9/17/40
433	Gwin	Gleaves	3/27/34	6/1/39	1/15/41
434	Meredith	Gleaves	3/27/34	6/1/39	3/1/41
441	Wilkes	Gleaves	5/17/38	11/1/39	4/22/41
442	Nicholson	Gleaves	5/17/38	11/1/39	6/3/41
461	Forrest	Bristol	3/17/34	1/3/41	1/13/42
462	Fitch	Bristol	3/27/34	1/3/41	2/3/42
632	Cowie	Benson	7/19/40	3/18/41	6/1/42
633	Knight	Gleaves	7/19/40	3/18/41	6/23/42
635	Earle	Benson	7/19/40	6/14/41	8/1/42
634	Doran	Fletcher	7/19/40	6/14/41	8/4/42
476	Hutchins	Fletcher	3/27/34	9/27/41	11/17/42
472	Guest	Fletcher	3/27/34	9/27/41	12/15/42
473	Bennet	Fletcher	3/27/34	12/10/41	2/9/43
474	Fullam	Fletcher	3/27/34	12/10/41	3/2/43
475	Hudson	Fletcher	3/27/34	2/20/42	4/13/43
581	Charette	Fletcher	7/19/40	2/20/42	5/18/43
582	Conner	Fletcher	7/19/40	4/16/42	6/18/43
583	Hall	Fletcher	7/19/40	4/16/42	7/7/43
584	Halligan	Fletcher	7/19/40	11/9/42	8/19/43
585	Haraden	Fletcher	7/19/40	11/9/42	9/16/43
586	Newcomb	Fletcher	7/19/40	3/19/43	11/10/43
662	Bennion	Fletcher	12/23/41	3/19/43	12/4/43
663	H.L. Edwards	Fletcher	12/23/41	7/4/43	1/26/44
664	R.P. Leary	Fletcher	12/23/41	7/4/43	2/23/44

(SOURCE: Tables Nos. 15, 17, 18, and 19 have been compiled from information in DANFS; Manfield, pp. 91-96; Construction Notebooks, BNHP, RG 1, Series 40A, vols. I and II.)

destroyers. During that period, major changes occurred in the design of warships of this type.

Most destroyers built in the 1930s had displacements of 1500 tons, the maximum permitted by the 1930 London Naval Treaty. Ships of the Farragut class, constructed in the early part of the decade, were the first American destroyers designed since the four stackers of World War I. Although the Farraguts' propulsion systems generated greater horsepower, their main turbines, reduction gears, boilers, and feed systems were practically unchanged from the vessels built in the second decade of the twentieth century. America's World War I destroyers had been designed by New York Shipbuilding. That company, Bethlehem Shipbuilding, and Newport News Shipbuilding and Drydock Company constituted the "Big Three," which had built all of the Navy's privately constructed ships between 1918 and 1933. These companies held licenses from a British firm for the fabrication of turbines and exerted considerable pressure on the Navy not to make alterations in propulsion systems.[105]

Mahan-class destroyers, of which the Boston Navy Yard built two, included a major innovation in their machinery, since they were the the first Navy ships to be powered by high-pressure, high-temperature propulsion systems and high-speed turbines with double reduction gears and direct coupled cruising turbines. As design agent for those systems, the Navy used the New York firm

105. Donald W. Mitchell, History of the American Navy: From 1883 to Pearl Harbor (New York: Alfred A. Knopf, 1946), p. 358; Harold Bowen, Ships, Machinery, and Mossbacks: The Autobiography of a Naval Engineer (Princeton: Princeton University Press, 1954), p. 55.

of Gibbs and Cox, which had designed high-pressure, high-temperature equipment for merchant vessels during the 1920s. Appointment of Gibbs and Cox as agent ended American naval dependence on British machinery design.

Because of the resistance from the Big Three and their allies within the Navy Department to the innovative propulsion systems, the Mahan class became controversial. Moreover, as the first of a kind, the ships contained flaws. Even their defenders recognize that they were congested, and major machinery repairs sometimes required opening holes in their sides. In a few instances, deck plating buckled.[106]

Vessels in the classes after the Mahans were essentially similar, although having higher-pressure, higher-temperature turbines. The Craven class, which included Mugford and Talbot, built at Boston, was the first of a group of single stackers. Also beginning with this class, all main guns were in a gunhouse, which previously had only contained forward armament.

Some thirty-five American destroyers, starting with No. 397, became known as the "top-heavy" or the "over-weight" ships, because of problems with stability. No danger existed of their turning over, but when fuel oil, ammunition, and stores all became low, they did not respond quickly to "hard-over-helm." Consequently, another controversy arose, one aspect of which was antagonism between the Bureau of Construction and Repair and the Bureau of Engineering. That situation contributed to the decision to merge the two bureaus into a single Bureau of

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106. Bowen, pp. 59-60; Navy Year Book (New York: Duell, Sloan and Pearce, 1944), p. 208.

Ships.[107] The Boston yard constructed six of the controversial destroyers.

Two new classes of destroyers appeared during the war years, ships in one of them, the Fletchers, being built at Boston. Propulsion systems had increased from the 42,800 horsepower of the Farraguts to 60,000. However, with displacements of 2050 tons and equipped with heavier loading of armament, electronic gear, and personnel complements, their speed dropped to thirty-five knots, as compared to the thirty-seven knots of the Bristol class. Fletchers generally were armed with five 5-inch guns, five 40mm or seven 20mm antiaircraft guns, two 21-inch quintuple torpedo tubes, and eight depth charge throwers and projectors.

The Boston Navy Yard's career as a builder of destroyers stretched from May 1933 to February 1944. Of the thirty-six ships built at the yard, work on twelve commenced before 1939. Usually, destroyers, destroyer escorts, and other ships, whether built in dry dock or on shipways, were constructed in pairs. On May 15, 1933, MacDonough was started in Dry Dock No. 1. Six months later, the keel of Monaghan was laid in the same dock. When the dock was flooded on August 22, 1934, for the launching of MacDonough, Monaghan was transferred to Dry Dock No. 2, where she was completed. The launching of the second destroyer came in January 1935. Thereafter, the general practice was to lay two keels in the same facility on the same day, to construct the ships at the same pace, and to float or launch them at the same

107. Bowen, pp. 115-8.

time. A variation of this pattern occurred in the late thirties, when Dry Dock 2 had four destroyers under construction at the same time. Work on O´Brien and Walke began in the dock in May 1938 and on Madison and Lansdale in the following December. The launching of all four occurred on October 20, 1939. In one instance, there was no simultaneous launching of both ships in a pair. The keels for the first vessels constructed on Shipways No. 1, Meredith and Gwin, were laid on June 1, 1939, but Meredith went down the ways on April 24, 1940, and Gwin one month later. Although vessels became heavier and more complicated, the yard reduced the construction period from two years in the mid-30s to slightly more than eight months by the time it completed its last two ships early in 1944.

TABLE NO. 16: UTILIZATION OF SHIPBUILDING FACILITIES, 1933-1954

Vessel Type	Dry Dock No. 1	Dry Dock No. 2	Shipways No. 1	Shipways No. 2	Dry Dock No. 5
DDs	1	13	14	8	0
DEs	0	0	4	20	42
LSDs	0	1	2	2	2
LSTs	0	9	17	14	6
AVPs	0	0	2	0	0
APLs	0	0	4	2	0
APBs	0	0	0	6	0
Submarines	0	0	0	0	4
TOTALS	1	23	43	52	54

(SOURCE: Construction Notebooks, 1933-1946, BNHP, RG I, Series 4A, vols. I-III. Data in the table is based on the facility from which the vessels were launched or floated.)

The thirty-six destroyers built at the Boston Navy Yard from 1933 to 1945 had varied war experiences. Thirty-three served in the war in the Pacific, twelve being first assigned to the

Atlantic or to the European theatre before their transfer to participate in the struggle against Japan. Five of the first six ships constructed at the yard survived the Japanese attack on Pearl Harbor. During the war, a half-dozen Boston-built destroyers perished. Enemy torpedoes, mines, gun fire, or air attack demolished five vessels, and a Pacific typhoon wrecked the other. After returning from the war in Europe, five of the destroyers were converted to high-speed minesweepers.[108]

Destroyer Escorts

In the spring of 1942, the Boston Navy Yard began construction of its first two destroyer escorts. Such ships represent a design innovation, required by the operations of German submarines. Neither the British nor the American navies were prepared for antisubmarine warfare. Early in the war, German U-boats achieved great success against Allied shipping. For example, in January and February 1940, they sank eighty-five ships, aggregating 280,829 tons, and in the single month of June 1940, the figure was 585,496 tons. Convoys proved the most effective defense against submarine attacks on shipping, and convoys required escort vessels. The British were hard pressed to provide escorts, and it was in that connection that in May 1940, Prime Minister Winston S. Churchill sought from the United States the loan of fifty World War I destroyers.

Although destroyers proved excellent escorts, their high

108. Information about the wartime careers of particular ships is taken from DANFS.

speeds and versatile weaponry exceeded the requirements, and their services could be better used elsewhere. Needed were smaller vessels which could be built more rapidly and at lower costs. Thus the destroyer escort appeared, a smaller version of the destroyer, slower and especially designed for antisubmarine warfare. Britain and Canada began to construct such vessels, and American production commenced in July 1941.

All American-built destroyer escorts were of the same basic design, although variations in hulls, propulsion systems, and armaments produced seven different types. Some of the ships had hulls 289 feet, five inches in length, and others were 306 feet long. Power plants consisted of either diesel engines or steam turbines. Use of diesels resulted from a shortage of turbines and constituted a design compromise, since the vessels had less horsepower and thus slower speeds. The Navy elected to equip some of the escorts with diesel engines, rather than cut back the number of ships being constructed. The chief variation respecting armament centered on the main guns. Ships produced early in the escort program had 3-inch weapons, and some of those built later had 5-inch guns.[109]

The sixty-two destroyer escorts constructed at the Boston Navy Yard were covered by four contracts awarded to the yard. All of the first twelve, DE-1 through DE-12, were originally intended for transfer to Great Britain under the Lend-Lease program. Five of them in fact were delivered to the British Navy,

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109. U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. I, p. 94.

as were twenty-six built later. The other three contracts covered DE-256 through DE-280; DE-516 through DE-530; and DE-531 through DE-540. Several additional contracts for escorts were canceled by the Navy Department.

The escorts built by the yard under the first three contracts were identical, having short hulls and being powered by General Motors diesel electric tandem motors, which produced 6000 horsepower and gave them a design speed of twenty-one knots. They had displacements of 1140 tons and main armaments of three 3-inch guns. The ten ships built under the last contract, DE-531 through DE-540, were of the long-hull or 306-foot type. Their Westinghouse or General Motors turbines and reduction drive gave them propulsion systems producing 12,000 horsepower and speeds of twenty-four knots. DE-531 through DE-540 had two 5-inch guns and displacements of 1350 tons.

Three of the sixty-two Boston built destroyer escorts were completed after the war ended. Osberg entered commission in December 1945. Although the yard launched Wagner and Vandiver in December 1943, the vessels remained half-finished until 1954 and 1955, when they were completed as radar picket escort ships. Four other hulls had been launched as part of the yard's wartime destroyer escort program, but the Navy canceled further work and the hulls were scrapped.

Great Britain received thirty-one of the escorts constructed at Boston, four of which were sunk during the war. The United States regained some of the remainder after hostilities ceased. All of the twenty-eight destroyer escorts

that served with the American Navy survived the war. Seven had been on escort duty in the Atlantic and sixteen in the Pacific. Three, completed toward the end of the program, served as school or training ships.

The Boston Navy Yard built all of its destroyer escorts on Shipways No. 1, Shipways No. 2, and Shipways No. 3, later known as Dry Dock No. 5. The last of these had been especially constructed for fabrication of escorts and turned out forty-two vessels of this type. It received the keels of the first two, Bayntun and Bazel, in early April 1942. After their launching in late June, a short hiatus occurred in the escort construction, as priority was briefly assigned to LSTs. In the following September, the escort program went into high gear, and ships were built at a rapid pace until early 1944.

All of the escorts constructed on Shipways No. 1 and No. 2 were worked on in pairs. That pattern also generally prevailed at Shipways No. 3. However, at the height of the escort program, that facility also built three sets of four vessels, DEs 274 through 277, 521 through 524, and 525 through 528. Shipways No. 3's size and versatility and wartime pressures resulted in other innovations. Seven escorts were built essentially in halves, first from frame No. 38 1/2 to the stern or bow and then the remaining section. The most complex arrangement in Shipways No. 3 occurred in the autumn of 1942. Keels were laid on September 17 for all of BDE-3 and half of BDE-4, and on September 22 for LST-309 and the after section of LST-310. All four units were

Table No.17: DESTROYER ESCORTS BUILT AT BOSTON NAVY YARD

No.	Name	Keel Laid	Date Commissioned	Notes
1	Bayntun	4/5/42	Transferred to G.B.	
2	Bazel	4/5/42	Transferred to G.B.	
3	Berry	9/22/42	Transferred to G.B.	
4	Blackwood	9/22/42	Transferred to G.B.	
5	Evarts	10/17/42	4/15/43	Atl, Med
6	Wyffels	10/17/42	4/21/43	Atlantic
7	Griswold	11/17/42	4/28/43	Pacific
8	Steele	11/27/42	5/4/43	Pacific
9	Carlson	11/27/42	5/10/43	Pacific
10	Bebas	11/27/42	5/15/43	Pacific
11	Crouter	12/8/42	5/25/43	Pacific
12	Burges	12/8/42	Transferred to G.B.	
256	Seid	1/10/43	6/11/43	Pacific
257	Smartt	1/10/43	6/18/43	Atlantic
258	W.S. Brown	1/10/43	6/25/43	Med, Atl
259	W.C. Miller	1/10/43	7/2/43	Pacific
260	Cabana	1/27/43	7/9/43	Pacific
261	Dionne	1/27/43	7/16/43	Pacific
262	Canfield	2/23/43	7/22/43	Pacific
263	Deede	2/23/43	7/29/43	Pacific
264	Elden	2/23/43	8/4/43	Pacific
265	Cloues	2/23/43	8/10/43	Pacfic
266	Capel	3/11/43	Transferred to G.B.(sank)	
267	Cooke	3/11/43	Transferred to G.B.	
268	Dacres	4/7/43	Transferred to G.B.	
269	Domett	4/7/43	Transferred to G.B.	
270	Foley	4/7/43	Transferred to G.B.	
271	Garlies	4/7/43	Transferred to G.B.	
272	Gould	4/23/43	Transferred to G.B.(sank)	
273	Grindall	4/23/43	Transferred to G.B.	
274	Gardiner	5/20/43	Transferred to G.B.	
275	Goodall	5/20/43	Transferred to G.B.(sank)	
276	Goodson	5/20/43	Transferred to G.B.	
277	Gore	5/20/43	Transferred to G.B.	
278	Keats	6/5/43	Transferred to G.B.	
279	Kempthorne	6/5/43	Transferred to G.B.	
280	Kingsmill	7/9/43	Transferred to G.B.	
516	Lawford	7/9/43	Transferred to G.B.(sank)	
517	Louis	7/9/43	Transferred to G.B.	
518	Lawson	7/9/43	Transferred to G.B.	
519	Paisley	7/18/43	Transferred to G.B.	
520	Loring	7/18/43	Transferred to G.B.	
521	Hoste	8/14/43	Transferred to G.B.	
522	Moorsom	8/14/43	Transferred to G.B.	
523	Manners	8/14/43	Transferred to G.B.	
524	Mounsey	8/14/43	Transferred to G.B.	
525	Inglis	9/25/43	Transferred to G.B.	
526	Inman	9/25/43	Transferred to G.B.	
527	O´Toole	9/25/43	1/22/44	Atlantic
528	J.J. Powers	9/25/43	2/29/44	Atlantic

(Table No. 17: Destroyer Escorts, continued)

No.	Name	Keel	Commissoned	Notes
529	Mason	10/14/43	3/20/44	Atlantic
530	Bermingham	10/14/43	4/8/44	Atlantic
531	E.H. Allen	8/31/43	12/16/43	(school ship)
532	Tweedy	8/31/43	2/12/44	(train. ship)
533	H.F. Clark	10/8/43	5/25/44	Pacific
534	Silverstein	10/8/43	7/14/44	Pacific, Korea
535	Lewis	11/3/43	9/5/44	
536	Rivin	11/3/43	10/31/44	Pacific
537	Rizzi	11/3/43	6/26/45	(train. ship)
538	Osberg	11/3/43	12/10/45	
539	Wagner	11/8/43	11/22/55	Completed as DER 539
540	Vandiver	11/8/43	10/11/55	Completed as DER 540

(SOURCE: See Table 15, p. 597.)

Table No. 18: MISCELLANEOUS SHIPS CONSTRUCTED AT BOSTON NAVY YARD DURING WORLD WAR II

No.	Name	Type	Keel Laid	Date Launched	Date Commissioned
YSD 11		S´Plane Derr	5/16/40	8/21/40	11/15/40
YRB 1		Sub Rep. Barge	6/10/40	8/22/40	8/30/40
YD 77		Float. Derrick			1942
AVP 21	Humbolt	S´Plane Tender	9/6/40	3/17/41	2/7/42
AVP 22	Matagorda	S´Plane Tender	9/6/40	3/18/41	3/24/42
YSD 20		S´Plane Derrick	11/12/41	3/6/41	5/31/41
YSD 22		S´Plane Derrick	11/12/41	2/14/41	4/30/41
YSD 23		S´Plane Derrick	11/20/41	2/15/41	5/8/41
YSR 3		Sludge Barge	10/7/41	12/31/41	5/10/42
APL 11		Barracks Ship	8/5/44	9/4/44	10/9/44
APL 12		Barracks Ship	8/5/44	9/4/44	10/23/44
APL 13		Barracks Ship	9/5/44	10/12/44	11/19/44
APL 32		Barracks Ship	9/5/44	10/12/44	1/17/45
APB 38	Marlboro	Barracks Ship	8/25/44	11/17/44	8/17/45
APB 39	Mercer	Barracks Ship	8/25/44	11/17/44	9/18/45
APL 33		Barracks Ship	11/18/44	1/1/45	4/4/45
APL 34		Barracks Ship	11/18/44	1/1/45	5/15/45
SS 522	Amberjack	Submarine	2/8/44	12/15/44	3/25/46
SS 523	Grampus	Submarine	2/8/44	12/15/44	5/1/50
SS 524	Pickerel	Submarine	2/8/44	12/15/44	7/25/49
SS 525	Grenadier	Submarine	2/8/44	12/15/44	5/23/51
APB 35	Benewah	Barracks Ship	1/2/45	5/6/45	3/18/46
APB 40	Nueces	Barracks Ship	1/2/45	5/6/45	11/29/45
YFN 891		Cov´d Lighter	5/7/45	6/9/45	7/10/45
YFN 892		Cov´d Lighter	5/7/45	6/9/45	7/10/45
APB 36	Colleton	Barracks Ship	6/9/45	7/30/45	9/27/46
APB 37	Echols	Barracks Ship	6/9/45	7/30/45	12/30/47
YF 893		Cov´d Lighter	6/6/45	7/30/45	8/18/45

(SOURCE: See Table 15, p. 597.)

launched on November 23.

During World War II, the Navy ordered the construction of more than one thousand destroyer escorts, utilizing its own yards and private shipbuilding firms, including experienced builders and newcomers, some of which were inland. Among the many facilities fabricating these vessels, the Boston yard became the pacesetter. It was the first shipbuilder, either government or private, to deliver four ships in one month, May 1943, and then five in a single month, July 1943. In each of the months of August and September of the same year, the yard completed six vessels. Boston's delivery of forty-six escorts in 1943 was also a record. At the peak of the escort program, it took Boston Navy Yard workers a mere four months to produce a completed vessel.[110]

Landing Craft

Although the Navy began experiments with small landing craft in the 1930s, no one in the United States or among the Allies anticipated the demand which arose in World War II for vessels capable of landing large numbers of men and vehicles on enemy-held beaches. Such craft were required for the opening of a second front in Europe and for advances against the Japanese in the Pacific. These considerations led to the American landing craft program, "the most stimulating and spectacular of all design programs in World War II." In 1942, one billion dollars was earmarked for that program. There came into being fifteen basic types of landing craft, ranging in size from rubber boats,

110. Mansfield, pp. 19-20.

carrying six men, to LSDs, Landing Ship Dock, 450 feet long and designed to transport and launch other landing craft.[111]

The Boston Navy Yard participated in the landing craft program, producing 150 LCM (3)s, tank lighters, and forty-four LSTs, tank landing ships. At the very end of the war, the yard constructed four LSDs.

The LST was a response to the Allies' need for a relatively large, seaworthy ship with the capability of delivering tanks and other vehicles in amphibious assaults on Fortress Europe. The Bureau of Ships quickly produced the basic design, a vessel with an extensive ballast system that could be filled to give the deep draft required for travel on the high seas and that could be emptied to provide the shallow draft essential for beaching operations. Final plans provided for a ship 328 feet in length and fifty in width, with a minimum draft of three feet, nine inches. LSTs could carry tanks and other vehicles aggregating 2100 tons. An elevator lowered tanks from the main to the tank deck, which was equipped with ventilators to remove the exhaust when tank motors were running.[112]

Assigned top priority, the LST program went rapidly forward, with contracts let even before the completion of a test vessel. The first keel was laid at Newport News, Virginia, on June 10, 1942. The Boston Navy Yard, not far behind, started its first pair of LSTs two weeks later. By the end of the war, navy yards

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111. U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. I, p. 94.

112. For a description of the development of LSTs, see DANFS, vol. VII, pp. 569-72.

and private firms had built 1,051 of these vessels.

The LST program at the Boston Navy yard consisted of two main stages. First came the construction of LST-301 through 310 during the period from June 1942 to January 1943. In December 1943, after an eleven-month interruption, the yard resumed the program, building LST-980 through 1003 and LST-1028 through 1037. That stage was over in September 1944. In July and August 1945, the yard laid two more LST keels, the vessels not being completed until several years later.

To expedite fabrication of the LSTs, the Navy resisted changes in design. However, some alterations appeared, and the vessels built at the Boston yard during the second stage of its program differed from the first ten. A ramp replaced the elevator connecting the main and tank decks, armament was increased, a distilling plant added, and the main deck strengthened to accomodate a fully equipped LCT. Further changes were made in the two ships constructed by the yard in the years 1945 to 1949. LST-1153 and LST-1154 were the only steam-powered vessels of their type built by the Navy. They also had greater cargo carrying capacity and better berthing arrangements than those constructed during the war.

Three of the LSTs built at Boston in the summer of 1944 were converted into landing craft repair ships (ARLs). In the conversions, the bow doors were removed and the bow sealed. To enable the vessels to haul aboard and repair damaged landing craft, ARLs were equipped with derricks, cranes, winches, and blacksmith, machine and electrical shops.

From its inception, the LST program held a high priority,

Table No. 19: LSTS BUILT AT BOSTON NAVY YARD DURING WORLD WAR II

Number	Keel Laid	Date Launched	Date Commissioned	Notes
301	6/26/42	9/15/42	11/1/42	Transferred to GB
302	6/26/42	9/15/42	11/10/42	Transferred to GB
303	7/3/42	9/21/42	11/20/42	Transferred to GB
304	7/3/42	9/21/42	11/29/42	Transferred to GB
305	7/24/42	10/10/42	12/6/42	Tr. to GB (sank)
306	7/24/42	10/10/42	12/11/42	Italy, Normandy
307	9/15/52	11/9/42	12/23/42	Italy, Normandy
308	9/15/42	11/9/42	1/2/43	Italy, Normandy
309	9/22/42	11/23/42	1/11/43	Italy, Normandy
310	9/22/42	11/23/42	1/20/43	Italy, Normandy
980	12/9/43	1/27/44	2/26/44	Normandy
981	12/9/43	1/27/44	3/11/44	Normandy, Pacific
982	12/22/43	2/10/44	3/19/44	Normandy, Pacific
983	12/22/43	2/10/44	3/25/44	Normandy
984	1/3/44	2/25/44	4/7/44	
985	1/3/44	2/25/44	4/7/44	
986	1/15/44	3/5/44	4/14/44	Pacific
987	2/2/44	3/5/44	4/19/44	
988	2/10/44	3/12/44	4/25/44	S. France
989	2/10/44	3/12/44	4/28/44	S. France
990	2/26/44	3/27/44	5/1/44	Pacific
991	2/26/44	3/27/44	5/6/44	Pacific
992	3/5/44	4/7/44	5/10/44	Pacific
993	3/7/44	4/7/44	5/12/44	Pacific
994	3/12/44	4/17/44	5/17/44	S. France
995	3/12/44	4/17/44	5/20/44	S. France
996	3/27/44	5/2/44	5/23/44	S. France, Pacific
997	3/27/44	5/12/44	5/26/44	S. France
998	4/8/44	5/14/44	5/29/44	
999	4/8/44	5/14/44	5/30/44	Pacific
1000	4/18/44	5/26/44	6/14/44	Pacific
1001	4/18/44	5/26/44	6/20/44	Pacific
1002	5/3/44	6/8/44	6/25/44	Pacific
1003	5/3/44	6/8/44	6/28/44	Redesignated ARL-10
1028	5/15/44	6/18/44	7/7/44	Pacific
1029	5/15/44	6/18/44	7/13/44	Pacific
1030	5/27/44	6/25/44	7/19/44	Pacific
1031	5/27/44	6/25/44	7/25/44	Pacific
1032	6/9/44	7/9/44	8/1/44	Pacific
1033	6/9/44	7/9/44	8/12/44	Pacific
1034	6/26/44	8/4/44	8/26/44	Pacific
1035	6/26/44	8/4/44	9/1/44	Pacific
1036	6/10/44	8/24/44	9/15/44	Redesignated ARL-11
1037	6/10/44	8/24/44	9/21/44	Redesignated ARL-12
1153	7/19/45	4/24/47	9/3/47	
1154	8/4/45	7/19/46	6/9/49	

(SOURCE: See Table 15, p. 597.)

and the Navy pressed its yards and private contractors for the earliest possible completions. This urgency was manifest at the Boston yard in several instances. In late 1942, the Navy was ready to accept three LSTs from Boston, even though they lacked stern winches, owing to the slow and erratic delivery of those parts. When the Navy assigned the Boston yard construction of LSTs 980 through 1003, it authorized utilization of Dry Dock No. 2 as a construction facility. By the summer of 1944, the yard had developed procedures resulting in the completion of an LST in seven weeks. One technique consisted of the prefabrication of deckhouses on Pier No. 1, installing as much of the equipment and wiring as possible. Then the sixty-ton units were hoisted by crane onto completed hulls.[113]

Four of Boston's shipbuilding facilities were employed in the LST construction. Shipways Nos. 1, 2, and 3 saw service in the initial stage in the latter half of 1942 and in the second, occurring largely in 1943. Dry Dock No. 2 also served as an LST construction site from January to June 1944. The final two LSTs, 1153 and 1154, started in the summer of 1945, were built on Shipways No. 3 and No. 1.

Roughly half of the LSTs built at the Boston Navy Yard saw action in the European theatre, the other half being assigned to the Pacific. The first five completed by the yard were transferred to Great Britain several days following their commissioning. The next five remained in the U.S. Navy and participated in the Sicilian and Italian campaigns and later in

113. Memorandum for File, Nov. 25, 1942, 181-40, Box 41, L8-3.

the Normandy landings. The first four finished in early 1944, following the resumption by the yard of LST construction, also took part in the invasion of Normandy. Six others were used in the Allied landing in Southern France in August 1944. Twenty Boston-made LSTs, including three that had served in Europe, saw action in the war against Japan in the Pacific. Only one of the LSTs built at Boston fell victim to the enemy. LST-306, among those turned over to the British Navy, was sunk by an Italian or German submarine off Anzio in February 1944.[114]

The smallest landing craft built at Boston during World War II were Landing Craft Mechanized or LCMs, designed to serve as "tank lighters." The Navy tested such a craft in 1938, utilizing the then standard Marine Corps tank, which weighed six tons. Combat experience produced rapid change in tank design, and by the time the Navy launched its landing craft program, tanks had weights in excess of thirty tons. To carry such vehicles to enemy beaches, the fifty-foot-long LCM was developed. The Navy ordered 1100 of these craft for the American and British invasion of North Africa. Boston received orders for 150 LCMs in mid-April 1942 and completed construction by the end of the summer. In the month of August, the yard fabricated no less than 110 LCMs, almost twice as many as any other builder. Fabrication of the LCMs constituted a "crash program." As one employee later described it: "We just stopped everything, and concentrated on them and delivered them for the invasion." Shipfitters fabricated the tank lighters in Building No. 195 of the main yard and also

114. DANFS, vol. VII, pp. 606, 703-6, 710-11.

at the South Boston Annex[115]

Prior to the surrender of the Japanese in August 1945, the Boston Navy Yard launched four LSDs, Landing Ship Dock. These were the largest of the World War II landing "craft," being ocean-going ships. Their most conspicuous feature was a spacious well deck, which could be flooded or pumped dry as the occasion required. Bona fide landing craft could be transported in the well to the landing area. Before the actual landing, the well was flooded and the smaller craft unloaded through a stern gate. LSDs were large enough to function as mobile dry docks and mother ships for such vessels as small minesweepers.[116]

The four LSDs built by the Boston Navy Yard were all of the Casa Grande class, being 457 feet, nine inches in length, and seventy-two feet, two inches in breadth. Their full-load displacement of 9,375 tons gave them a maximum draft of eighteen feet. Propulsion systems were geared turbine drives, manufactured by Newport News Shipbuilding, with Babcock and Wilcox two-drum boilers. Besides a ship's company of 326 men, the four Casa Grandes built by the Boston Navy Yard could accomodate 257 or 322 troops. Armament consisted of one 5-inch, twelve 40mm, and twenty-four 20mm guns.[117]

The keel for LSD-26, the first vessel of this type assembled at the Boston yard, was laid on Shipways No. 1 on October 16,

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115. DANFS, vol. IV, pp. 666-7; Dana, "History of the Boston Navy Yard, Chapter 2, New Construction and Repair," Jun. 22, 1945, pp. 3-4; Oral History Interview, John Langan, pp. 2-3.

116. DANFS, vol. IV, p. 668.

117. DANFS, vol. IV, p. 522.

1944. Workmen there built the ship to the third deck. On January 20, 1945, she was launched and on the next day placed in Dry Dock No. 2, where construction was continued, the completed ship being undocked on March 4. The other LSDs were constructed entirely at one facility, LSD-21 on Shipways No. 1 and LSDs 20 and 27 on Shipways No. 3.

None of the four Boston-built LSDs was finished in time to participate in World War II. Tortuga (LSD-26), commissioned on June 8, 1945, was in the Canal Zone and on route to the Far East, when the Japanese capitulated.

Other New Construction

In addition to destroyers, destroyer escorts, LCMs, LSTs, and LSDs, the Boston Navy Yard undertook the construction of twenty-eight other vessels during the war. These constituted a mixture of submarines, auxiliaries, and miscellaneous self-propelled and nonself-propelled craft. Nine were built between May 1940 and May 1942, and twelve between August 1944 and November 1945. Work began on the remaining seven during the war, but was not completed until after the beginning of 1946.

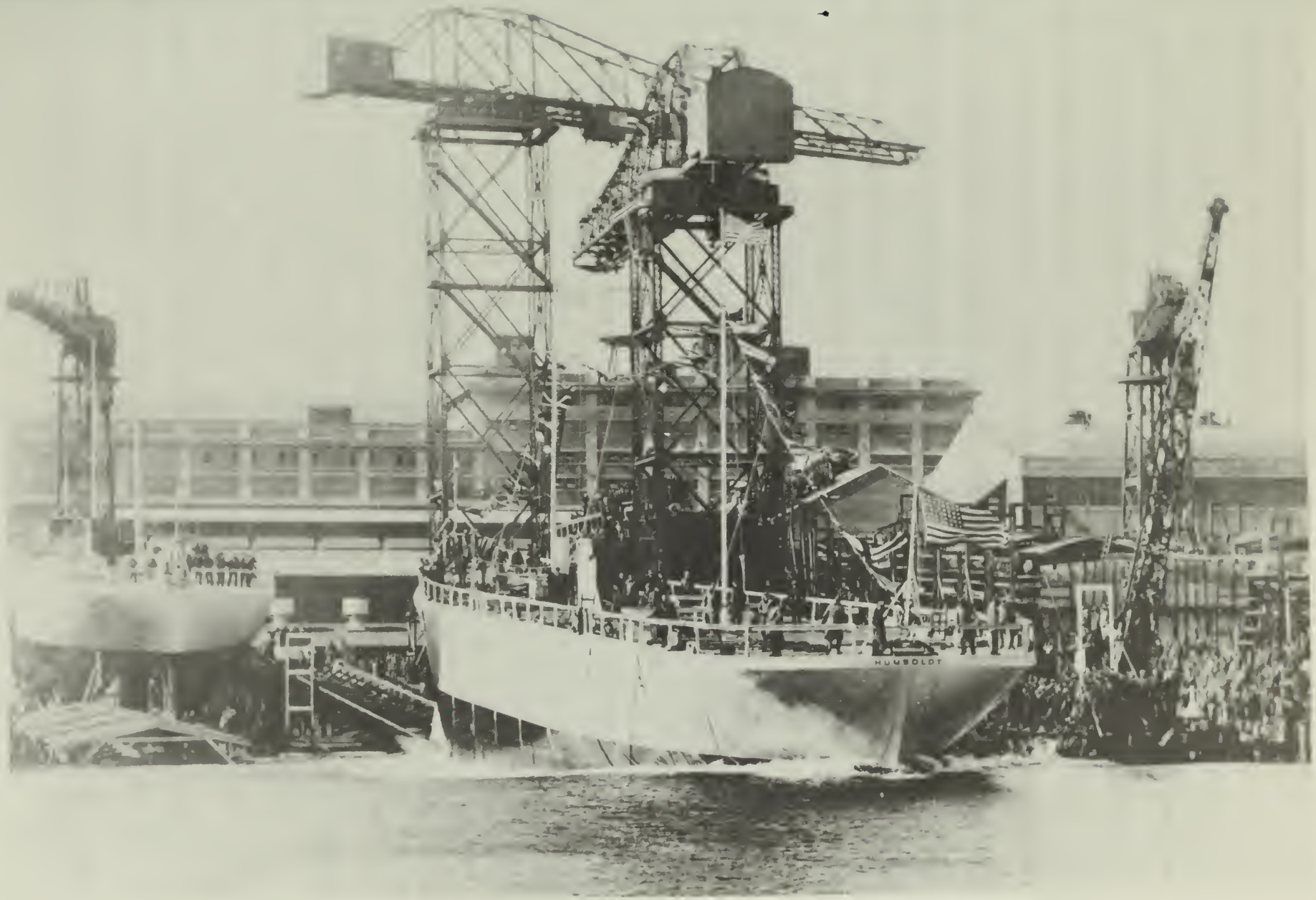
In the early stage of the war, the yard constructed two seaplane tenders, Humbolt and Matagorda; four seaplane wrecking derricks; a submarine repair barge; a floating derrick, and a sludge removal barge. Humbolt and Matagorda were built simultaneously on Shipways No. 1, their keels being laid, their hulls launched, and the actual ships commissioned on or about the same days. In size, they were smaller than the destroyers then under construction and larger than the escorts built later. Both

served during most of the war in South Atlantic antisubmarine operations. In mid-1945, Matagorda began conversion to a press information vessel to cover the projected invasion of Japan. That conversion was halted by V-J Day.

During World War II and the postwar years, the Boston Naval Shipyard was involved in the construction of eight submarines. The yard completely built only one of these in the normal fashion, progressing from start to finish. The other seven were begun in other yards, completed in other yards, or at least spent some time in other yards. Under a contract with the Navy, made in December 1941, Cramp Shipbuilding Company started construction of four Balao-class submarines, SS-296 through 299. Two were launched in August 1943 and two in November of the same year. SS-298 and SS-299 were delivered to the Boston yard in March 1944 and then proceeded to Portsmouth, where they were completed and placed in commission. SS-296, Lancefish, and SS-297, Ling, were towed from Philadelphia to Boston in May 1944. The Boston yard completed Ling in early July 1945. Commissioned in February 1945, the unfinished Lancefish, while tied up at Pier 8, flooded through her after torpedo tube and sank on March 15, 1945. She was raised eight days later and decommissioned. Transferred to the First Naval District, Lancefish was delivered to the Portsmouth Naval Shipyard in November 1947. Apparently, the vessel never reentered commissioned service.[118]

On February 8, 1944, Dry Dock No. 5 received the keels of

118. Data on Submarine New Construction at Boston Naval Shipyard Since the Beginning of World War II, BNHP, RG 1, Series 12, Box 4; DANFS, vol. I, pp. 44, 117, 119-29, 225-6.



PHOTOGRAPH NO. 20: USS Humbolt, being launched at Boston Navy Yard on March 17, 1941, from Shipways No. 1. Matagorda, the ship on the left, was launched the following day.

four submarines of the Tench class, SS-522 through 525, all of which were launched on December 15, 1944. In October 1945, three, then between sixty and eighty percent completed, were transferred to Portsmouth. The Portsmouth yard completed Pickerel in April 1949. Grampus and Grenadier returned to Boston in 1948. Work on them was resumed in an irregular fashion. Both were converted as "Guppy"-type submarines, with snorkels which permitted them to run indefinitely in an awash condition. The yard finished Grampus in May of 1950 and Grenadier twelve months later. Amberjack, which had remained in the Boston yard, was complete as a conventional submarine in March 1946. The Portsmouth yard subsequently converted her as a "Guppy."[119]

By August 1944, the Boston Navy Yard had finished its construction of destroyers and LCMs and was nearing the end of the escort and LST programs. This situation left space available on building ways for low priority new construction, and the yard began the fabrication of two APBs, self-propelled barracks ships. The Boston yard was reverting to its pre-1933 function as a repair facility, and most of the labor force no longer engaged in new construction. Accordingly, by wartime standards, work on the two APBs proceeded at a leisurely pace, the two ships being completed a year after the laying of their keels.

Before the end of the war, the yard started construction of four more self-propelled barracks ships, two of which were not completed until 1946 and 1947. APBs provided temporary quarters at ports, naval bases, and other locations. Benewah, completed

119. DANFS, vol. I, pp. 39-40; vol. III, pp. 132, 157; vol. V, p. 294.

at the Boston yard in 1946, remained in Boston Harbor as a berthing ship for men engaged in inactivating and decommissioning aircraft carriers. Of a size similar to other APBs, Benewah had a length of 328 feet, a beam of fifty, and a draft of eleven. Her displacement was 2189 tons and her armament consisted of eight 40mm guns.

The Boston yard's end-of-war construction included six APLs, nonself-propelled barracks ships, which differed little from APBs except respecting propulsion. In fact, Benewah originally was intended as an APL. The yard also built three nonself-propelled covered lighters, YFNs.

The Boston Navy Yard and the Destroyer-Bases Swap

The Boston Navy Yard's earliest direct contribution to the Allied cause in World War II was readying some of the vessels included in the Destroyer-Bases Agreement of September 1940. Beginning in mid-May, Prime Minister Churchill pleaded with the Roosevelt administration for the transfer to Britain of forty or fifty of the United States Navy's World War I destroyers. The Royal Navy had suffered severe losses in the evacuations of Norway and Dunkirk, and German submarines and aircraft continued to have almost daily success against the fleet and merchant vessels. The worse appeared yet to come, with Hitler's forces preparing a cross-Channel invasion of England. After contending with serious political, diplomatic, military, and legal obstacles, the administration worked out an agreement to exchange fifty "over-aged" destroyers for long term leases on eight bases in Newfoundland and the Caribbean. President Roosevelt advised

Congress of the agreement on September 3. By that time, implementation of the transfer of the destroyers was already in motion, as events at the Boston Navy Yard demonstrated.[120]

Orders had gone out on September 1 for the first eight ships in the transfer to proceed to the Naval Torpedo Station at Newport and then to the navy yard at Boston. At the yard, work was to progress expeditiously and the ships kept in a state whereby they could be made ready for sea on forty-eight hours' notice. The aim of the Navy was to have the first group arrive at Halifax as soon as possible after September 6. The eight four-stackers sailed into Boston on September 3. Aaron Ward, Abel P. Upshur, and Hale departed the next day, followed on the 5th by Herndon, Welborn C. Wood, Welles, Crowninshield, and Buchanan. By that time, the yard started to receive a second group, consisting of four ships, with still a third set of six not far behind. The second group left on September 17, and the final set on September 18.[121]

Some of the eighteen destroyers prepared for transfer at Boston had been removed from commission during the 1920s and 1930s. However, within six months of the German invasion of Poland in September 1939, all of the Navy's four-stackers were back in commission, many of them on neutrality patrol. Accord-

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120. Daniel S. Greenberg, "U.S. Destroyers for British Bases -- Fifty Old Ships Go to War," U.S. Naval Institute Proceedings, Nov. 1962, pp. 70-83; Howard Norman Kay, "The Fifty Old Maids Come Through," U.S. Naval Institute Proceedings, Sept. 1950, pp. 977-9; Abbazia, pp. 91-103.

121. Comdesatron to Comdesdiv 69, Sep. 1, 1940, 181-40, Box 4, A4-1/EF13. For arrivals, departures, and dockings, see the Yard Log, 181-58.

ingly, the work of the Boston Navy Yard did not consist of preparing ships freshly removed from "mothballs." However, considerable work was required of the yard. It dry docked the eighteen destroyers assigned to its care, utilizing the marine railway, Dry Dock No. 1, Dry Dock 3, and a commercial dock in East Boston. In addition to the cleaning and painting of hulls, the yard mounted antiaircraft batteries and in some instances replaced bunks with hammocks and installed modern engine equipment. The first eight ships left before degaussing equipment could be installed, but orders were given Boston to provide such installations for the second and third groups. All of the ships received a full allowance of equipage and consumable supplies. Torpedoes, torpedo accessories, and other ordnance items had been delivered to the destroyers at Newport prior to their arrival at Boston.[122]

Probably work on the destroyers briefly disrupted the routine of the Boston Navy Yard, which at that time consisted chiefly of construction of Matagorda and Humbolt on Shipways No. 1. During the two weeks the eighteen four-stackers were in the yard, the work force increased from 1089 to 1134.

Repairs

Generally, the prewar policy of the Navy Department had

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122. Commander Destroyers, Atlantic Squadron, to Commanders Destroyer Squadrons 39, 41, 69, Sep. 7, 1940; Comdesatron to Comdesdiv 79, Sep. 4, 1940; Comdesatron to Comdesdiv 69, Sep. 4, 1940; BuShips to Nyd Boston, Sep. 3, 1940; Opnav to NyBos, Sep. 4, 1940; all in 181-40, Box 4, A4-1/EF13. See this file for other telegrams and correspondence regarding the role of Boston in the transfer.

been to use its own yards primarily for repairs and only secondarily for new construction. Private shipbuilders had constructed most of the Navy's new ships. The number of commercial shipyards expanded greatly after Pearl Harbor, and all, both established yards and newcomers, concentrated on building ships. Repair work continued to be performed by the navy yards. However, for the Boston Navy Yard, new construction became a more important activity than repairs, and throughout most of the war, more of the yard's workers engaged in new construction than in repairing existing ships.

Nevertheless, it would be erroneous to conclude that repair work was downgraded, since the volume of that kind of activity expanded remarkably. Moreover, during the entire war, the Navy Department assigned the highest priority to repairs, not to new construction. That policy required the Boston Navy Yard to transfer workers from new construction to repairs, when the occasion arose. Such an occasion occurred in early 1942, when three cruisers, a transport, and a number of destroyers simultaneously arrived at the yard for repairs. That necessitated temporarily transferring all electricians from new construction, until the yard reduced its repair load.[123]

The conditions of war created problems in the maintenance and repair of naval vessels. Ships steamed further and faster and under more adverse conditions than in peacetime, resulting in greater wear and tear on the vessels, their propulsion systems,

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123. Confirmation of Telephone Conversation, Feb. 16, 1942, 181-40, Box 42, L-3.

and equipment. Oftentimes, crews were green and experienced officers rare, which led to misuse, improper maintenance, and more frequent breakdowns of machinery. Wars, of course, produced battle-damaged vessels. Finally, the fleet greatly expanded through new construction and the conversion to military use of privately owned vessels. In 1939, the continental navy yards and that at Pearl Harbor altered, converted, or fitted out 307 ships. In 1945, the figure was 19,528.[124] All of these considerations produced a vastly increased demand for repair work.

During the war, the Navy followed a policy of not making a ship available for repairs, unless it was so badly in need of work that it could not continue operations or in such need of alterations as to be obsolete without them. This meant that navy yards had to provide more than routine overhauls and incidental repairs when vessels fresh from active duty arrived. It is generally recognized that repairing vessels constitutes a greater challenge than building them, since the extent of the work required is never fully known until machinery or structural parts are opened up. Also repairs demand a higher level of mechanical skill on the part of workmen than the fabrication of new ships.

The circumstances of war led to a compromise between the desire to have a ship placed in the best condition possible and the need to return it to duty quickly. This was illustrated in a telephone conversation between Capt. C. L. Brand, Industrial Manager of the Boston Navy Yard, and the office of the Commander-in-Chief, Atlantic Fleet (CINCLANT) in March 1942. At that time,

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124. U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. II, pp. 15, 18.

the yard was overhauling two seaplane tenders, Barnegat and Biscayne.

Captain Brand proposed to include in the overhaul the installation of new cranes, and workers had already proceeded to remove the old crane from one of the vessels. Removal of the crane afforded an opportunity for other changes, including increasing the number of 20mm guns from six to ten, providing splinter protection for torpedo storage and gas tanks, and installing the foundation for a 5-inch gun. That work would lengthen the stay in the yard, but the results would be "a very much better ship." CINCLANT agreed on the value of the improvements, but refused authorization since the ships "were urgently needed at a couple of places." One of these "places" was to relieve another vessel, so badly out of repair that her speed was reduced to fifteen knots. Brand acknowleged that disapproval of the additional changes was "a military decision that we make."[125]

Arranging and then conforming to a schedule of availabilities for ships proved an endless and sometimes frustrating task. A sampling of correspondence and of transcripts of telephone conversations may be poor foundation for a conclusion, but evidence points to the likelihood that yard administrators and operational commanders made efforts to understand and to accomodate to the circumstances and problems of the other party. Usually, tolerance was required on the part of forces afloat because the yard frequently was unable to finish a ship as

125. Dictaphone Transcription of Telephone Conversation, Mar. 20, 1942, 181-40, Box 42, L9-3.

scheduled.

Capt. William G. Greenman, Chief of Staff, Atlantic Destroyer Forces in February 1942, understood that unanticipated delays would occur. What he wanted from the Boston yard was an immediate telephone call advising him of a hitch in meeting a ship's completion date. Greenman was concerned with the late departure from the yard of the destroyers Jacob Jones and Broome. Captain Brand explained that because of inadequate supervision, yard workmen had improperly installed a new galley range in Jacob Jones, a defect not discovered until she was ready to sail. Work on Broome was completed on schedule, and then, when taking on oil, the fuel barge "bumped her and smashed in her frame."[126]

For its part, the yard sought to be fully informed of the condition of a ship when it came to the yard. This required a conference between the officers from the vessel and officers from the yard's Production Department. Sometimes, in their eagerness to enjoy shore leave, ship's officers charged with reporting needed work left without properly conferring with representatives of the yard.[127]

As in World War I, efforts were made to accelerate repair work by eliminating or abbreviating peacetime procedures. To reduce the interval between the arrival of a ship for repair and "the appearance on the street of the necessary paper work,"

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126. Confirmation of Telephone Conversation, Feb. 16, 1942, 181-40, Box 42, L9-3. The records contain two versions of this conversation, apparently transcribed by two different secretaries. One is seven pages in length, the other nine.

127. Confirmation of Telephone Conversation, Feb. 16. 1942.

Manager Brand ordered the issuance of blanket job orders by the Planning Section before the ship actually came to the yard. Those job orders covered the five major groups of repair requests: hull; engineering, both mechanical and electrical; ordnance; degaussing; and radio and sound. With these documents in hand, Production Department officers could meet with ships' officers, decide on priority items, and commence actual repairs immediately thereafter.[128]

TABLE NO. 20: NUMBER OF SHIPS OVERHAULED BY BOSTON NAVY YARD, 1938-1945

Type	1938-41	1942	1943	1944	1945
Battleships		5	9	6	0
Carriers		0	10	7	6
Cruisers		8	12	26	17
Destroyers		138	157	244	109
Escorts		63	143	377	125
Submarines		0	0	0	3
Patrol, subchasers		0	6	44	63
Others		339	550	439	354
TOTAL	216	553	887	1143	677

(SOURCE: George O. Q. Mansfield, Historical Review, Boston Naval Shipyard, Formerly Boston Navy Yard, 1938-1957 (Boston: Boston Naval Shipyard, 1957), p. 98.)

Repairs of battleships, carriers, cruisers, and other large ships were undertaken at the South Boston Annex. Smaller craft went to the main yard, the Chelsea Annex, Lockwood's Basin, and a number of private yards in the Boston area. In April 1942, overhauls were performed at four commercial establishments: Bethlehem Steel Company, General Ship and Engine Works, George

128. Production Department Order No. 6, Jan. 5, 1942, 181-40, Box 42, L9-3.

PHOTOGRAPH NO. 21: The destroyer escort Buckley in dry dock at Boston Navy Yard for repair of bow damaged in ramming a German submarine. The incident occurred on May 6, 1944.

Lawley and Son, and Newport Ship Yard. These yards worked on small minesweepers, Coast Guard cutters, submarine chasers, patrol craft, tugs, and barges.[129]

Included in the work of navy yards at Boston and elsewhere was repair of vessels of the nation's allies. This activity began in 1940, when Germany controlled most of the European continent. Shortly before Pearl Harbor, one out of every seven ships repaired in the United States was British. Following the North African campaign in 1942, French ships began to arrive in the United States. For the most part, American and British naval design and technology had moved in the same direction, and repair of British ships encountered far fewer problems than work on French vessels. French designs differed radically from those of the American Navy, plans were often unavailable, and the use of unique alloys and odd-sized guns and machinery created difficulties. Among the British ships repaired at Boston were Aquitania, Rodney, and Queen Mary. French vessels included the battleship Richlieu and the destroyers Fantasque, Terrible, Malin, and Triomphant.[130]

An appreciation of the volume of activity at the Boston Navy Yard during the war is provided in the report of a Bureau of Ships' inspection team, which made a visit in late 1944. The report stated:

> At the time of the Survey, the Yard had some 27 vessels under construction ...and 90 vessels under overhaul. In

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129. Commandant to Bureau of Ships, May 5, 1942, 181-40, Box 42, L9-3.

130. U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. III, p. 80.

> the last seven months 35 new vessels have been delivered and nearly 1000 vessels of many types have been more or less extensively overhauled.

The report has particular impact, because it described the yard at a time when the peak of activity had passed.[131]

Ship Conversions

During World War II, the Boston Navy Yard converted seventy-four vessels, thirty-one at the main yard and forty-three at the South Boston Annex.

Conversions undertaken at South Boston changed a variety of private and naval vessels to serve a diversity of new purposes. In June 1942, the annex converted six private vessels into patrol craft. At the same time, South Boston received two 200-foot corvettes, Saucy and Surprise, formerly units of the Royal Navy and transferred to the United States under a reverse lend-lease arrangement. Probably the yard did not convert them, so much as overhaul and outfit them as patrol gunboats. More in the way of genuine conversions were undertaken in late 1943, when three patrol escorts were changed into weather ships. One seaplane tender and two transports were converted at South Boston into general communications vessels. To participate in the movement of troops and equipment to the islands of the Pacific, an ordinary cargo ship was altered into an attack cargo ship and six destroyer escorts into high-speed transports. In the last ten months of the war, the annex converted six World War I destroyers

131. Survey of Industrial Department, Navy Yard, Boston, Nov. 25, 1944, 181-40, Box 294, A3-1.

into miscellaneous auxiliaries.

Some vessels experienced several conversions. Gulf Dawn, a privately owned tanker, was purchased by the Navy in March 1942, renamed Big Horn, and converted at the main Boston yard into an antisubmarine Q-ship. After eighteen unsuccessful months in the North Atlantic, the ship was transferred to the Coast Guard, which operated her as a weather patrol vessel. In February 1945, the Navy regained possession, and the South Boston Annex reconverted the ship to perform its original purpose. Now designated an unclassified miscellaneous auxiliary, Big Horn sailed to the Far East and served as a shuttle tanker and then a station tanker.

Prior to September 1944, the main site of the Boston Navy Yard did little in the way of conversion work, having its hands full with new construction and repairs. Then it undertook a series of conversions. In the fall of 1944, six destroyers, constructed a few years earlier, were converted to destroyer minelayers. In December, the yard changed five others into high speed minesweepers. In yet another series, lasting from December until June 1945, ten LSTs were converted into coastal minesweepers.[133]

The Boston Navy Yard's conversion work constituted an important activity, since it contributed to the Navy's ability to quickly obtain ships equipped for the special functions demanded

132. List of Vessels Converted at...South Boston, BNHP, RG 1, Series 12, Box 4.

133. List of Vessels Converted at the U.S. Navy Yard, Boston, Aug. 14, 1945, BNHP, RG 1, Series 12, Box 4.

in a two-ocean war. Although sometimes carried out rapidly, at least by peacetime standards, conversions were costly. For example, changing destroyer escorts into high-speed transports required nine to ten weeks and cost approximately one million dollars for each ship.[134]

Fitting Out

While hard at work constructing, repairing, and converting ships during World War II, the Boston Navy Yard engaged in another important function. Between 1939 and the end of the war in 1945, the yard outfitted 1108 vessels. This included one battleship, five carriers, fourteen cruisers, 109 destroyers, 144 destroyer escorts, 173 LSTs, ninety-five submarine chasers, and 161 auxiliary vessels.[135]

As in the past, the yard's fitting-out function in part resulted from its proximity to private shipyards constructing vessels under contract with the Navy. Bethlehem Steel at Quincy built the battleship Massachusetts and the cruisers San Diego and San Juan, all three of which were fitted out by the Boston yard in 1941 and 1942. The Quincy plant also built numerous destroyers, LSTs, and patrol gunboats. Other destroyers arrived at Boston from Bath Iron Works in Maine. The yard outfitted forty-five small minesweepers, some of which were built by George Lawley and Son, Neponset. One unusual development of World War

134. U.S. Naval Administration, World War II: An Administrative History of the Bureau of Ships, vol. II, p. 80.

135. U.S. Naval Administration During World War II: First Naval District, vol. VIII, p. 64.

II was the Navy's use of inland shipbuilders, and at least two minesweepers fitted out at Boston were constructed by Lake Superior Shipbuilding Company, Superior, Wisconsin.[136]

As in every other activity at navy yards, procedures were sought to expedite the outfitting of new ships. In World War I, the building yards undertook at least part of this process. The same course appeared in the second war. Certain phases of readying a ship for sea, nevertheless, had to be performed at navy yards. In late 1942, Bath Iron Works delivered vessels which were nearly completely outfitted. The Boston yard collected the allowance goods and installed the radar, activities which took about two weeks. Patrol boats built at Quincy required degaussing, and small minesweepers constructed by George Lawley needed minesweeping gear and deperming. Ships transferred to Great Britain required special final preparations.[137]

Manufacturing

During World War II, efforts were made to enable navy yards to concentrate on activities that could not be undertaken elsewhere, namely the construction and repair of ships. A system was introduced in 1940 to "farm out" the manufacture of some items previously produced by the Navy's own industrial facilities. That program had the additional intent of providing

136. Vessels Assigned to Navy Yard, Boston for Fitting Out, Nov. 12, 1942, 181-40, Box 41, L8-3.

137. Memorandum for File, Nov. 1, 1942; Outfitting New Construction and Converted Surface Vessels and Preparing Them for Service, Headquarters, First Naval District, n.d., both in 181-40, Box 42 (1942), L9-3.

war work for small factories and shops.

It became the normal procedure for the Boston Navy Yard to farm out certain types of work. All galvanizing and repairs of refrigeration equipment were performed under contract outside the yard. Certain types of instrument gauges and equipment requiring special testing were returned to the manufacturer for reconditioning. The Barbour, Stockwell Company, a small plant in nearby Cambridge, with fewer than a hundred employees, produced all of the gray iron castings required by the yard. This enabled the yard's foundry to concentrate on special alloy steel and bronze castings.[138]

Approximately fifty local plants were included in the Boston Navy Yard's farming-out program, which was administered by the Planning Division of the Industrial Department. Those plants produced watertight doors, hatches, scuttles, ladders, masts, lockers, joiner doors, rail and awning stanchions, pine berths and fittings, depth charge racks, and metal furniture. Through the Navy's nationwide farming-out system, the yard obtained small bulkheads, small integral deckhouses, ammunition hoists, boat and hatch davits, and many other items.

During the war, the yard continued to manufacture cordage and chain. The Japanese occupation of the Philippines created a shortage of manila fiber, and the ropewalk developed new types of cordage, using American hemp, sisal, jute, and mixtures of these fibers, reserving manila for the most important applications. The Boston ropewalk produced twenty percent of the rope and other

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138. Dana, "History of the Boston Navy Yard (Industrial Department), Farming Out."

cordage required by the United States Navy during World War II. The yard's other manufacturing shop, the chain forge, had a total wartime production of three-quarters of a million tons of die-lock chain and chain appendages.

Shortly after Pearl Harbor, there developed a critical shortage of engine components, such as gears, valves, turbines, and forced draft blowers. In part because of those shortages, the machine shop of the Boston Navy Yard began the manufacture of turbines, in a reverse farming-out arrangement with Allis Chalmers, Westinghouse, and General Electric.[139]

World War II revealed the enormous and diverse capacity of the Boston Navy Yard. During the previous decades, it had been recognized that peacetime required utilization of no more than one-quarter of the yard's industrial potential. Even that calculation fell short of indicating how much work the yard could perform in an emergency situation. More than any other event, World War II demonstrated the 1910 statement of Secretary of the Navy George von Meyer: "Navy Yards are primarily for war and only incidentally for peace."

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139. U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. II, p. 178.

Chapter VIII

POSTWAR, COLD WAR, KOREAN WAR: 1945-1955

During the Spanish-American War and World War I, the Boston Navy Yard had greatly expanded its industrial activity and increased its civilian labor force. Cessation of hostilities brought about reductions in work and in workers. However, the yard did not return to pre-1898 or pre-1914 levels of either ship work or employment, but retained some of the increment occasioned by war. This basic pattern also holds for the experience of World War II.

The years following the surrender of Japan differed from other postwar periods, in part because of the duration of World War II and the magnitude of wartime effort by the nation, the Navy, and the yard. Moreover, there emerged an ongoing antagonism between the United States and the Soviet Union that seemed to necessitate a state of military preparedness, although the size and character of America's defense establishment became a matter of debate. The outbreak of the war in Korea in June 1950 resolved some of the issues in that debate.

Important developments in the history of the Boston Navy Yard in the postwar decade include the completion of some of the new construction started during the war and the return to peacetime conditions respecting labor. Also, shortly after the conclusion of the war, the Navy reorganized all of its industrial yards, changing the internal administration and the relationship

between the yards and the department in Washington. No major additions were made to the Boston yard's physical plant.

DEMOBILIZATION, 1945 AND 1946

For the Boston Navy Yard, the return to peacetime conditions most obviously meant reductions in its industrial activity and in its personnel. On September 1, 1945, the yard force included 34,000 civilians. Thirteen months later, the figure was down to 9570. The reduction in force was accomplished by discharging employees, most of whom held war service appointments. However, the process did not consist of simply sending out 25,000 discharge notices and imposing a ban on new hires.[1]

Several difficulties existed in scaling down the civilian labor force. The yard had to continue its industrial function, and between September 1, 1945, and October 1, 1946, it worked on 500 vessels. Measures had to be taken to maintain shops in operating condition, with adequate numbers of supervisors and with workmen possessing the required skills. Complications arose because of returning servicemen. Civil Service regulations and the policies of the government and the Navy gave employment and reemployment rights to veterans. What sometimes occurred was the replacement of experienced, trained workers by ex-GIs who lacked the competencies needed. At the Boston Naval Shipyard, the electronics work force briefly "was on the verge of disintegration because of the demobilization of wartime

1. A useful source of information about the Boston yard in the immediate postwar era is Narrative of the Boston Naval Shipyard, Sep. 1, 1945 to Oct. 1, 1946, 181-40, Box 369 (1946), A-12.

personnel." Particularly, layoffs broke up an important group of workers known as the "Radio Gang." Throughout the yard, too many quartermen and leadingmen were downgraded to the rating of mechanic, resulting in a shortage of supervisors.[2] That personnel matters constituted a vital area is evident in the fact that the staff of the Industrial Relations Department declined by only ten percent, whereas the yard-wide decrease was seventy-two percent.

TABLE No. 21: TOTAL PERSONNEL IN SELECT UNITS BOSTON NAVAL SHIPYARD, SEPTEMBER 1945 AND OCTOBER 1946

	Sep. 1, 1945			Oct. 1, 1946		
Unit	Officers	Enl. Men	Civilians	Officers	Enl. Men	Civilians
Shipyard	608	340	34,010	114	71	9570
Indus. Relations	22	0	119	2	0	124
Planning	132	61	1233	12	0	308
Electronics	85	61	46	10	0	55
Production	330	0	26,730	37	0	6133
Public Works			1981		0	1329
Supply	82	225	2700	20	0	781
Fiscal	2	0	266	2	0	132

(SOURCE: Narrative of the Boston Naval Shipyard, 1 Sept. 1945 to 1 Oct. 1946, 181-40, Box 369, A12.)

The end of the war found the yard with excessive quantities of equipment, material, and supplies. For example, the Public Works Department had accumulated an abundance of cranes, trucks,

2. Electronics Officer to Commander, Dec. 13, 1946; Industrial Survey Division's Report No. 32, Oct. 18, 1946, both in 181-40, Box 365, A3-1.

and passenger cars. Many of them were declared surplus and had to be disposed. More importantly, stocks of shipbuilding materials had been built up for the yard's new construction. Although shipbuilding continued, the Navy terminated further work on some vessels, for which materials had been obtained. In October 1946, it appears that the Production Department had on hand excess material valued in the neighborhood of $40 million.

Prosecution of the yard's wartime mission had led to the utilization of all possible interior and exterior work areas, resulting in a dispersion of the activities of particular shops. For example, the radio, radar, and sonar shops and laboratories of the electronics organization were scattered about the yard. Such conditions, necessary during the war, were unacceptable in time of peace, especially in view of the reduced funds and an emphasis on efficiency and economy. Thus, in late 1945 and in 1946, efforts were made at all of the Boston Naval Shipyard's locations to achieve a physical consolidation of industrial, technical, and clerical activity. The Production Officer assigned the fifth floor of Building No. 197 for use by all electronics laboratories. Related to the consolidation effort was the closing down of operations at the Chelsea Annex. In August 1946, work being performed there was ordered to be completed or transferred to Charlestown and all portable tools removed.[3]

During World War II, the Boston Navy Yard's Supply Depart-

3. Production Department Memorandum No. 32-46, Aug. 5, 1946, 181-40, Box 365, A3-1.

ment had leased 1,835,000 square feet of warehouse and storage space in various parts of greater Boston. Demobilization saw a reduction in leased space to 7,000 square feet, the department relying primarily on the storage capacity of buildings and outdoor areas in the shipyard. The surrender of leased warehouses required reduction of stores, and the value of material monthly shipped out of the yard increased from $300,000 in late 1945 to $1,250,0000, beginning in January 1946. Vacating leased space also required the Supply Department to rewarehouse a large volume of goods.

In the year after the end of the war, the ship work at the Boston yard consisted of completion or other disposal of ships under construction; conversion, overhauls, outfittings, and post-shakedown availabilities; and participation in the reduction of the Navy´s huge wartime fleet. The yard performed the work necessary for the demobilization of an assortment of 154 ships and vessels, ranging in size and type from a battleship to a waterbarge. Eighteen destroyer escorts, seven miscellaneous auxiliaries, two submarines, one high-speed minesweeper, and two escort carriers were made ready for scrapping. Four submarines and five landing craft were destined to become targets. The yard "mothballed" two barracks ships, nineteen escort carriers, and the battleship New Mexico, all assigned to the Atlantic Reserve Fleet at South Boston. Six submarines and nine other vessels were prepared for transfer to Naval Reserve units. All of the remainder were classified as usable, and yard workmen readied

them for return to their original owners or for sale.[4]

When the Japanese surrendered in the late summer of 1945, the Boston Navy Yard had eighteen ships under actual construction. Some were on the building ways or in the building dock, and the remainder had been launched, but not yet completed or commissioned. In addition, the yard was still home for the unfortunate Lancefish. Commissioned in February 1945, the submarine sank at dock the following month. Raised and decommissioned, the fate of the boat remained undecided.

Between September 1945 and January 1947, the yard completed building seven of the vessels: the destroyer escort Osberg; the submarine Amberjack; three barracks ships, Benewah, Nueces, and Colleton; and the LSDs Fort Mandan and Whetstone. The Navy canceled further work on LST-1155 and the destroyer escorts Sheehan and Oswald A. Powers. In October 1945, three uncompleted submarines, Pickerel, Grampus, and Grenadier, were towed to the Portsmouth Naval Shipyard, followed by Lancefish in November 1947. The yard completed construction of the five remaining ships in the years from 1947 to 1955.

Between September 1, 1945, and October 1, 1946, 311 ships were in the Boston Naval Shipyard for overhaul, conversion, or fitting-out or post-shakedown availabilities. Significant work included repair of battle damage to the cruiser Canberra; installation of experimental sonar equipment in the destroyer Witek; a general overhaul of the cruiser Cleveland; and preparing two ships for an Arctic expedition. Designers of the Planning

4. Narrative, Sep. 1, 1945 to Oct. 1, 1946, pp. 10-4.

Department developed plans for altering Portland, Enterprise, and Bataan for service in "Magic Carpet," the transporting of American troops from overseas to the United States. Yard personnel also studied and made plans of two captured German destroyers.

A variety of circumstances hampered the yard in the performance of its industrial work in the immediate postwar period. No system existed for handling the large number of ships assigned the yard for disposal or inactivation. Because of the novelty of removing so many vessels from the fleet, a measure of confusion prevailed in the Navy Department. The Boston yard received conflicting directives and changes in orders. Although an abundance of new construction material existed in the yard, the material for preservation and dehumidification of inactivated ships was in short supply. Ship demobilization also suffered because of the low priority assigned to it and because of the lack of trained ship personnel. At the same time, the yard was seeking to evolve from the wartime emphasis on getting the job done, regardless of cost, to the peacetime practices of production controls and proper planning. Also, as the yard engaged in demobilization, a major change was instituted in the organization of the Navy's industrial activities.

ADMINISTERING THE BOSTON NAVAL SHIPYARD

Wartime revealed the want of more effective administrative relationships between the Navy Department and shore establishments, but it was decided to institute no comprehensive

alterations until the end of the struggle. Within a month of the victory over Japan, a reorganization occurred, which involved both internal administrative arrangements and the place of the yards in the Navy organization at large.[5]

In November 1945, the Boston Navy Yard became officially designated as the Boston Naval Shipyard, one of the semantic consequences of the Navy's reorganization of its eleven industrial establishments.[6] That reorganization resulted from obvious defects, such as associating yards with naval hospitals, receiving stations, and other nonindustrial activities. The reform followed submission to the Secretary of the Navy of a report entitled "Review of the Organization and Administration of Navy Yards and U.S. Naval Drydocks," also known as the "Paget Report." The report emphasized defects in the existing structures of navy yards. Particularly it stressed the absence of effective management control. The chief executive of a yard, the commandant, lacked proper means of maintaining surveillance of his facility's operating efficiency. Managers, the heads of the Industrial Departments, likewise did not have the capability to exercise administrative control of important aspects of industrial activity. This resulted from the independence of the Departments of Supply, Public Works, Medicine, and Accounting.

In addition to defects within navy yard administrations,

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5. Furer, p. 541.

6. At this time, the Navy had nine yards situated at Portsmouth, Boston, Brooklyn, Philadelphia, Norfolk, Charleston, Bremmerton, Mare Island, and Pearl Harbor. It also had two dry dock facilities, at Hunters Point and Terminal Island, both in California and neither connected with any navy yard.

confusion engulfed the relationship between navy yards and the Navy Department. Eight different bureaus and offices in Washington had authority over the yards or parts thereof. Those agencies were the Chief of Naval Operations; the Division of Shore Establishments and Civilian Personnel; the Industrial Survey Division; and the Bureaus of Ships, Ordnance, Yards and Docks, Supplies and Accounts, and Medicine and Surgery. In exercise of their control, each bureau dealt directly with its department in a yard, merely informing commandants of changes in policies and procedures.

The Paget Report concluded that:

> No one agency of the Navy Department is now able to assume full responsibility for the effectiveness and the efficiency of the performance of Ship Yards....Ship Yards are the only major type of field activity which do not have a single Navy Department sponsor.

Another report submitted to the Secretary in 1945 emphasized the absence of mechanisms for effective cost accounting in the operations of the Navy's industrial facilities.[7]

On the basis of these reports, Secretary of the Navy James Forrestal gave orders in September 1945 for a thorough reform of the yards. Those orders created in the geographical location of each yard an overall organization known as a U.S. Naval Base. In such a base were grouped the shipyard plus other activities formerly adjacent or identified with navy yards, such as hospitals, prisons, supply depots, ammunition depots, and receiving stations. Command of a base was assigned to a line

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7. U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. IV, pp. 397-404.

officer, who in turn was responsible to the commandant of the naval district in which the base was located.

The Bureau of Ships gained management control of the former navy yards, now U.S. Naval Shipyards. "Technical control of the work of each shipyard is vested in the cognizant agencies of the Navy Department." An officer, trained in naval construction or marine engineering, headed each shipyard and had the title of Shipyard Commander. Navy Department orders called for each yard to have an internal organization consisting of seven departments: planning, production, public works, supply, fiscal, medical, and administration. In addition, attached to the office of the shipyard commander were to be two divisions, one for industrial relations and the other for management planning and review.[8]

The U.S. Naval Shipyard, Boston, and the U.S. Naval Base, Boston, appeared on November 30, 1945. The components of the naval base included the shipyard and several elements previously a part of or affiliated with the Boston Navy Yard, namely the ammunition depot at Hingham, Chelsea Naval Hospital, the Marine Barracks, the Commissioning Detail, and the Receiving Station.

Some of the administrative positions and units of the former Boston Navy Yard were retained in the organization of the new Boston Naval Shipyard. Others continued under different names. Several were consolidated to form new positions, and there also

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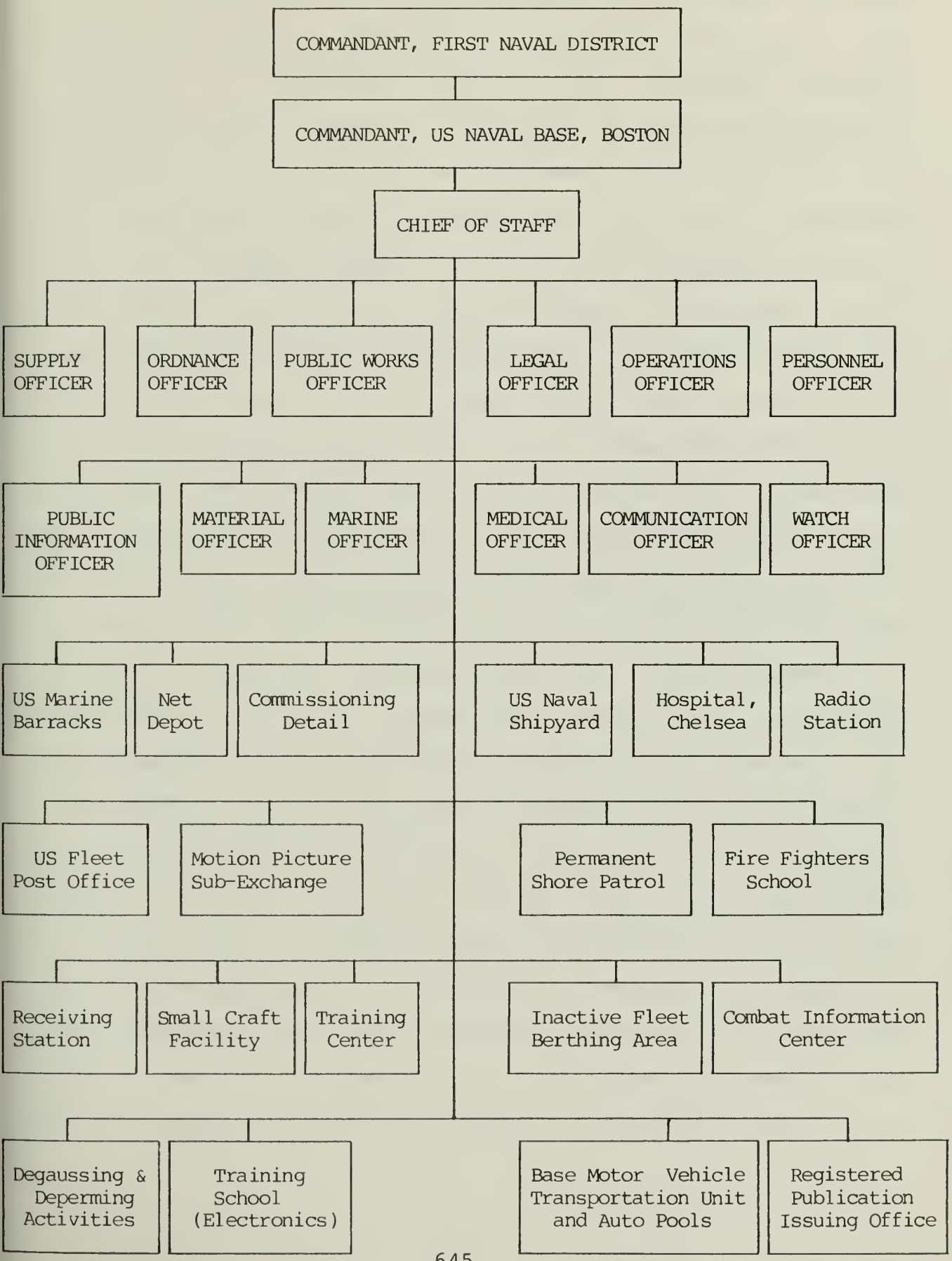
8. "Reorganization of Navy Yard and Establishment of Naval Bases," Sep. 14, 1945; General Order No. 223, Sep. 14, 1945, both reprinted in U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. IV, pp. 406-17. This volume contains other orders and directives pertinent to the establishment of the new shipyards and naval bases.

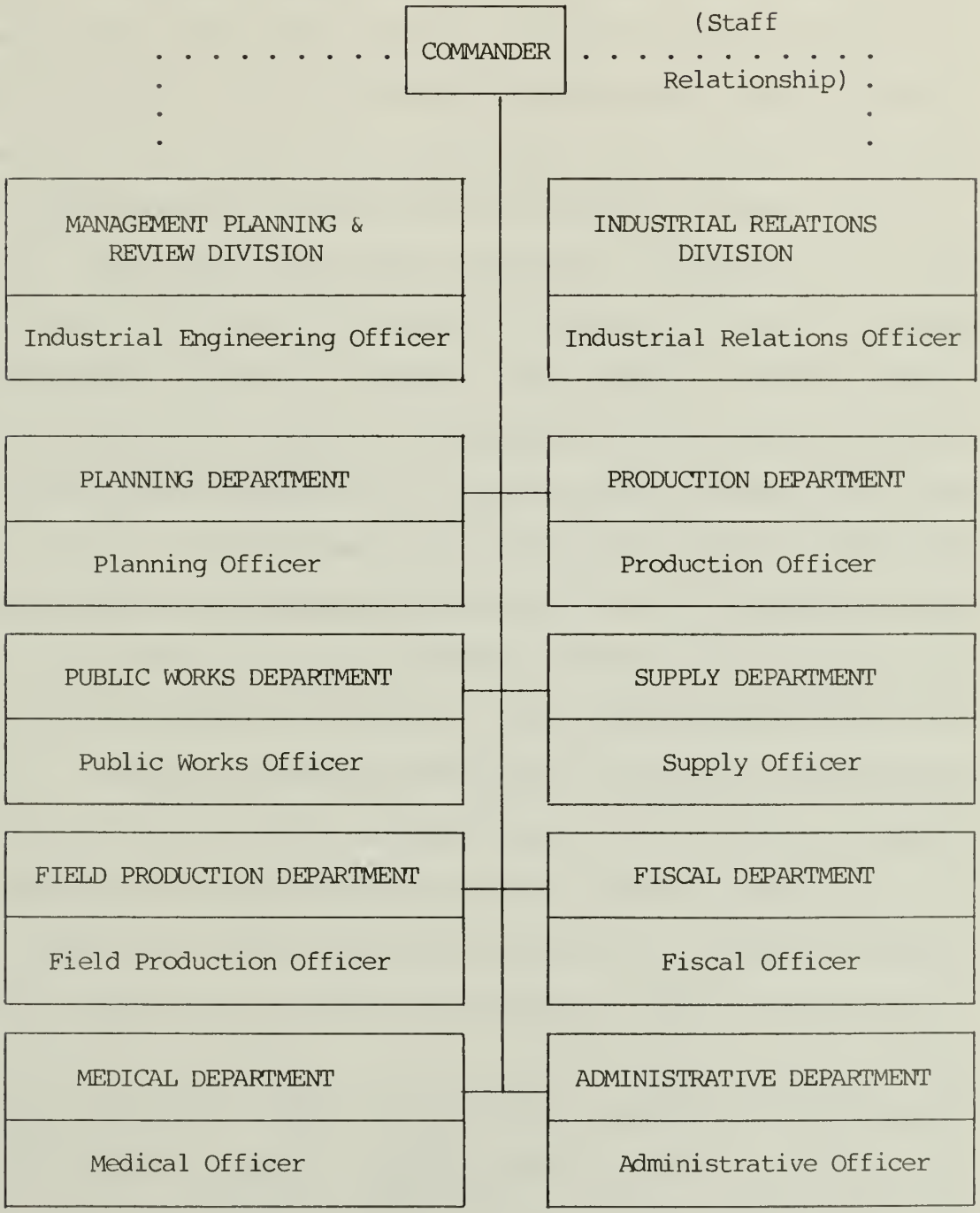
Administration Table No. 7: US NAVAL BASE, BOSTON, NOV. 30, 1945



appeared offices absent or not clearly established in the previous organization. Reorganization recognized the central role of industrial activity in navy yards. Although the reform formally eliminated the Industrial Department, in effect it enlarged that unit to include the entire shipyard and merged the positions of yard commandant and manager of the Industrial Department into the new post of shipyard commander. The assignment of particular officers in the new U.S. Naval Base, Boston, symbolically demonstrated the thrust of the reform, since the former industrial manager became the shipyard commander. Reorganization eliminated the captain of the yard, assigning his duties to the Administrative Officer, head of the Administration Department. The functions of the old disbursing and accounting offices were consolidated into a single Fiscal Department. The conversion officer became the Field Production Officer, and the personnel relations officer, the Industrial Relations Officer.

Retained were the positions and titles of Planning, Production, Public Works, and Medical Officers. A new feature was an Industrial Engineering Officer, who headed the Management Planning and Review Division. That division had the function of advising the commander and department and division heads of the performance of the various units of the yard, so as "to improve and simplify organization, administration, procedures, and utilization of manpower and facilities...." Also new were the positions of Electronics, Ordnance, and Aeronautics Officers. Each of these was responsible to the commander for the technical control and inspection of work in his field performed at the

Administration Table No. 8: U.S. NAVAL SHIPYARD, BOSTON, NOV. 30, 1945



shipyard.[9]

The transition to the new organization at Boston doubtless benefitted from the continuation in key positions of officers familiar with the yard. Rear Adm. Felix X. Gygax, yard commandant and commandant of the First Naval District in the last years of the war, was relieved of his position in the yard, but retained command of the district. For several months, he also served as acting commander of the naval base at Boston. Como. Adrian R. Marron, Manager of the Industrial Department since 1942, became the shipyard's first commander. The reorganization of 1945 apparently removed all hurdles in placing men skilled and experienced in the building and repair of ships as heads of the Navy's industrial activities. During the war, the requirement that navy yard commandants be line officers had continued. To provide leadership with the technical competence to take charge of ship work, the Navy had appointed as its yard commandants officers with backgrounds in marine engineering, since the Engineering Corps had been merged with the line.[10]

Commodore Marron brought to the post of Commander, Naval Shipyard, Boston, the skills and experience of a career in naval architecture, which he acquired initially in courses at Annapolis

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9. Bureau of Ships, Approved Functions and Duties of the Heads of the Departments and Divisions of a U.S. Naval Shipyard, Jan. 31, 1946, in U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. IV, pp. 433-43; Mansfield, pp. 45-6, 113; Boston Naval Shipyard News, Jan. 31, 1946; Standard U.S. Naval Shipyard Regulations, Aug. 5, 1946, 181-40, Box 365, A3-1.

10. U.S. Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. IV, p. 397.

and then MIT. Subsequently, he served in hull divisions in several navy yards, including as outside superintendent in the Boston yard. Marron's successors in the late 1940s and in the 1950s had similar careers.[11] The elimination of the position of captain of the yard, a line officer's billet, also was consistent with the emphasis on special expertise, increasingly required because of the complexity of modern shipyards.

The 1945 changes placed emphasis on professionalism and insured that the highest administrators of the Navy's shipyards would be men whose careers, training, experience, and aspirations centered on shipwork. Two men who headed the yard at Boston during the twentieth century illustrate the change. Albert Gleaves, a career line officer, rotated between duty at sea and assignments ashore. Prior to World War I, he served for three years as commandant of the New York Navy Yard. Late in his career, from May to December 1921, he had command of the Boston Navy Yard. Shortly thereafter, Admiral Gleaves retired and used part of his leisure to write his memoirs. In his book, Gleaves simply did not mention his tours at the yards at New York or Boston, although he did give attention to other shore assignments. Apparently, he attached little importance, professional or personal, to his experience as navy yard commandant. In contrast, Raymond Burk, Commander, Boston Naval Shipyard from 1969 to 1972, described his assignment as head of the yard as the fulfillment of one of the goals of his professional life. He further stated: "It was the best job I ever

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11. Mansfield, pp. 59-60.

had in the Navy."[12]

The postwar reorganization ended the practice of assigning command of a naval district to the commandant of a navy yard within that district. That double billeting had been the origins of much confusion. Confusion persisted, however. The commander of the Boston Naval Shipyard now served as the Industrial Manager of the First Naval District, with important positions in that office filled by key personnel from the shipyard. Particularly, the Planning Officer of the yard acted as the Assistant to the District Industrial Manager and maintained in the shipyard Planning Department the headquarters of the Industrial Manager. Counting the shipyard commander and the Planning Officer, a total of eleven officers served both the yard and the district's Industrial Manager's organization.

The office of Industrial Manager, First Naval District, had its origin in 1939, when a District Material Office was established, with the responsibilities, among other things, of inspecting commercial vessels for possible conversion to naval use and surveying private shipyards to determine their suitability for naval ship construction and repair. During World War II, the title of the organization changed to Conversion Office, Boston Navy Yard. The wartime accomplishment of the office consisted of overseeing private shipworks in the area, which converted 258 ships of all types and repaired 809 others. The reorganization of November 1945 assigned the Industrial

12. Albert Gleaves, The Admiral: The Memoirs of Albert Gleaves, Admiral, USN (Pasadena, Cali.: Hope Publishing House, 1985); Oral History Interview, Adm. and Mrs. Burk, BNHP, pp. 1, 33.

Manager, First Naval District, the important function of arranging repair work by private shipyards. This became an increasingly sizeable volume of work. In 1954, such work involved the repair of 154 vessels and cost slightly more than $4 million.[13]

Although the creation of the U.S. Naval Base, Boston, alleviated the shipyard of responsibility for nonindustrial activities, it created another layer of administration which beclouded jurisdictions and cognizance. For example, in 1950, the administrative location of the Deperming Station at Boston became something of a mystery. The shipyard commander contended that the Deperming Station fell under the authority of the Industrial Manager, that is to say the district. In practice, the Commander of the U.S. Naval Base, Boston, handled deperming, "with Shipyard assistance." When enlightenment was sought from Washington, the Bureau of Ships advanced the view that the Deperming Station was a facility of the Bureau of Ordnance! Although such administrative puzzles did not impede the shipyard's performance of its industrial tasks, it seems clear the Navy still had a problem in clarifying relations among its various shore organizations.[14]

Sometimes, the yard sought to retain control of activities

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13. Historical Report, Industrial Manager, First Naval District, for Period 29 June 1962 - 31 December 1962, BNHP, RG 1, Series 11; Mansfield, p. 42; Office of Industrial Manager, First Naval District, Regulations, Jul. 1, 1950; Industrial Manager, First Naval District to Chief, Bureau of Ships, Jul. 1, 1950; Boston Naval Shipyard Notice No. 211-50 (Rev. 1), Nov. 19, 1950, all in 181-40, Box 397, A3-1.

14. Bureau of Ships to Commander, Nov. 9, 1950, 181-40, Box 397, A3-1.

ordered assigned to the district or the base. For example, administrators waged a long and ultimately unsuccessful campaign to keep the Printing Office, despite the fact that seventy percent of its work was for parties other than the shipyard.[15]

Throughout its existence, the Boston Naval Shipyard retained the basic organizational structure implemented in late 1945 of commander and departments. Small changes began almost immediately. For many years, the Bureau of Medicine and Surgery had included dentistry in its cognizance. Dentists and physicians required different facilities, and by the end of 1945, shipyard organizational charts included separate departments of medicine and dentistry. In 1947, Congress officially established a Navy Dental Corps, by which time the Boston Naval Shipyard had a Dental Department as well as a Medical Department. The Aeronautical Officer was eliminated from the Boston administration, and the Electronics and Ordnance Officers underwent changes in title and in status, becoming the heads of divisions within the Planning Department in 1954.[16]

The largest department in the shipyard was the Production Department. In 1950, when the total work force numbered somewhat more than 8,000 people, Production employed almost 5500 workers. All of the shops, except three in the Public Works Department, came under the Production Officer. That officer's chief subordinates included the Shipbuilding Superintendent, Repair and

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15. Administrative Officer, Navy Department, to Chief of Naval Operations, Dec. 12, 1950, 181-40, Box 397, A3-1.

16. Mansfield, p. 127.

Assistant Repair Superintendents, Shop Superintendent, and Ship Superintendents, the last being in charge of particular vessels undergoing work in the yard.[17]

Officers and the 342 civilian employees of the Planning Department were distributed among the Planning and Estimating Division, Design Division, Ordnance Division, and Electronics Division. Planning and Estimating received requests for work from the Navy Department and from forces afloat, together with allocations of funds. The division assembled the plans, information, and material required, prepared estimates, and issued work specifications to the shops of the Production Department. The Design Division, formerly called the drafting room, was a shipyard agency of increasing importance. Rapid developments in electronics and weaponry required continual modifications of ships in the active fleet, each improvement necessitating redesign of a portion of a vessel. Both the Ordnance and Electronics Divisions of the Planning Department provided technical advice and guidance to the shipyard, conducted tests and inspections of work done in the yard, and acted as consulting engineering and quality control units.

The Public Works Department employed fifty workers in its offices and 900 in its three shops: Transportation Shop, Power Plant, and Public Works Shop. The last mentioned had responsibility for repair and maintenance of all buildings,

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17. Employment figures are found in Commander to Chief, Bureau of Ships, Jul. 7, 1950, 181-40, Box 399, L1-1. For descriptions of the functions of the various departments, see U.S. Naval Shipyard Regulations, Aug. 5, 1946, 181-40, Box 365, A3-1.

structures, utilities, communications systems, railway, and other components of the yard's plant. The Public Works officer was assigned the duty of monitoring work performed in the yard by private contractors. That officer and his parent organization in Washington, the Bureau of Yards and Docks, played a reduced role in initiating consideration of major improvements in the shipyard, and the commander and the Bureau of Ships became more involved in shipyard development.

Reorganization of the Navy's ship construction and repair facilities in 1945 saw the demise of the former Military Department and the traditional position of captain of the yard. Most of his duties were assigned to an Administrative Officer. That new position no longer entailed being second in command of the yard and had little to do with ships, such as commissioning, decommissioning, and docking, all of which had concerned the captain of the yard. The Administrative Officer did succeed his predecessor as commanding officer of enlisted personnel assigned to the yard and as responsible for operations of the yard tugs. In the early 1950s, slightly more than 200 people were employed in the Administrative Department of the Boston Naval Shipyard.

The Supply Department continued to be a major shipyard agency somewhat functionally out of place. This resulted from the fact that only one-fourth of its services were directly on behalf of the shipyard. The vast bulk of its activities consisted of rendering supply services to ships in the area and to more than one hundred naval establishments of all different sizes and requirements. The Supply Officer, his staff, and 550

civilian workers, had responsibility for or handled an enormous variety and quantity of goods. In 1955, the Department carried 190,000 different items in stock, which had a dollar value of $141 million. It was estimated that the monthly stock movement was the equivalent of 260 railroad box cars, which would create a train two miles in length.[18]

The remainder of the departments of the Boston Shipyard in the postwar decade were relatively small, with specialized functions. The Fiscal Department provided the services previously performed by the accounting and disbursing offices. For a period, the Fiscal Officer was attached to the Planning Department and then the Management Planning and Review Division. In 1954, a separate Comptroller's Department was created. The Fiscal Department had one hundred employees in 1950, all of them clerks, accountants, and other office workers. The Medical Department provided or arranged complete health care services for Navy personnel. It also gave emergency treatment to civilian employees, conducted a chest x-ray program, and offered safety glasses and eye test services. The Dental Department restricted its activities to military personnel.

The Navy Department pressed yard administrators to investigate the feasibility of mergers so as to reduce costs and increase efficiency. In 1950, the Bureau of Ships proposed consolidating the functions of the Public Works, Planning, and Production Departments. Such a move failed to gain the support of the commander of the Boston yard, who noted the distinctly

18. Annual Report, Calendar Year 1955, BNHP, RG 1, Series 4.

different "trade cognizances" involved. On the shop level, Public Works carpenters and Production shipwrights had little in common. Profound differences also separated civil and marine engineers. Probably other shipyard commanders reacted in similar fashion to the proposal, and nothing came of it.[19]

Over the years, mergers and divisions had occurred in the shops of the Boston yard. In 1935, the Industrial Department had twelve shops, and twenty years later, the Production Department had seventeen. The shops existing in 1955 were:

Central Tool (06)	Pipe and Copper (56)
Temporary Service (99)	Woodworking (64)
Structural (11)	Electronics (67)
Sheet Metal (12)	Paint (71)
Forge (23)	Riggers, Laborers, Sailmakers (72)
Machine Shop, Inside (31)	Foundry (81)
Machine Shop, Outside (38)	Pattern (94)
Boiler (41)	Ropewalk (97)
Electrical (51)	

The Public Works Department included the yard's three other shops, namely Transportation, 02; Power Plant, 03; and Public Works, 07.[20]

The internal organization of the shops at the Boston Naval Shipyard became more complex, even for units of a modest size, such as the paint shop. In some instances, such as the electronics shop, that complexity resulted from rapid developments in the technology covered by a shop's cognizance. Also, shops evolved little bureaucracies of personnel not engaged in actual ship work or manufacturing. The division of the yard's

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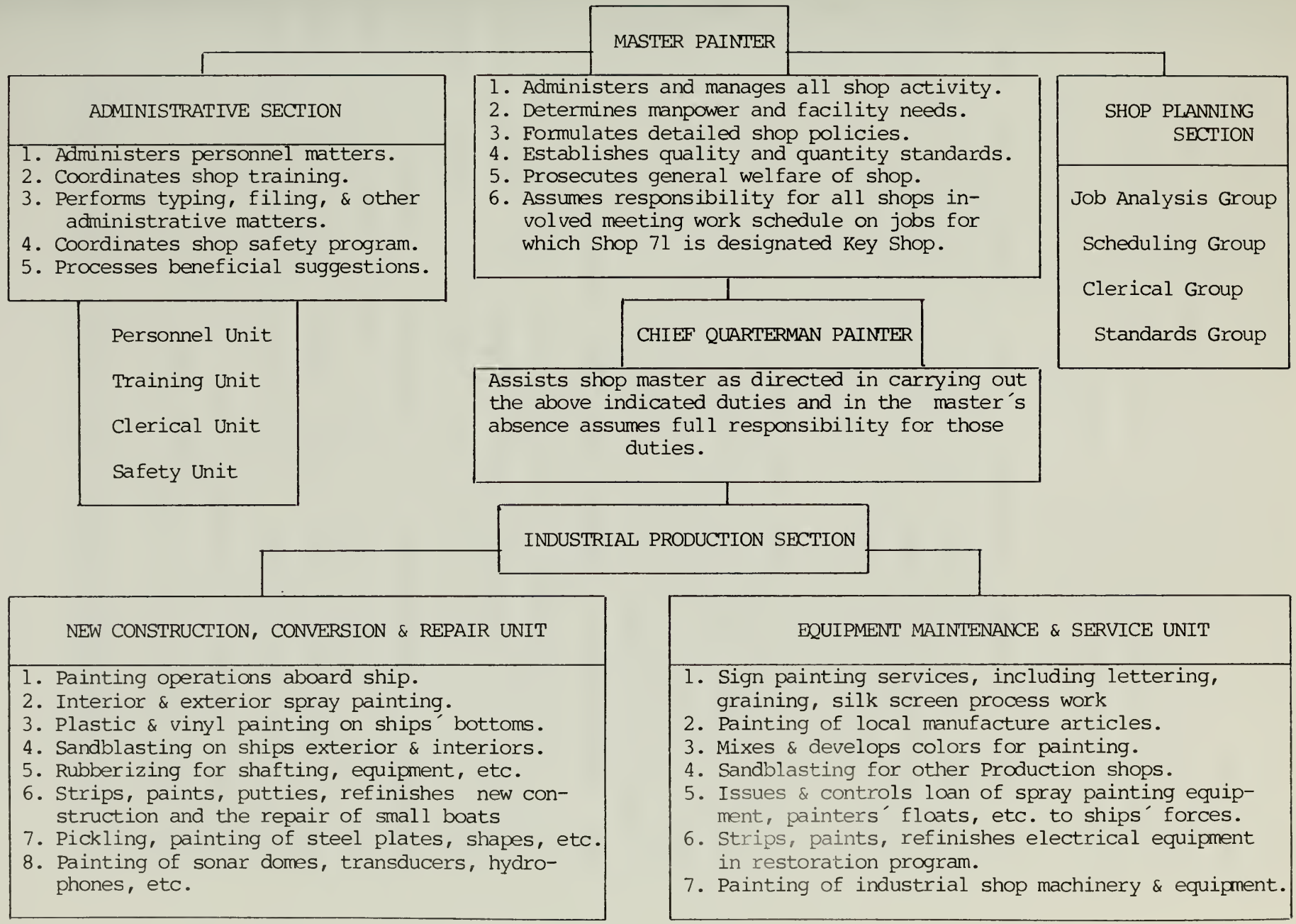
19. Boston Naval Shipyard to Chief, Bureau of Ships, Dec. 29, 1950, 181-40, Box 3, A3-1.

20. Mansfield, pp. 114-27; BOSNAYSHIPYD Instructions 4860.3, Aug 25, 1958, BNHP, RG 1, Series 10.

Administration Table No. 9: PAINT SHOP (71), BOSTON NAVAL SHIPYARD, 1958



activity between the Charlestown site and South Boston was not recognized in the shop organization. A single shop master had responsibility for performing work at both sites. Some of the larger shops had an additional supervisor, who directed activity at the annex when the occasion arose.

The paint shop continued to operate out of Building No. 125. Its three principal components were sections for administration, shop planning, and industrial production. The Shop Planning Section performed "detailed shop planning operations" in accordance with Navy regulations. That section was divided into four groups: job analysis, scheduling, clerical, and standards. Personnel matters were administered by the Administrative Section, which consisted of personnel, training, clerical, and safety "units." The shop's actual work was performed by the Industrial Production Section, made up of two subdivisions. The New Construction, Conversion, and Repair Unit undertook most operations involving ships and shipboard equipment, including interior and exterior spray and brush painting, application of plastic and vinyl coatings to ships' bottoms, sandblasting procedures, and rubberizing of shafting and other equipment. The unit also stripped, painted, and finished small boats newly constructed or under repair; pickled and painted steel plates and shapes; and painted sonar domes, transducers, hydrophones, and other equipment. A separate division performed services somewhat more removed from ships. The Equipment Maintenance and Service Unit provided the yard with sign painting services; painted articles manufactured in the shipyard; did

sandblasting for other shops; painted industrial machinery and equipment; provided painting services for the equipment restoration program of the electrical shop; mixed and developed colors for painting; and issued to ships' forces and controlled the loan of spray paint equipment, painters' floats, and other items.[21]

All shops possessed the same basic structure as the paint shop, although larger organizations had more units under the industrial production section and sometimes included additional sections, such as technical, service, cost control, or quality control.

The chief civilian supervisor within each shop continued to be a master mechanic. Shop masters of the postwar period differed significantly from their counterparts of the early twentieth century. In addition to being thoroughly grounded in all aspects of their trade and the industrial function of their shop, they were expected to be skillful managers of the men in their charge and to be competent administrators, well versed in personnel relations, planning, scheduling, cost analysis, and material controls. No longer merely head mechanics, masters of the mid-twentieth century needed communication skills. For example, the Bureau of Ships arranged annual conferences, which gathered together all of the Navy's shipyard masters in the same trade. The proceedings at these conferences included the formal delivery of papers on technical or administrative problems. For

21. Table of Organization for Paint Shop, in Commander to Chief, Bureau of Ships, Aug. 19, 1958, 181-40, Box 63A0377, A-3.

example, in 1958, the Boston Naval Shipyard's master woodworker traveled to Puget Sound to present a talk, complete with visual aids, on safety in woodworking shops. In the same year, forge masters convened at Norfolk Naval Shipyard. Boston's master delivered a paper entitled "Installation of a 25000 Pound Drop Forge." Also in 1958, the master painters' conference at Charleston included the presentation "Training Potential Supervisors and the Accurate Selection and Training of Personnel for Analyst and Scheduler Positions," written and delivered by the master painter from the Boston yard.[22]

When attending these national conferences, shop masters were accompanied by others in the supervisory hierarchy of their shops. Next in line in that hierarchy came foremen. Foremen were found in those shops in which the master was in need of an assistant to head a subunit. During the war, the position of chief quarterman appeared because of the great size of some shops. That position was retained after the war. At the Boston Naval Shipyard, the paint shop's chief quarterman served as acting head of the shop during the absence of the master. He was also in charge of the Industrial Production Section and probably supervised painting activities at South Boston, when the shop was required to work on a ship in Dry Docks Nos. 3 or 4. Men more directly associated with supervision of workers on the job were quartermen and leadingmen. Shop Personnel Supervisors appeared in

22. Commander to Commander, Puget Sound Naval Shipyard, Feb. 7, 1958; Commander to Commander, Charleston Naval Shipyard, Aug. 27, 1958; and Commander to Commander, Norfolk Naval Shipyard, Sep. 30, 1958, all in 181-40, Box 63AO377, A19.

1946. This was an important staff position, being a Group IV(a) rating, the same as held by masters and foremen.[23]

At the nation's naval shipyards, the chief administrative problems arising in the years following World War II included an immediate scaling down of the yard's work force in 1945 and 1946. Subsequent budget cutting in the late 1940s by the Truman administration led to further RIFs, reductions in force, that sometimes involved workers who had been at the yard for many years. A major and sizeable round of closing of military bases and discharging of civilian employees occurred in August 1949. The unanticipated outbreak of war in Korea saw a sudden, emergency increase in the Boston yard's labor strength, followed by the beginnings of a steady decrease, which remained the pattern to the closing in 1974. During much of the first postwar decade, then, yard administrators sought to adjust the size of the labor force to the changing volume of ship work.

A special problem of labor recruitment emerged in the mid-1950s, because of an acute shortage of qualified engineers. As attrition thinned the ranks in the Design Division and depleted the number of engineers elsewhere in the yard, the administration made special efforts to recruit young graduates from the many universities in the area, ultimately instituting a special summer program for those still pursuing their degrees.

Postwar demobilization saw the yard divest itself of property leased for the duration, such as the Draper Building and

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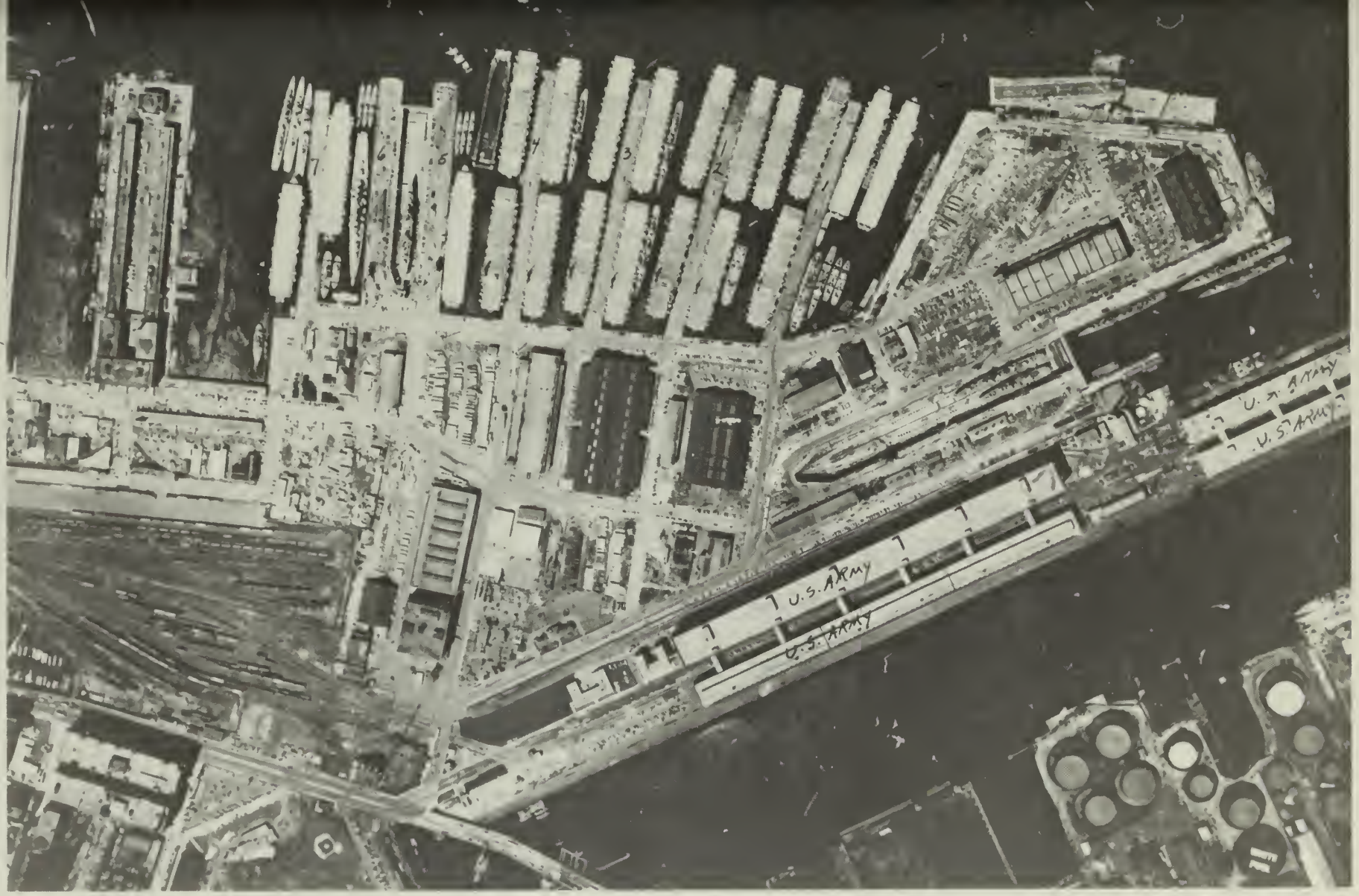
23. Publication of the Master Mechanics and Foremen's Association, 1951, BNHP, RG 1, Series 16, Box 1, p. 69; Order No. 108-46, Aug. 20, 1946, 181-40, Box 365, A3-1.

various other warehouses used by the Supply Department during the war. On the other hand, the yard became responsible for the maintenance and security of deactivated facilities in the area. Among these were the Bethlehem shipyard at Hingham and the Naval Industrial Reserve Gear Plant at Lynn. The Bethlehem facility, designated as the US Naval Storehouse, Hingham, became incorporated into the organization of the shipyard in December 1946. As a part of the yard, it was known as the Hingham Storehouse Department. Intended by the Navy for the storage of ships, the Hingham Storehouse remained affiliated with the shipyard until 1948. The Industrial Reserve Gear Plant was under shipyard cognizance from November 1947 until July 1950, when it was transferred to the care of the Industrial Manager, First Naval District. The yard's Supply Department continued to operate the Fuel Annex in East Boston. In 1954, the Navy deactivated the Naval Air Station at Squantum and assigned its care to the Commandant, First Naval District, who in turn placed the Commander, Boston Naval Shipyard, in charge.[24]

A close, sometimes perplexing relationship, existed between the Boston Naval Shipyard and the Boston Group, Atlantic Reserve Fleet, which used the South Boston Annex for the berthing of its inactive ships. Officially, the Reserve Fleet was one of the yard's tenants. The fleet was not only a collection of mothballed ships, but also was a Navy organization, with a sizable

24. Boston Naval Shipyard Order 144-46, Dec. 19, 1946, 181-40, Box 365, A3-1; Boston Naval Shipyard Order 110-47, Oct. 30, 1947, 181-40, Box 301, A3-1; Mansfield, p. 50; Boston Naval Shipyard News, Feb. 2, 1954.



PHOTOGRAPH NO. 22: The South Boston Annex, with the Boston Group, Atlantic Reserve Fleet, May 1958. Dry Dock No. 4 is located between Piers No. 5 and 6.

group of men responsible for the initial inactivation of the ships and their subsequent preservation. Reserve fleet personnel used the facilities of the annex, particularly Dry Dock No. 4 and the bulk of the piers. The shipyard rendered support services to the reserve fleet organization. These included providing berthing and mooring facilities; fire-fighting units and equipment; tugs, small boats, and other craft; ship's services facilities, such as laundry and barber shop; garbage and sewage disposal; and automotive transportation for the commander of the Boston Group. In addition to being a tenant of the shipyard, the Reserve Fleet also was an occasional customer, its ships being worked on by the yard at both Charlestown and South Boston.[25]

Of course, services to the reserve fleet and custody of the former Bethlehem yard and the gear plant did not constitute the main mission of the Boston Naval Shipyard. In 1947, the Bureau of Ships defined the chief parts of that mission as:

> construction, docking, overhaul, and alteration of destroyers, landing craft and destroyer escorts; docking, overhaul and conversion of various types of ships, including submarines, with emphasis on destroyers and auxiliaries; docking and overhaul of local reserve ships, mostly escort carriers;... planning yard for CA, CVE, DD, and certain auxiliaries;... manufacture of cordage and ground tackle, and of other items as assigned including boats.

The definition also stipulated that the shipyard's function included the maintenance of "a peacetime operational level of about 9,000 civilian employees, with facilities for emergency

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25. Commandant, First Naval District, and Commander, US Naval Base, Boston, to Commander, Boston Naval Shipyard, Sep. 26, 1947, 181-40, Box 302, A3-1.

expansion to 40,000 employees."[26]

Boston shipyard officers objected to the 1947 definition of their mission, since the Bureau of Ships seemed to be limiting the yard's ship work to smaller warships in commission, despite the availability of Dry Dock No. 3, which at that time could receive any ship in the fleet. In its subsequent updating of the yard's mission, the bureau did alter the language so as to extend repair work to ships "up to aircraft carriers." However, such mission definitions remained of a highly general nature. On the other hand, listings of the yard's "tasks and functions" grew longer and more elaborate. A 1966 document lists seventy-one "tasks and functions" for the yard. By 1970, there were eighty-seven.[27]

The 1947 definition of the mission of the Boston yard specifically mentioned submarines as among the vessels the facility was to dock, overhaul, or convert. Between 1948 and 1951, the yard did convert two conventional submarines to "Guppy" types. Thereafter, work of any kind on submarines was rare. In 1953, the Navy sought to enlarge its available facilities on the East Coast for the overhaul of submarines. At least tentatively, the Boston yard was selected to participate in regular overhauls of such vessels. One question was whether arrangements should be made for a "two-ship" program at Charlestown or for a "four-to-eight-ship" program at South Boston. Although the yard favored

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26. Commander to Bureau of Ships, Nov. 17, 1947, 181-40, Box 302, A3-1.

27. Command History, Jan. 1, 1966 to Dec. 31, 1966; Command History, Jan. 1, 1970 to Dec. 1, 1970, both in BNHP, RG 1, Series 11.

using the Charlestown site for submarine work, the Navy selected South Boston, and started development of a facility at that location. However, before its completion, the Navy changed its mind and decided to locate its new submarine overhaul complex at the shipyard in Charleston, South Carolina.[28]

An important peacetime activity of the Navy was planning for future wars. Understandably, World War II had great impact on such plans. That struggle had demonstrated that in the 1930s, the Navy Department had grossly miscalculated the magnitude of the effort a global conflict required. Accordingly, in the late 1940s, the Navy Department sought more realistically to anticipate what the fleet would need in the event of a third world war. For example, in 1949, a destroyer construction program was adopted for implementation should a full mobilization be required. That program called for the building of 357 ships. Boston's role would be construction of fourteen of them, most to be delivered within thirty-six months. It also appeared that the Boston Naval Shipyard would serve as the destroyer design modification yard. In informing naval shipyards and private builders of their parts in the destroyer program, the Navy Department did not intend that any immediate preparations be made. However, such mobilization plans did influence decisions respecting plant improvement.[29]

Considerations of a future war influenced Boston Naval

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28. Bureau of Ships, M.P. & R. Division, Industrial Engineering Report No. 168P, Apr. 20, 1953, 181-40, Box 583, A3.

29. Bureau of Ships, Industrial Mobilization Planning, Sep. 1, 1949; Design Superintendent to Planning Officer, Aug. 9, 1949, both in 181-40, Box 390, A1-3.

Shipyard administrators in their projections for plant development. In 1948, they planned for an emergency which would require 50,000 people being employed at the Charlestown site, 35,000 at South Boston, and 2500 at the Chelsea Annex. The Production Officer contended that sufficient plant improvements should be made at South Boston as to enable that facility to operate independently. Thus, the annex could continue functioning, if enemy action should put the Charlestown yard out of commission. In the decades after World War II, the development of long-range plans for plant development for the Boston Naval Shipyard proved to be an exercise in futility, and very few of the major improvements recommended by yard administrators were realized.[30]

Another irony surrounds the shipyard's planning in 1948 for an emergency work force of almost 90,000 people. In the following year, an economy move, instituted by the Defense Department, resulted in the discharge of 1600 workers at Boston. Moreover, shipyard administrators were presented with a priority list for reducing "non-ship" work. Essentially, such work encompassed manufacturing. Midway down the list was the manufacture of Naval Stock Account items "in competition with commercial vendors." Such items manufactured at the Boston shipyard consisted chiefly of the products of the ropewalk and forge. Perhaps this was the first sign of the ultimately successful campaign to reduce the operations of these two

30. Master Development Plan, Jul. 21, 1948, 181-40, Box 385, A1-1.

shops.[31]

PLANT IMPROVEMENT: PLANS AND ACTUALITY

As a consequence of the expansion of activity during the years of World War II, the physical plant of the Boston Navy Yard had been enhanced. Major improvements at Charlestown consisted of rebuilding three piers and constructing a new one; the modernization of one shipways and the addition of a second; the construction of Dry Dock No. 5; and the erection of Building No. 198. The South Boston Annex experienced a general development, including the construction of Dry Dock No. 4. However, it is also true that wartime activities and pressures had some adverse effects on the yard.

The need to construct facilities rapidly so they could be employed in the yard's war effort sometimes resulted in sacrificing quality. For example, instead of more durable materials, wood was used in pier construction and reconstruction. Building No. 198 went up hastily and in the postwar years was regarded as a temporary structure, unsuited for industrial purposes. Dry Dock No. 5 stood as the prime demonstration of the consequences of cutting corners to complete shipbuilding and ship repair facilities as soon as possible. In the late 1940s, large cracks and other signs of disintegration appeared in the operating tunnels, the outboard ends of the wingwalls, and the inner edge of the sill. Moreover, the pumps used in the dewatering system were those originally employed by the

31. Non-Ship Work, Priority of Reduction In, Sep. 6, 1949, 181-40, Box 390, A1-1.

contractor in the construction of the dock. Emptying the dock required between sixteen and twenty-nine hours. As early as August 1943, Dry Dock No. 5's closure gate was considered inadequate.

The same pressures that led to deficiencies in the construction of Dry Dock No. 5 also resulted in the postponement of major repairs on buildings and structures. Since the late 1930s, inspections of Dry Dock No. 2 had indicated that the entire outer section had raised and settled to such an extent as to distort its cross section. However, a decision was made to keep the dock in service, except in the event of an actual failure. Another wartime expedient was draining sewage from a number of waterfront buildings directly into the harbor instead of making repairs or providing new connecting mains with the Metropolitan District Sewage system.

Finally, the war had contributed to the overcrowding of the yard at Charlestown. In 1951, Shipyard Commander Pleasant D. Gold, Jr., described the site as a "densely congested area of buildings and facilities, hemmed in by the Mystic and Charles Rivers on three sides and the overhead Mystic River Expressway on the fourth side."[32]

In 1946, the Boston Naval Shipyard at Charlestown revealed numerous plant deficiencies, the consequence not only of the war, but also of its age and the small tract to which it was limited. All three dry docks required major repairs. Dry Dock No. 1's inner caisson seat had deteriorated and the stone facing inboard

32. Commander to Chief, Bureau of Ships, Sep. 28, 1951, 181-40, Box 401, A1.

of that seat had "moved, bulged and otherwise warped out of its original position." Generally, the dock's outer end needed reconstruction. Moreover, the facility lacked the depth and the propeller and sonar pits required to accomodate destroyers then being planned. No. 2's outer section and both of its caisson seats also suffered damage. The inner seat on the easterly side of the dock had failed on April 3, 1946. Emergency repairs placed the dock back in operation, but without reconstruction of the outward portion of the dock, further difficulties could be expected. In addition to the want of repairs to its masonry, Dry Dock No. 5 was unsuitable for ship repair, because of its closure gate and inadequate dewatering system.[33]

With the exceptions of Piers No. 1 and 5, all of the yards wharfs were of light timber construction, with wood piling supports. Thus, they constituted a fire hazard to the yard and to vessels berthed at them. For fire protection, the waterfront was dependent on the fresh water supplied by the water system of the city of Boston. No arrangement existed at the piers for utilizing salt water, either in fire protection or in the flushing of ships being serviced. Also, the piers lacked the

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33. This discussion of the yard's plant in the period 1946 to 1955 is based primarily on the following documents: Shore Station Development Program, Dec. 31, 1946, 181-40, Box 365, A1-1; Shore Station Development Board Program, Fiscal 1951, Nov. 23, 1947, 181-40, Box 385 (1948), A1-1; Shore Station Development Program, Dec. 15, 1947, 181-40, Box 302, A1-1; Memorandum for File, Master Development Plan, Jul. 21, 1948, 181-40, Box 385, A1-1; Memorandum to Senior Member, Shore Station Development Board, May 21, 1948, 181-40, Box 385, A1-1; Priority List - New Projects, Fiscal Year 1952, 181-40, Box 390 (1949), A1-1; First Endorsement on Local Shore Station Development Board, Dec. 29, 1951, 181-40, Box 401, A1-1; Annual Inspection of Public Works and Public Utilities, Mar. 1953, 181-40, Box 584, A-23.

deck loading capacity for work on modern ships, they had restricted work areas, and they did not have adequate weight-handling facilities. Because of their wooden construction, Piers Nos. 2 through 4 and 6 through 11 required costly maintenance, maintenance which never succeeded in arresting the steady deterioration.

Generally, the Boston Naval Shipyard had a sufficient number of cranes. In fact, in 1950, the Industrial Engineering Officer reported a surplus of weight-handling equipment. However, crane service suffered from several defects. The wooden piers could not sustain the weight of mobile cranes. In addition, no integrated system of portal crane tracks existed. The trackage in the area of Pier No. 1 and Dry Docks Nos. 1 and 2 was not connected to the tracks on Pier 5, placing that pier's two portal cranes in a captive situation. This made it impossible to concentrate a large number of cranes in one place for certain operations, including work on radar masts. To accomplish such work, the yard was forced to keep ships in Dry Dock No. 2, where a large boom could be employed. Efficiency of operations recommended undocking ships upon completion of work requiring a dry dock, berthing them at Pier No. 5, and assembling as many cranes there as needed. This could not be done at Boston because of the absence of connecting trackage. Dry Dock No. 5's portal cranes were completely isolated from any other part of the yard, and Pier No. 11 had no cranes or tracks whatsoever.

The area around Shipways No. 1 was particularly congested and constituted a poor layout for ship construction. Several

buildings prevented the development of adequate stowage for partially fabricated sections prior to incorporation in ships under construction. There was also insufficient room for plate storage.

A majority of the buildings in the Charlestown yard had been erected in the nineteenth century or the early years of the twentieth. In 1953, the Public Works Officer stated:

> Buildings at this activity are generally of the older type construction, consisting of granite block walls and spread footings, with wood interior framing and flooring, having slate roofs fastened to open-space nailing strips. This condition has resulted in high maintenance costs and reduced production in work being performed under sub-standard conditions.

Built to serve an earlier age, many of the administrative and industrial structures lacked the space required in the mid-twentieth century. Also, a large number were used for purposes other than those for which they had been originally designed. This often resulted in poor layouts for industrial operations.[34]

Because of the nature of the yard and its buildings, consolidation of certain types of work was impossible. By 1951, the electronic and electrical shops used twenty-one separate work areas in eleven different buildings at Charlestown and the South Boston Annex. In the main yard, administration was scattered among a half-dozen buildings. Important activities, such as drafting, suffered from inadequate space. Probably the foundry was in the worst condition, respecting both its equipment and its building, No. 42-C. The Bureau of Ships' Industrial Survey

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34. Annual Inspection of Public Works and Public Utilities, Mar. 1953, 181-40, Box 584, A-23.

Division made a terse recommendation in 1946: "Modernize foundry or close it down and procure castings from local commercial or other naval sources."[35]

In 1944, an earlier Industrial Survey Division report had noted the deficiencies of the Charlestown yard and had suggested that South Boston be considered, should the postwar Navy decide to retain only one of the Boston sites.[36] A formal decision was in fact made in the late 1960s to close down the Charlestown facility and to move the entire shipyard to South Boston. However, immediately after the war, Boston administrators assumed that the old yard would continue to have primacy and recommended long-range plans to overcome that site's deficiencies. Even planning major plant improvements encountered difficulties. The congestion required existing structures be eliminated to provide the space for new ones. This meant that offices and shops would have to be shuffled around, in a sort of musical chairs fashion, during the construction of a particular building. The biggest obstacle that yard officers encountered in seeking to devise a scheme to improve the yard was the unwillingness of the Bureau of Ships, the Department of the Navy, the Department of Defense, and Congress to expend the large sums of money required. In view of that reluctance and from the perspective of the 1980s, the yard's master planning in the decade after World War II appears somewhat unrealistic. Nevertheless, consideration of those plans is

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35. Industrial Survey Division's Survey Report No. 32, Oct. 18, 1946, 181-40, Box 365, A3-1.

36. Industrial Survey Division Report No. 3, Nov. 25, 1944, 181-40, Box 297, A3-1.

useful in understanding the conditions in the yard and in appreciating the small scope of the improvements actually implemented.

Beginning in 1946, the yard sought funding for a wide variety of Public Works projects. Sometimes a particular recommendation was conditioned on the approval or rejection of another item. For example, the yard proposed moving the foundry to an entirely new facility in South Boston. However, if approval could not be obtained for the appropriation of the $5 million needed to pay for that undertaking, or until such an appropriation was made, it would be necessary to modernize the existing plant, which would involve $1.5 million.

In 1948, yard officers responsible for the master plan recognized the necessity to arrange the various individual projects in a workable chronological sequence. That sequence consisted of thirty separate items. In addition, the plan proposed thirteen other projects, which could be implemented at anytime without affecting the construction sequence. The first five items in that sequence dealt with the eastern end of the waterfront. The program would be initiated with the demolition of the narrow wooden Pier No. 11, used for degaussing in World War II, and replacing it with a steel and concrete fitting-out pier. Next in the sequence was replacing Piers Nos. 10, 9, and 8 with permanent concrete and steel piers 130 or 140 feet in width and extending to the maximum legal length. All of the new piers would have twenty-foot gauge crane tracks along both of their sides and standard gauge railway tracks, all trackage integrated

by spurs. Improvements in this part of the waterfront would conclude with revitalizing Dry Dock No. 5 through equipping it with proper pumps, replacing the closure gate with a steel graving dock caisson, and repairing the dock itself.[37]

The next seventeen projects in the 1948 master plan essentially consisted of replacing existing buildings. This is the stage which would see offices and shops moved to temporary locations as demolition and construction proceeded. When it was all over, the foundry, forge, and boat shop would be housed in buildings in South Boston. New structures at Charlestown would include two service buildings, a central office building, a multi-level warehouse, an extension to the structural shop (No. 104), a woodworking shop, an extension of No. 42 for outside machinists and ordnance shops, a sheet metal shop, and a subassembly storage area.

To provide room for these facilities, some twenty buildings would have to be eliminated. Demolition would remove Nos. 198 (used in the late 1940s as a temporary storehouse), 200 (fire station and security), 34 (laboratories), 32 (Credit Union), 75 (warehouse), 187 (storehouse), 105 (forge and roundhouse), 106 (machine shop, die storage), 131 (storage), 206 (locker building), 201 (storehouse), 36 (cafeteria), 42-C (foundry), 31

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37. The chronology appears in Master Development Plan, Jul. 21, 1948, 181-40, Box 385, A1-1. Particulars on the separate projects are given in numerous other documents. See especially Shore Station Development Program, Dec. 31, 1946, 181-40, Box 365, A1-1; Shore Station Development Program, Dec. 15, 1947, 181-40, Box 302, A1-1; Tentative Outline of Development Plan, May 21, 1949, 181-40, Box 385, A1-1.

(the old muster house), 120 (dispensary), 103 (sheet metal shop), 192 (outside machine, electrical shops), and the original portion of 104 (structural shop and mold loft). Midway through this stage, No. 197 would be improved for electronics work. Also the scheme called for the rebuilding of both shipways, installing new hammerhead cranes at the ways, and enclosing the outboard ends with caissons. The two caissons would permit the continuation of ship construction at the seaward portions of the ways during high tides.

The final stage in the construction sequence would consist of replacing Piers Nos. 7, 6, 2, 3, and 4 with large permanent structures; demolishing buildings Nos. 114, 210, and 203, and building a marginal wharf along Little Mystic River, from the new fitting-out pier to Chelsea Street. Among the projects that could be carried out at any point during the construction sequence were providing salt water service to the piers and dry docks; replacing dry dock cranes; improvements in the central power plant; rehabilitation of Dry Docks Nos. 1 and 2; linking up the portal crane track systems throughout the yard; revamping the hot water heating system; and increasing the capacity of the marine railway from 2000 to 3000 tons.

Only a few parts of the 1948 master plan were realized either in the late 1940s and early 1950s or subsequently, which meant that many of the major plant deficiencies persisted. In 1947 and 1948, the outward portions of Dry Dock Nos. 1 and 2 underwent reconstruction. In the process, No. 1 was extended to its present length of 404 feet, and both caissons received repairs. Several years later, larger propeller and sonar pits

were constructed in the floors of the two docks. No substantial changes occurred in Dry Dock No. 5, and the capacity of the marine railway remained unchanged. A mechanical failure in the hoisting equipment placed the hauling-out ways out of commission from November 1952 to January 1953. Repairs made at that time included repositioning the cradle, which had derailed at the time of the accident. In 1954, a 109-foot section of the center track was raised to maintain an even grade, and the entire roller system was replaced.[38]

Several new piers constituted the most significant improvement in the waterfront of the Boston Naval Shipyard in the decade following the termination of World War II. By legislation enacted in June 1948, the Commonwealth of Massachusetts replaced the former Harbor Commissioners' line with a new pier and bulkhead line, extending the limits of the shipyard farther seaward. This fixed the boundaries of the yard as they existed at the closing in 1974 and made possible the lengthening of the replacement piers. Work had already started on replacing Pier No. 4-A with a concrete and steel structure, twice the width of the original wharf. Pier No. 4-A was redesignated Pier 5, and the wharves in the eastern half of the waterfront renumbered accordingly.[39]

Pier improvement resumed in the mid-1950s, when Congress

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38. Commander to Commandant, First Naval District, Jul. 16, 1952, 181-40, Box 60A272, A16; Annual Inspection of Public Works, Mar. 1953; Brady and Christopher J. Foster, Inc., pp. 28-9; Brady and Crandall Dry Dock Engineers, Inc., pp. 16-7.

39. Boston Naval Shipyard News, Aug. 2, 1948; National Register of Historic Places Inventory: Nomination Form. The Historic Resources of the Charlestown Navy Yard, May 1978, pp. 58-88.

provided funds for replacing Nos. 4, 6, 7, and 11. Work began in late 1955 and continued for the next several years. The new piers, constructed of steel and concrete, had a high price tag, each of them costing between $3,100,000 and $3,900,000. Other work on the waterfront included repairing and improving the quay walls in the vicinity of Piers Nos. 5, 6, and 7.[40]

The yard's weight-handling equipment increased in 1948 with the arrival from Long Beach of Crane Ship AB-1, the converted battleship Kearsage. That vessel's 250-ton lift capacity made it possible for the yard to work on all classes of ships. One of AB-1's early assignments was lifting aboard a 120-ton gantry crane from a pier in the South Boston Annex and delivering it to Charlestown to further augment that site's weight-moving capability. Moving the gantry crane was the heaviest lifting job ever performed at the yard.[41]

The most important public works improvement involving industrial buildings at the Charlestown yard were the modernization of the central power plant, Building No. 108, and the enlargement of Building No. 197, which housed the electronics and electrical shops. Work on the power plant proceeded in two stages or increments, the first being completed in 1955. Modernization included installation of more powerful generating units and conversion from coal to oil. When completed, the plant had a capacity to produce enough electricity for a community of

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40. Mansfield p. 36; P.L. 534, Jul. 27, 1954, SAL, vol. 58, p. 539; P.L. 161, Jul. 15, 1955, SAL, vol. 69, p. 324; Annual Report, Calendar Year 1955.

41. Boston Naval Shipyard News, Aug. 16, 1948 and Nov. 11, 1948.

40,000 or 50,000 people. The modernized facility made the yard self-sufficient respecting electricity, although a hookup was maintained into the Boston Edison Company system as an auxiliary or stand-by source.[42]

A shortage of space and a desire to economize led to enlarging existing structures rather than constructing new ones. Modernization of the power plant followed that course as did the enlargement of Building 197. In early 1954, the west end of Building No. 197 was razed, followed by the erection of an extension that added 50,000 square feet of floor space. The project was completed in June 1955 at a cost of somewhat more than $1 million.[43]

Other additions, alterations, and improvements in the plant of the Boston Naval Shipyard in the late 1940s and in the 1950s were modest. For example, the diesinker and boiler shops building (No. 106) and the Dispensary (No. 120) received extensions, and a number of temporary industrial service buildings were erected along the waterfront to serve Production shops in their ship work.

During the period 1946 to 1955, improvements made in the Boston Naval Shipyard fell far short of the plans developed by the yard's administrators. Nevertheless, subsequent schemes for the physical development of both the main yard and the South

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42. Mansfield, p. 130; P.L. 153, Sep. 28, 1951, SAL, vol. 65, p. 347; Annual Report, Calendar Year 1955; Annual Report, Calendar Year 1956, BNHP, RG 1, Series 4.

43. Public Law 534, Jul. 14, 1952, SAL, vol. 66, p. 609; Boston Naval Shipyard News, Apr. 4, 1953; Annual Report, Calendar Year 1955.

Boston Annex became even more extensive and included such items as additional dry docks. However, serious consideration of such plans had to await the resolution of questions that began to emerge in the late 1950s about the future role of both sites.

CIVILIAN EMPLOYEES IN THE POSTWAR DECADE

From an all-time high of 50,128 workers in July of 1943, the civilian work force of the Boston Navy Yard decreased to 42,500 in June 1944, 36,000 in June 1945, and 16,000 in June 1946. In February of that year, the yard returned to a schedule of one eight-hour shift, five days a week. A further layoff brought the employment rolls to 9884 in June of 1947. Subsequently, reductions occurred in more gradual fashion. A postwar low, not to be exceeded until 1964, was reached in January 1950, when workers totaled 7300. The North Korean invasion of its southern neighbor in the following June triggered a remilitarization in America, and increased ship work reversed the downward employment trend at the Boston yard. Within two years, 13,800 people worked at the facility. Beginning in August 1952, a pattern of decline returned. From 1947 to 1970, except for the years of the Korean War and 1964, civilian employees at the Boston shipyard numbered between 7300 and 10,000.[44]

Yard administrators in the postwar era had to contend with a changing volume of work, and some employees were confronted with layoffs. This was hardly unusual in the long history of the Boston yard, but irregular industrial employment was less readily

44. Boston Naval Shipyard News, Mar. 3, 1946; Mansfield, p. 89; Average Employment Levels, 1950-1963, BNHP, RG 1, Series 22.

accepted by society, plant managers, and labor at mid-century than previously.

The great demand for workers during World War II had caused a suspension of hiring regulations. The immediate postwar years saw a return of peacetime procedures and practices. In March 1946, Shipyard Commander Adrian Marron ordered that all future appointments be of the conventional Civil Service type, that is based on competitive examinations. Workers at the yard who had originally received war service appointments were continued as temporary employees, until the opening of registers for their ratings. If they desired, they could take the Civil Service examinations and were allowed to do so on government time without being charged leave.[45]

Civil Service authorities and the Department of the Navy also resumed regular procedures for filling blue-collar supervisory positions, those in Group IV(a). To qualify for the examinations, applicants had to be employees of the yard. Those applying in September 1946 for the position of master machinist, outside, had to have achieved the status of journeyman machinist, followed by experience in positions of responsibility, including two years as a quarterman.[46]

A change in 1946 had the effect of upgrading the status of certain civilian supervisory personnel. All leadingmen, quartermen, chief quartermen, shop personnel supervisors, senior shop personnel supervisors, and chief shop personnel supervisors were

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45. Boston Naval Shipyard News, Mar. 3, 1946 and May 20, 1946.

46. Boston Naval Shipyard News, Jul. 1, 1946; Sep. 9, 1946; and Sep. 23, 1946.

no longer to be paid a per diem wage, but were placed on an annual salary basis, the same as master mechanics and foremen. The change was accompanied by the introduction of a formula for determining their salaries and a step system for periodic increases in earnings.[47]

In the Langer-Chavez-Stevenson Act of February 1948, Congress provided improved retirement benefits for federal employees covered by the Civil Service. There was a substantial increase in the retirement annuity, in part financed by raising the deduction from workers' salaries and wages from five to six percent. After twenty-five years of service, all workers were entitled to retirement benefits, regardless of their age. Previously, a worker had to be at least fifty-five years old. Another change provided for the payment of a worker's retirement annuity to his widow and children, should he die in service.[48]

One new emphasis in government hiring policies and practices resulted from the intense anticommunist mood evident in the United States after World War II. That sentiment included fears of internal subversion and espionage. Already in place in Navy regulations was the requirement that the service "shall not employ any person who advocates, or who is a member of an organization that advocates the overthrow of the Government of the United States by force and violence." President Harry Truman established a Loyalty Review Board on August 22, 1947, to check

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47. Acting Secretary of Navy, Circular Letter, Oct. 7, 1946, 181-40, Box 365, A3-1.

48. Chief, Office of Industrial Relations, Circular Letter, 181-40, Box 385, A2-11.

on government employees. Four days later, the Department of the Navy instructed naval shipyards as to the steps necessitated by the President's program. Those steps included the execution of a loyalty affidavit by employees and the taking of their fingerprints, which would then be checked by the FBI. A change instituted in September 1948 stipulated that "an eligible [for naval shipyard employment] may be denied appointment if there is a reasonable doubt as to his loyalty to the United States." In the week after Senator Joseph McCarthy delivered his famous speech at Wheeling, West Virginia, the Boston Naval Shipyard News devoted an entire page to articles about the communist threat, including one entitled "Who's a Communist? How to Tell."[49]

In the series of reductions in force, which continued from 1945 to 1950, retention advantages went to those with regular, permanent Civil Service appointments; those with efficiency ratings of "good" or better; and to veterans. The yard first encountered returning veterans during the war, but the number vastly increased in 1946, so much so that the Industrial Relations Division established a special section to handle the placement of veterans and problems faced by veterans generally, such as disability allowances and insurance. The employment rights enjoyed by veterans had importance in shaping the character of the Boston yard's postwar labor force.

All veterans received some sort of special employment

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49. Standard Shipyard Regulations, Aug. 5, 1946, 181-40, Box 365, A3-1, p. 44; Loyalty Program -- Handling of Arrest and Criminal Records, Feb. 15, 1948; Navy Civilian Personnel Instructions, Sep. 30, 1948, both in 181-40, Box 385, A2-11; Boston Naval Shipyard News, Feb. 13, 1949.

rights. An ex-GI who held permanent appointment in the yard prior to military service or who had been a war service employee had reemployment rights to the same type of appointment. All veterans were entitled to a five-point preference over nonveterans in the examination and appointment for Civil Service jobs. Disabled veterans received a ten-point credit. An ex-serviceman with a service disability of not less than ten percent and who held a war service appointment had a right to have the appointment changed to a permanent one, if he had worked in the yard for more than a year, and to a probationary one if in the yard less than a year. Such advantages gave real benefits to veterans in securing and retaining jobs.[50]

This became evident in 1949, when the Navy Department ordered a reduction in force at the Boston yard from 9800 to 8600 and later to 7280. Some of the several thousand RIF notices went to men with long careers at the yard, but who did not enjoy veterans' preferences. In determining who should be laid off, the Industrial Relations Division considered three major aspects of a worker's status: whether or not he was a veteran; the type of appointment held; and his efficiency rating. The first to go were probably small groups, such as employees who had continued to work beyond the age of automatic retirement. The least secure major group were nonveterans with ratings of "fair" and with limited-time appointments of a year or less. Veterans rated as "good" or better and holding permanent appointments were the most

50. Boston Naval Shipyard News, May 6, 1946.

secure group.[51]

The veterans' preference system, a series of reductions in force, the fact that most ex-servicemen were not of retirement age, and the advantages veterans had in rehiring and new appointments all operated to increase the proportion of ex-servicemen in the work force of the Boston Naval Shipyard, ultimately making them a majority. In the mid-1950s, a yard branch of the Federal Employees Veterans Association began to conduct itself as the dominant organized labor group at the Boston facility. The actual membership of FEVA did not warrant that role, but the number of workers eligible for membership was great.

Not entirely unrelated to the ascendancy of veterans in the yard was the reduction in the number of female employees. Since most women workers had held war service apppointments and since few of them were veterans, they tended to be vulnerable to reductions in force. Moreover, American society celebrated "Rosie the Ropewalker" during the war, but expected her promptly to return to her kitchen when the emergency was over. In the years 1943 to 1945, the yard employed one woman for every four or five men. In 1946, the ratio changed to one to ten, shooting to one to twenty in the late 1940s. Women virtually disappeared from the shops and were most commonly employed in office work.

The RIF in August 1949 was the deepest since the end-of-the-war layoffs. It was part of a nationwide effort to achieve a general cutback in military expenditures. Secretary of Defense

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51. Boston Naval Shipyard News, May 9, 1949; Jul. 7, 1949; Aug 29, 1949; and Sep. 12, 1949.

Louis Johnson ordered the firing of 135,000 civilian employees and the closing of thirty installations, including the naval shipyard at Long Beach, California. Banner headlines in Boston newspapers shouted that the local yard might lose two thousand workers. Actually the immediate reduction totaled 1614, decreasing the force to 8894. Congressmen and senators from Massachusetts protested the cuts as did unions based on the yard.[52]

The Charlestown Metal Trades Council, representing twenty-one A.F. of L. unions, appeared the most vigorous in denouncing the layoffs and seeking a reversal of the orders. The council sent telegrams to congressmen, conferred with the Massachusetts delegation and representatives of the Navy Department, urged A.F. of L. President William Green to meet with President Truman, and locally distributed copies of an information sheet, "Facts About Your Boston Naval Shipyard." The labor organization argued that the Boston yard work force was being cut by seventeen percent, while the average in other yards was ten percent. The council also complained that military personnel were being used to perform shipyard work properly belonging to civilians.

Capt. Richard M. Watt, Jr., Shipyard Commander, and other administrators met with Navy Department officials to save as many jobs as possible, but only succeeded in delaying one stage of the reduction. The yard made efforts to assist workers scheduled for

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52. A collection of clippings from the local press is found in 181-40, Box 392 (1949), A7-1. The articles appeared on August 24 through August 28 in the Boston Globe, Boston Traveler, Christian Science Monitor, and Boston Post.

separation in finding work elsewhere, and the State Employment Division assigned three interviewers to the yard. However, private defense contractors in the area were also affected by the budget cutting of the federal government, and Massachusetts lost some 5000 jobs.[53]

As became apparent shortly, fate needlessly traumatized the Boston yard at the time of the 1949 RIF. In January 1950, 270 workers were called back temporarily because of the assignment to the yard of four destroyers for conversion. The next month, 300 more returned, and a temporary ceiling was set for the yard of 7850, up from 7280. With the outbreak of war in Korea, the yard briefly found itself short of labor. Eight months after the RIF, the Industrial Engineering Officer recommended consideration of transferring to Boston some of the "hard hats" discharged at Long Beach and other facilities. In the summer of 1952, employment at the Boston Naval Shipyard reached almost 14,000 people.[54]

The Korean War imposed no great strain on personnel policies of the Boston Naval Shipyard. The yard retained the schedule of a single eight-hour shift and a five-day week. Probably most former workers discharged in the 1949 RIF who had ratings of "good" or higher and who wanted to return were reemployed. All entirely new workers held appointments as "emergency-

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53. Boston Naval Shipyard News, May 23, 1949, Sep. 12, 1949, Sep. 26, 1949, and Oct. 24, 1949; Personnel Supervisors' Conference, Sep. 26, 1949, 181-40, Box 391, A3-2.

54. Boston Naval Shipyard News, Jan. 30, 1950; Feb. 27, 1950; and Jan. 15, 1951; Industrial Engineering Officer to Heads of Departments and Offices, Apr. 25, 1950, 181-40, Box 46, A3-1.

indefinites," similar to the war-service arrangement used in World War II. A serious labor shortage did not develop, and the necessity did not arise to abandon regular qualification standards for appointment to jobs in the yard. The Navy Department adopted a policy of no deferments for shipyard workers called up by the selective service. In fact, the yard simplified procedures for obtaining a military leave by those who desired to serve in uniform.[55]

By May 1953, workers and yard officers once more faced the necessity to reduce the labor force, as the Navy wound down from the Korean conflict and sought, budgetwise, to run a tight ship. Reductions in force occurred in the spring of 1953, June of 1954, late 1955, and the second half of 1957. By that time, veterans' preference employees constituted roughly two-thirds of the work force.[56]

Some modifications were made in the formula used in the mid-1950s to determine which employees would be separated in reduction in force programs. Veterans continued to be favored, but all workers received one retention "point" for each year of service in the yard. Also, four points were awarded to employees having an efficiency rating of "outstanding."[57]

The frequent scaling down of the yard's labor force gave

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55. Boston Naval Shipyard News, Sep. 11, 1950 and Nov. 6, 1950.

56. Boston Naval Shipyard News, May 23, 1953; Jun. 11, 1953; and Jun. 25, 1954; Annual Report, Calendar Year 1955; Annual Report, Calendar Year 1956; Memorandum for the Honorable Sinclair J. Armstrong, Oct. 4, 1957, BNHP, RG 1, Series 11.

57. Boston Naval Shipyard News, May 23, 1953.

importance to the efficiency rating system, since workers' ratings were one of the elements in deciding who to keep and who to discharge. Beginning in the late nineteenth century, navy yards had assigned their workers ratings of "excellent," "good," "fair," or "poor." The old distinction between "character" and "workmanship" did not persist, and workers received a single rating for their overall performance. In 1952, the terminology changed to "outstanding," "satisfactory," and "unsatisfactory." The evaluation of a worker's performance was made by his immediate supervisor, usually a leadingman for those in the shops. The frequency of ratings altered. During the last years of World War II, efficiency evaluations were made quarterly. In 1946, a semi-annual schedule was instituted. In late 1948, the yard began a system of monthly "performance reviews." Those reviews were not efficiency ratings, but could be used by supervisors when preparing the next regular efficiency evaluations.[58]

Efficiency ratings covered a worker's overall performance. Clear breaches of yard regulations resulted in disciplinary action, which extended from a warning to temporary suspension to discharge from employment. The ancient six-consecutive-muster provision had given way to a more flexible approach to the problem of absenteeism. For the first offense, a worker with an unexcused or unauthorized absence for one or more workdays might be punished with a warning or up to five days' suspension. A second offense might result in a suspension from three to ten

58. Boston Naval Shipyard News, Mar. 23, 1952, May 20, 1946, and Dec. 25, 1948.

days, and a third, suspension for ten days or discharge. Serious misbehavior carried the possibility of discharge for the first infraction. Such a punishment might be imposed on workers for selling intoxicants or promoting gambling in the yard; sleeping on the job; failing to safeguard classified material; carelessly endangering the safety or causing the injury of another worker; malicious damage to Navy property; theft or attempted theft; insubordination; and making unfounded, false, slanderous, or malicious statements about an employee, supervisor, or official.[59]

Shipyard workers holding temporary, probationary, or permanent appointments in all classifications, that is Groups II, III, IV(a), and IV(b), were included in the efficiency-rating system. The ratings became part of a worker's personnel record. Regardless of whether or not the yard was undergoing a reduction in force, a probationary worker given a "poor" or "unsatisfactory" rating could be discharged forthwith. Ratings played a role in decisions respecting retention and also promotion. Civil Service and Navy Department regulations provided for several review and appeal procedures, through which workers could challenge ratings assigned them by their supervisors. The composition of one appeals body, the Efficiency Rating Review Board, included seats filled through election by the employees.[60]

Numerous other committees and boards at the Boston Naval Shipyard during the postwar period included or consisted

59. Boston Naval Shipyard News, Apr. 23, 1951.

60. Boston Naval Shipyard News, Jun. 17, 1949 and Jul. 4, 1949.

entirely of workers chosen by their peers. Shop committees had existed in one form or another for many years. In 1947, provision was made for a system of three elected committeemen in all but five small shops and offices. All nonsupervisory personnel, except those appointed for one year or less, could participate in the elections and could serve as committeemen. The chairmen of the shop committees formed a Joint Shop Council, which had regular monthly meeting with the shipyard commander to address matters of importance to employees.

In a review of its accomplishments during 1949-1950, the Joint Shop Council described its success in gaining management's cooperation in a variety of procedures. These included arranging an orderly schedule of vacations for employees; posting the numerical grades of those taking examinations for positions as quartermen and leadingmen; more rigorous enforcement of yard speed limits at closing time; obtaining improved sanitation, ventiliation, and drinking fountains in various parts of the yard; establishing check cashing services at the South Boston Annex; providing employees with income tax advice; and limiting participation in submarine trials to workers who volunteered. As occasion required, subcommittees of the Joint Shop Council addressed themselves to particular problems. For example, in 1948, one subcommittee reviewed the yard's promotion policies and another studied the problem of sick leave.[61]

The shop committee system was sponsored by the yard management. Participation by a shop or office was not mandatory,

61. Boston Naval Shipyard News, Nov. 8, 1948 and May 19, 1950.

and some units of the yard chose not to elect committees. When first started, the program enjoyed the support of almost the entire work force, and the Joint Shop Council included representatives of nearly all of the yards thirty-three to thirty-five shops and office units. However, such complete participation eroded. In 1949, twenty of thirty-five units participated, and by 1960, the Joint Shop Council was composed of only eight units, six of them consisting of office workers.[62]

The decline of the shop committee system paralleled the increasing role of employee groups not sponsored by the Department of the Navy. At the Boston yard, beginning in 1890, if not before, administrators had responded to inquiries and protests from labor organizations about matters involving civilian workers and had met with spokesmen for those groups so long as they were employed in the yard. Similarly, the Navy Department in Washington had acknowledged the right of unions to solicit explanations and to make presentations. Contact between the Navy and unions concerned such matters as wages, trade cognizance, changes in shop administration, and grievances on the part of individual employees. However, unions had no official standing in navy yards nor in the Navy's administration of civilian personnel. The closest the Navy came to formally acknowledging unions was the inclusion of a representative of organized labor on the Department's Wage Review Board.

Prior to 1946, unions which were composed of Boston yard

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62. Boston Naval Shipyard News, Jun. 6, 1949; Informal Turnover Memorandum for Capt. W. A. Brockett, n.d. [Sep. 1960], BNHP, RG 1, Series 5, p. 34.

employees or which included such workers among its members did not meet in the yard and had no right to enter the yard for recruitment or other purposes. Nor could they distribute literature or use the yard's bulletin boards. Several nonunion groups did have privileges in the yard, such as veterans' organizations and particularly the Master Mechanics and Foremen's Association and the Quartermen and Leadingmen's Association. The last mentioned in fact published the yard newspaper from 1936 to 1943.

In 1946, a change occurred and the Navy began to give formal recognition to organized groups of navy yard employees. Regulations provided that, with the approval of the shipyard commander, employees could organize any association among their members for the purposes of operating cafeterias or for recreation, welfare, hospital funds, relief, and related employee matters. As implemented, the regulation permitted labor unions, veterans' associations, and professional and fraternal organizations. Formal recognition granted groups such rights as posting notices in the yard, using yard facilities to hold meetings, and conferring with management about personnel policies, problems, and grievances. Employee groups could meet during working hours only on matters of employee welfare, recreation, and cafeteria control. Recognition did not mean acknowledgment by the Navy of the right to strike or to bargain collectively. In 1955, Congress explicitly prohibited government employees from striking or asserting the right to strike.[63]

The Navy's position was that workers had a right to join or

63. Furer p. 909: Standard Shipyard Regulations, Aug. 5, 1946, 181-40, Box 365, A3-1.

refrain from joining an organized employee group. This understanding applied to the Navy's own shop committees as well as other organizations. A guiding principle appeared to be that exchanges of views between management and workers were beneficial to both and that workers were more likely to express themselves freely through an organized group than in an individual exchange with a yard administrator. The recognition of groups did not remove the right any employee had to approach management as an individual.[64]

Unions based on the Boston Naval Shipyard tended to reject the shop committee system established by the Navy. For example, in December 1946, the United Public Workers of America, Local 259, regarded itself as a yard-wide organization, each trade having a shop group empowered to deal with conditions affecting that trade. In other words, the union held that its various components should represent the shops, not the Navy's shop committees. In similar fashion, the Metal Workers local, No. 395, claimed that its members could not participate in a shop committee which included nonunion employees.[65]

As in the past, craft unions sought to insure work for their members by vigilance in guarding or expanding the jurisdiction of their trades. In the autumn of 1946, at which time layoffs were continuing, a many-sided dispute arose, apparently because of the claims of sheet metal workers, claims which were resisted by

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64. Boston Naval Shipyard News, Sep. 26, 1949; Furer, p. 909.

65. United Public Workers of America to Commander, Dec. 12, 1946; Sheet Metal Workers' International Association to Master Sheet Metal Worker, Dec, 30, 1946, both in 181-40, Box 365, A3-1.

coppersmiths, boilermakers, and pipefitters. In part, problems developed because different materials were being used for standard items. For example, ships' wash basins, traditionally made of copper, were fitted and installed by coppersmiths. However, who should perform the work in the case of basins made of alloys of which copper constituted only a small part? The shipyard encouraged the unions to urge their national headquarters to take up such matters directly with the Navy Department.[66]

In the five years following institution of the new policy, the number of formally recognized groups in the Boston Naval Shipyard rose from the original eleven to almost fifty. By 1951, recognition had been granted to forty-nine organizations, among them being twenty-eight trade groups and labor unions; four veterans' associations; and seventeen miscellaneous clubs, federations, and societies. This last category included the Apprentice and Alumni Association; Credit Union; Recreation Association; and local or national associations for pilots, firemen, Fiscal Department employees, master mechanics and foremen, quartermen and leadingingmen, police, and shop planners. The veterans' groups were local chapters or posts of AmVets, War Veterans, Disabled American Veterans, and Federal Employee Veterans.[67]

Twenty-three of the twenty-eight trade groups had

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66. Commander to Bureau of Ships, Oct. 28, 1946; Coppersmiths' Shop Committee to Commander, Dec. 5, 1946; Brotherhood of Boilermakers to Commander, Dec. 11, 1946; Commander to Brotherhood of Boilermakers, Dec. 23, 1946; and Commander to United Public Workers, Dec. 26, 1946, all in 181-40, Box 365, A3-1.

67. Mansfield, p.36; Boston Naval Shipyard News, May 7, 1951.

affiliation with the American Federation of Labor. Some trade organizations were locals of traditional craft-type unions, such as brotherhoods of railroad trainmen, electrical workers, molders, foundry workers, and machinists. Ten others were separate lodges of the American Federation of Government Employees.

The numerical increase in the employee organizations in the second half of the 1940s probably resulted from the frequent reductions in force, increasing job specialization, and the favorable attitude of the Navy Department. In 1949, the Navy revised its policies, which previously had limited civilian supervisors to passive membership in labor organizations. Henceforth, they could be active participants, holding office and becoming involved in the conduct of business meetings.

Relations between the management of the Boston Naval Shipyard and the various employee groups appear to have been satisfactory until 1954. At that time, the Charlestown Metal Trades Council was the most active union in the yard and the chief spokesman for employees. However, Post No. 1 of the national organization known as the Federal Employees Veterans Association (FEVA) seemed to be engaging in a campaign of criticism of the yard administration. Because of that campaign, the shipyard commander took unprecedented action..

FEVA made its appearance at the Boston Naval Shipyard in 1946 and became the parent organization of the national association of the same name. As required of recognized groups, the organization informed the administration of its officers. The first such roster, dated February 16, 1948, listed Kenneth

T. Lyons, a leadingman welder, as Adjutant. FEVA's initial meeting with the shipyard commander occurred in July 1949. An "Employee Organization Information" form was executed on behalf of the group in August of the same year. At some point, a copy of FEVA's constitution and by-laws were also entered into the shipyard files. Later, no records could be found which indicated that FEVA had been accorded official recognition as an employee group. However, since such recognition could be granted orally, it appears that FEVA had received such status, especially in view of the several documents pertaining to the organization deposited with the shipyard, including a record of its July 1949 meeting with the shipyard commander.[68]

At that meeting, the shipyard management was informed that Lyons had been elected commander or head of the local group. Subsequently, he became commander of the national organization. This created a slightly unusual, but by no means improper situation, since among the yard's employees were the officers of the local FEVA branch, Post No. 1, and also Lyons, national commander.

Although it did not equal the Charlestown Metal Trades Council in membership and activity at the Boston Naval Shipyard, FEVA became an aggressive champion of veterans employed by the federal government. It provided personal representation at grievance and disciplinary hearings and took civil action on behalf of its members and veterans in federal courts. The group

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68. Documents pertaining to the dispute between FEVA and the yard management, including copies of the group's publication and court records, are in BNHP, RG 1, Series 11, Information Files, 1955-1959.

also communicated its activities and complaints to members of Congress.

According to the management of the Boston Naval Shipyard, beginning in 1954, FEVA's criticism of yard administrators became steadily harsher. A mimeographed newsletter, published monthly and bearing the name "Boston Naval Shipyard Post 1, Federal Employees Veterans Association, Inc.," served as the chief vehicle for the dissemination of the group's views. The shipyard commander characterized the newsletter's contents as "increasingly defamatory of shipyard administration"; bordering "closely upon, if they are not actually libel"; "allegations, innuendoes, and indictments"; "vitriolic propaganda"; and "editorial expletives." A perusal of the newsletter indicates the accuracy of at least some of these descriptions.

The issue of January 1955 contained the statement: "The present Shipyard Commander [Capt. Philip W. Snyder], his Production and Industrial Relations Officers [Capt. J. E. Flynn and Capt. G. C. Wells] are totally unfit to fill their present positions or any other of like responsibility." The same issue alleged that Captain Snyder made most of his important decisions in the bathroom. The authors of the newsletter regularly maligned the motives of the shipyard management. For example, administrators were said to play politics with respect to layoffs and to have delayed them until after the congressional elections of 1954.

Both the language of the newsletter and its charges of specific wrongdoing doubtless angered yard administrators. FEVA's publication of December 1954 is notable in this respect. That

issue contained six allegations. Allegedly, the shipyard management ignored or circumvented registers in making promotions; it was arbitrary in instituting demotions; it discriminated against physically handicapped workers; it deliberately misled the public and workers about layoffs and waited until after the election to effect them; it created bureaucratic roadblocks for employee groups seeking to meet with officials of the Industrial Relations Department; and it engaged in "wholesale destruction of government property." FEVA provided Massachusetts congressmen and senators with copies of this indictment and succeeded in having one of them exert pressure on the Navy to conduct an investigation of the management of the Boston Naval Shipyard.

The manner in which that investigation was conducted, the behavior of Boston administrators during its proceedings, and the conclusions it reached provided FEVA with the grounds for additional charges against the yard officers and against the Navy Department. To head the investigation, the Navy named the commander of the naval shipyard at New York, Rear Adm. Ray T. Cowdrey. FEVA pictured the selection of Cowdrey as "the equivalent of being on trial for murder and having your brother as judge." The veterans' group charged that the Production Officer, shop masters, and others administrators and supervisors applied pressure to employees who testified at the hearings. Essentially, the Cowdrey inquiry concluded that no substantiation existed for FEVA's charges against the shipyard, but the newsletter, in serial form, printed the report given by the Navy to the Massachusetts congressional delegation. This had the effect of

keeping the pot boiling and implied that, regardless of Cowdrey's conclusions, the shipyard was in serious trouble. In the spring of 1955, Captain Snyder was promoted to rear admiral and was later replaced as commander by Capt. W. F. Howard, Jr. Despite the change in management, FEVA's newsletter continued its tirade.

Effective September 9, 1955, Howard took the unprecedented step of withdrawing recognition of Post 1, Federal Employees Veterans Association, as an organized employee group at the Boston Naval Shipyard. He explained his action in a letter to the Bureau of Ships. That explanation included his conclusion that the purpose of the FEVA newsletter was "to thwart the aims of shipyard administration in the accomplishment of its mission" and "to further personal aims and self interests of those guiding hands" of FEVA, "who, coincidentally, are shipyard employees...." He claimed the newsletter constituted "overt subversion" and that its circulation created bewilderment and low morale among employees of the yard. Howard took note of the novelty of withdrawing recognition of an employee group and the absence of any directives for such in the Navy's existing instructions regarding civilian employees. The commander offered a persuasive argument on behalf of his implied or inherent authority to cancel the recognition of an employee group. Copies of the letter to the Bureau of Ships were sent by Howard to all members of the Massachusetts congressional delegation and to the Commandant, First Naval District, who informed the press and the wire services of the shipyard's action. Howard prepared and sent a separate letter to Joseph S. McAteer, Commander, Post No. 1, FEVA, notifying the organization of withdrawal of its

recognition.[69]

John W. McCormack, Massachusetts Congressman and House Majority Leader, reacted immediately and heatedly to the news of Howard's action. In a telegram to Charles S. Thomas, Secretary of the Navy, McCormack declared he received the information "with amazement." The majority leader further stated that he "had a number of years' experience with the officers of this organization [FEVA] and [had] a deep respect for them and their organization." He "vigorously protested Howard's "drastic and dictatorial" action, and he called upon Secretary Thomas to disapprove the decision of the Boston commander. Apparently, Thomas agreed to review the situation, but there was no change in the decision to cancel FEVA's recognition.[70]

The aftermath of the decision included a civil suit filed by Lyons and McAteer against Howard, claiming he had defamed them in his letter to the Bureau of Ships, the copies sent to the congressmen and the First Naval District, and in informing the press. The shipyard commander claimed immunity from such legal redress, since he had acted in an official capacity. A district court granted judgment for Howard. Lyons and McAteer appealed to the U.S. Court of Appeals, which decided Howard had not been acting in an official capacity in sending copies of the report to Massachusetts congressmen and senators. In passing, the Court of

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69. Commander to Chief, Bureau of Ships, Sep. 8, 1955; Commander to Boston Naval Shipyard Post No. 1, Sep. 9, 1955, both in BNHP, RG 1, Series 8.

70. McCormack to Thomas, Sep. 9, 1955; McCormack to Assistant Secretary of Navy, Sep. 12, 1955, both in BNHP, RG 1, Series 8.

Appeals characterized Howard's statements about FEVA's leadership as "undoubtedly defamatory," although that was not the issue before the tribunal. Howard next sought a ruling by the Supreme Court of the United States. Because the justices had under consideration a similar case, Howard v. Lyons and McAteer was argued twice before the Supreme Court. In June 1959 and by a seven-to-two decision, the court rendered a judgment for Howard. Two liberals, Chief Justice Earl Warren and Associate Justice William Douglas, dissented.[71]

On June 3, 1959, several weeks before the Supreme Court made its decision, the Commander, Boston Naval Shipyard, now Capt. Fred L. Ruhlman, rerecognized the local post of FEVA. Although Post No. 1 had been silenced since September 1955, Kenneth Lyons, in his capacity as head of the national FEVA organization, had continued to bring developments in the shipyard's industrial relations to the attention of the Navy Department and congressman. In December 1959, Lyons gave an address at the Boston Chamber of Commerce, in which he described how the policies and the decisions of the Navy were undermining the Boston Naval Shipyard as an important industrial activity. Subsequently, FEVA evolved into the National Association of Government Employees, with Kenneth Lyons, still a Boston yard employee, as national president. A later shipyard commander found

71. Informal Turnover Memorandum for Capt. W. E. Howard, Jr., n.d. [Jun. 1955], BNHP, RG 1, Series 5; Commander to Director Litigation Division, Dec. 22, 1958, 181-40, Box 63A0377, A-17; Counsel for the Bureau of Ships, Memorandum, Nov. 26, 1958, BNHP, RG 1, Series 8; Acting Counsel, Bureau of Ships, Memorandum, Mar. 31, 1959, BNHP, RG 1, Series 8; Lyons v. Howard, Federal Reporter, 2d Series, 912-916.

Lyons to be reasonable and helpful in dealing with employee organizations.[72]

The ruckus in the mid-1950s between FEVA and the yard administration does not seem to reflect employee-management relations at large at the Boston Naval Shipyard. During the dramatic developments, commanders had spoken highly of workers' organizations generally, and no questions were raised about the policy of officially recognizing employee groups.

That policy did not accord any of those groups a role in decisions respecting a major aspect of industrial relations, the fixing of wages and salaries. Determination of wages after 1946 represented a mixture of old practices and principles with new federal agencies. The general concept of the 1862 congressional enactment endured, and procedures aimed at assigning navy yard blue-collar workers wages comparable to those paid by private firms in the area, from whom data was obtained. Yard personnel participated in the collection of information. However, the Great Depression and World War II had eliminated once and for all the annual preparation of a proposed wage schedule by a board of yard officers. Data collected locally was forwarded to Washington for analysis and processing by a number of offices and agencies within the Navy. As in the past, the Secretary of the Navy had final authority in setting wages. Other parts of the federal government played a role in wage determinations. The creation of the Department of Defense in 1947 resulted in local

72. Lyons, "A Report on the Boston Naval Shipyard to the Businessmen of Boston ...," Dec. 15, 1959, BNHP, RG 1, Series 11. For the rerecognition of FEVA, see cover sheet for Bureau of Ships to Commander, May 18, 1959, 181-40, Box 64A300, P-8.

wage surveys being conducted by and on behalf of all three military services. During the war in Korea, a national Wage Stabilization Board had authority to approve or disapprove proposed wage increases. Surprisingly the system could operate with relative speed.

Such was the case in 1948. In mid-August, the Office of Industrial Relations of the Navy Department authorized the yard to participate in a joint Army-Air Force-Navy wage survey of the Boston area. The navy shipyard personnel consisted of three officers, ten people appointed by the commander from the yard's Wage Study Office, eight IV(a) supervisors from the Production Department shops appointed by the Production Officer, and two supervisors designated by the Public Works Officer from his three shops. The Wage Study Office correlated the data and forwarded it to Washington. There, the information was processed by the Wage and Classification Division of the Office of Industrial Relations. The schedules prepared by that office were reviewed by a newly established Navy Wage Committee, consisting of five members, two of whom were labor spokesmen. A new wage scale was announced in early November that provided for an increase of eighteen cents an hour for all trades. According to the new schedule, helpers generally received $1.30 per hour, laborers $1.21, and most basic shipyard trades $1.60 or $1.63.[73]

Wage surveys were made annually from 1947 through 1950. A

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73. Boston Naval Shipyard News, Aug. 8, 1948, Aug. 30, 1949, Sept. 27, 1948, and Nov. 11, 1948; Chief, Office of Industrial Relations, Circular Letter, Oct. 12, 1949, 181-40, Box 390, A2-11. A general statement about wage-fixing appears in Office of Industrial Relations, Circular Letter, Jul. 22, 1948, 181-40, Box 385, A2-11.

spot check and approval by the Wage Stabilization Board resulted in a seven percent increase late in 1951. In March of 1952, the Bureau of Labor Statistics began a study of Boston-area wages, utilizing collectors provided by the yard and other Defense Department employers in the vicinity. That data became obsolete by the time it was processed, and in September, the Office of Industrial Relations of the Navy Department made its own study. Subsequently, the Bureau of Labor Statistics and the three military services conducted joint investigations of area wages.[74]

As in the past, Congress played the major role in establishing salaries for white-collar or IV(b) employees of navy yards. After two years without a raise, the Boston yard's 1610 IV(b) workers received a $330 increase in July 1948. In the following year, as part of a new Classification Revision Act, those employees obtained an additional raise averaging $140 annually. That act also simplified the classification system. Congress again voted an increase in IV(b) salaries in October 1951, amounting to ten percent.[75]

THE SHIPYARD AT WORK

A 1950 updating by the Bureau of Ships of the mission of the Boston Naval Shipyard cited:

> logistic support for assigned service craft and vessels of the Fleet, including conversion, overhaul, alteration, and drydocking of various types of ships up to aircraft carriers (CV's), including submarines, with

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74. Boston Naval Shipyard News, Oct. 3, 1951; Jan.4, 1952; Mar. 14, 1952; Sep. 10, 1952; and Mar. 19, 1954.

75. Boston Naval Shipyard News, Jul. 19, 1948, Oct. 14, 1949, and Oct. 3, 1951; Chief, Office of Industrial Relations, Circular Letter, Oct. 25, 1949, 181-40, Box 390, A2-11.

> emphasis on destroyers and auxiliaries; design and construction of destroyers; drydocking local reserve ships, mostly escort carriers; manufacturing, research, development, and test work as assigned....

In a detailed statement, the bureau listed the specific functions of planning yard for ship alterations for destroyers, cruisers, escort carriers, LSTs, and a number of auxiliary types; the manufacture of cordage and ground tackle; and overhaul and repair of sonar transducers.[76] The Bureau of Ships' definition and statement points to the principal industrial activities of the Boston yard in the postwar decade: all types of work on ships; planning and design; and manufacture and repair of equipment used aboard naval vessels. In addition, the yard completed new construction left over from the war.

Throughout much of its history, the Boston Navy Yard had manufactured items needed by the Navy at large. The best known manufacturing shops were those associated with the former Bureau of Equipment, namely the ropewalk and the chain and anchor forge. In the postwar era, other shops engaged in manufacturing. Also, the yard became a repair center for a number of important types of equipment.

In the early 1950s, the yard manufactured a variety of items for ships or other Navy or Department of Defense activities. They included chain and other ground tackle, dies and forgings for the Watertown Arsenal, deep-depth mooring equipment, debarkation ladders, airports (portholes), carpenter stoppers, cordage, anchors, propellers, special high-pressure

76. Bureau of Ships to Commander, Oct. 10, 1950, 181-40, Box 46, A3-1.

steam fittings, valves, bearings, castings for hull components, message coding vans, and ammunition hoists. The structural shop fabricated radio towers for use at various locations. In June 1950, of the 5500 workers in the shipyard's Production Department, 350 to 400 were engaged in manufacturing.[77]

In response to a directive from the Bureau of Ships in 1949, the chain forge began to acquire the equipment and tools for the manufacture of large anchor chain for the proposed Forrestal class of super carriers. Production commenced in the mid-1950s. Each link weighed approximately 360 pounds and measured two feet, four and one-half inches in length and seventeen and one-quarter inches in width. The breaking strength of the chain was in excess of two and a half million pounds, and a completed cable and anchor weighed roughly 320 tons.[78]

After World War II, the Boston Naval Shipyard became a center for the repair of electronic equipment sent from active and reserve ships based on the Atlantic Coast. In 1947, the Bureau of Ships ordered the establishment within the yard's electronics shop of a facility for the repair of transducers and hydrophones. A transducer is any devise for converting electrical energy into mechanical energy. Sonar transducers transmit mechanical energy as a beam of supersonic vibrations underwater. Transducers also receive the beam's echo. Hyrdophones are essentially underwater listening devices. Transducers and hydrophones

77. Actual and Projected Ship Workload, Jun. 1950; Estimate of Civilian Personnel Distribution, Jun. 1950, both in 181-40, Box 399, L1-1; Annual Report, Calendar Year 1955.

78. "Mammoth Hammer Forges New Carrier Chain," n.d. BNHP, RG 1, Series 27, Forge Shop.

are vital components of sonar installations and other antisubmarine equipment. To service these components, the Navy maintained repair centers at Pearl Harbor, Mare Island, and Boston. The Boston center, known as the East Coast Sonar Transducer and Hydrophone Pool and Repair Facility, served ships operating from bases along the entire Atlantic seaboard and in the Mediterranean. Its activity consisted of repairing, maintaining, testing, and stocking transducers and hydrophones.[79]

When first inaugurated, the Boston transducer facility serviced twenty-five units a month, but by 1958 it was handling 250. In that year the agency relocated from Building No. 10 in the main yard to the South Boston Annex, because of more adequate space and the lower noise level. An eight-foot by seven-foot hydrostatic tank provided the means to pressure test large transducers. However, technological advances in sonar produced lower frequency transducers, which had greater range and accuracy. The new units were also heavier and larger, too big for the Boston tank or any other tank then possessed by the Navy. The testing problem was ultimately solved by use of a special barge.[80]

Another division of the electronics shop provided the manpower for a project originally known as ZEBRA and later redesignated SERAD, Special Electronics Restoration and Distribution Program. SERAD refurbished thousands of tons of electrical equipment, including radio, sonar, and measuring devices, which otherwise would have been discarded. Each unit

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79. Boston Naval Shipyard News, Sep. 22, 1951.

80. Commander to Chief, Bureau of Ships, Jan. 2, 1958, 181-40, Box 63A0377, A1-2.

arriving at the yard was screened, disassembled, cleaned, repaired, reassembled, and refinished. At times, 180 employees manned the work benches of the SERAD division.[81]

The ordnance division of the Boston electronics shop repaired bathythermographs utilized by East Coast naval activities. The effective operation of antisubmarine weapons and equipment required an extensive knowledge of ocean currents and thermal layers. To provide that information, all Navy vessels on the high seas were ordered to take bathythermograph readings every six hours. Bathythermographs, instruments for registering ocean temperatures, were reeled out by a wire cable over a ship's stern to various depths. Information recorded was sent to the Navy's Oceanographic Office in Washington, which processed the data and periodically published its findings regarding ocean currents and temperatures at different times of the year. Such information was used by ASW commanders.[82]

The office work equivalent of this type of manufacturing and repair, that is not specifically for ships in the yard, was in the area of planning and particularly in design. According to the Bureau of Ships' description of its mission, the Boston Naval Shipyard in 1950 was the planning yard for alterations to cruisers, destroyers, escort carriers, LSTs, and nine types of auxiliaries. In 1955, that planning yard function extended to 390 specific vessels. Some of those vessels were then in fact in the yard and others had come or would come in the future. But

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81. Boston Naval Shipyard News, Jun. 25, 1953.

82. Baldwin, pp. 116-7.

regardless of where the ships went for alterations or modifications, the Boston yard had to be prepared to furnish complete planning data, including breakdown of job orders and cost analysis.[83]

In addition, the yard's Design Division of the Planning Department had responsibility for designing the modifications and alterations that might be made on any of the 390 vessels. This was an enormous task at a time when engineers were becoming relatively scarce. The Design Division served the Navy as a whole when the yard functioned as the lead yard in the construction of the De Soto class of LSTs. At the same time, Boston engineers and draftsmen were preparing detailed drawings for the installation of a gas turbine drive in a destroyer escort, originally equipped with a Fairbanks Morse diesel. The first of a kind, this installation was intended to evaluate the use of gas turbines for ship propulsion. The most important project of the Design Division in the mid-1950s was planning the conversion of destroyers of the 710 class into guided missile destroyers. The missile age had its first important impact on the Boston Naval Shipyard primarily in the design room.[84]

The actual shipwork of the Boston Naval Shipyard after World War II included a new feature, work on a decommissioned flotilla berthed at South Boston. When the war ended, the United

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83. Program for Review of Commercial and Industrial-Type Facilities, 4th Increment: Factors Which Warrant Continued Operation of Boston Naval Shipyard, n.d. [1955], BNHP, RG 1, Series 37.

84. Program for Review of Commercial and Industrial-Type Facilities, 4th Increment.

States possessed the largest, most powerful, and most versatile fleet in the history of the world. Quite obviously, all of that fleet could not be retained in use. It was equally obvious that economy and national security would be ill served by scrapping all units not assigned active duty. The solution was the creation of inactive reserve fleets, consisting of decommissioned and inactivated ships, kept in such condition they could readily be placed in service. Two such fleets were organized, one for the Atlantic and the other the Pacific, and ultimately their combined strength was more than 2200 ships. The Atlantic Reserve Fleet was divided into eight groups, each assigned to one of the following berthing areas: Orange, Texas; Green Cove Springs, Florida; Charleston; Norfolk; Philadelphia; New York; New London; and Boston.[85]

Preservation of ships in the inactive fleet required dry-docking and urgent repairs at a naval shipyard. Hulls were given a coat of a special antifouling hot plastic paint, which would provide five years of protection for ships berthed in salt water. Other steps in the preservation process were removal of perishable or highly combustible substances and ammunition; cleaning and painting of all corrodible, exposed surfaces; dehumidifying interiors; and "packaging" with moisture-proof covers topside equipment that could not removed to dehumidified interiors.

The Boston Group, Atlantic Reserve Fleet, was primarily

85. U.S, Naval Administration in World War II: An Administrative History of the Bureau of Ships, vol. IV, pp. 445-72.

berthed at the South Boston Annex, where it occupied seven piers. In July 1950, the Boston Group consisted of thirty-seven vessels. Twenty-one were escort carriers (CVEs), and the remainder a destroyer, a light cruiser, two destroyer escorts, six submarine chasers, two barracks ships, an attack cargo vessel, a tug, a floating workshop, and a lighter.[86] For a period, the battleship New Mexico was part of the Boston Group. Several of the reserve fleet escort carriers, such as Chenango occupied berths at the main yard.

One of the shipyard's commanders described the relationship between his facility and the Boston Group, Atlantic Reserve Fleet, as "very close." Officially, the fleet was one of the several tenants of the yard and as such used the piers and buildings of the annex as well as Dry Dock No. 3. It also was a customer, in the sense that it utilized services of the shipyard, including work on ships. The Atlantic Fleet had its own personnel, and at times more than one thousand enlisted men were assigned to the Boston Group. They performed much of the work in inactivating and maintaining the ships in the group, but occasionally the yard became involved. For example, in October 1948, the shipyard performed a thirty-day overhaul of a barracks ship; inactivated and did preservation work on a lighter; worked on topside preservation of five escort carriers; and removed industrial gas cylinders from a carrier. In addition, yard divers removed a flange covering a sea valve in the hull of

86. Atlantic Reserve Fleet Organization and Berthing Areas, Jul. 7, 1950, 181-40, Box 46, A3-1; Boston Naval Shipyard News, Jul 1, 1946.

Chenango. In June 1950, one hundred yard workers were assigned tasks on five carriers, a destroyer escort, a minesweeper, and three patrol escorts.[87]

The mission of the Boston Naval Shipyard included providing berthing and logistical support for the reserve fleet units and the maintenance of facilities for placing such ships in commission. The yard and not personnel of the reserve fleet performed the work necessary when units in the reserve fleet groups, that at Boston and those elsewhere, were activated and recommissioned. Reactivations became common with the outbreak of war in Korea.

Probably the most important meaning of the Navy's decision to assign a group of the inactive fleet to Boston was the recognition that the shipyard had excess berthing and anchorage and that the South Boston Annex would play a much reduced role in the peacetime operations of the shipyard than had been the case during the war.

In the months and years after V-J Day, the Boston Naval Shipyard completed building fourteen vessels whose keels had been laid during the war and which, at its end, were at various stages of construction. Work continued on seven which were completed in the remainder of 1945 or in 1946. These consisted of one destroyer escort, one submarine, three barracks ships, and two LSDs. The remainder were not finished until from two to ten years after the war. In addition, the yard laid the keel and

87. Commander Boston Group, to Commander, Atlantic Reserve Fleet, Oct. 26, 1948, 181-40, Box 388, A4-10; Actual and Projected Ship Workload, Jun. 1950; Estimate of Civilian Personnel Distribution, Jun. 1950, both in 181-40, Box 399, L1-1.

completed an entirely new vessel.

Only one of the ships in the yard's new construction left over from World War II was completed according to the original design. The shipyard finished Echols, a self-propelled lighter, in December 1947. The ship then joined the reserve fleet in Florida.[88]

Two submarines, Grampus and Grenadier, were launched by the shipyard in December 1944 and, still uncompleted, were towed to Portsmouth in October 1945. The Portsmouth yard did little if any work on the boats, and both returned to Boston in 1948. Construction resumed, but in an irregular fashion, since the submarines did not have a high priority. For example, only ninety men were assigned to Grenadier in June 1950. Both vessels became prototypes for the "Guppy"-class submarines, with snorkels which permitted them to run indefinitely in an awash condition. The yard finished Grampus in May of 1950 and Grenadier twelve months later. Grenadier demonstrated the workability of the snorkel device in the last phase of her shakedown cruise to the Caribbean. The new submarine completed the entire seven-day voyage from Guantanamo Bay to New London submerged.[89]

During World War II, the Boston Navy Yard completed forty-four LSTs, and in the remainder of its career, it built three more. Two of these were started in the last months of the war, the keels of LST-1154 and LST-1153 having been laid in July and

88. DANFS, vol. II, p. 322.

89. Data on Submarine New Construction at Boston Naval Shipyard Since the Beginning of World War II, BNHP, RG 1, Series 12, Box 4; DANFS, vol. III, pp. 132, 157.

August 1945. Since the Navy had a huge flotilla of roughly 1000 LSTs when Japan surrendered, no necessity existed for rushing the completion of the two under construction at Boston. LST-1154 was finished in September 1947 and LST-1153 in January 1949. Essentially World War II landing craft in terms of their dimensions, they were unique chiefly in that they had steam-driven propulsion systems instead of diesel engines.

The Boston Naval Shipyard's only entirely new construction after the World War II era was an LST. Because of the success of the American amphibious assault on Inchon during the Korean Conflict, the utility of LSTs was again established, despite the advent of nuclear warfare. In the early 1950s, the Navy built fifteen new and larger LSTs, and, in the second half of the decade, it added seven more of a different type, the De Soto County class. The Boston Naval Shipyard was selected to construct one of these, LST-1173, and to be the lead design and construction yard. Private contractors built the other six De Sotos, benefitting from the solutions devised by Boston's Design Division and shops in overcoming problems encountered in building the first vessel in the class.[90]

Construction of LST-1173, named Suffolk County, began in July 1955. The launching occurred in September 1956, and the ship was commissioned in August 1957. Suffolk County was longer, wider, faster, and more comfortable for crew and troops than the LSTs built by the yard during the war. It measured 442 feet in length and sixty-one in width, having a light-load displacement

90. DANFS, vol. VII, p. 571; Informal Turnover Memorandum, Jun. 1955.

of 3800 tons and a full-load displacement of 7800. Its engines produced eight times the horsepower of World War II LSTs and gave the ship a top speed of 17.5 knots. Suffolk County's fifteen-year-long active career consisted of service with the Amphibious Force, Atlantic Fleet, in operations off the East Coast and occasional deployment in the Caribbean and Mediterranean.[92] LST-1173 was the last ship built by the Boston Naval Shipyard.

Of the Boston yard's World War II construction, the last to be finished were two ships originally begun as destroyer escorts, Wagner (DE-539) and Vandiver (DE-540). Built in tandem, the keels of both were laid on November 11, 1943, and the ships were launched on the twenty-seventh day of the following month. The yard's labor force declined in 1944, and priority was given to other types of ship work. The Navy Department suspended construction of the two vessels in February 1947, at which time they were approximately sixty percent finished. Towed to South Boston, they underwent preservation and entered the Boston Group, Atlantic Reserve Fleet. In July 1954, after an interval of seven years, the two vessels returned to the main yard, where work on them resumed. That work included conversion into destroyer escort radar picket ships. Vandiver, now designated DER-540, was commissioned in October 1955, and Wagner (DER-539) the following month.[93]

DERs were equipped to provide mid-ocean radar warning of enemy aircraft to the North American Air Defense Command. To

91. Mansfield, pp. 34; DANFS, vol. VII, p. 727.

92. DANFS, vol. VII, pp. 466-7; vol. VIII, pp. 27-8.

accomodate the enlarged combat information centers and powerful radars, the destroyer escorts were virtually rebuilt. Aluminum replaced steel in the vessels' superstructures, but sixty tons of pig iron were added to the ballast to offset the additional weight of radar antennas and communication equipment. Conversion of the two escorts by the Boston Naval Shipyard also included installation of additional refrigerating plants and new generators to carry the greater electrical loads.[93]

Throughout its history after World War II, the Boston Naval Shipyard served the conventional function of making repairs, overhauls, conversions, and alterations on existing ships. Between the beginning of 1946 and the end of 1955, the yard performed 1050 overhauls, sixty percent of them being in the first three years of the period. In the postwar decade, the yard also engaged in thirteen conversions, including those on Vandiver and Wagner. Another type of activity resulted from the nation's efforts to strengthen its allies. In the Mutual Defense Assistance Act of 1949, Congress authorized a general program of peacetime military aid. That program included the transfer of ships from the American Navy to friendly nations. During the next six years, the Boston Naval Shipyard made ready thirty-three vessels under this program. Between 1946 and 1955, Bath Iron Works and Bethlehem Steel delivered thirty-two new ships to the Boston Naval Shipyard, which engaged in the work incident to the commissioning of these vessels. Also, thirteen ships which had been converted or which were being reactivated were

93. Annual Report, Calendar year 1955; Baldwin, pp. 96-7.

recommissioned at the yard. Finally, during the decade, the yard performed 1199 dry-dockings. This summary does not include other types of shipwork. For example in 1955, the yard completed 101 restricted availabilities and ten fitting-out and post-shakedown availabilities.[94]

In the postwar era, naval shipyards organized their work on ships according to several different types of "availabilities." An official 1948 definition of that term reads:

> Availability is the uninterrupted period of time assigned by competent authority to a vessel at a Naval Shipyard or other repair facility for the accomplishment of work.

The Chief of Naval Operations and the commanders of fleets, forces, and divisions had authority to assign a ship an availability. A "restricted availability" was defined as "the availability assigned to a vessel for the accomplishment of specific items of work." Such availabilities were "restricted" both respecting time and work, that is a ship would be in a yard only for as long as needed to receive repairs to a particular mechanism, system, or piece of equipment. The destroyer Witek arrived in the Boston yard in the spring of 1952 on a restricted availability for repairs to her sonar equipment, which required a month. An experimental submarine chaser, EPC (R) 849, suffered a completely inoperative boiler in the spring of 1953. However, in this instance, the problem proved a small one, and the vessel's restricted availability at the yard lasted only a few days. Post-shakedown and fitting-out availabilities were

94. Mansfield, pp. 98, 100, 105, 107-10; Annual Report, Calendar Year 1955.

TABLE 22: SHIP OVERHAULS, BOSTON NAVAL SHIPYARD, 1946-1955

	1946	47	48	49	50	51	52	53	54	55	TOTALS
Carriers	14	8	3	2	3	4	6	3	3	3	49
Cruisers	12	8	7	5	6	4	2	1	3	1	49
DD types	76	62	37	32	19	21	26	19	26	16	334
DE types	97	43	22	14	12	16	9	3	14	8	238
Submarines	0	0	0	0	0	2	3	4	0	0	9
PCs, SCs	12	8	3	0	0	0	3	3	4	1	34
Others	97	82	34	27	22	18	21	15	16	5	337
TOTALS	308	211	106	80	62	65	70	48	66	34	1050

(SOURCE: Mansfield, p. 100)

TABLE 23: DRYDOCKINGS, BOSTON NAVAL SHIPYARD, 1946-1955

Dock	1946	47	48	49	50	51	52	53	54	55	TOTALS
Dock No. 1	36	24	11	21	25	19	16	23	27	24	226
Dock No. 2	38	37	21	15	28	34	31	20	23	26	273
Dock No. 3	43	14	25	30	24	16	24	21	29	14	240
Dock No. 4	39	13	4	3	0	5	32	19	10	4	129
Dock No. 5	0	0	2	0	3	1	3	7	3	3	22
M/R No. 11	28	30	30	22	43	18	13	29	23	12	248
TOTALS	245	118	93	91	123	93	119	119	115	83	1199

(SOURCE: Mansfield, p. 100. Note: Totals for 1946 include sixty-one dockings on the two marine railways (Nos. 12 and 13) at the Chelsea Annex and two floating dry docks at South Boston. Use of these facilities discontinued after 1946.)

considered as restricted availabilities in the 1950s. Later, they constituted separate classifications.[95]

"Technical availabilities" involved utilization of "the manufacturing or shop facilities of a Naval Shipyard or repair facility for the accomplishment of specific work when the ship is not physically present." The yard performed this type of availability by receiving defective equipment or parts sent from the ship and sending back repaired items or replacements. Occasionally, shop personnel traveled to the vessel to perform repairs. The yard regularly provided repairs for the Coast Guard vessel Casco on a technical availability basis, Casco never appearing in the yard.[96] "Voyage repairs" consisted of "emergency work necessary to enable a vessel to continue on its mission, and which can be accomplished without requiring a change in the vessel's operating schedule or the general steaming notice in effect." These necessarily involved very brief visits to the yard.

The longest and most extensive repair availability was a "regular overhaul," described in the 1948 definition as:

> The availability assigned to a naval vessel for the periodic overhaul scheduled by competent authority for the accomplishment of repairs and alterations that have been properly approved and authorized. Regular overhauls are normally scheduled well in advance, in

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95. The availability definitions appear in Boston Naval Shipyard Notice 152-47 (Supplement 3), Apr. 23, 1948, 181-40, Box 385, A2-2. For information about the availabilities of Witek and EPC (R) 849, see Boston Naval Shipyard News, May 22, 1952, and Apr. 16, 1953.

96. Boston Naval Shipyard News, Apr. 16, 1953.

> accordance with an established cycle and for predetermined periods of time....

Regulations further provided that an overhaul period include necessary post-repair trials and post-trial repairs and adjustments. The interval between a ship's regular overhauls varied according to its type and assignment. In the early 1950s, destroyers on active duty with the Atlantic Fleet were overhauled biannually.

An appreciation of the Boston Naval Shipyard's activity during the decade after World War II can be gained by consideration of its ship work during the calendar year 1951, the height of the Korean War. In that year, the yard overhauled sixty-five vessels and dry-docked ninety-three. Counting restricted availabilities, voyage repairs, and all other types of work, the yard serviced more than 200 ships. Nineteen-fifty-one saw a variety of types of vessels come to the yard, from a tug and nonself-propelled barges and lighters to cruisers and escort carriers. The kind of work performed extended from brief availabilities to major conversions.[97]

In the early 1950s, the Boston Naval Shipyard served as home yard for 121 vessels. They included one fast carrier and fifteen escort carriers; five heavy cruisers and three light cruisers; thirty-one destroyers and three destroyer escorts; and sixty-three auxiliaries.[98] As in the past, some of these assignments represented administrative and planning arrangements, and the

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97. Mansfield, pp. 96, 100; Boston Naval Shipyard News, Mar. 14, 1952.

98. Boston Naval Shipyard News, Nov. 7, 1949.

ships never actually arrived in the yard. Others were units in the inactive fleet. Nevertheless, the facility was home yard to a large number of vessels on active duty, particularly with the Atlantic Fleet.

Ships of the Atlantic Fleet were organized into "forces" for carriers, amphibious operations, cruisers, submarines, destroyers, minewarfare, and service and logistics. Many of the ships served by the Boston yard during 1951 were then part of, were being assigned to, or were being detached from components of the Atlantic Fleet. Boston was home yard for Worcester and Salem, the two units of Division Four, Cruiser Force (CRULANT). That force included Des Moines and Columbus, which also came to the Boston yard in 1951. After Boston completed Grenadier, the boat joined Submarine Division Eighty-One, Squadron Six, of the Atlantic Fleet's Submarine Force (SUBLANT). The yard also worked on Atule (SS-403), in Squadron Eight.[99]

At least twenty-three ships overhauled, repaired, or otherwise serviced by the Boston shipyard in 1951 had assignments with the fleet's Destroyer Force (DESLANT). Boston was home yard for two entire DESLANT divisions: Division Twenty-One, made up of Berry, Keppler, Norris, McCaffrey, and Harwood; and Division One-Hundred-One, consisting of Brownson, McCard, Roberts, and Roan. In addition, twelve other destroyers, the destroyer tender Yosemite, and the escort Conway, all DESLANT ships, came to the yard in 1951. In the eighteen months beginning January 1, 1951,

99. The composition of the Atlantic Fleet is found in Commander in Chief, U.S. Atlantic Fleet, Apr. 1, 1950, 181-40, Box 405, A3-1.

the work performed by the Boston Naval Shipyard for DESLANT consisted of fifty-eight biannual overhauls; eight conversions and fitting-out availabilities; sixty-eight restricted availabilities; and 450 technical availabilities. This represents $55 million in repairs and other shipwork.[100]

Further service rendered by the Boston Naval Shipyard in 1951 to the Atlantic Fleet consisted of work on LST-1153 and the high-speed transport Bassett, parts of the Amphibious Force (PHIBLANT), and on auxiliaries connected with the Service Force (SERVLANT). Among the SERVLANT ships in the yard were Great Sitkin, an ammunition ship; Vulcan and Briareus, repair ships; Corduba and Redbud, both store ships; the icebreaker Edisto; Allagash and Waccamaw, tankers; and an ocean-going tug, Nipmuc.

Some of the vessels serviced by the Boston Naval Shipyard in 1951 were in the Boston Group, Reserve Fleet, and the work performed was part of the preservation and maintenance program. This included work on the escort carriers Chenango, Marcus Island, Natoma Bay, Sargeant Bay, Santee, Savo Island, Shamrock Bay, and Kasaan Bay; the cruiser Dayton; the tender Barnes; the barracks ship Colleton; and the then incompleted escort Vandiver. Two of the Boston Group's escort carriers were activated by the Boston Naval Shipyard in 1951.

In the two years after World War II, Kula Gulf and Salerno Bay had been taken out of commission, inactivated, and assigned to the Boston Group, Atlantic Reserve Fleet. Because of the demands of the Korean War, both were "unwrapped" and

100. Boston Naval Shipyard News, Sep. 19, 1952.

recommissioned in 1951. The yard discovered that the "mothballing" had been generally effective, and no serious deterioration had occurred. Small pipework, however, had corroded because of the difficulty in eliminating all moisture. The original plans for the reserve fleet had been to make continual structural improvements to the inactivated ships, so as to increase their state of readiness. Budget cuts by the Defense Department had removed that part of the maintenance program. Accordingly, although in reasonably good condition, the two carriers were not ready to accomodate the new, heavier aircraft that had evolved since the end of World War II. Work on Kula Gulf and Salerno Bay included strengthening flight decks and elevators and enlarging the catapults. Antiaircraft guns and other equipment which had been stored in the dehumidified interiors of the ships had to be reinstalled. The yard also made changes in radar and communications systems.[101] Similar work was performed on Shangri-La, which had been part of the San Diego Group, Pacific Reserve Fleet.

During the Korean Conflict, the Navy activated a number of vessels in the reserve fleets, assigning some to active duty with American naval forces and transferring others to friendly nations, under the provisions of the Mutual Defense Assistance Act. In 1951, the Boston Naval Shipyard prepared eight vessels, previously in reserve status, for transfer to foreign governments. The Greek navy received six destroyer escorts and a destroyer, and the Dutch one destroyer escort. Most had been in

101. Boston Naval Shipyard News, Feb. 26, 1951.

the Reserve Fleet group at Green Cove Spring, Florida, and were towed from that location to Boston.

In a letter to a Greek naval officer concerning preparation of Garfield Thomas (DE-193), the shipyard commander noted the restrictions imposed by the Bureau of Ships on the yard's work on the vessel. Electrical equipment, main and auxiliary machinery, and associated pipe lines were to be activated and tested, and repairs made on the basis of those tests. To remain within budgetary constraints, work was not to be performed "for the sake of appearance only." The yard, however, departed from those limitations. Prior to testing, the main and auxiliary engines were overhauled. Also, to promote "the morale of the ship's personnel," the crew's living quarters, messing compartment, the galley, "officers' country," all washrooms, and the superstructure area were painted.[102]

The Boston yard's ship work in 1951 included readying eight reserve fleet destroyers, all but one of the Fletcher class, for active duty with the American Navy. Three, formerly with the Charleston Group, Atlantic Reserve Fleet, were converted to escort destroyers (DDE), being fitted with improved antisubmarine armament.

The yard's conversion activities also involved transforming three other conventional destroyers, William R. Rush, Fiske, and W. M. Wood, into radar picket destroyers. William R. Rush, named after the commandant of the Boston Navy Yard during World War I, was a Gearing-class destroyer, launched late in 1945. The ship

102. Shipyard Commander to Cdr. G. Petritis, Dec. 22, 1950, 181-40, Box 397, A4-1.

had remained on active duty and had arrived at the yard in December 1951 after service off Korea. The yard converted the ship to a picket destroyer (DDR), the conversion being completed in August 1952. The shipyard installed improved radar and communications equipment, removed the five torpedo tubes, and replaced the twelve 40mm batteries with rapid-fire, three-inch guns.

The Boston Naval Shipyard performed most of its ship work at the main Charlestown site. Aircraft carriers, cruisers, and some of the larger auxiliaries, such as Great Sitkin, went to the South Boston Annex. The worst fire in the history of the yard involved an aircraft carrier at the annex. Leyte arrived at South Boston in October 1952 for deactivation. In August of the following year, the Navy issued orders for retention of Leyte in the active fleet and for conversion to an ASW support carrier. By mid-October, the ship was almost ready for sea, and on the 15th went out for a trial run. At 3:15 the following afternoon, while the ship was berthed at the annex, an explosion occurred in the port catapult room, probably caused by leaking hydraulic fluid. Most of the ship's 1400 officers and crew were on board as well as personnel from the shipyard. The explosion caused a fire, which burned for almost five hours. The accident resulted in thirty-seven deaths, five of the fatalities being shipyard personnel. Forty others were injured.[103]

Following the end of World War II, the Boston Naval Shipyard

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103. Articles in local newspapers about the Leyte incident were collected by the yard's Public Information Officer and are in BNHP, RG 1, Series 16, Box 3.

experienced the general demobilization, as the Navy cancelled plans for most of its new construction. The President and Congress practiced budget cutting in order to maintain the nation's economic health, and the number of government workers was greatly reduced. The Korean War demonstrated the need for conventional military and naval forces in the age of nuclear warfare. At the same time he committed American forces to the defense of South Korea, President Harry S Truman sent the Seventh Fleet to the Formosa Straits and began American aid to the French forces in Indo-China. All of these actions necessitated increased naval strength, which meant more work for naval shipyards. Congress did not embark on a large program of naval expansion, but authorized conversion of 170 ships and the construction of an equal number of small vessels, such as landing craft and minesweepers. The new construction went primarily to private shipyards.

Events of 1950 temporarily halted the reduction in the labor force and in ship work at the Boston Naval Shipyard. Beginning approximately in 1953, the yard seemed to settle into a postwar mode, employment figures and the volume of ship work remaining fairly constant. Nevertheless, important developments were occurring. A new age of naval technology was emerging with the development of missiles for surface ships and with the advent of nuclear-powered, missile ladened submarines. The new technology and weapons proved enormously expensive, and the Navy encountered greater problems in making financial ends meet.

In 1949, the Navy all but closed its industrial facility at Long Beach, California, resulting in the discharge or transfer of

5500 out of 5900 employees. The possibility of closing other yards persisted, and in 1955, the Bureau of Ships called upon naval shipyard commanders to justify the continued operation of their particular yard and to explain the advantages of retaining government yards instead of contracting out more work to private firms. Although there were no immediate shipyard closings, the 1955 review by the Bureau of Ships had ominous overtones, especially for a yard such as Boston, because of the age of many of its structures, its congestion, and its division of work between two geographic locations.[104]

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104. Program for Review of Commercial and Industrial-Type Facilities, 4th Increment.

Chapter IX

THE BOSTON NAVAL SHIPYARD

IN THE AGE OF MISSILES AND THE VIETNAM WAR, 1956-1973

In 1955, the Boston Naval Shipyard was an active Navy shore establishment with more than 10,000 civilian personnel. During the year, the yard completed work on 150 ships, and on December 31, twenty-three vessels were undergoing repairs, overhauls, or other types of servicing. At that time, the yard was pioneering the conversion of a World War II destroyer, Gyatt, for the launching of guided missiles. By contrast, in 1972, the shipyard employed 5500 people and performed significant work on a mere dozen vessels. The ropewalk and the foundry had been closed. In April 1973, the Department of Defense announced that the Boston Naval Shipyard itself was to be disestablished and that all industrial activity would cease by the end of the year. The closing resulted from several general developments and certain conditions peculiar to the Boston yard.[1]

During the years 1956 to 1973, the United States experienced a series of international crises, from Arab-Israeli wars to the tense American-Soviet confrontation over missiles in Cuba. In many respects, the most important development proved to be the war in Vietnam. Participation in that struggle sapped the nation's resources and caused the Department of Defense to adopt stringent measures in allocations of its funds.

The period also witnessed tremendous achievements in

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1. Boston Naval Shipyard, Annual Report, Calendar Year 1955, BNHP, RG 1, Series 4; Command History, Jan. 1 - Dec. 1, 1972. BNHP, RG 1, Series 11.

military technology. The Navy developed nuclear propulsion and a number of guided-missile systems for use by surface vessels as well as submarines. Improved sonar and larger ship designs demonstrated the limits of older repair facilities, such as Boston's Dry Dock No. 1. In addition, the technological innovations proved extremely expensive and combined with the war in Southeast Asia to elevate the cost of military defense to seemingly astronomical proportions. This budgetary crunch had important ramifications, particularly for the Boston Naval Shipyard. Since the Navy had a large inventory of ships built in World War II, new construction programs emphasized quality, not quantity. A reasonable approach in the 1950s, the ultimate effect was to reduce the size of the fleet in the late 1960s and early 1970s. Then the Navy had to retire thirty-year-old ships at a faster rate than they could be replaced.[2]

Plans for ship replenishment were crippled by the enormous expenditures occasioned by the conflict in Vietnam, which ultimately reached a cost of thirty billion dollars a year. To save funds, the existing fleet shrank in size. For example, in August 1969, orders were given to decommission one hundred vessels. The contraction was particularly marked in destroyers, the fleet having 226 in 1960 and only 131 in 1972.[3] Since the

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2. Floyd D. Kennedy, Jr., "The Creation of the Cold War Navy, 1953-1962," in Kenneth J. Hagan (ed.), In Peace and War: Interpretations of American Naval History, 1775-1978 (Westport, Conn.: Greenwood Press, 1978), p. 314.

3. Lawrence J. Korb, "The Erosion of American Naval Preeminence, 1962-1978," in Hagan, p. 331; Paul B. Ryan, First Line of Defense: The U.S. Navy Since 1945 (Stanford, Cali.: Hoover Institution Press, 1981), p. 47.

beginning of the century, work on destroyers had been a mainstay of the Boston Naval Shipyard. The decline in numbers of that type of ship undermined the mission of the yard. Moreover, to conserve its funds for the fleet, the Navy shut down several of its shore installations, including the Boston Naval Shipyard.

YARD ADMINISTRATION IN AN AGE OF ADVANCED TECHNOLOGY

No major alterations occurred in the basic organizational structure of the Boston Naval Shipyard during the two decades preceding its disestablishment. However, the administration was far from static. Advances in management control and naval technology resulted in the addition of new units and offices. Furthermore, the administrative structure of the Navy at large experienced an important change.

The Department of the Navy underwent a reorganization in 1966 that modernized the service's administration consistent with the systems approach favored by the Secretary of Defense, Robert McNamara. Henceforth, the main parts of the Navy Department were the Office of Secretary of the Navy; Office of Chief of Naval Operations; Naval Facilities Engineering Command, the former Bureau of Yards and Docks; Naval Supply Systems Command, the former Bureau of Supplies and Accounts; Naval Ships Systems Command, the former Bureau of Ships; Naval Electronics Systems Command; Naval Ordnance Systems Command, the former Bureau of Weapons; and Naval Air Systems Command. Other units in the department were the Office of Comptroller of the Navy and the Bureaus of Naval Personnel and of Medicine and Surgery.

The Naval Ships Systems Command (NAVSHIPS) had management

control of naval shipyards. Its authority exceeded that of the former Bureau of Ships, which it replaced, and extended to all major aspects of the yards, including shipwork and other industrial operations, civilian personnel, and plant development. From the perspective of naval shipyards, little remained of the decentralization and conflicting cognizance associated with the old bureau system.

From November 1945 until its closing in 1974, the administrative structure of the Boston Naval Shipyard remained basically the same. The shipyard commander, as chief executive, directed an organization usually divided into eight departments and a number of offices. Those departments consisted of Planning, Production, Public Works, Supply, Comptroller, Medical, Dental, and Administrative. Some other units temporarily achieved departmental status, but most changes occurred on a lower level. Consideration of the additions and alterations in the yard's administration indicate the general trends in technology and in industrial management techniques. The new units in the yard included the Combat Weapons Systems Division; the Quality and Reliability Assurance Division; PERA (ASW), a special planning unit for antisubmarine vessels; and CASDO, Computer Applications Support and Development Office.

In 1954, an Ordnance Division appeared within the Planning Department, replacing the former Ordnance Office. Six years later, the Navy disestablished the Ordnance Division at the Boston Naval Shipyard, on a trial basis, integrating that unit's personnel into the Design Division of the same department. Fol-

lowing further experimentation, the Combat Weapons Systems Division emerged in 1962, which combined a number of offices. The new division came under the general supervision of the Planning Officer, but it was involved in both planning and production. The main purpose of the change was to insure that complete ships' combat systems would be properly planned and installed. The branches of the Combat Weapons Systems Division reflected the developments in ordnance technology. Those branches were: Ballistic Weapons Systems, for conventional armament; Missile Systems Engineering, for the Navy's Tartar, Talos, and Terrier missiles; ASROC, Radar and Sonar, for the antisubmarine rocket and related search equipment; and Communications, Electronic Countermeasures and Navigational Aids.[4]

Another new division appearing in 1962 was the Quality and Reliability Assurance Division, established in the Production Department. Of the division's four branches, two had already been in existence, the Laboratory Branch and the Metals Fabrication Branch, and two were new units, the Engineering and Testing Branch and the Inspection Branch. During the next ten years, the quality assurance organization shifted in structure and status, briefly being elevated to a department. Whatever its administrative position, the unit and its various components performed a variety of testing, inspection, laboratory, internal

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4. Informal Turnover Memorandum for Capt. W. A. Brockett, USN, n.d. [1960], BNHP, RG 1, Series 5; History of the Combat Systems Office, Boston Naval Shipyard, 1948-1973, May 22, 1975, BNHP, RG 1, Series 11; Boston Naval Shipyard News, July 6, 1962.

audit, and quality control functions.[5]

Quality and Reliability Assurance's Laboratory Branch included the Chemical and Materials Laboratories, which had been in operation since the early twentieth century. The Materials Laboratory had contributed to research and development in ropemaking, foundry technology, and chain making, including die-lock anchor chain. In the decades after World War II, laboratories in the Boston shipyard were involved in the development of nylon anchor cord, nylon webbing and stuffing tubes for electrical wiring, and cathodic protection techniques for anticorrosion applications. In 1972, the Quality Assurance Office produced a strippable latex-type coating for preserving propellers in storage, superior to existing coatings in that it was nonflammable and could be applied in a variety of outside temperatures. The Navy adopted the coating for use by other shipyards.

Other Quality Assurance accomplishments included development of techniques for welding hull plates below water, thus eliminating the need of dry-docking; redesign of welded boiler joints to insure effective repair of boiler bottom blow-down systems; and establishment of environmental standards for gyro disassembly areas. The Bureau of Ships accepted the standards for use throughout the Navy.

Quality Assurance occupied several buildings in the yard. The director and Engineering Analysis, Inspection, Meteorologic Laboratory, and Welding Engineering (formerly Metals Fabri-

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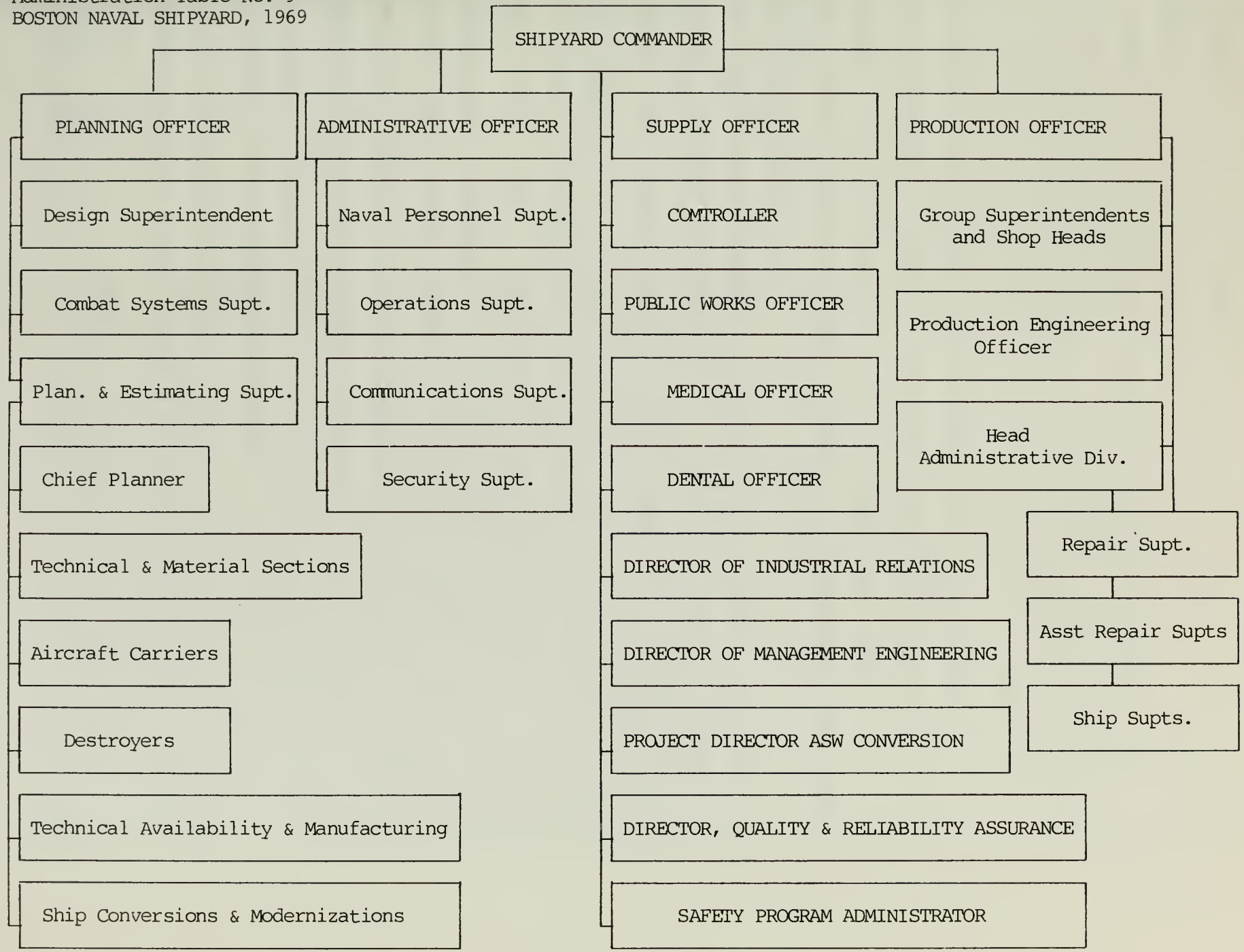
5. History of Quality Assurance Organization of Former Boston Naval Shipyard, Dec.31, 1974, BNHP, RG 1, Series 11.

Administration Table No. 9
BOSTON NAVAL SHIPYARD, 1969



cation) Divisions were located in Building No. 28. Welding Engineering also had a laboratory at the north side of Building No. 195. Building No. 34 housed the Materials and the Chemical Laboratories, and Building No. 42, the Nondestructve Test Division. In 1974, the staff of Quality Assurance numbered ninety persons.

In its quest for efficiency and reduced costs and because of the difficulty in obtaining a sufficient number of engineers, the Navy introduced the PERA program into its shipyards. PERA, Planning and Engineering for Repairs and Alterations, grew out of a proposal from the Portsmouth shipyard for a "one-time-think, many-times-do" approach to the complete planning and execution of all aspects of ship overhauls. The Portsmouth proposal dealt with submarines, and a PERA (SS) was established at that yard in 1967. Subsequently, three other yards received assignments to make feasibility studies of application of the premise to complex overhauls of additional types of warships. Puget Sound was assigned the task of application of the approach to attack carriers, PERA (CVA); Philadelphia, missile ships, PERA (AAW); and Boston, antisubmarine vessels, PERA (ASW). The selection of Boston resulted from its being considered as having the best potential as an engineering center for ASW-type ships.[6]

In 1968, the Naval Ships Systems Command accepted Boston's proposal that PERA (ASW) be established within the yard's Design Division. Like other new units, PERA (ASW)'s administrative

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6. Informal Turnover Memorandum for Captain R. W. Burk, USN, Oct. 1969, BNHP, RG 1, Series 5; History of PERA (ASW) Organization in Boston Naval Shipyard, n.d. [1973], BNHP, RG 1, Series 11.

status and position went through several changes. The essential PERA mission remained the same:

> To act as NAVSHIPS' principal management agents in providing integrated planning for overhauls of ... assigned complex ship types; integrating requirements and managing the planning and engineering efforts for designated overhauls, and for vital interrelated programs pertaining thereto, for the various Systems Commands and the Fleet.

Ultimately, PERA (ASW) had a staff of forty-six people, mostly engineers and planners. Its main function was to provide shipyards, both government and private, with complete "pre-packaged" planning for overhauls of destroyers and other vessels with ASW installations.

CASDO, the acronym for Computer Applications Support and Development Office, was established at the Boston Naval Shipyard in July 1965. By that time, the yard had ten years of experience with computers. In 1954, the Production Department had requested an electronic computer as an aid in the work-load scheduling aspects of the Production and Planning Control Program. Subsequently, computer applications at the yard were studied by the Comptroller, the Industrial Engineer Officer, and an ad hoc committee representing all departments. In May 1957, an Electronic Data Processing Division was established in the Management Planning and Review Division, which planned for the installation of a computer in 1958.[7]

As in the case of PERA (ASW), CASDO had responsibilities transcending the yard. In fact, the shipyard commander provided only administrative support services for CASDO, which was

7. Mansfield, pp. 46-7.

responsible directly to NAVSHIPS. CASDO'S mission consisted of developing optimum standardization of the Shipyard Management Information System (MIS) for all yards, through centralized office design, computer analysis, programming, and maintenance efforts. CASDO was quartered in the Supply Building (No. 149).[8]

Doubtless, the addition of such units as Quality Assurance and PERA changed not only the organizational outline of the Boston Naval Shipyard, but also indicates alterations in administrative style, with much more emphasis placed on detailed planning, scheduling, cost analysis, and inspection of work in progress. That emphasis in part is evident in the increase in the proportion of yard personnel not engaged in productive work in the shops. Such personnel consisted essentially of naval officers and IV(b) employees. As the size of the yard's work force contracted, the number of officers declined, but not at the same rate. In 1958, the eighty-three officers constituted slightly more than eight percent of all persons, civilian and military, at work in the yard. In 1970, there were seventy officers, representing eleven percent of all personnel. The number of IV(b) workers actually increased during the 1960s. Early in the decade, such workers constituted eighteen percent of the civilian work force and by 1971 had risen to twenty-six percent.[9]

Another shift in personnel affecting the yard's

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8. Naval Ship Systems Command Programs at CASDO, in Command History, Jan. 1 - Dec 31, 1970, BNHP, RG 1, Series 11.

9. During the summers, the officer corps increased, as approximately twenty-five officer-students in naval construction and engineering at MIT received temporary duty assignments to the shipyard; Informal Turnover Memorandum, 1960, p. 26.

administration was an increase in the number of civilians in managerial and mid-management positions, positions which in an earlier day would have been staffed by commissioned officers. In 1972, several offices in the yard had no naval personnel whatsoever. These included Data Processing, Quality Assurance, Management Engineering, and Industrial Relations. A number of other departments and offices had only a few officers, such as Combat Weapons Systems, Comptroller, CASDO, and PERA (ASW). A mere eighteen officers staffed the Production Department, which had a total force of 3309 people. The chief administrators in the Production Department continued to be officers, namely the Production Officer, Repair Officer, Ship Superintendents, and Assistant Ship Superintendents. But civilians with Civil Service grades of GS-14 or GS-13 served as Administrative Officer, Supervisory Production Controllers, Supervisory Industrial Engineers, and Production Superintendents and headed such units within the Production Division as the Office of the Administrative Assistant, Production Control Branch, Work Status Section, Scheduling Section, Progress Section, Methods and Standards Branch, Structural and Service Section, Mechanical and Systems Section, and Facilities and Equipment Branch.[10]

No longer did the shipyard's shops function directly under a naval officer, the position of Shop Superintendent having been abandoned. In 1967, management of the shops of the Production Departments underwent a streamlining and consolidation, which resulted in the shops being organized into four groups, each

10. Manpower Listing, Boston Naval Shipyard, Dec. 31, 1972, BNHP, RG 1, Series 22.

group in the charge of a civilian Production Superintendent. The Structural Group included the Shipfitting, Sheet Metal, and Welding Shops; the Mechanical Group, the Central Tool, Forge, Inside Machine, Outside Machine, Boiler, Pipe and Copper, Foundry, and Pattern Shops; the Service Group, the Paint, Woodworking, Rigging, and Temporary Service Shops; and the Electrical/Electronics Group, the Electrical, Electronic, and Weapons Shops. A new unit, the Weapons Shop (No. 38) had responsibility for all ordnance and weapons work, including gun sights, range finders, torpedo directors, and navigational equipment. Because of its unique activity and peculiar status, the ropewalk was not included in the new shop groupings.[11]

Prior to 1967, each shop contained its own administrative section and shop planning section. The reorganization consolidated all of the clerical sections for shops in the same group. For example, there was one administrative "staff" and one shop planning "staff" for the three shops of the Structural Group, that is the Shipfitting, Sheet Metal, and Welding Shops. Another alteration saw the elimination of the traditional titles of "shop master," "quarterman," and "leadingman," and the substitution of "production superintendent," "general foreman," and "foreman."

An alteration also occurred in the title of the additional duty assignment of the shipyard commander. In 1966, the designation Industrial Manager was changed to Supervisor of Shipbuilding, Conversion and Repair. Since 1950, the Commander,

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11. Informal Turnover Memorandum, 1969; Boston Naval Shipyard, Command History, Jan. 1 - Dec. 31, 1967, BNHP, RG 1, Series 11.

Boston Naval Shipyard, had served as the Industrial Manager (INDMAN), First Naval District. INDMAN's chief mission was "to award and administer repairs, alterations, conversions, activations, and inactivations performed on Naval ships at private shipyards under BUSHIPS MSR (Master Ship Repair) contracts." In 1962, twenty commercial yards in the Boston area had contracts with the Navy and were eligible to perform work for INDMAN. Most had only small boat capacities and did work on tugs, barges, and other small yard and district craft. Five others were classified as major repair yards, the most important being Bethlehem Steel in East Boston, the only one with a significant dry-docking capability. In the second half of 1962, commercial yards under INDMAN performed nine regular overhauls of ships; fifteen overhauls of small craft and boats; seven technical availabilities; and sixteen restricted availabilities.[12]

INDMAN's staff in 1962 consisted of sixty-nine civilians and two officers. Previously, personnel employed by or assigned to the shipyard constituted the INDMAN staff. As of July 1, 1962, the INDMAN office became an entity separate from the Boston Naval Shipyard, although it continued to be housed in Building No. 39. That separation in part resulted from an act of Congress, which required an enlargement in the amount of the Navy's repair work assigned to private yards. This increased the work performed under the Industrial Manager, First Naval District, from $5 million a year to $11 million. The continued growth in the private yards' share of the Navy's shipwork led to a

12. Historical Report, Industrial Manager, First Naval District, Jun. 29 to Dec. 31, 1962, BNHP, RG 1, Series 11.

reorganization in 1966, which converted INDMAN into the Supervisor of Shipbuilding, Conversion and Repair, First Naval District (SupShip One). By 1973, SupShip One had become a sizeable organization, with hundreds of workers, many of them formerly employees of the shipyard.[13]

The Boston Naval Shipyard continued to provide a variety of administrative and other support services to a large number of activities of the federal government in the general area of Boston and in New England. For example, the Production Department did laboratory analyses and other work for the Inspector of Navy Material, Boston; Supervisor of Shipbuilding, Quincy; Industrial Manager, First Naval District; U.S. Submarine Base, New London; and the Boston and New London Groups of the Atlantic Reserve Fleet. The Public Works Department furnished maintenance, repair, and similar services to several of the same agencies and also to the United States Weather Bureau, Naval Reserve Training Facility, and other tenants of the shipyard. Probably, the Supply and Comptroller Departments were most active in assisting off-yard activities. The Supply Department supported the headquarters and fifteen other components of the First Naval District and also the Naval Ammunition Depot, Hingham; the Naval Air Station, South Weymouth; the Naval Hospital, Chelsea; Supervisors of Shipbuilding and Inspectors of Ordnance at Quincy and Bath; Coast Guard units throughout Massachusetts; and twenty-two Naval and Marine Reserve Training

13. Supervisor of Shipbuilding, Conversion & Repair, First Naval District, Boston, Massachusetts, Oct. 10, 1968, BNHP, RG 1, Series 12.

Centers. Acquisition of a computer competency enabled the Comptroller to assist several hundred military organizations and government contractors in preparation of a variety of types of payrolls and accounts.[14]

To an extent, a description of the yard's services rendered other agencies is misleading, since it suggests an expansion of a military presence in the Boston area. The fact is that in the decades after the war in Korea, the government sought to reduce the number of its military bases and operations within the continental United States in an effort to economize in defense expenditures. Such a policy indirectly and directly affected the Boston Naval Shipyard in several ways. In certain instances, the yard acquired or sought to acquire sites abandoned by other agencies. On the other hand, the government's campaign aimed at terminating several activities at the shipyard or at off-yard locations, principally at South Boston. In the mid-1960s, the Boston Naval Shipyard itself came close to being disestablished.

In 1955, the Boston Naval Shipyard consisted of the main Charlestown site; the South Boston Annex, and its two appendages on "E" Street and "K" Street; and the Fuel Annex in East Boston. Another annex was acquired in 1957 in response to a Bureau of Ships' directive to provide, in "austere" fashion, for adequate facilities to test and calibrate shipboard electronic equipment, including that on the Navy's new missile-carrying vessels. The Boston Naval Shipyard made arrangements with the Coast Guard for the use of a tower at Nahant, Massachusetts. Eight years

14. Commander to Chief, Bureau of Ships, Jun. 24, 1959, 181-40, 64A300, A3/3.

later, the Navy acquired eight and a half acres adjacent to the property containing the tower. That tract was part of a former Army NIKE-AJAX installation. However, the Navy provided no funds for the necessary structural and electrical modifications required to develop the tower as an electronics test and calibration facility, and the shipyard's function respecting the Nahant Annex essentially consisted of caretaking.[15]

Nahant was the only potentially significant property added to the shipyard. By the end of the 1950s, disestablishment had overtaken the Naval Ammunition Depot, Hingham, and the Harbor Defense Unit, which operated out of South Boston. The Commander, Boston Naval Shipyard, was placed in charge of the discontinued facilities of these two activities, but the shipyard made no plans to utilize those properties in its own undertakings.

Other efforts of the government to reduce its military bases or diminish activity at military establishments affected the Boston shipyard in a negative way. The Eisenhower administration revealed a dislike for the performance by the military of operations that could be accomplished by commercial firms, particularly in the area of manufacturing. Such a policy brought attention to the Boston yard's ropewalk and chain and anchor forge. In February 1955, the Bureau of Ships directed the shipyard to close the ropewalk as of May 1. The bureau later changed its directive, but in January of 1956, the House Subcommittee on Military Appropriations conducted hearings on Boston's ropewalk and forge. Out of those proceedings emerged an

15. Informal Turnover Memorandum, 1969, p. 4; Commander to Chief, Bureau of Ships, Jan. 2, 1958, 181-102, Box 63AO377, A1-2.

understanding that they continue operations, but only in a way that would allow private industry to supply the Navy with the bulk of its cordage and anchor chain. Henceforth, the ropewalk had the mission of providing the Navy with adequate cordage research, development, and testing facilities. Production was to be at a level sufficient to meet the costs of operations. This amounted to approximately one million pounds of cordage yearly.[16]

The Navy Department conducted another study of the ropewalk operations in 1965, but did not communicate to the shipyard any decisions reached as to the future of the shop. During the Vietnam War, the Defense Department found that commercial suppliers could not meet the demand for cordage, and it asked the Navy to expand the ropewalk's production by 600,000 pounds per year. By that time, the work force of the facility had diminished considerably. Utilizing a six-day work week, the shop was able to increase its output by 300,000 pounds.

The government's policy of favoring commercial manufacturers also had an impact on the forge. The shop concentrated on the production of chain and chain appendage that private industry regarded as unprofitable to produce, particularly cable for super carriers. At the direction of the Navy, the shipyard made surveys of its other manufacturing activities, such as the foundry and sail loft, to determine the feasibility of terminating them and securing their products from commercial sources.[17]

The ropewalk was finally ordered closed as of December 31,

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16. Informal Turnover Memorandum, 1969.

17. Informal Turnover Memorandum, 1960.

1971, and its equipment disposed of, except for artifacts being retained for museum purposes. By that time, the shop had only nineteen employees, who were assigned to other jobs in the yard.[18]

In the late 1950s, the Boston Naval Shipyard began physically to shrink in size, with the elimination of several properties. The first of these was the "K" Street Annex, adjacent to the South Boston Annex. In December 1958, the "K" Street property was sold as surplus. The "E" Street Annex at South Boston, a tract of approximately twenty-five acres, had been used during World War II mainly for open storage. In the postwar period, it was declared excess to the operations of the shipyard, and, in 1969, Congress transferred it to the Massachusetts Port Authority.

In 1960, the East Boston Fuel Annex ceased operations and was placed in a maintenance status. Henceforth, Navy ships in the Boston area received their fuel through contractors, utilizing three Navy barges. "Firm mobilization" requirements prevented the permanent disposal of the Fuel Annex, and the Navy sought a tenant for the property.[19] The most important deactivation, prior to the close of the main yard itself, was the suspending of most of the ship work at the South Boston Annex.

A major event in the modern history of the Boston Naval Shipyard had been the Navy's acquisition in the World War I era of the Commonwealth Dry Dock at South Boston and its attachment

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18. Events During Calendar Year 1971, BNHP, RG 1, Series 11; Boston Naval Shipyard News, Jul. 9, 1971.

19. Informal Turnover Memorandum, 1960.

as an annex to the yard. At that time, Dry Dock No. 3 was the largest in the world. During the 1920s and 1930s, few improvements were made in the dock and the adjacent area, also part of the annex, and the facility was used by the yard primarily to dock large passenger liners and other nonmilitary vessels. The annex came into its own during World War II, when a cruiser dry dock was added, other improvements were made, and a considerable amount of the Boston yard's ship repair work was performed at the site. In the postwar decade, activity at the annex declined, except by the Atlantic Reserve Fleet. Occasionally, work by the shipyard at the annex increased to the extent of requiring the labor of as many as 1200 of the yard employees. But, except for its two dry docks, the annex constituted excess plant.

The excess shipyard capacity constituted a fiscal drain, since, although not heavily used, the annex required maintenance and provision for utilities. Moreover, transporting personnel and material from one site to the other increased the cost of industrial operations. The administrators of the shipyard held that its mission required the continuation of the South Boston Annex in an active status. They also argued that the separation of the yard's two industrial sites by several miles had advantages, since in the event an atomic bomb fell on the area, it was unlikely that both locations would be damaged.[20]

In December of 1958, the Bureau of Ships ordered the

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20. Program for Review of Commercial and Industrial-Type Facilities, 4th Increment, Factors Which Warrant the Continued Operation of Boston Naval Shipyard, n.d [1955], BNHP, RG 1, Series 37; Commander to Chief, Bureau of Ships, Mar. 14, 1958, 181-40, Box 63A0377, A-1.

inactivation of the South Boston Annex. All shops were to be transferred to the main yard by January 1, 1960. The Bureau of Ships' directive stated that: "It is desired that the annex be inactivated on a most austere bases." The site would continue to provide berthing space and offices to the Reserve Fleet, and Dry Dock No. 3 was retained for emergencies. The Bureau of Ships advised the shipyard that future work-load assignments would include no vessels that could not be accomodated by the facilities at the Charlestown location.[21]

Implementation of the inactivation proved impossible before 1962, because of maintenance and repair work being performed on Dry Dock No. 2. That work required utilization of Dry Dock No. 4 for ships that otherwise would have been accomodated at the larger dock in the main yard. Although, yard administrators fought to retain both Dry Docks No. 3 and 4 in active status, they made the arrangements necessary to relocate to Charlestown operations formerly conducted at the annex. These included facilities for the repair, testing, or restoration of transducers, bathythermographs, and electronic and radiac equipment.[22]

In the remainder of the 1960s and in the early 1970s, the shipyard continued to work on carriers docked in No. 3 at the annex, but the partial inactivation of South Boston had an impact on the activities of the yard as a whole. The number of dry-

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21. Bureau of Ships to Commander, Dec. 18, 1958, 181-40, Box 63A0377, A-3.

22. Informal Turnover Memorandum, 1960; Commander to Chief, Bureau of Ships, Dec. 23, 1959, 181-40, Box 64A300, A3.

dockings dropped from eighty-one in 1961 to forty-nine in 1963, and the labor force decreased by roughly one thousand workers. Although used sparingly, the South Boston Annex remained as an important element in the long-range plans for the shipyard.

In 1963 and 1964, the Navy Department announced its intention to close one or more of its shipyards. Boston appeared as a candidate for deactivation, and a closing scare swept through the yard and adjacent communities. As it turned out, Boston was spared, and the ax fell on the New York Naval Shipyard in Brooklyn and the repair facility at San Diego. In 1966, the Navy undertook another review of its yards, which resulted in two alternatives for Boston, to modernize the main site at Charlestown or to to close it down and move practically the entire operation to an enlarged South Boston Annex. In 1968, the Department of Defense accepted the recommendation to relocate the yard to South Boston. Even before that date, the Navy had pursued a policy of allocating only minimal funds for plant expansion and improvement at the Charlestown yard.

THE DECLINE OF THE YARD´S PLANT

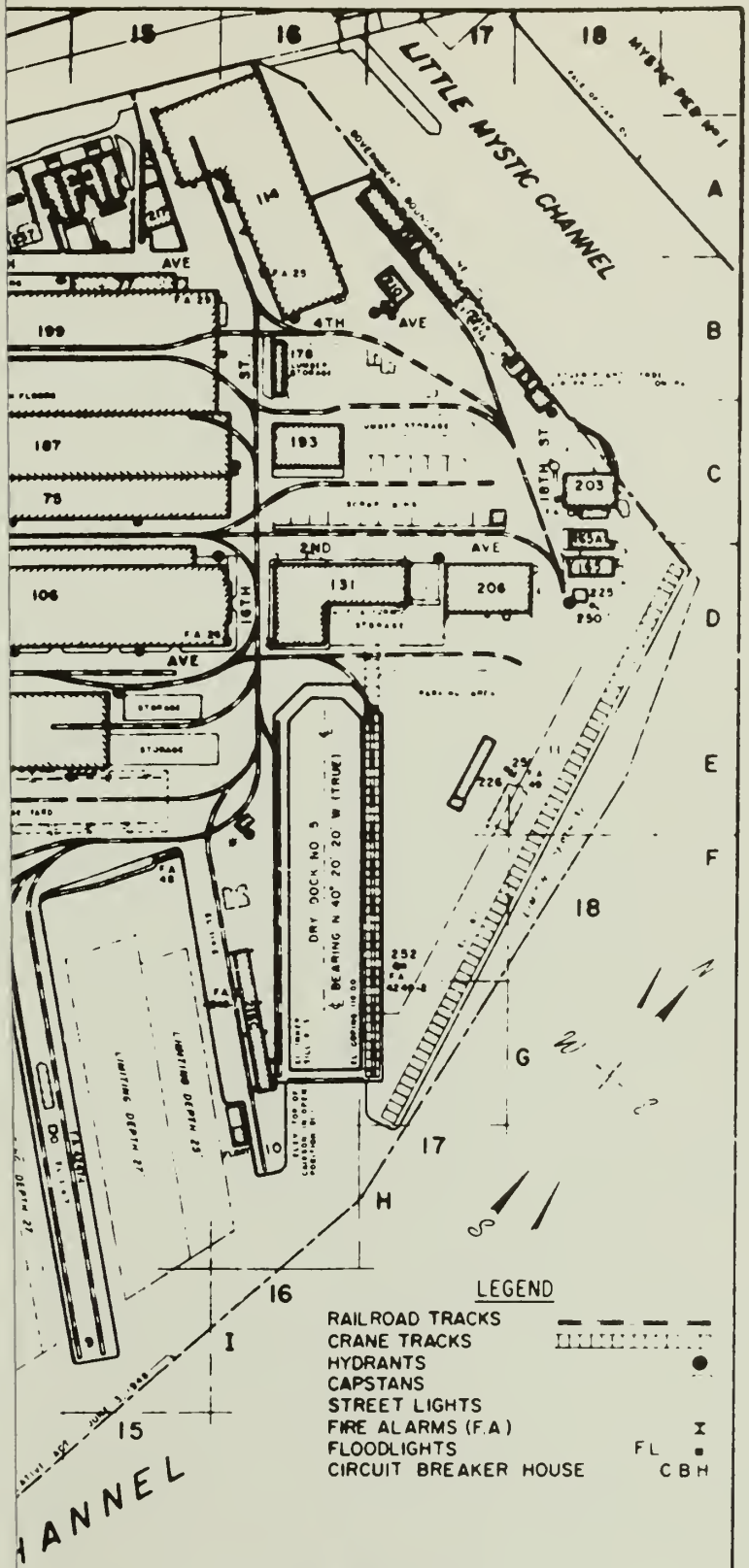
The history of the ship repair facilities of the Boston Naval Shipyard since 1890 in part is an account of efforts to keep the yard´s plant abreast of changes in the design of naval vessels. Generally, ships became larger, requiring longer piers and longer, deeper, and wider dry docks. Essentially, this theme appears in the decades after World War II. Particularly in the 1950s, modernization of warships included the installation of large sonar domes at the forward end of keels, thus increasing

CHART NO. 6: MAP OF BOSTON NAVAL SHIPYARD, BOSTON, MASS., SHOWING CONDITIONS ON JAN. 1, 1963

NOTE: Chart No. 6 and Chart No. 7 indicate the relatively modest additions to the physical plant of the main yard of the Boston Naval Shipyard in the decades after World War II. Pier improvements completed by early 1963 included rebuilding Pier No. 6; rebuilding and enlarging Pier No. 7; the installation of crane tracks on Pier No. 4; and the integration of that trackage with the tracks on Pier No. 5 and the new Piers Nos. 6 and 7 into a system connected to the crane tracks serving Dry Docks No. 1 and 2.

None of the buildings erected since World War II constituted major additions to the yard. The new plant consisted of Industrial Service Buildings on Piers Nos. 4, 6, and 7; light towers; fire pump houses; garages; and other small buildings and structures.

The absence of new ship construction activity is manifest in the utilization of Shipbuilding Ways No. 2 for parking.



MAP OF
BOSTON NAVAL SHIPYARD
BOSTON, MASS.

SHOWING CONDITIONS ON

JAN. 1, 1963

CAPTAIN CEC USN
PUBLIC WORKS OFFICER

399-144

INDEX OF STRUCTURES

NO	DEPT	LOC	OFFICERS QUARTERS
5	COM ONE	4C	COMMANDANT, 1ST NAVAL DISTRICT
9	"	14A	CHIEF OF STAFF, 1ST NAVAL DISTRICT
266	ADMIN	2D	OFFS SHPYD DEPT HEADS QTRS B
"	"	"	" " " " C
"	"	"	" " " " D
"	"	"	" " " " E
"	"	"	" " " " F
205	"	15A	COMMANDER, SHPYD & DEPT HEADS L
"	"	"	" " " M
"	"	"	" " " N
"	"	"	" " " O
8		2C	B O Q (OFFICERS CLUB & MESS)

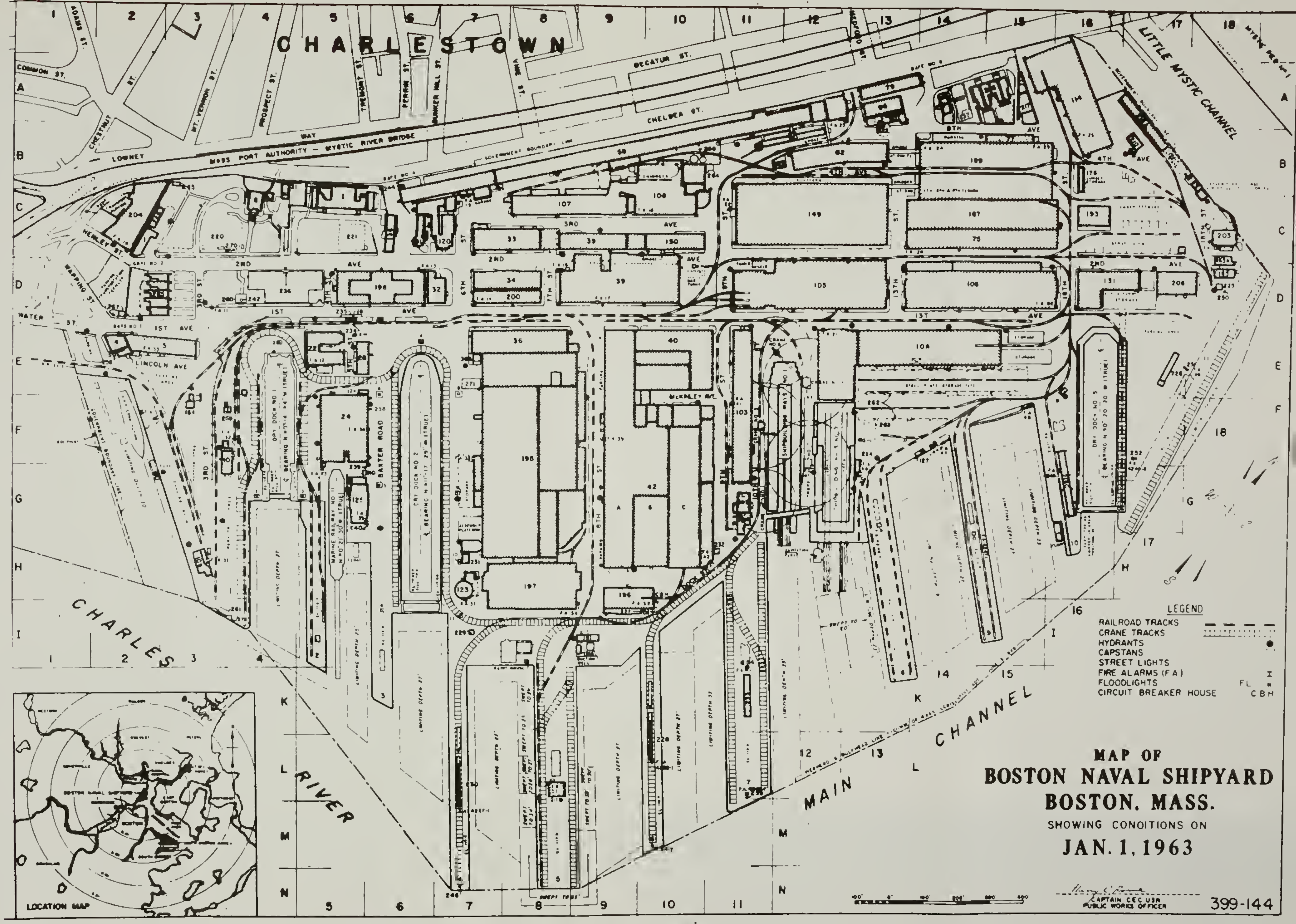
NO	DEPT	LOC	U S MARINE CORPS
1	CO MB	8C	POST COMMANDING OFFICER QTRS I
"	"	"	B O Q OFFS 2A, 2B, 2C, 2D
"	"	"	BARRACKS MESS, PX, TAILOR & BARBER SHOPS

NO	DEPT	LOC	SHOPS, OFFICES, ETC
1	ADMIN	2C	GARAGES
	ADMIN		GATEHOUSE
4	ADMIN	2C	C P O CLUB
10	PROD	5F	BATTERY CHARGING FACILITY
13	S O	6D	YARD SCALEHOUSE
21	COM ONE	4C	GREENHOUSE
22	PROD	5E	DOCKING OFFICE, WOODWORKING & SHEET METAL SHOPS
	P W		SUB STA NO 22
24	PROD	5F	RIGGERS LOFT
	P W		OFFICERS & CREWS [illegible]
28	PROD	6E	TEST SEC, LAB & METHODS & STANDARDS BRANCH
	M O		INDUSTRIAL HYGIENE LAB
31	ADMIN	6C	TELEPHONE EXCHANGE
	M O		HEARING CLINIC
	P W		TELEPHONE CABLE ROOM
32	I R O	7D	[illegible], CREDIT UNION
33	ADMIN-S O	8C	FRAZIER BARRACKS, GENERAL MESS
	S O		TAILOR SHOP
34	PLAN	8D	BLUEPRINT & REPRODUCTION RM, PHOTO LAB
	PROD		CHEMICAL & MATERIALS LAB
36	I R O	8E	CAFETERIA, I R O SERVICES
	PROD-ADM		SAIL LOFT, PATTERN STOR, NAV & M [illegible]
36A	P W	9E	ELECTRIC SUB STA
38	ADMIN S O	9C	ANCHOR CLUB, CHAPLAIN, SHIPS SERVICE, MOVIE HALL, LIBRARY, BOWLING ALLEY, BARBER SHOP
	P W		REPAIR GARAGE
39	VARIOUS	9D	ADMINISTRATION BLDG, SHIPYARD COMMANDER, PLANS, PROD, ADMIN & COMPT DEPTS, MAR ENG OFFICE, IND WAGE U S N, IND
40	PROD	10E	CENTRAL TOOL & TEMP STORAGE, LOCKER ROOM
42A	"	10G	INSIDE MACHINE SHOP, TOOLMAKERS
42B	"	10G	MACHINE SHOP, OFFICES, INSTRUMENT ROOM
42C		"	FOUNDRY PATTERN SHOP
	P W		SUB STA NO 42
	PLAN		VIBRATION & SOUND LAB
	ADMIN		SHIPS OFFICE SPACES
58	PROD	4E	ROPEWALK
	I R O		IRO REL OFFICES, APPRENTICE SCHOOL
	P W, M O		STORAGE
60	PROD	12E	TARRING HOUSE FOR ROPEWALK
62	"	12E	ROPEWALK EXTENSION, TEST LAB
75	S O	15C	STOREHOUSE
77	P W	15D	GARAGES
78	PROD	13D	PROD MATERIAL STORAGE & CONTROL CENTER
85	S O	13A	STORAGE
103	PROD	11F	SHEET METAL SHOP
104	"	13E	STRUCTURAL SHOP, MOLD LOFT
105	"	12E	FORGE SHOP
	P W		ROUNDHOUSE
106	PROD	13D	[illegible] SHOP, BOILER SHOP
107	P W	8C	BUILDING TRADES SHOP
108		10C	CENTRAL POWER PLANT
109	ADMIN	3H	WATERFRONT OFFICE
	P W		SUB STA NO 109
110	PROD	8G	[illegible] ROOM SHOP 72
114	"	16A	WOODWORKING SHOP
	P W		SUB STA
120	MD & DO	7C	MED DISPENSARY DENT CLINIC, OFFICES
123	P W	7H	PUMPHOUSE FOR DRY DOCKS 1 & 2, SUB STA NO 123
124	"	6E	YARD WORKERS HEAD
125	PROD	6G	PAINT SHOP
	P W		SUB STA
127	"	14F	YARD WORKERS HEAD
131	S O	18D	STOREHOUSE FLAMMABLE MATERIALS
134	I R O	6C	ADMIN BLDG & GARAGE
143	ADMIN	11D	CHAPEL
149	S O	12C	SUPPLY DEPT OFFICES, MAIN STOREHOUSE
	S O-COMPT		SUB STA NO 149 COMPT DEPT OFFICES
150	"	10C	POWER PLANT, SWITCHING STA, EDISON AUX ELECTRIC SUB STA, GARAGES
	COMPT		STORAGE
	PLAN		PLAN FILES
165	S O	18D	GAS CYLINDER STORAGE
165A	"	"	GAS CYLINDER STORAGE
179	"	16B	STOREHOUSE, SCRAP
187	"	14C	GENERAL STOREHOUSE
191	P W	9I	PUMPHOUSE, CIRCULATING LOOP (SALT WATER)
191A	"	9I	SALT WATER INTAKE SCREENHOUSE
192	"	11D	SUB STA NO 192, HEADS
192A	"	"	SUB STA EXTENSION
193	S O	16C	SCRAP SALVAGE BLDG
194	S O	3F	GASOLINE FILLING STATION
195	PROD	8F	PIPE SHOP, STRUCTURAL SHOP, ORDNANCE SHOP WELDING EQUIP REPAIR & WELDING LAB
	PLAN		METER CALIBRATION LAB
196	PROD	11	TEST PLANT, INSIDE MACHINE SHOP
197	"	8H	ELEC, ELECTRON, WEAP SYS & OUT MACH SHOPS
198	PROD	6D	ELECTRONICS SCHOOL & EQUIPMENT RESTORATION, SHIP REPAIR MAT'L STORAGE
	M O		OPTOMETRIST
	ADMIN		POST OFFICE, MILITARY BAND SHIPS OFFICES
199	S O	14C	GENERAL STOREHOUSE
	P W		SUB STA
200	ADMIN	8D	SECURITY OFFICE, POLICE & FIRE STATIONS
	P W		PUBLIC WORKS MAIN ADMIN OFFICES DRAFT RMS
	I R O		PUBLIC ADDRESS SYSTEM
202	P W-PROD	19C	INCINERATOR (INACTIVE) - SANDBLAST FACILITY
204	"	2C	GARAGE, TRANSPORTATION OFFICE
206	P O	17D	LOCKER, HEAD, WASHROOM
	ADMIN		OFFICE SPACES FOR SHIPS
	PROD		STORAGE
207	ADMIN	16A	MOTION PICTURE EXCHANGE, DISASTER CONTR STOR
	P W		STORAGE, GARAGE
210	S O	17B	LUMBER STORAGE
211B	PROD	9L	INDUSTRIAL SERVICE BLDG
216C	S O	16A	" " "
217	"	16A	LUMBER STOREHOUSE
218A	"	17B	" "
220	P W	3C	UNDERGROUND OIL STORAGE
221	P W	5C	UNDERGROUND WATER STORAGE
222	"	13D	" " "
223	"	14A	" " "
224	P W	14G	SUB STA
225	"	18D	FIRE PUMP HOUSE
226	PROD	17E	INDUSTRIAL SERVICE BLDG
227	P W	10I	FIRE PUMP HOUSE
228	PROD	10L	INDUSTRIAL SERVICE BLDG

NO	DEPT	LOC	SHOPS, OFFICES, ETC
229	P W	7I	FIRE PUMP HOUSE
230	PROD	7L	INDUSTRIAL SERVICE BLDG
231	P W	7H	SWITCHING STATION
232	"	11H	FIRE PUMP HOUSE
233	PROD	11H	INDUSTRIAL SERVICE BLDG
234	S O	7D	TRUCK SCALE
235	"	"	TRUCK SCALE
236	ADMIN	4D	TENNIS COURT
237	"	18A	" "
238	P W	8F	LIGHT TOWER
239	"	8G	" "
240	"	5G	" "
242	ADMIN	4C	FLAG POLE
244	ADMIN	8B	GATE HOUSE
245	COM ONE	3B	GARAGE
246	P W	7N	LIGHT TOWER
247	"	10N	" "
250	"	18D	" "
251	"	18I	" "
252		17F	" "
254	"	11F	" "
255	"	11G	" "
256	ADMIN	6E	POLICE SHELTER BLDG
258	PROD	6F	SAND HOPPER
260	ADMIN	4D	BAND STAND
261		3I	GALVANIC BATTERY PLATFORM
262	S O	15F	BRIDGE CRANE SUPPORTING STRUCTURE
263	PROD		PICKLING TANKS
264	P W	10B	COOLING TOWER
265	ADMIN	2D	GATE HOUSE
266	I R	10D	ASH SILO
267	ADMIN	2C	GARAGES
271		5C	[illegible] HISTORICAL PLAQUE
272	PROD	6I	PAINT SPRAY BOOTH
273	ADMIN	6I	[illegible] ATMOSPHERE STRUCTURE

NOTES

1. SMALL TEMPORARY & PORTABLE BUILDINGS USED FO FIELD OFFICES, STOCK, TOOLS & HEATING SHOPS ARE NOT SHOWN
2. ELEVATIONS NAVY DATUM, MEAN LOW WATER +100.0
   EXTREME HIGH WATER 113-115
   (THE LATTER ONLY ONCE IN OVER 100 YEARS)
   MEAN HIGH WATER (APPROX) 110
   MEAN LOW WATER 100
   EXTREME LOW WATER 87.6
3. AREA:
   HARD LAND 85.2 ACRES
   WATER 46.5 "
   TOTAL 131.7 "
4. "LIMITING DEPTHS" ARE SHOWN BELOW M.L.W. (FOR COMPREHENSIVE HYDROGRAPHIC INFORMAT SEE P.W.O. DWG NO 463-986)
5. ONLY MAJOR USEABLE PORTION OF RAILROAD TRACK IS SHOWN FOR COMPLETE TRACK SYSTEM LAYOUT, SEE P.W.O. DWG NO. 476-236



MAP OF
BOSTON NAVAL SHIPYARD
BOSTON, MASS.

SHOWING CONDITIONS ON

JAN. 1, 1963

CAPTAIN CEC USN
PUBLIC WORKS OFFICER

399-144

the depth required in dry-docking. Also, the Navy began to acquire a new generation of destroyers. Conversion by the Boston yard of the World War II destroyer Gyatt into the Navy's first guided missile destroyer produced a ship with a draft of nineteen feet. Completely new DDGs had drafts of more than twenty-one feet, and guided missile frigates, DLGs, drafts in excess of twenty-five feet. The aircraft carrier Forrestal, launched in 1954 had a length of 1,046 feet, a flight deck width of 249 feet, six inches, and a draft of thirty-seven feet. Ships with such dimensions made obsolete many of the Navy's older repair facilities.

In the decades after V-J Day, the plant of the Boston Naval Shipyard was not improved and updated so as to insure the yard could readily engage in work on the new generation of ships then being built. Utilizing the Navy's own figures, critics of the 1973 decision to disestablish Boston pointed out that expenditures for major plant construction projects at each of the other East Coast yards had substantially exceeded the funds assigned Boston. Between 1965 and 1973, Portsmouth had received $12.3 million, Philadelphia $24.6, Norfolk $34.0, and Charleston $40.8. During the same period, only $1.4 million had been expended on the Boston Naval Shipyard. These figures represent "Military Construction" funds. Improvements costing less than $5000 could be approved by the shipyard commander. Projects involving expenditures between $5000 and $25,000 required authorization by the Bureau of Ships or its replacement, the Ships System Command, which would provide the funds. "Military Construction" funds were available, when approved by the

Secretary of the Navy, to finance plant improvements costing between $25,000 and $250,000. Projects more than $250,000 in value required congressional action. As far as can be determined, Congress appropriated no monies for projects at Boston, after authorizing reconstruction of several piers in the mid-1950s. Moreover, the Secretary of the Navy proved reluctant to approve Military Construction projects. It also appears that the Bureau of Ships and its successor were less than eager to sanction even limited plant improvements at Boston.[23]

Following the construction of the cruiser dock at South Boston and the building dock at the main site during World War II, no major additions were made to the plant of the Boston Naval Shipyard. During the first postwar decade, the principal improvements consisted of enlarging Building No. 198 and the beginning of programs to replace piers and to modernize the central power plant. In the years after 1955, shipyard administrators recommended several major public works, including modernizing and extending existing dry docks, building several new ones, and constructing greatly enlarged piers. Such recommendations remained in the planning stage, pending the resolution of important questions concerning the future of the yard. Thus the yard had to fulfill its mission with a plant that revealed more and more defects.

The major deficiencies in the Charlestown site were the

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23. Base Closures or Realignment Program, Massachusetts, Hearing Before the Subcommittee on Military Construction of the Committee on Armed Services, United States Senate, Ninety-Third Congress, First Session, Jun. 21 and 22, 1973, p. 85; Informal Turnover Memorandum, 1960.

congestion of buildings and waterfront facilities, the age of many structures, and the inability of the dry docks to accomodate the ever increasing size of warships, including destroyers. Also many of the buildings were being utilized for purposes other than the uses originally intended.

The situation for storage of gas cylinders illustrates several of the difficulties. The yard had become a primary stock point for the distribution to Navy ships and shore activities of industrial gas. This function required having on hand a large pool of gas cylinders, stored in Buildings Nos. 165 and 165A. Both structures had been erected as parts of a gas generating plant, and both were unsuited for cylinder storage. The loading platforms were thirty inches below standard height and were too narrow to accomodate forklifts or other mechanical equipment. Containers being unloaded from trucks had to be dropped onto an improvised rubber pad, a dubious practice when the cylinders contained pressurized gas. To load cylinders onto trucks, workmen had to lift them manually. Injuries became frequent.[24]

An obvious need prevailed for a proper gas cylinder storage building, and a plan was proposed for moving the cordage operation to South Boston, razing the ropewalk structure, and using that location for building a gas cylinder storage facility. However, the Bureau of Ships opposed any scheme involving development of the annex, since it had ordered the deactivation of that site. As an alternative, the bureau

24. Commander to Chief, Bureau of Ships, Jan. 2, 1958, 181-40, Box 63A0377, A1-2.

suggested the yard consider utilization of piping to deliver industrial gases, perhaps a feasible course for shore-based activities, but not for delivering cylinders aboard ships.[25]

Several of the yard's buildings demonstrate difficulties resulting from altering their use from that originally intended. No. 114 had been constructed as a sawmill. Over the years, modifications occurred in its usage so that ultimately it served as a sawmill and a combined joiner, shipwright, and boat shop. The boat shop, housed on the second floor, had a ceiling so low as to prevent ready movement of boats into or out of the shop. This became more apparent as ship's boats grew larger and heavier. In the shop, one boat could not be lifted over the others, so that oftentimes, to remove a boat which had been completed, many of the rest had to be lowered to the floor, moved to the side, or somehow gotten out of the way. Obsolete cranes in the shop compounded the difficulty. These conditions resulted in larger boats being worked on out-of-doors.[26]

Building No. 103 had been erected in 1901 as a storehouse for finished chain. Shortly before World War II, the sheet metal shop moved to No. 103 from its restricted quarters in No. 104. However, the former chain storage building had only one small elevator, located at its south end. Since the ventilator and furniture sections of the sheet metal shop were in the north end

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25. Commander to Chief of Naval Operations (Shore Station Development Board), Mar. 5, 1958; Commander to Chief, Bureau of Ships, Nov. 12, 1958, both in 181-40, Box 63A0377, A-1; Chief, Bureau of Ships to Chief of Naval Operations, Sep. 4, 1958, 181-40 Box 63A0377, A1-2.

26. Commander to Chief, Bureau of Ships, Jan. 2, 1958, 181-40, Box 63A0377, A1-2.

of the second floor, finished pieces had to be carried the length of the shop. Moreover, the elevator was too restricted to handle large units, and even moderately long lengths of sheet metal had to be bent to fit into the elevator.[27]

The waterfront of the Charlestown yard presented a variety of problems. Work continued on pier improvement, but not rapidly enough to keep ahead of deterioration. In 1958, all railroad and mobile cranes were prohibited from Pier No. 2, and it was anticipated that Pier No. 3 would shortly be in the same condition. Both of these as well as Piers Nos. 8, 9, and 10 were wooden structures and thus costly to maintain. The system for distributing utility services to the piers was defective, since water covered the pipes and wiring at high tide. In 1968, all of Pier No. 10 and the outboard end of No. 3 were no longer usable. Long-range plans called for replacing existing Piers Nos. 2 and 3 with a single 130-foot wide wharf and for reconstruction of Piers Nos. 8 and 9.[28]

In 1958, Shipways No. 2 suffered from decay and could not be used because of inadequate crane service. The ways had a twenty-ton hammerhead crane, but there were no facilities for portal or railroad cranes. Also, the ways lacked the length required by modern ships. Utilization of Shipways No. 2 for ship construction would require the demolition of a large part of

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27. Commander to Chief, Bureau of Ships, Jan. 2, 1958, 181-40, Box 63A0377, A1-2.

28. Commander to Chief, Bureau of Ships (Attn. Code 770), Nov. 12, 1958, 181-40, Box 63A0377, A1-1; . Informal Turnover Memorandum for Captain R. C. Gooding, USN, Aug. 1968, BNHP, RG 1, Series 5.

Building No. 104, another demonstration of the congestion of the yard. The yard's master plan for development of the waterfront proposed the elimination of both building ways because of the need to construct a bulkhead between Piers Nos. 7 and 8 so as to extend traveling crane service to the east end of the waterfront. By 1968, Shipways Nos. 1 and 2 had become parking lots and their wet slip portions filled with waste material generated by the shipyard.[29]

Although the Navy was building few of its own ships and the immediate prospects for new construction at Boston were remote, Navy authorities had to look ahead and consider the requirements should there be a full mobilization, such as had occurred in World War II. Mobilization plans for the Boston Naval Shipyard assigned it the role of shipbuilding. However, the abandonment of the two shipbuilding ways and plans to enclose that area with a bulkhead diminished the yard's prospective mission in an emergency situation.

At the end of 1958, plans to replace Marine Railway No. 11 were deleted. The scheme to remove Piers Nos. 2 and 3 and construct a 130-foot wide wharf would mean the abandonment of the hauling-out ways. A replacement elsewhere in the yard appeared unwarranted in view of the low utilization rate of the existing device. In 1957, for example, Marine Railway No. 11 docked only two vessels. The reduced use in part resulted from defects in the mechanism. Excessive slack in the hauling chains had

29. Informal Turnover Memorandum, 1968; Commander to Chief, Bureau of Ships (Code 770), Jan. 2, 1958, 181-40, Box 63A0377. A1-2.

developed and become progressively worse. Even small vessels, such as yard tugs, could be hauled out only by using methods considered dangerous. Beginning in 1963, the railway saw little service, except for test runs and repairs. In July 1965, the Navy ordered the railway be employed only when other docking facilities were unavailable In 1970, the yard´s docking officer regarded the marine railway as unusable, a conclusion with which the Navy concurred the following year.[30]

Crucial to a modern ship repair activity was possession of adequate dry-docking facilities. In 1945, the Boston Naval Shipyard had five dry docks. At the main yard were Dry Dock No. 1, built in the 1830s; Dry Dock No. 2, constructed in the early twentieth century; and Dry Dock No. 5, erected during World War II for purposes of ship construction. The annex at South Boston had Dock No. 3, the large, 1000-foot facility constructed in the World War I era, and Dry Dock No. 4, the cruiser dock completed in 1944. It might appear that these five docks would be sufficient for the yard to fulfill its mission, but such was not the case. If the yard were to have a future, existing docks needed modification, and new ones seemed desirable.

Least useful was No. 5, the building dock, which had a draft of only seventeen feet. No. 5 could readily accomodate World War

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30. Chief, Bureau of Ships to Chief of Naval Operations, Sep. 4, 1958, 181-40, Box 63A0377, A1-2; Commander to Chief, Bureau of Ships (Attn. Code 770), Nov, 12, 1958, 181-40, Box 63A0377, A1; Brady and Crandall, pp. 17-21; Group Master, Service Shops, to Public Works Officer, Jun. 20, 1966; Docking Officer to Repair Superintendent, Oct. 6, 1970; Acting Service Group Superintendent to Production Officer, Feb. 19, 1971, all in BNHP, RG 1, Series 37. Frequency of usage of this facility is recorded in an untitled rough draft of the docking log, BNHP, RG 1, Series 53, Box 4, Marine Railway, Feb. 3, 1957-Apr. 10, 1973.

II destroyer escorts and submarines undergoing modest conversions. Unorthodox methods were required to dock larger vessels or those receiving radical alteration. In 1962, the yard used No. 5 in the modernization of the destroyer Greene. The ship entered the dock stern first, and the keel blocks were so arranged as to elevate the bow. This was necessary in order to install the huge sonar dome. Such methods demonstrate the ingenuity of shipyard personnel, but also reveal the shortcomings of Dock No. 5. The yard's master plan called for modification of the dock to enable it to receive in conventional fashion the first postwar destroyers, those of the Forrest Sherman class. In 1960, the Bureau of Ships estimated the cost of those modifications as $6 million. By 1968, the figure had increased to almost $7,400,000.[31]

Much lower were the estimates for needed improvements in the two graving docks at Charlestown. One common deficiency was the pumping or dewatering system, which served both facilities. When first installed in 1903, that system could empty Dry Dock No. 1 in forty-five minutes and Dry Dock No. 2 in 138. In 1958, the time consumed in dewatering was seventy-five minutes for the small dock and almost 200 for the large one. Much of the deterioration of the dewatering system had occurred because of sandblasting techniques introduced during World War II. The sand could not be filtered out and damaged the pumps. The Bureau of Ships objected to replacing the pumps and suggested their repair by epoxy resins. The yard successfully argued that such repairs

31. Informal Turnover Memorandum, 1960; Boston Naval Shipyard News, Feb. 2, 1963; Turnover Memorandum, 1968.

would not be effective, and in 1960, a contract was awarded to replace the pumps.[32]

The same contract covered a new caisson for Dry Dock No. 2. In 1958, the original caisson was nearly sixty years old. Repairs, made between 1954 and 1956 and costing almost $50,000, failed to improve the caisson's performance, and it was estimated that further work would take six months and require $121,000. Deactivating the dock for that length of time would create major problems in the docking schedule, and there were no guarantees that the repairs would succeed. The caisson's framework had become twisted, with the result that the mechanism did not seat properly in the dock's entry. The poor seating allowed water into the dock, necessitating constant use of the pumps. Thus, the contract for a new caisson, which, after some delay, was delivered in 1961.[33]

A 1964 study reported the poor condition of the caisson for Dry Dock No. 1. Repairs and even the regular overhauls were not performed because of the expectation that funds would become available for a replacement. When such funds were not forthcoming, repairs were made and the caisson continued in service.[34]

Another defect of the yard's dry dock area was remedied in the early 1960s, when floodlights were installed on building

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32. Commander to Chief, Bureau of Ships (Code 770), Mar. 28, 1958, 181-40, Box 63A0377, A1-2; Chief, Bureau of Ships to Commander, Jun. 16, 1959, and Commander to Chief, Bureau of Ships, Jul. 10, 1959, both in 181-40, Box 64A300, N-16; Informal Turnover Memorandum, 1960.

33. Commander to Chief, Bureau of Ships, Mar. 28, 1958; Informal Turnover Memorandum, 1968.

34. Brady and Christopher J. Foster, Inc. pp. 29-30.

roofs and towers to provide more adequate illumination in hours of darkness.

Replacing the dry dock pumps, providing a new caisson for Dry Dock No. 2, and installing additional lighting filled obvious needs. Far less clear was the appropriate course for dealing with the limitations of Dry Dock No. 1. The yard required more than one dock large enough to receive the new destroyers beginning to appear in the late 1950s. Certainly, modifying Dry Dock No. 1 was more feasible than rebuilding No. 5. Cutting some of the stones in the head of No. 1 had given the dock a length of 415 feet, but the depth of the dock limited its use to ships 403 feet long, forty-nine feet, seven inches in width, and with drafts of twenty-one feet. Thus the dock could not be used for destroyers of the Forrest Sherman class or the even more sizeable DDGs and DLGs. Nor could it accept larger World War II destroyers equipped with SQS 23 sonar installations.[35]

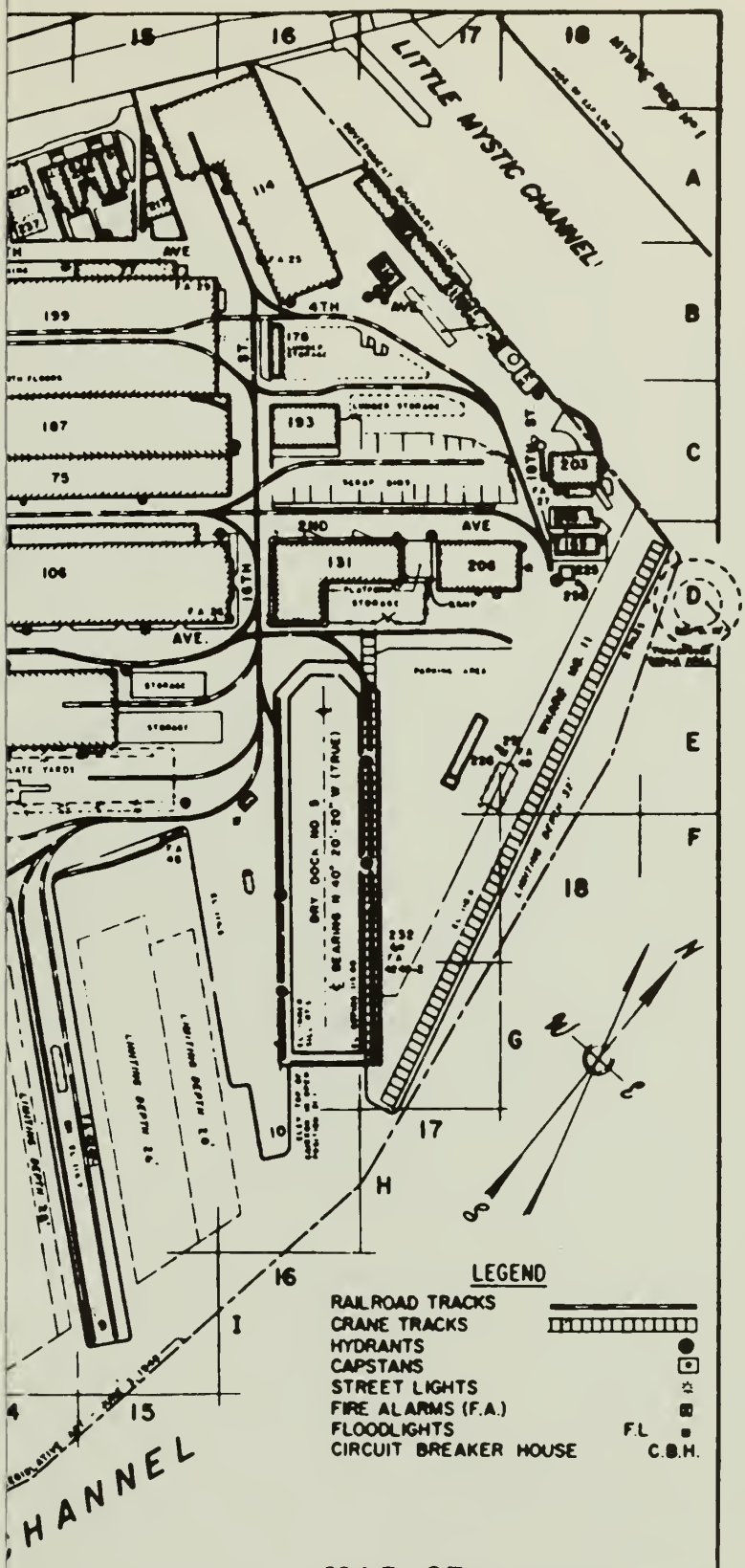
In 1960, the Bureau of Ships worked on a modest plan, estimated at $250,000, to modify Dry Dock No. 1's caisson and to extend the niche in the head. That scheme apparently proved not to be feasible, and two years later the bureau approved a bolder proposal to enlarge and modernize the dock. It would be extended fifty feet seaward, and its floor deepened by five feet. Other projected improvements included an automatic bilge block seating system and a new lock-type caisson with built-in pumps.[36] . Those

35. Commander to Chief, Bureau of Ships (Code 770), Jan. 2, 1958; Informal Turnover Memorandum, 1960.

36. Informal Turnover Memorandum, 1960; Informal Turnover Memorandum for Capt. F. C. Jones, Jun. 1962, BNHP, RG 1, Series 5.

CHART NO. 7: MAP OF BOSTON NAVAL SHIPYARD, BOSTON, MASS., SHOWING CONDITIONS ON JAN. 1, 1973.

NOTE: Comparison of Charts No. 6 and 7 indicate that virtually no major improvements were made in the Charlestown site of the Boston Naval Shipyard during the ten years prior to its deactivation. Dry docks, piers, and buildings remained unchanged. By 1973, both of the two shipbuilding ways served as parking lots, two cranes at Shipbuilding Ways No. 1 were removed, and the marine railway no longer was operational. Of the five new structures appearing since 1963, three were electrical substations (Nos. 274, 275, and 278), one a sand hopper (No. 273), and the other a facility for the filling and storage of oxygen bottles (No. 277).



MAP OF
BOSTON NAVAL SHIPYARD
BOSTON, MASS.

SHOWING CONDITIONS ON

JAN. 1, 1973

CAPTAIN CEC USN
PUBLIC WORKS OFFICER

399-155

INDEX OF STRUCTURES

NO	DEPT	LOC	OFFICERS QUARTERS
[illegible]	[illegible]	[illegible]	[illegible]

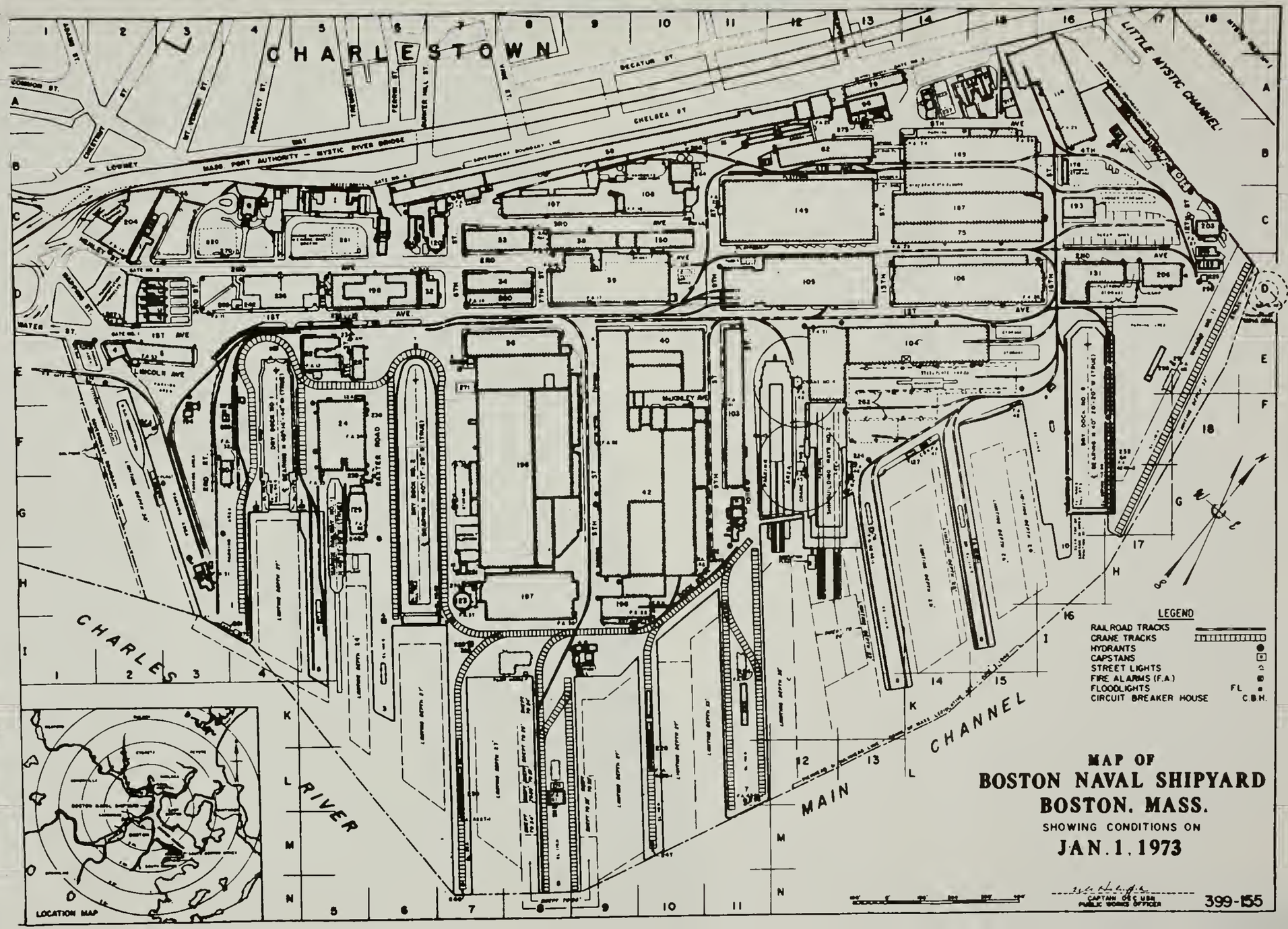
NO	DEPT	LOC	U S MARINE CORPS
[illegible]	[illegible]	[illegible]	[illegible]

NO	DEPT	LOC	DESCRIPTION
[illegible]	[illegible]	[illegible]	[illegible]

NO	DEPT	LOC	DESCRIPTION
[illegible]	[illegible]	[illegible]	[illegible]

NOTES

1. SMALL TEMPORARY & PORTABLE BUILDINGS USED FOR FIELD OFFICES, STOCK, TOOLS & HEATING SHOPS ARE NOT SHOWN
2. ELEVATIONS: DRY DATUM, MEAN LOW WATER = 100.0
   EXTREME HIGH WATER 113-119
   TIDE LIMITED ONLY ONCE IN OVER 100 YEARS)
   MEAN HIGH WATER (APPROX) 110
   MEAN LOW WATER 100
   EXTREME LOW WATER 91.6
3. AREA:
   HARD LAND 633 ACRES
   WATER [illegible]
   TOTAL 120 07 "
   THIS AREA DOES NOT INCLUDE [illegible] OWNED BY THE U.S. N.A.
4. "LIMITING DEPTHS" ARE SHOWN BELOW M.L.W. (FOR COMPREHENSIVE HYDROGRAPHIC INFORMATION SEE P.W.D. DWG NO 404-300)
5. ONLY RAILROAD USEABLE PORTION OF RAILROAD TRACKS IS SHOWN. FOR COMPLETE TRACK SYSTEM LAYOUT, SEE P.W.D. DWG NO 473-290



plans were never carried out.

The South Boston Annex remained only partially deactivated in the 1960s, because Dry Docks Nos. 3 and 4 were needed for work on the most recently constructed destroyers, destroyers equipped with large sonar domes, and guided missile ships, such as Albany, for which Boston served as home yard. Until 1954, the Boston Naval Shipyard could dock any ship in the fleet. Then there appeared the first of the super carriers of the Forrestal class, which had dimensions exceeding the capacity of Dry Dock No. 3. Even some of the smaller post-World War II carriers could barely fit in the dock. In May 1966, No. 3 was used for the twenty-year-old carrier Franklin D. Roosevelt. The dock had a width at the sill of 133 feet, and the ship's width at the elevator rails measured 131 feet, six inches.[37] Thus the docking was accomplished with a mere nine inches of clearance on either side. Had the vessel listed, it probably could not have entered the dock. The point is that even Dry Dock No. 3 was beginning to show its age.

The Navy required administrators of its shipyards to maintain master plans for the future development of their activities. In the mid-1950s, there were plans for enlarging Dry Dock No. 3 to take Forrestal-class carriers. Subsequent master plans called for one or two entirely new docks. No. 6 was to be 693 feet in length, 140 in width, with a clear depth of forty-five feet over the sill at mean high water. It was to be built at the the main yard and at the east end of the waterfront. Those

37. Command History, Jan. 1 - Dec. 31, 1966, BNHP, RG 1, Series 11, p. 27.

plans also included replacing Piers Nos. 8 and 9 with new structures, so spaced as to allow room for the new dock between them. The Bureau of Ships rejected the proposal for Dry Dock No. 6 and also for No. 7, planned for South Boston in lieu of enlarging No. 3. Subsequent plans had a more modest character and included modernization and extending Dry Dock No. 1 and rebuilding No. 5. Realization of those projects had to await decisions as to whether the ship yard would be consolidated at Charlestown or South Boston and, indeed, whether the yard would continue at all.[38]

CIVILIAN EMPLOYEES: TRAINING, RIFS, UNION CONTRACTS

In June of 1956, slightly more than 10,000 civilians worked at the Boston Naval Shipyard. Except for temporary reversals in 1962 and 1967, the number of workers steadily declined, reaching 5,000 in the spring of 1973. Lower employment rolls were achieved through attrition and by reductions in force. Although the labor force contracted, there was increasing need for diverse highly specialized skills, resulting in an expansion of the shipyard's training programs. One such program addressed itself to the continued dearth of qualified engineers. Another important development in the area of civilian workers was the institution of a new policy concerning unions. Workers employed by the federal government received the right to select organizations to

38. Commander to Chief, Bureau of Ships, Jan. 2, 1958; Informal Turnover Memorandum, 1960; Chief, Bureau of Ships to Chief of Naval Operations, Sep. 4, 1958, 181-40, Box 63A0377, A1-2; Commander to Chief of Naval Operations (Shore Station Development Board), Dec. 12, 1958; Commander to Chief, Bureau of Ships (Attn. Code 770), Nov. 12, 1958; and Commander to Chief, Bureau of Ships, Mar. 14, 1958, all in 181-40, Box 63A0377, A1.

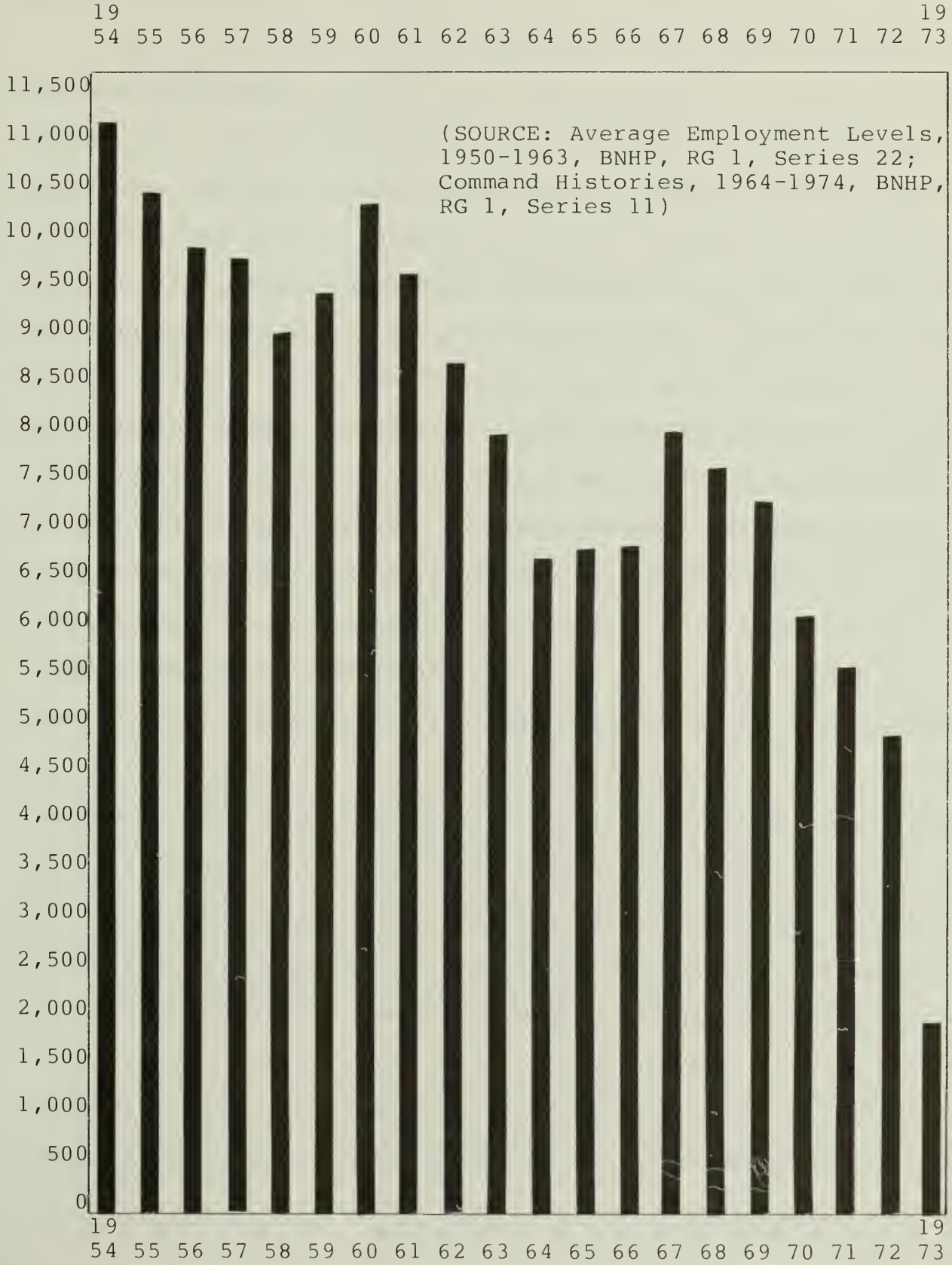
negotiate contracts, which primarily covered procedures in personnel policies.

The composition of the work force of the Boston Naval Shipyard changed slightly in the period 1956 to 1973. Consistent with federal policies instituted in the 1960s, the yard made efforts to recruit members of ethnic minorities and women, and by the end of the decade, 5.6 percent of the employees were in such groups. Veterans continued to constitute a significant proportion of the work force, being sixty-three percent in 1960. However, all workers received some rights formerly enjoyed only by veterans, such as the same procedures for appeal in cases of suspension. Reductions in force tended to increase the proportion of veterans and also of older workers. Other circumstances resulted in a relatively greater number of IV(b) or classified employees.[39]

Primarily for public relations purposes, the shipyard made an analysis of its work force in 1967. At that time the yard's 7250 civilian workers constituted fourteen percent of all federal employment in Massachusetts. The average age of employees was forty-eight, and nearly seventy percent had worked in the yard for more than fifteen years. Almost three-fourths of the workers lived within ten miles of the yard, and the same proportion commuted to work by private vehicle. More than 1600 of the yard's employees had received college-level educations, more than 3000 had attended technical schools above the high

39. Command History, Jan. 1 - Dec. 31, 1967, BNHP, RG 1, Series 11; Informal Turnover Memorandum, 1969, BNHP, RG 1, Series 5; Boston Naval Shipyard News, Aug. 31, 1962.

Table No. 24: TOTAL CIVILIAN EMPLOYEES, BOSTON NAVAL SHIPYARD, 1954-1973



school level, and more than 800 were graduate apprentices.[40]

During World War II, training programs had emerged as a significant undertaking at the Boston Naval Shipyard, essentially because of the necessity to equip new, inexperienced workers with basic competencies needed for the yard to fulfill its industrial mission. After the war, training continued to be an important activity, for somewhat different reasons. Advances in naval technology and in industrial management required highly specialized skills. This resulted in the yard's involvement in a great variety of training programs. In certain instances, the shipyard provided the instruction, either for members of its own population or for outside parties. In other cases, employees of the yard received instruction from educational institutions, other units of the Navy, or commercial firms which had developed or produced particular equipment in use at the yard or on ships.

A sample of off-yard training programs in the late 1950s suggests the great range of expertise required to service the postwar fleet. Twenty-three employees in 1956 were enrolled in engineering drawing courses at Northeastern University. During 1959, small groups of Boston Naval Shipyard employees participated in numerous training programs: at Sciaky Bros. Inc., Chicago, for instruction in the care and operation of the company's welding equipment; Colby College, occupational hearing loss; United States Naval Boiler and Turbine Laboratory, Philadelphia, automatic combustion control; Sangamo Electric Company, Springfield, Illinois, RDT modification to AN/SS-4 sonar

40. "Stockholders" Journal Data Sheet, Aug. 29, 1967, BNHP, RG 1, Series 11.

checkout; and General Precision Laboratory, Inc., Pleasantville, New York, AN/SXQ-2 high resolution television installation design.[41]

In the same period, 350 supervisors in the Production Department completed a course in the operation of production planning and control systems, conducted by the staff of Clark University, and top-level supervisors participated in a formal series of case studies in administrative practices under the direction of members of the faculty of the Graduate School of Business, Harvard University. In 1958 and 1959, instructional programs given by the yard included training in aluminum and high-pressure welding for Navy enlisted men and training of a cordage fiber inspector for the General Services Administration. Even the senior administrator pursued a program of instruction, the Navy paying the cost of study of Russian by Capt. F. L. Ruhland, shipyard commander.[42]

There continued to be difficulties in hiring sufficient numbers of qualified engineers, and in the late 1950s and early

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41. Correspondence concerning training programs in 1959 is collected in 181-40, Box 64A300, P-11 1/1. Among those documents are Commander to Director of Summer Session, MIT, Apr. 16, 1959; Commander to Chief, Bureau of Ships, Jun. 22 and 26, 1959; Commander to Director of Adult Education, Colby College, Jun. 4, 1959; Commander to Sciaky Bros. Inc., Apr. 24, 1959; Deputy Industrial Relations Officer to Commanding Officer, US Naval Boiler and Turbine Laboratory, Feb. 18, 1959; Chief, Bureau of Ships, High Resolution Television AN/SXQ-2 - Installation Design, Aug. 10, 1959; Chief, Bureau of Ships to Commander, Jan. 22, 1959.

42. Annual Report, Calendar Year 1956, BNHP, RG 1, Series 4; Commander to Regional Commissioner, Region I, General Services Administration, Oct. 2, 1959; Chief of Naval Personnel to Commander, Dec. 15, 1959; Commander to Commanding Officer, Blandy, Dec. 8, 1959, all in 181-40, Box 64A300, P-11 1/1.

1960s, it became practically impossible to recruit persons with degrees in naval architecture. To be sure, the yard increased its efforts to hire engineering graduates from the region's many colleges and universities. During those years, the yard's design work load far exceeded the available manpower, primarily owing to the cruiser conversion program. Because of the lack of qualified personnel at Boston and other naval shipyards, an increasingly large amount of design work had to be farmed out. Shortages also existed in other engineering and technical disciplines.[43]

Nineteen-fifty six saw the appearance of a cooperative training program, whereby competent graduating high school seniors embarked on a five-year work-study program administered by several colleges and universities and the Boston Naval Shipyard. The student-trainees pursued degree programs in engineering, chemistry, mathematics, metallurgy, or physics. If accepted by both the naval shipyard and the cooperating college, a young man or women began the program shortly after high school graduation, the first stage being full-time employment at the yard for a summer. Given the classification of GS-2, the student-trainees went on educational leave in the fall, when they were enrolled as freshmen in a cooperating college. They returned to the shipyard the following April and worked until August, before resuming classroom instruction. This alteration between the yard and college continued until the end of the fifth year. During that time, they were advanced in classification to the position of GS-4. Upon completion of the program, they received their

43. Boston Naval Shipyard, Annual Report, 1956, BNHP, RG 1, Series 4; Informal Turnover Memorandum, 1962.

degree and were appointed as engineers in the shipyard. Among the institutions participating in the program were Northeastern, University of Michigan, and Virginia Polytechnic.[44]

With respect to civilian employees at large, the most common problem for the Boston Naval Shipyard was not too few, but too many workers. Significant reductions in force occurred in 1957, 1959-1960, and 1964. A series of RIFs, beginning in 1970, preceded the closing of the yard four years later. Essentially, the Navy steadily cut back the number of civilian employees in its shore establishments. In 1972, for example, the service decided to reduce its employment around the world by 17,000. Each major command, such as the Naval Ships Systems Command, was assigned a specific ceiling or maximum number of employees, which was divided among subordinate echelons. The Boston Naval Shipyard received orders in February 1972 to reduce its employment level to 5317 by June 30, the end of the fiscal year. This meant a reduction of 418 workers. The yard administration calculated that normal attrition would result in the separation of approximately seventy workers and that 340 employees would have to be discharged as part of the RIF.[45]

When pursuing a reduction in force, the yard management decided on the specific positions to be eliminated, the list

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44. Deputy Industrial Relations Officer to Director of Guidance and Placement, Milford High School, Feb. 11, 1959; Deputy Industrial Relations Officer to Director of Admissions, Northeastern University, Jun. 12, 1959, and Aug. 10, 1959; Deputy Industrial Relations Officer to Director, Co-operative Program, Virginia Polytechnic Institute, Jun. 15, 1959; Commander to Chief, Bureau of Ships, Aug. 10, 1959, all in 181-40, Box 64A300, P-11 1/1.

45. Boston Naval Shipyard News, Mar. 3, 1972.

being published in the Boston Naval Shipyard News. Working from a Retention Register, the Industrial Relations Office sent notices to the particular individuals to be discharged. As in earlier RIFs, retention rights depended on the type of appointment, efficiency rating, status as veteran or nonveteran, and years of service in the yard. Provisions for "bumping" and "retreating" allowed a worker receiving a RIF notice to move to a lower position for which he was qualified and to displace another employee with fewer retention rights.[46]

The frequent reductions in force at the Boston Naval Shipyard affected the work force in many ways other than reducing its size. The average age of employees went up, as did the proportion of veterans. Doubtless, discharging large numbers adversely affected worker morale. One manifestation of this was the incidence of sick leave. In 1969, the shipyard commander noted that Boston was generally recognized as "a high sick leave yard," consistently being above the average of all yards. He attributed this to the New England weather, but also reported that the frequency of sick leave rose in periods of declining workload and employment. Management encouraged workers to retire early and indeed to seek work elsewhere. In September 1971, the yard newspaper reported 120 recently separated employees who had taken jobs with the Supervisor of Shipbuilding at the Shipbuilding Division of General Dynamics, Quincy.[47]

Employment at the Boston Naval Shipyard continued to be a

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46. Boston Naval Shipyard News, Mar. 17, 1972.

47. Informal Turnover Memorandum, 1969; Boston Naval Shipyard News, Jul. 23, 1971, and Sep. 3, 1971.

matter of interest to parties other than the yard management and its employees. As in the past, political figures displayed concern with various aspects of civilian employees. For example, in 1959, Senator John F. Kennedy made inquiries as to the possibility of an appointment for a brother of a constituent. On another occasion, he sought information concerning employment prospects at the yard in general. In the fall of the same year, the Charlestown Metal Trades Council sent a telegram to the senator, alleging that the yard was employing Navy prisoners in work which rightfully should have been performed by civilian employees. When Kennedy brought the matter to the attention of shipyard administrators, he was advised that the captain of Aucilla, in for repairs, had arranged for using Navy prisoners in some cleaning and chipping, work usually done by the ship's crew and not the yard work force.[48]

Unions communicated their grievances to other public figures as well as the future president. Congressman John W. McCormack continued his interest in the yard and relayed to the shipyard commander a protest arising from the Navy's contracting with General Electric for repair of ships' generators instead of using the yard's electrical shop. Another member of the House of Representatives, Silvio O. Conte, approached the Department of the Navy on behalf of a local of the International Hod Carriers, Building and Common Laborers, which had complaints regarding the

48. See Endorsement, Re ltr from Sen. Kennedy, 2/4/59, on behalf of A. Magdalene Grubert; Bureau of Ships to John F. Kennedy, Mar. 12, 1959, both in 181-40, Box 64A300, P-14; Bureau of Ships to the Hon. John F. Kennedy, Oct. 27, 1959, 181-40, Box 64A300, P-8.

wage levels for laborers in supervisory positions.[49]

Of course, labor organizations based on the shipyard or whose members included yard employees continued to approach management directly, without going through a political intermediary. For example, the Greater Boston Labor Council expressed its dismay on the occasion of a 500-man reduction in force in 1959, and the Sheet Metal Workers' local complained about the failure of the yard to maintain a register for the position of Planner and Estimator (Coppersmith).[50] In the 1960s, a new method was established whereby labor could communicate its concerns to the administrations of the nation's naval shipyards.

In 1961, the newly elected President Kennedy issued Executive Order 10988, which was designed to extend to government employees some of the collective bargaining rights enjoyed by workers in the private sector. The order and implementation of it by the Defense Department, Navy Department, and Bureau of Ships created three categories for employee groups in Navy shore establishments, enabled workers to decide the scope of their bargaining unit, and made provision for the selection of one employee group in each unit to negotiate with management.[51]

To be recognized by the government, an employee group had to

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49. Chief, Bureau of Ships to Hon. John W. McCormack, Jul. 30, 1959, 181-40, Box 64A300, P-8; Office of Industrial Relations Department of the Navy, to Hon. Silvio O. Conte, n.d. [1959], 181-40, Box 64A300, L16-1

50. Planning Officer to Sheet Metal Workers' International, Local No. 500, Mar. 13, 1959, 181-40, Box 64A300, P18-2.

51. Executive Order 10988, Employee-Management Cooperation in the Federal Service, Code of Federal Regulation, Title 3-The President; 1959-1963 Compilation (Washington: GPO, 1964), pp. 521-8.

acknowledge that it did not advocate the right to strike against or to overthrow the government of the United States and that it did not practice discrimination. Any group subscribing to these positions could receive "informal" recognition from management. Such recognition entitled the group to present to shipyard managers matters of concern to its members. To be granted "formal" recognition, an organization had to submit evidence that it "has a substantial and stable membership" of at least ten percent of the employees in a unit. Formal recognition entitled an organization to be consulted by management in the formulation of personnel policies. To be given "exclusive" recognition, an employee group had to provide evidence that it represented more than fifty percent of eligible employees. Exclusive recognition carried the right to negotiate contracts with management. If no organization could legitimately claim to speak for half of the workers in a unit, then any formally recognized group which demonstrated it represented at least thirty percent of the employees could seek exclusive recognition through an election.[52]

Prior to Executive Order 10988, there were forty-seven employee groups in the Boston Naval Shipyard which had official standing. Twenty were labor groups, most of which had affiliations with the AFL-CIO. The largest single group was an independent union, Machinists Local 634 of the International Association of Machinists. Local 634 and sixteen other labor organizations were federated as the Charlestown Metal Trades Council, which itself was a branch of the East Coast District

52. Executive Order 10988; Boston Naval Shipyard News, Jul. 20, 1962.

Metal Trades Council. The local council generally spoke for the employees of the yard and regularly met once a month with the shipyard commander. The regional organization was also active in representing shipyard workers. For example, in 1960, the East Coast District Metal Trades Council stated its opposition to the proposal by the Bureau of Ships to achieve greater efficiency in naval shipyards by organizing shops into groups.[53]

Among other important workers' groups in the Boston yard was Lodge 82 of the American Federation of Government Employees. That organization represented many of the office workers. In 1955, the shipyard commander had withdrawn official recognition of the Federal Employees Veterans Association. FEVA reorganized itself as the National Association of Government Employees, which in 1959 regained the official recognition lost four years earlier. NAGE conducted itself in a moderate fashion, and although active in the yard, it only had infrequent meetings with the shipyard commander. The Navy-sponsored employees organization, the shop committees and the Joint Council, represented only a small portion of the yard's work force.[54]

Implementation of Executive Order 10988 at the Boston Naval Shipyard required a decade of elections, adjudications, and arbitrations. A poll taken in the summer of 1962 by the Industrial Relations Office among existing employee groups was interpreted as indicating most workers favored having the entire

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53. Fact Sheet on Boston Naval Shipyard for Possible Use in Replying to Press Queries, Jun. 6, 1960, BNHP, RG 1 Series 11; Informal Turnover Memorandum, 1960.

54. Informal Turnover Memorandum, 1960.

shipyard declared the bargaining unit. As subsequent events demonstrated, that poll was somewhat misleading. However, the yard administration's recommendation of a single unit was accepted by the Bureau of Ships, which led to a contest to determine which employee group would obtain exclusive recognition. Fifteen organizations sought to become spokesman for yard workers, but the foremost contenders in the early 1960s were the Charlestown Metal Trades Council and the National Association of Government Employees. However, no group could establish that it represented more than fifty percent of the work force, and an election was scheduled for early 1963 to determine if exclusive recognition should be given to the Metal Trades Council or to NAGE or to neither.[55]

The election did not take place as scheduled. Professional employees voted to be excluded from the shipyard unit, and three other groups filed appeals challenging the decision to have the entire yard included in a single bargaining unit. The exclusive recognition election was postponed indefinitely, pending the outcome of those appeals. The Secretary of Labor appointed a Professor of Economics of Brown University as arbitrator to conduct hearings and render an advisory opinion to the Secretary of the Navy.[56]

Those appeals were sustained and additional groups received the right to be considered apart from the rest of the yard. A showdown unit election between the Charlestown Metal Trades

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55. Informal Turnover Memorandum, 1962; Boston Naval Shipyard News, Aug. 3, 1962; Nov. 23, 1962; and Dec. 21, 1962.

56. Boston Naval Shipyard News, Jan. 11, 1963, and Mar 1, 1963.

Council and NAGE occurred in 1964 to decide which would represent the yard's ungraded or blue-collar workers. In something of an upset, NAGE emerged the winner and became the exclusive spokesman for 5500 manual workers, the largest unit in the yard. However, by 1968 seven smaller units had been established, two of which were represented by NAGE and others by their own organizations. Lodge No. 82, American Federation of Government Employees, represented most graded or white-collar workers. Technical workers, pattern makers, firefighters, employees in Production Planning and Control, security guards, and ungraded supervisors had their own units. In 1969, the cafeteria workers were established as a ninth unit. The system underwent some modification, when President Richard Nixon issued new regulations and revoked Kennedy's executive order.[57]

The yard's management had to negotiate contracts with each of the nine bargaining units in the yard. That proved a lengthy process because of the number involved and also because of infighting among the labor groups. Particularly, NAGE sought to have Lodge 82, American Federation of Government Employees, decertified, a process which delayed negotiations with the graded employees. By 1969, management had worked out contracts with seven units.

Management maintained good relations with NAGE in the mid-1960s. The contract with the ungraded workers was one of the

57. Informal Turnover Memorandum, 1968; Informal Turnover Memorandum, 1969; Executive Order 11491, Labor-Management Relations in the Federal Service, Oct. 29, 1969, Code of Federal Regulations, Title 3-The President, 1966-1970 Compilation (Washington: GPO, 1971), pp. 861-75.

first to be negotiated. An election of NAGE officers in the fall of 1967 produced a new set of union leaders, who were both more militant and less informed than their predecessors. At the end of the decade, the shipyard commander, Rear Adm. R. C. Gooding, took note of "a slow and perceptible emergence among the larger unions of a more aggressive approach to matters traditionally accepted as fully within the sphere of management prerogative." His successor, Capt. R. W. Burk, found the national leadership of NAGE more reasonable and moderate than the local union. Kenneth Lyons, who as head of FEVA in the 1950s had been the Boston administrators' bete noir, had become national president of NAGE. Burk's method of dealing with intransigence on the part of NAGE's yard officers was to telephone Lyons, who would then persuade them to adopt a more flexible position.[58]

Contracts between federal agencies and unions composed of their employees appear as unique documents when compared with the agreements produced by bargaining between private employers and conventional labor organizations. This results from the fact that important elements, such as wages, salaries, and benefits, are not covered, being matters controlled by Congress and other parts of the government. The management of the Boston Naval Shipyard could not grant to its workers any concrete concessions not already authorized by a higher echelon in the government. Nor could existing wage schedules, salaries, and benefits be recited in a contract, since they could be changed by decisions reached

58. Informal Turnover Memorandum, 1968; Informal Turnover Memorandum, 1969; Oral History Interview, Rear. Adm. and Mrs. Burk, BNHP, p. 43.

in Washington. Agreements worked out by the Boston Naval Shipyard and its employee groups tended to focus on procedures. Also they contained numerous statements of a highly general nature, in which one or both parties promised to be cooperative or reasonable or to be vigorous in the pursuit of a common goal.

In the agreement signed by NAGE in July 1971 on behalf of the yard's blue-collar workers, the union formally recognized the broad authority of management to make rules and regulations; to direct the work of employees; to hire, promote, and transfer workers; to take disciplinary action against them, including suspension, demotion, and discharge; and to lay off employees because of lack of work or for other reasons. NAGE also acknowledged that all matters covered by the agreement were governed by existing and future laws and by regulations adopted by the federal government. Management agreed to consult with the union about personnel policies and practices and working conditions, which were within the discretion of commander. These included safety, training, employee services, methods of adjusting grievances, leave, promotion plans, and practices respecting demotion, pay, reductions in force, and hours of work.[59]

For every seventy-five unit members, NAGE received the right to appoint stewards, who generally would be employees in the shops they represented. A steward could use government time to consult with members of the unit within his shop, so long as

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59. Agreement Between Boston Naval Shipyard and National Association of Government Employees, Local R1-1, July 2, 1971. This document was published in Boston Naval Shipyard News, Sep. 17, 1971, and Oct. 1, 1971.

approval was obtained from the appropriate supervisors. Both parties agreed to seek resolution of differences at the lowest level. However, the longest article in the document was devoted to grievance procedures.

The shipyard and NAGE accepted the basic work week of eight hours a day and five days a week. Management agreed to consult in advance with the union about any changes in the basic schedule or in shift hours. Parts of the agreement covering overtime, holidays, annual leave, and sick leave confirmed existing regulations, without giving particulars of their contents, and dealt with the manner in which these matters were to be administered.

In the contract, NAGE secured the right to be consulted about personnel decisions and actions to be taken by the administration. It also obtained promises from management to administer personnel matters in a reasonable and fair fashion, providing employees and the union with ample notice and information.

For its part, the shipyard obtained NAGE's pledge of cooperation and support in furthering the efficient accomplishment of the mission of the yard. For example, NAGE agreed "to use its facilities to assist in vigorously promoting the need for conscientious and prudent use of sick leave benefits." In the contract's preamble, the two parties affirmed "that they will cooperate in all efforts to ensure a full day's work on the part of employees...; to improve the quality of workmanship; to encourage the submission of constructive work improvement and cost reduction ideas; [and] to vigorously promote

accident prevention ...." Probably, the preamble represents what the Navy hoped to gain through the formal introduction of unions and labor contracts into the shipyard.

The determination of wages and salaries was a matter not included in the agreements worked out by the shipyard and employee groups. Classified or white-collar employees received increases in earnings when promoted according to the system established by Congress. Also, occasionally Congress raised salaries of all classified employees.

Wage schedules for manual workers continued to be determined on the basis of data collected from private employers. Generally, full-scale wage surveys were conducted every two or three years. More frequent adjustments were made on the basis of so-called "wage change surveys." After Bethlehem Shipbuilding workers won an increase by virtue of a strike in 1960, the Navy Department made an adjustment, which raised the wages of Boston shipyard workers by approximately one percent.[60]

A full-scale wage survey for the Boston area was conducted by the Bureau of Labor Statistics and the Navy in August 1967. Representatives of the two agencies jointly visited private firms in the area, but each compiled data best suited for their own purposes. As had long been the practice, employees and employee groups had the right to recommend firms to be contacted. Also workers and recognized employee groups could appear before the Area Wage Committee. The data collected was forwarded to the Office of Civilian Manpower Management in Washington, and by

60. Informal Turnover Memorandum, 1960.

early November the new schedule went into effect. That provided for three wage steps for each rating. Boilermakers, chain makers, coopersmiths, flange turners, machinists, molders, shipfitters, and most other basic shipyard trades were assigned minimum, middle, and maximum hourly rates of $3.34, $3.48, and $3.62.[61]

Innovations occurring in the 1969 survey included the involvement of the Civil Service in an effort to eliminate pay differences among Boston-area government agencies for the same trade and labor. Also the shipyard Local Wage Survey Committee included representatives of unions with exclusive recognition for blue-collar employees. The survey originally scheduled for 1971 was deferred because of the ninety-day wage freeze imposed by President Nixon to combat the high rate of inflation. A new schedule for the yard went into effect in the following year, which provided a maximum rate for shipfitters, shipwrights, and several other trades of $4.59. This represents almost a twenty-five percent increase over the wages of 1967.[62]

At the end of the 1960s, the total annual civilian payroll of the Boston Naval Shipyard was approximately $65 million. The yard also expended locally each year $35 million for material and services. Thus, the yard had an annual impact on the regional economy of $100 million, not including expenditures by military personnel assigned to the yard. This represents the economic

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61. Boston Naval Shipyard News, Nov. 6, 1967; BOSNAVSHIPYD Notice 12531, Aug. 2, 1967, BNHP, RG 1, Series 10.

62. Informal Turnover Memorandum, 1969; Boston Naval Shipyard News, Sep. 17, 1969.

loss to the greater Boston area when the yard's industrial activities were terminated.[63]

INDUSTRIAL ACTIVITY: FINAL YEARS

The Boston Naval Shipyard continued as an active industrial facility, on a somewhat reduced scale, until the formal announcement of its closing in the early 1970s. In 1961 and 1962, it performed significant work on ninety-one and ninety-four ships respectively, and in 1970 and 1971 on fifty-seven and sixty-one. Ships arrived in the yard for regular overhauls; restricted, fitting-out, and post-shakedown availabilities; Military Assistance Program preparations; conversions; modernizations; inactivations; and commissionings.

In the second half of the 1950s, the Boston Naval Yard moved into a new age of warfare when it converted several conventionally armed vessels into guided missile ships. Major milestones in the progress of the yard were the conversions of the destroyer Gyatt, the light cruiser Providence, and the heavy cruiser Albany. The shipyard not only made the conversions, but performed the considerable design work required by these pioneering projects.

Conversion to missile ships involved much more than simply fixing launchers on existing decks. Arrangements had to be devised and installed for the proper storage of the weapons in special magazines, for moving the devices from the magazines to the launchers, and for reinforcing decks and providing them with protection to withstand the blast. Moreover, missiles required

63. Informal Turnover Memorandum, 1969, p. 47.

provision for complex guidance and computer systems.

Gyatt (DD-712) had originally been commissioned in July 1945. Of the Gearing class, the ship had a length of 390 feet and a displacement of 2425 tons. Between 1945 and 1951, Gyatt served with the Sixth Fleet. In September 1955, she entered the Boston Naval Shipyard, was decommissioned, and began conversion into the world's first guided missile destroyer. The destroyer's aft 5/38 guns were replaced with twin Terrier missile launchers. The Boston yard designed the special handling mechanisms to secure the missile to the booster charge and to transfer the entire assembly from stowage to launcher. Missiles were both more powerful and more sensitive than conventional weaponry, and Gyatt required air-conditioned missile magazines. To minimize and localize damage and injury in the event of a premature explosion, Boston designers produced a system of ducts and blowout plates. The ship's steel deck and aluminum superstructure had to be made capable of withstanding the high dynamic loads of missile firing, which produced temperatures in excess of 3000 degrees Fahrenheit.

Terrier, with which Gyatt was armed, was the Navy's first operational antiaircraft missile. A larger version of Tartar, this intermediate weapon was fifteen feet long, weighed more than one and a half tons, and had a range of twenty miles. Like the later Talos, it required the attachment of fins before launching.

In addition to its missiles, Gyatt acquired several other unique features during its conversion. The ship received a salt water washdown system as a countermeasure for an atomic blast. Boston yard workmen became familiar with the techniques for

working plastic piping, used in the washdown arrangement because of the easier installation and to reduce topside weight.

Gyatt represented another significant innovation, since she was the first ship to receive the Navy's Denny-Brown stabilization system. This consisted of two forty-five-square-foot retractable fins, which extended out from midships well below the water line. Installation of the fins required conversion of the midships oil tanks to machinery spaces. The stabilizers decreased the roll of the vessel to a maximum of three degrees.

Recommissioned in December 1956, Gyatt's designation was changed to DDG-712 and then, appropriately, to DDG-1. After leaving the Boston yard, the destroyer spent the next three years in intensive evaluation and development work along the Atlantic Coast, during which data was assembled for improvements in subsequent DDG conversions.

Providence was the first of three light cruisers converted by the Navy to launch guided missiles. The ship, orginally built in 1944 at the cost of $30 million, underwent conversion at the Boston yard between 1957 and 1960. The yard installed a Terrier launcher aft, and the cruiser retained its forward guns.

Of the three projects, conversion of Albany was the longest, largest, most expensive, and most important. Boston functioned as the lead design yard, six other heavy cruisers being converted at the same time by other facilities. The Bureau of Ships carefully monitored and coordinated the work on the cruisers, arranging for frequent conferences attended by representatives of the planning and production personnel of the various yards

involved and by engineers of the commercial firms producing the missiles and other equipment being installed. In these Production Progress Conferences, the Boston yard played a major role.[64]

Albany, commissioned in 1946 as CA-123, originally had nine eight-inch guns in three turrets, twelve five-inch guns in six double mounts, and numerous 40mm antiaircraft batteries. Within a few years, twenty quick-firing three-inch guns, developed late in World War II for use against kamikaze attacks, replaced the 40mm weapons. Albany, displacing 18000 tons, had been constructed at a cost of $40 million. The ship arrived at the Boston Naval Shipyard in 1958 to undergo conversion, which took four years and four months and the expenditure of $175 million. The yard's share of the cost was $40 million, the rest being for the missiles, electronic systems, and other new equipment.[65]

Recommissioned CG-10, the new Albany at first did not have a single gun. Subsequently, concern about attack by small surface

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64. For examples of correspondence and reports demonstrating Boston's role in the cruiser conversion program, see Commander to Commanding Officer and Director, U.S. Navy Shipbuilding Scheduling Activity, Jun. 13, 1958; Coordination Meeting, GMLS mk 12, Mar. 18, 1958; Supervisor of Shipbuilding, Quincy, to CO and Director, U.S. Navy Shipbuilding and Scheduling Activity, Jun. 12, 1958; GMLS MK 12 Mod O, Minutes of Meetings, Nov. 13 and 14, 1958, Cruiser Conversion, Quarterly Production Progress Conference Agenda, Apr. 7, 1959, all in 181-40, 63A0377, A19; General Electric to Boston Naval Shipyard, n.d. [1959], 181-40, Box 64A300 (1959), CGN/SHIP; Howard Macway, San Francisco Naval Shipyard, Trip Report of CG-10 Structural Conference at Boston Naval Shipyard, May 27, 1959; Commander, San Francisco Naval Shipyard, to Commander, Boston Naval Shipyard, May 28, 1959, both in 181-40, 64A300, CG-10.

65. This discussion of Albany is based on Hanson W. Baldwin, The New Navy (New York: E. P. Dutton, 1964), pp. 124-30.

craft, such as deployed by the Soviets, led to the installation of two 5/38 guns, one on each beam. Main armament consisted of twin Talos missile launchers forward and aft; twin Tartar missile launchers on either side; an ASROC launcher amidships, two triple torpedo tubes on each beam for launching Mark 43 or Mark 44 acoustic homing torpedoes; and two helicopters carrying homing torpedoes.

Below deck the ship remained much the same as when first constructed. A modern steam turbine propulsion system gave the vessel a top speed of thirty-two knots. Living spaces were altered, since the missile cruiser required a crew of roughly one thousand men, whereas 1,232 men had made up the complement prior to conversion. This reduction resulted from greater automation.

Above deck was a new ship, constructed largely of aluminum. In addition to the removal of the guns and the installation of the missile launchers, the most striking change in the appearance of the cruiser was a towering fore "mack," eight levels high, the distance between the water line and the top of the mast towers being almost 200 feet. Heavy aluminum "armor" was installed around the bridge and missile handling compartments as protection against splinters. Forward was what the crew came to call the "pizza tower," a squat structure supporting the Talos tracking and guidance radars. The surface of the tower was a rough textured insulation, like a pizza pie crust, required to maintain a constant temperature for the radar and electrical connections.

At the time of Albany's conversion, the Navy had three missiles for surface ships, Talos, Tartar, and Terrier. All three were antiaircraft weapons with varying ranges and guidance

systems, although each had a potential for use against surface targets, ships, or land installations. In different configurations, the three missiles appeared on many ships of the fleet.

Talos was the largest antiaircraft shipboard missile in service. With its booster or first stage, the thirty-three-foot missile weighed almost four tons. It had a range of sixty-five miles and could reach aircraft at high altitudes. Talos was controlled by a command guidance system, which included two powerful radars. From data provided by the radars, computers determined the point of interception, and commands were flashed to the missile in flight, altering its trajectory until close enough to the target for the homing guidance mechanism to function. Talos could carry either a conventional or atomic warhead.

Much of the challenge for the Design Division of the Boston Naval Shipyard in converting Albany was to work out systems for storing the Talos missiles and moving them to the launchers. Almost the entire system for handling the 8000 pound missiles was automated. Each missile, with its booster already connected, was attached to a metal tray and stowed in one of two magazines. The magazines were located below large deckhouses forward and aft, which were mating and check-out spaces. The two launchers were on the open deck forward and aft of the deckhouses. With the pushing of a button, the automatic loading cycle began. The magazine hatches opened, and two trays simultaneously moved up in the port and starboard sides, carrying the missiles to monorails. After releasing their burdens to the monorails, the trays returned to the magazine and the hatches closed. The missiles

were carried forward to the wing and fin assembly area, where twenty-four assemblymen, twelve for each missile, locked on wings and fins to the missiles and their boosters. This was the only stage in the loading or firing system requiring human hands other than button pushing. The heavy blast doors of the deckhouses then automatically opened, and the twin rail loaders transported the missiles to the launchers. When the missiles were locked on the launchers, the two loaders retracted back into the deckhouses, the blast doors closed, and the Talos missiles were ready to be fired.

Tartar, the other missile carried by Albany, was much smaller, being 1300 pounds, and its loading was even more automatic, since no human hands were required at any stage. The thirteen-foot-long missiles were stored vertically in circular magazines. From the magazines, the missiles were automatically carried to one of the twin launchers located on either side of the forward deck of the ship. Tartar required only one radar and was connected to the fire control system by an electrical umbilical cord. As the target was tracked by the radar, the missile received continuous orders from the computer. After launching, the cable disconnected and Tartar "looked" and locked onto its target, utilizing a homing system. The missile had a range of ten nautical miles. Cruisers other than Albany were equipped with Terrier, the intermediate-range missile.

Prior to the completion of Albany, the Boston Naval Shipyard worked on one of the other heavy cruisers then under conversion. Bethlehem Steel at Quincy had the contract for converting Springfield. In January 1960, when the conversion was ninety-

five percent complete, a strike at the plant threatened to prevent the ship from beginning its trials as scheduled by the Navy. After the strike dragged on into March, the Navy had Springfield towed to Boston for completion. That yard's Planning Department already had familiarity with Springfield, as lead design yard for the cruiser conversion program. Unlike the Albany conversion, the new Springfield retained a turret of six-inch guns and carried only Terrier missiles. The yard completed Springfield in time for her preliminary acceptance trials in July 1960.[66]

The Navy's shipwork in the postwar era required great activity by the Planning Departments of naval shipyards, respecting both design work and estimating, issuance of job orders, and other aspects of "planning" for work on particular ships. Moreover, quite frequently several yards, both commercial and government, were engaged in design and planning activities for the same vessel. This was particularly true for the cruiser conversion program. As lead design yard, Boston prepared working plans for the six cruisers.

A design work load analysis and forecast prepared in early 1959 revealed that almost half of the design work of the Boston Naval Shipyard for the month of February was farmed out to commercial firms. This apparently resulted from the shortage of design engineers and also from a desire in the government to

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66. New York Times, Feb. 6, 1960, p. 38; New York Times, Mar. 20, 1960; Supervisor of Shipbuilding and Naval Inspector of Ordnance, Quincy, to Commanding Officer and Director, U.S. Navy Shipbuilding Scheduling Activity, Jun. 12, 1958, 181-40, Box 63A0377, A19.

include private business in its industrial activities. At any rate, the Boston yard's own designers expended 245 man-days on design work in that month, and seven private design firms engaged in work for the yard totaling 237 man-days. One of the commercial firms was Washington Technological Associates of Rockville, Maryland. Later in the same year, the Navy indicated its dismay with the inability of the Rockville firm to meet production schedules. The Navy's review of the performance of the company "produced a pattern of slippages that is somewhat appalling." Complicating the situation was that fact that although Washington Technological Associates was under contract with the Boston Naval Shipyard, its work involved plans for Long Beach, under construction by Bethlehem Steel, Quincy. Because of the numerous parties involved, shipwork planning became increasingly complicated.[67]

In the early 1960s, the Navy introduced a major program of updating its older ships. Fleet Rehabilitation and Modernization (FRAM) aimed at extending a warship's useful life from five to eight years by stripping her down and rebuilding her with the latest machinery, weapons, and equipment. Consistent with its specialization, Boston performed FRAMs on destroyers. The Boston Naval Shipyard's first FRAM was prototype work in 1960 on the World War II destroyer Perry. Essentially, this amounted to a $10 million conversion to increase the vessel's ASW capability. A typical FRAM operation occurred in 1963, when the yard

67. Commander to Chief, Bureau of Ships, Mar. 20, 1959, 181-40, Box 64A300, P-16; Bureau of Ships to Julian Ray, Washington Technological Associates, Nov. 23, 1959, 181-40, Box 64A300, CGN/SHIP.

modernized Greene. Originally built in 1944 and 1945, the ship was converted to a destroyer picket in the early 1950s. The Boston yard performed a FRAM modernization in 1963, which reconverted the almost twenty-year-old vessel back to a destroyer.[68]

The entire superstructure and most of the machinery of Greene was removed before the vessel went into dry dock for a two-month stay. In the dock, the hull was sandblasted, repaired, and given two coats of hot plastic. Shaft bearings were repaired or replaced. In the meantime, new machinery was prepared and a superstructure prefabricated for installation in the ship. By the end of its FRAM, Greene also had received new weapons, such as ASROC and DASH. FRAM I modernizations took about eleven months, and FRAM II, somewhat less intensive, about seven. The FRAM II work performed by the yard on Hugh Purvis in 1960 cost $5 million and lasted from early March to mid-October.[69]

During its existence, the FRAM program provided considerable work for the Boston Naval Shipyard. In the second half of 1962, the yard performed FRAM modernizations simultaneously on seven destroyers, which constituted seventy-five percent of the yard's work load.[70]

In the mid-1960s, with the completion of major conversions

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68. Boston Naval Shipyard News, Aug. 17, 1962.

69. Boston Naval Shipyard News, Feb. 2, 1963. DASH stood for "drone antisubmarine helicopter." The remote controlled helicopter could hover and pursue, deliver torpedoes or nuclear depth charges to the vicinity of an enemy submarine, and return to the mother ship.

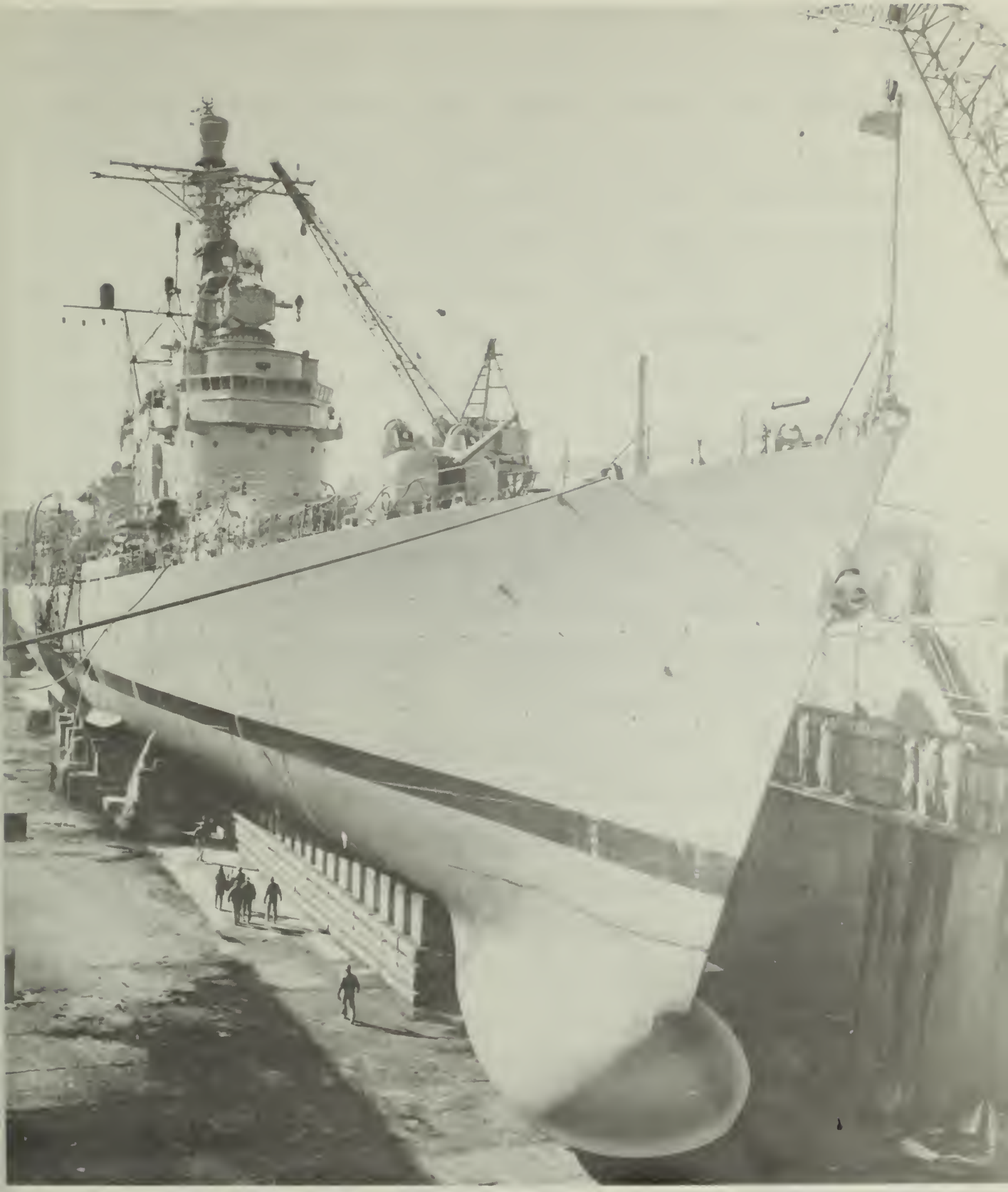
70. Boston Naval Shipyard News, Aug. 17, 1962.

and a decline in the number of FRAMs, the Boston Naval Shipyard's main ship work consisted of regular and interim overhauls and restricted, fitting-out, and post-shakedown availabilities, with an occasional conversion and modernization. Most of the warships coming to the yard were destroyer types or destroyer escorts, although the presence of larger ships was not uncommon.

Except for voyage repairs and technical availabilities, the most limited work by a yard on a ship was an interim availability. On such a basis, the destroyer Cassin Young spent three weeks at the Boston Naval Shipyard in November 1959. Work scheduled by the yard included a number of inspections, such as water boiler feed analysis; hull vibration survey; testing the integrity of watertight compartments; inspections of sonar, transducers, hydrophones, video scanning switches, hull, sea valves, outboard shafting, propellers, magnetic compasses, degaussing, and boiler tubes; and testing radial davits and fueling station padeyes. The yard performed such repairs as these and other inspections indicated. In addition, during the docking the hull was cleaned, the underwater body touched up, and the water line and boot-top area completely painted. Other work included tumbling and dipping the anchor chain, spray painting the chain locker, servicing the cruising turbine thrust bearing, and ordnance repairs. The estimate for Cassin Young's interim availability was $87,000.[71]

Regular overhauls of destroyers usually took three months, although frequently a longer period was needed. In the second

71. Commander to Commanding Officer, Cassin Young, Nov. 6, 1959, 181-40, Box 64A300, DD-793.



PHOTOGRAPH NO. 23: The destroyer leader Willis A Lee, in dry dock, Boston Naval Shipyard, 1966, for outfitting with a rubber dome for her SQS-26 sonar

half of 1968, for example, the overhauls of Ingraham, Keppler, and Moale included extensive boiler work, which required extending their availabilities. Conversions were the most time-consuming, the destroyers Davis and DuPont being assigned fourteen-month availabilities for changes into ASW ships. The conversion of these two vessels included installation of ASROC fire control systems and improved radar and communications, and extensive habitability modernization. In the 1960s, the Navy began to emphasize habitability or living comfort. New ships as well as those undergoing modernization, such as Davis and DuPont, were given crews' living spaces painted, not with the old flat whites or greens, but in colors and color combinations designed to promote greater restfulness and psychic relaxation. Improved habitability meant special attention to the colors of table tops and upholstery; wall decorations; libraries; air conditioning; ships' stores; and galleys.[72]

Although the Boston Naval Shipyard continued to specialize in work on destroyers, other types of ships were frequently in the yard. In early March 1963, the guided missile cruiser Boston received a regular overhaul at the yard of the same name. Work on the vessel during the overhaul included missile system check-out and collimation; installation of a ANSOS-30 three dimensional long-range air search radar; reinforcement of the main mast to support the exotic electronics equipment; renewal of about half of the teakwood decking; and rebricking and shock-hardening all boilers. Boston spent four weeks in Dry Dock No. 2, during which

72. Baldwin, p. 98.

her four propellers were removed, renewed, and replaced; two shafts were overhauled; sea valves repaired; and extensive rudder and hull work performed. The overhaul lasted three and a half months and cost $2 million.[73]

Albany returned to Boston in the summer of 1968 for a stay of approximately a year, during which modifications were made on her missile systems. For a period of three months, 850 men per day worked on the cruiser. Carriers at the yard included Franklin D. Roosevelt, Wasp, and Lexington. The overhaul of Lexington, beginning October 1969, required 900 men a day for seven days a week. Because of the Boston yard's reduced work force, it was necessary for administrators to negotiate "borrows" from other yards to acquire the manpower to complete Lexington as scheduled.

The Boston Naval Shipyard rendered outfitting services to newly constructed vessels and older ships after conversion or otherwise being reactivated. Particularly for the first of new types of ships, outfitting could be a lengthy and difficult procedure. Bath Iron Works constructed Dewey (DLG-14), the first ship built from the keel up as a guided missile vessel. The prototype of the Navy's largest class of destroyers, Dewey incorporated the latest advances in antisubmarine warfare. On December 7, 1959, the ship entered commission and was turned over to its commanding officer, Capt. Elmo R. Zumwalt, Jr., who later became a somewhat controversial Chief of Naval Operations.

Three weeks after the shipyard began outfitting Dewey, Zumwalt complained of the unsatisfactory progress. He charged

73. Boston Naval Shipyard News, Mar. 8, 1963, and Jun 14, 1963.

that poor coordination between the yard's Planning and Production Departments and the failure to put pressure on manufacturers and the design agents had resulted in needless delays. For example, the electronics shop undertook installation of the sound-powered telephones and cables. However, the plans for the system had not been obtained from Gibbs and Cox, design agents. The Planning Department insisted that the work could not start, although Production claimed it was possible to proceed without the plans. Prints were on hand for installation of the AN/SPS-T2a radar, but the Planning Department had not issued the proper papers. Planning claimed on December 17, it had completed the paper work for some electronics work on the open bridge, but Production reported not having received the documents as of ten days later. Zumwalt recited numerous other instances wherein the outfitting was being delayed because of the absence of the necessary estimates, plans, or work orders. Dewey finally completed her outfitting, and after the ship's initial cruise, she returned to the Boston Naval Shipyard in the spring of 1960 for a two-month post-shakedown availability.[74]

Although the fleet was becoming smaller, the Boston Naval Shipyard had a reasonable volume of ship work until 1972. In 1971, the yard performed twelve regular overhauls, eighteen restricted availabilities, eleven fitting-out availabilities, seven post-shakedown availabilities, and three inactivations.[75]

The shipyard continued to display a high level of competence

74. Commanding Officer, Dewey, to Commander, Dec. 28, 1959, 181-40, Box 64A300, DLG 14.

75. Shipyard Command History, 1 Jan. 1971-31 Dec. 1971.

in the designing and installation of new missile and electronic systems. Several innovations appeared in the yard's work on Trippe (DE-1075), which underwent a post-shakedown availability in the second half of 1971. During that availability, the yard installed the first Interim-Surface-to-Surface Missile (ISSM) aboard an operational ship of the Navy. This was accomplished by modifying an ASROC launcher to accomodate two STANDARD missiles. The installation required adding missile control and computational equipment to Trippe's existing command and control system, altering the power supply, and modifying the air conditioning. Trippe also received a surface missile defense system, consisting mainly of a Sparrow III missile, target acquisition and tracking equipment, and a launcher.

Another sophisticated installation was made on Joseph Hewes (DE-1078), which was fitted out and commissioned at the Boston yard in the spring of 1971. The yard equipped the ship with a TEAMS (Test, Evaluations, and Monitoring System), which provided for the automatic maintenance and testing of advanced electronics equipment, with practically no interruption in normal ship functions. This assured the early detection of marginal and deteriorated performance, thus assuring repairs before equipment became unusable.

Although the Navy did not announce the disestablishment of the Boston Naval Shipyard until April 1973, a decided decline in shipwork in the previous sixteen months indicated that the future of the yard was uncertain. During 1972, only three ships received overhauls. In addition, the yard installed an innovative controllable-pitch propeller system on Patterson. The

remainder of the 1972 shipwork consisted of several fitting-out availabilites, participation in the commissioning of four vessels, a post-shakedown availability, and repair of the caisson for Dry Dock 3. The caisson repairs were made in Dry Dock No. 2 and lasted for two months. That the yard's work load permitted having two dry docks tied up for a substantial period indicates the decline in activity.

In 1973, the last year it functioned as an industrial facility, the yard worked on fourteen ships, including four overhauls, one fitting out, and three commissionings. During its entire career, the Boston Naval Shipyard had been the site for the commissioning of approximately 500 ships. The final commissioning ceremony occurred on August 3, when Kalamazoo, a replenishment oiler, was placed in service. Shortly thereafter, the yard contained only two ships, Constitution, undergoing a long overhaul, and Talbot (DEG 4), Boston's last active customer.

Constructed by Bath Iron Works, Talbot made her initial appearance at Boston in April 1967 to be commissioned and fitted out. At that time, she was equipped with a new, long-range sonar; antisubmarine rockets; DASH; modern torpedoes; a three-dimensional radar; and a Tartar surface-to-air missile system. Talbot returned to Boston in 1970 for a regular overhaul. The ship's final visit to the yard began in February 1973 and consisted of an extensive overhaul. That included a six-month stay in Dry Dock No. 4 at South Boston, where she was fitted with a new custom-made sonar dome. The major part of the overhaul involved removing the original boilers and replacing them with the latest pressure-fired equipment. The yard also converted

PHOTOGRAPH NO. 24: USS Constitution approaching Dry Dock No. 1, Boston Naval Shipyard, April 17, 1973, in early stage of an extensive overhaul.

the Tartar missile system from analog to digital computers and provided the ship with a LAMPS manned helicopter system. That installation included building a landing deck on the after-deck, complete with lights, landing nets, and a retractable hanger. In September, the ship was moved from South Boston to Pier No. 5 at Charlestown for the completion of the overhaul. Talbot departed the yard on December 14.[76]

At approximately the same time, the forge shop was completing its last job, the manufacture of a four-and-one-half-inch dielock anchor chain for the new carrier Eisenhower, then under construction at the Newport News Shipbuilding and Drydock Company.[77] When Talbot sailed off to join the fleet and the forge finished the Eisenhower cable, the Boston Naval Shipyard terminated its 174 years of industrial activity.

THE CLOSING OF THE YARD

An institution as old as the United States Navy itself, which it served for one and three-quarter centuries, the Boston Naval Shipyard deserves to remembered as an active, ongoing enterprise. Nevertheless, an account of the background for its closing in 1973 is important in itself and also provides a useful insight into the conditions in the yard and its relationship to the defense establishment.

Although the closing scares of the post-World War II period

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76. Boston Naval Shipyard News, Sep. 14, 1973, and Nov. 22, 1973.

77. Boston Naval Shipyard Command History for Calendar Year 1973, Mar. 1, 1974, BNHP, RG 1, Series 11.

contained a more momentous quality because of the numbers of people who would be adversely affected, talk of shutting down the Boston Naval Shipyard represented no novelty. The yard came perilously near deactivation in the 1880s, and in the following decade, bills were occasionally suggested or proposed to accomplish its demise. The appearance of the New Navy and the activity of the yard in the Spanish-American War argued strongly against, but did not end, proposals to close the facility. Prior to World War I, Pensacola concluded its career as a navy industrial activity. The possibility of a general cut-back in Navy shore installations in the 1920s became a reality with the shutting down of the yard at New Orleans. Fears of other closings lingered into the early years of the Great Depression, and a concrete proposal to deactivate the Boston Navy Yard emerged from a White House conference in October 1931. Not until the nation embarked on a definite program of fleet expansion were fears for the future of the Boston facility laid to rest.

Upon the conclusion of World War II, many military installations across the country came to an end, but there appeared no threat to well-established activities such as the Boston Naval Shipyard. The late 1940s saw reductions in employment at Boston by approximately one thousand workers, but Long Beach lost 5400 out of 5900 workers, which all but ended that facility as an industrial activity, at least temporarily. The conclusion is warranted that at several times prior to the 1950s, the Boston Naval Shipyard was confronted with a likelihood, in some instances not well-founded, that its days might be numbered.

Since the late nineteenth century, various naval, political,

fiscal, and ideological developments produced interest in eliminating one or more of the nation´s navy yards. Contraction of the fleet appears as the most important consideration. The reduction in the number of ships in active commission after the Civil War brought an official termination of the Boston yard as a repair facility. Similarly, the naval disarmanent treaty of 1922 fed suspicions that the fleet might shrink to a point which would make some yards superfluous.

During the Gilded Age, partisan politics played a role in the fate of navy yards, as parties out of power regarded them essentially as engines for patronage, operating on behalf of incumbents. The political arguments were often joined with the contention that navy yards were inefficient and constituted unnecessary drains on the national treasury. Generally, navy yards could count on local groups and interests to defend them against proposals they be terminated. However, in the early twentieth century, one Boston-area newspaper argued that the yard hindered development of Boston Harbor and that sale of the yard would promote the region´s prosperity.

At least since the appearance of the New Navy at the end of the nineteenth century, navy yards have been in competition with commercial shipbuilders. Until the 1950s, that competition existed almost exclusively respecting new construction, since the Navy´s policy was to have all repair work done in its own facilities and to divide its new construction between government yards and private contractors. During emergency situations, such as World War I and World War II, as seen in the history of the Boston yard, repairs and conversions were contracted out by the

yards themselves to private firms. But no intense rivalry then existed because of the abundance of work. However, after the Second World War, during which the federal government had encouraged expansion of the private shipbuilding sector, a shortage of work for commercial yards developed. The argument was advanced that national authorities had a responsibility for contributing to the health of an important segment of the economy and that the Navy should provide more work for the private sector.

That argument underscores an unusual aspect of the Navy´s industrial activities and one which, in some eyes, constituted an ideological defect. American ideas respecting free enterprise uphold the desirability of the government´s utilizing private companies to meet its industrial needs, including material provision for the military services. Generally, corporations manufacture the planes, tanks, and most of the other items required by the nation´s land, air, and sea forces. Especially after World War II, many regarded the government´s involvement in industrial work as an unfair, unhealthy, and undesirable form of competiton with private enterprise. Since its inception, the Navy maintained its own yards for repair of its ships, perhaps the most sizeable industrial activity of any part of the federal government and the most conspicuous violation of the principle of private enterprise. That this argument had an impact on the Boston Naval Shipyard is evident in the assault made on the ropewalk in the 1950s. That assault resulted in the curtailment of cordage manufacturing on a production basis. The change came as a result of congressional criticism of a government industrial

activity manufacturing a product available from commercial sources. Henceforth, the Navy obtained its cordage from private ropemakers.

Indeed, the Navy began to contract with private yards for ship repair work as well as new construction. Those private interests more vigorously advanced an old argument, that the government's yards were inefficient and that the same work could be accomplished by commercial firms at a lower cost. For example, in 1960, the Atlantic and Gulf Coast Drydock Association, which represented fourteen private yards, published a report that concluded that ship repairs at navy yards cost taxpayers thirty-three percent more than the expenses incurred by utilizing private yards. The high costs at naval shipyards allegedly resulted from excessively large employment rolls, which lacked "any relationship" to work loads. Moreover, the report claimed that private yards did not receive a fair share of the Navy's repairs and conversions. In 1959, the Navy allocated five times as much ship repair work, in terms of dollars, to its own yards as assigned to private yards.[78]

Support for the position of the private shipyards appeared in the remarks of a naval inspector in the spring of 1963, who said that the civilian employees of the Portsmouth Naval Shipyard "just won't work." This caused a storm of protest among the Portsmouth workers and the congressional delegations from Maine and New Hampshire. A year later, the Secretary of Defense tried to smooth the troubled waters by publically stating that the high

78. New York Times, Dec. 20, 1960, p. 48.

costs at the Portsmouth yard did not result from "the attitude of the employees or lack of skill of the workers."[79]

Congress responded to the pleas of the private shipbuilding industry by stipulating in the Defense Appropriation Act of 1963 that thirty-five percent of the Navy's repair work be done in commercial yards. By 1967, the share of the Navy's repairs, alterations, and conversions assigned to commercial firms had risen to 43.6 percent. In that year, such firms handled 99.7 percent of all new construction, giving commercial companies a total of 78.1 percent of all of the Navy's shipwork.[80]

One element, then, in the post-World War II pressures to reduce the number of naval shipyards was the desire to provide a larger share of shipwork to private yards. Several other considerations also contributed to the trend toward fewer government yards.

Without denying that the Navy Department had always been cost conscious, it can be argued that a somewhat greater emphasis followed the 1947 merger of the military services into a common Department of Defense. Thereafter, Army, Navy, and Air Force were funded by the same annual appropriation. Pressure increased on the heads of any one service to make the most of the monies allocated to them. That type thinking is evident in the study made by the Navy Department in 1955, which called on naval shipyards to explain why they should not be closed and why more

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79. New York Times, Apr. 18, 1964, p. 12.

80. Annual Report of the Secretary of the Navy, July 1, 1962, to June 30, 1963 (Washington: GPO, 1963), p. 232; Annual Report of the Secretary of the Navy, Jul. 1, 1966 to Jun. 30, 1967 (Washington: GPO, 1967), p. 343.

work should not be given to private yards.

In the early 1960s, a number of bills were proposed in Congress to terminate some naval shipyards. Perhaps that threat as well as the increasing cost of the military establishment led the Defense Department to conduct a study in 1964 of its installations, with an eye to eliminating the least necessary ones. Secretary of Defense Robert McNamara made hurried visits to naval shipyards, including one to Boston and Portsmouth on April 17. During his trip, McNamara stated that preliminary studies indicated that the combined capacity of government and private yards exceeded the nation's need for ship construction and that costs were higher in naval shipyards than in private yards. He also revealed that closing one of the Navy's eleven yards was under consideration. During the previous seventy years, Secretaries of the Navy had occasionally made similar comments. Especially, they had emphasized that the East Coast had too many navy yards. Particularly when a reduction occurred in the number of ships in active service and when funds were restricted, questions arose about maintaining yards at Portsmouth, Boston, New York, Philadelphia, Norfolk, and Charleston.[81]

The announcement by the Department of Defense in the spring of 1964 of its study to determine which military bases would be closed created apprehension among workers at installations likely to be affected. The Boston Naval Shipyard's unit of the National Association of Government Employees directed a public campaign to exert pressure on the Department of Defense to keep its facility

81. New York Times, Apr. 18, 1964, p. 12.

open. NAGE's campaign included organizing a "Retain the Boston Shipyard Committee" and running an advertizing supplement in a Boston newspaper. Active in the campaign was Kenneth T. Lyons, national president of NAGE, who explained the threat to the yard in terms of the successful lobbying in Congress by private shipbuilding interests.[82]

On November 19, 1964, the Department of Defense made known its decision about cloture of military bases. Eighty closings would occur across the United States, in what was regarded as the most sweeping elimination of defense installations since the end of World War II. Among the casualties were the historic Springfield Armory, a number of Army and Air Force bases, and the New York Naval Shipyard. Portsmouth was to be phased out over a ten-year period, and the Mare Island and San Francisco yards combined.[83]

Respecting naval shipyards, the Department of Defense had followed the recomendations in a Pentagon report, "Study of Naval Requirements for Shipyard Capacity." The study identified five yards as "hard core" or indispensable facilities and thus not eligible for closing. They were Norfolk, Charleston, Puget Sound, Long Beach, and Pearl Harbor, and their "hard-core" classification resulted from the number of ships based upon them, the diversity of their capability, and their function in important fleet operations, such as the Polaris Support Complex. The study also held the essential needs of the Navy could be

82. Boston Sunday Globe, Nov. 1, 1964, and December 6, 1964, BNHP, RG 1, Series 12.

83. New York Times, Nov. 20, 1964, pp. 1, 26.

served by maintaining four naval shipyards on the Atlantic Coast. Since Charleston and Norfolk enjoyed "hard-core" status, two of the four remaining East Coast yards would be closed and two continued. Portsmouth, Boston, New York, and Philadelphia were thus considered for elimination. Philadelphia was retained because of the range of its capability and because it had the largest and most efficient layout. Portsmouth, the nation's smallest yard, with the most limited capability and the most inefficient layout, was the most obvious candidate for closing. In a sense, a decision then had to be made whether to terminate Boston or New York.[84]

The Pentagon report noted that of the two yards, Boston was the least efficient in terms of layout and general facilities, except for its surface missile overhaul capability. On the other hand, Boston's operational advantages included its proximity to the large concentration of active ships homeported in the Boston and Newport-Quonset area. Moreover, the savings to be obtained by closing Boston would not be as great as by closing the larger yard at New York. The report concluded that of the non-"hard-core" East Coast yards, Philadelphia appeared as the best yard to retain, and Portsmouth and New York as the best yards to close.

Thus, in the 1964 round of closings, Boston was spared. However, the yard stood as the most likely candidate in the event of a future move to reduce the Navy's industrial establishments, especially if improvements were not made in the yard's layout, general facilities, and overall capabilities. Also, any reduction

84. Excerpts from a summary of the report appear in New York Times, Nov. 20, 1964, p. 26.

in ships homeported in Massachusetts and Rhode Island would jeopardize the position of the yard.

Consistent with a recommendation in the Pentagon report on naval shipyards, the Navy awarded a contract to Kaiser Engineers of Oakland, California, to prepare a five-year modernization program for each of the remaining yards. In that connection, a study was made of the Boston Naval Shipyard in 1966. A preliminary Kaiser report pointed to two alternatives for the future of the facility, modernization of the Charlestown site or relocating the entire shipyard, except the ropewalk and Constitution, to the South Boston Annex, which would be expanded and enlarged by the acquisition of the adjacent Army Supply Base property.[85]

The cost of modernization of the main yard was set at almost $89 million, not including $7.4 million for major alterations in Dry Dock No. 5. Relocation to South Boston and building there practically an entirely new shipyard was estimated as requiring $179 million, later revised upward to almost $200 million. In its final report, completed in 1968, Kaiser recommended consolidation at South Boston, a program accepted by the Navy and the Department of Defense.

Moving the entire shipyard to South Boston appeared to have numerous advantages. Even if modernized, the Charlestown site would still be congested because of the restricted acreage. In fact that congestion would increase as a result of the need to provide more adequate dry-docking facilities. In addition to

85. Informal Turnover Memorandum, 1969.

rebuilding Dry Dock No. 5, plans called for construction of an entirely new dock on the site of Dry Dock No. 1. Consideration was also given to another new dock, to be located in the eastern half of the waterfront. If constructed, both of these docks would require valuable space at their landward ends. Moreover, economic efficiency would be impeded by the continued necessity to perform some work at the annex.

In its existing state, the South Boston Annex already had ample space, and the addition of fifty moré acres by inclusion of the Army Supply Base would afford room for two or three new dry docks, new piers, and completely new buildings. Unlimited anchorage gave the South Boston site a further advantage over the main yard. It was estimated that it would take ten years to complete the yard at South Boston, during which time, the mission of the Boston Naval Shipyard would have to be fulfilled by utilizing existing facilities, generally acknowledged as inadequate.

The 1964 round of military base closings had triggered an evaluation by the Navy of its remaining shipyards. With respect to the the Boston yard, the conclusion had been reached that a substantial expenditure was required to produce a modern facility. No active steps were taken to implement the decision to develop a single yard at South Boston. Approval was obtained to transfer to the Navy the Boston Army Supply base. However, the transfer, scheduled to be effective on July 1, 1970, was never implemented. Three buildings at the base had been leased to the Massachusetts Port Authority, which in turn had subleased the structures to other parties. Loss of the lease would thus result

in loss of revenues for the MPA. This does not appear as a major hindrance and simply called for negotiation of compensation. Moreover, termination of the lease was planned for June 30, 1973. The fact remains, however, that the process of moving the Boston Naval Shipyard to South Boston was never initiated. In the meantime, since it was slated to be abandoned, no improvements were made in the Charlestown site. This left the yard in an increasingly antiquated state and even more vulnerable in any subsequent move by the Defense Department to eliminate military bases. Such a move seemed required because of the costs of the protracted war in Vietnam.[86]

The continued contraction of the fleet suggested that one or more naval shipyards would be included in any further retrenchment programs instituted by the Pentagon. Secretary McNamara cancelled plans for new ship construction to obtain the funds to prosecute the war in Southeast Asia, leaving the Navy without any adequate program of ship replenishment. President Nixon's Guam Doctrine of July 1969 pointed to a smaller fleet, which quickly became a reality when he ordered the decommissioning of one hundred ships in the following month. In 1963, the United States had 917 major ships, in 1972 there were 447, and in 1978, only 289.[87] Another trend evident in the Nixon years resulted from the administration's "southern strategy," which was evident in the partiality toward the

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86. Command History, Jan. 1 - Dec. 31, 1968; Command History, Jan. 1 - Dec. 31, 1970, both in BNHP, RG 1, Series 11.

87. Paul B. Ryan, First Line of Defense: The U.S. Navy Since 1945 (Stanford., Cali.: Hoover Institution Press, 1981), p. 73; New York Times, Apr. 22, 1973, Pt. IV, p. 3.

southern states, whose military bases enlarged while those particularly in the northeast were reduced or terminated. For example, the Charleston Naval Shipyard experienced remarkable growth.

That the Boston Naval Shipyard might be nearing an end became manifest in the closing of certain activities at that yard. Since 1955, the ropewalk had existed on borrowed time, and it was finally shut down in 1971. That facility was not central to the operations of the rest of the yard. The foundry constituted another matter, and the shipyard commander held that no navy yard "dealing basically with repair work and faced with tight completion dates should be without a Foundry." Nevertheless, the Navy ordered the closing of the Boston yard foundry in September 1971, as part of a scheme to consolidate foundry work. Philadelphia was to become the foundry center for the East Coast and Puget Sound for the West Coast.[88]

Another round of base closings occurred in 1973, and early in that year, the Defense Department gave preliminary indications that 100,000 civilian jobs soon would be eliminated. Those reductions in installations and personnel became necessary when the administration promised Congress that the Department of Defense would absorb $1.5 billion in budget cuts during fiscal year 1973. The Pentagon announced in April 1973 that almost forty major bases would be terminated during the next fiscal year and that personnel at more than 200 additional ones would be significantly reduced. Of the nation's various sections, New

88. Informal Turnover Memorandum, 1969, pp. 142-3; Boston Naval Shipyard News, Aug. 20, 1971.

England suffered more than any other from the economy move, and of the states in that section, Massachusetts was the biggest loser. To be closed were the Strategic Air Force Base at Westover, Otis Air Force Base on Cape Cod, and the Boston Naval Shipyard. The termination of the shipyard was related to another loss for New England. In 1964, a reason for retaining the Boston Naval Shipyard had been the large number of ships based on Boston and on the Newport-Quonset area. That reasoning no longer operated in 1973 because of the decision to transfer the cruiser-destroyer force from Newport to Norfolk.[89]

An informal review of the closing of the Boston Naval Shipyard is provided in an interview in 1979 given by Adm. Raymond Burk, who was the next-to-last commander of the shipyard and who served from October 1969 to August 1972. At the time he received his assignment to the yard, Burk was pleased to be made a shipyard commander. However, he "was not at all that thrilled about Boston," since he "never thought of Boston as being a particularly up-and-coming shipyard" and since "it had some reputations that were not particularly attractive." After assuming command, Burk changed his views. Ultimately, he took great pride in the yard and contended:

> We had very fine performance in the Shipyard, in terms of completing ships on time. And our costs were reasonable. And we gained a reputation among the Fleet Commanders that Boston was a darn good place to send your ship.

At the time of the closing, no one contradicted Burk's general appraisal of the yard and attributed the cloture to poor

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89. New York Times, Jan. 3, 1973, p. 26; Apr. 14, 1973, pp. 1, 16; and Apr. 17, 1973, pp. 1, 12.

performance.[90]

During his tenure as commander, Burk had no indications that the yard would actually be closed, although the yard did experience a "calculated reduction, a very deliberate reduction" in the number of its employees. This Burk attributed to the decreased size of the fleet, resulting from the decommissioning of older ships "in the interest of economy" and the decision to modernize vessels rather than build new ones. The former shipyard commander also noted that assignment of ships to Vietnam contributed to the reduction of repair work at the continental yards.

Because of the decline of activity at naval shipyards, "they began to talk about the fact that the ten shipyards we had were too many" and about "closing a shipyard or two." According to Burk, in such discussions, "Boston was inevitably talked about as a candidate." The candidacy of Boston in part was attributed to its limited capability and its "not being one of those capable of repairing nuclear ships." Burk assigned little weight to the unique capabilities Boston did possess, such as the production of anchor chain for aircraft carriers. The forge engaged in that activity because it was shunned by commercial chain makers. "Private industry was delighted to let the Navy make that very high cost item...." In reference to a somewhat different matter, Burk made another important point concerning the closing, when he emphasized the subordinate role of the yard in the overall defense establishment. He stated that "the only reason for the

90. Oral History Interview, Adm. and Mrs. Burk. For Burk's discussion of the closing, see pp. 20, 21, 25, 44, 63, 64.

shipyard's existence is to serve the floating Navy."

> A lot of people get kind of blinded by the fact that the Navy is all ashore. Well, that is not it. The only part of the Navy that does the business is that that floats and flies.

As a support facility, any shipyard was in a position to be sacrificed to promote the well-being of the fighting Navy.

In addition to considerations of the Boston yard's capability, the decision for cloture was "based on politics." Admiral Burk noted the advantages and disadvantages of the Philadelphia shipyard, next to Boston, the most likely candidate for closing in 1973. On the one hand, Philadelphia was a "fine shipyard, a lot of capability, big dry docks and capability for building ships...." On the other, it was one hundred miles from the sea. However, Philadelphia

> was unacceptable for closure, because of the political considerations. Mr. Nixon was President, you see. And Philadelphia was a stronghold, his political strength. Whereas Boston, all of New England, had repudiated him and as a matter of fact, the only state that McGovern carried, I guess, was Massachusetts. So these things come into play. I'm not saying that they were the total determining factor, but you had to offer a yard that would sell politically. So, Boston was offered....

Although able objectively to comprehend the various forces that led to the end of the Boston Naval Shipyard, Burk also understood other dimensions of the decision and observed: "It was a terrible thing to have it phased out."

Burk was relieved in 1972 as shipyard commander by Capt. Russell B. Arthur. Rumors continued to circulate in the yard prior to the official announcement on April 16, 1973, but apparently not even Captain Arthur, had been forewarned by the Navy. The explanation for the yard's closing given to employees

was the necessity to reduce shore establishments so that funds could be utilized for the fleet. The cloture schedule called for the end of all industrial operations by December 31, 1973, and of all other operations by July 1974.[91]

Massachusetts congressmen and senators protested the termination of the yard and the other military facilities in the state, and the National Association of Government Employees went to court and obtained a ten-day restraining order against implementation of the closings. However, the Pentagon's decision prevailed.[92]

Many employees of the Boston Naval Shipyard responded to the closing with anger, directed chiefly at political officeholders. One mechanic claimed: "It's a malicious vengeful act on the part of the Nixon Administration -- it's a political vendetta." Several years later, another recalled the reaction in the yard:

> ...Everybody got down in the dumps and they started to talk about Nixon letting us down, O'Neill letting us down, Kennedy letting us down, and they seemed to think that because Massachusetts voted for McGovern that Nixon took it out on us....They all ran out on us.

The criticism of members of the Massachusetts delegation to Washington may have resulted from their restrained response to the closings generally. The New York Times conjectured that the "relatively muted" reaction could have been a consequence of the timing. "Around income tax time, no prudent politician wants to appear to be opposing economies in the defense budget." The newspaper also suggested that perhaps political figures were

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91. News Extra, Boston Naval Shipyard News, Apr. 17, 1973, BNHP, RG 1, Series 7, Closing File.

92. New York Times, Jun. 13, 1973, p. 13.

learning that military closings were "not necessarily devastating economic blows to local communities."[93]

The communities adjacent to the Boston Naval Shipyard may have been partially prepared for announcement of its closing. The Navy's plans to relinquish the Charlestown site and move all operations to South Boston had been made known to local authorities. Consideration of the impact of that move and planning for the future of the Charlestown yard had been undertaken by the Massachusetts Port Authority, Boston Redevelopment Authority, Metropolitan District Commission, Massachusetts Department of Commerce and Development, Metropolitan Planning Council, and the Eastern Massachusetts Regional Planning Project. By 1971, if not before, both local and federal agencies, particularly the Boston Redevelopment Authority and the National Park Service had prepared plans for the development of the older portion of the Charlestown yard as a historic park. This was consistent with the designation in 1967 of the Boston Naval Shipyard as a national historic landmark.[94]

That local and state government authorities had plans for the Charlestown site may have produced acquiescence in the termination of the entire shipyard and reduced the political pressures to resist the closing. That the plans for a park were

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93. New York Times, Apr. 22, 1973, Pt. IV, p. 3, and Apr. 23, 1973, p. 21; Oral History Interview, John Langan, pp. 28-9.

94. Command History, 1970; Boston Redevelopment Authority, Planning Department, "Charlestown Naval Shipyard Re-Use Study, Report III, Historic Park Proposal" (rev. Aug. 1971); Office of Environmental Planning and Design, Eastern Service Center, National Park Service, "Proposed Boston National Historic Sites, Boston, Massachusetts" (Dec 1971). Copies of both documents are in the office of the Park Historian, BNHP.

realized was small solace to 5200 men and women employed at the yard. The closing saddened even former workers who had left the yard years, and even decades, before. A retired shipfitter said of the closing that "it was just... like I was losing a friend." He further stated: "The best thing is to make it a showplace for all the people of the country to come here and show them where the Navy Yard was." Another old-timer described the yard as his "lifeblood." He saw "its beautiful record of, not only loyalty to the Navy, but the things that they produced to protect the American flag...."[95]

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95. Oral History Interviews, John Langan, Barbara Tuttle Green, Albert Mostone.

APPENDIX

A GUIDE TO BUILDING USAGE AT BOSTON NAVY YARD, 1890-1973

The following list provides information about each of the buildings, other than those used exclusely for quarters, at the Charlestown site of the Boston Navy Yard during the years 1890 to 1973. Although extracted from a large number of diverse documents, the information is far from complete. The intention is to indicate in capsule form the function of the structures during the general periods during which each existed. When known, the dates of original construction and of removal are given.

No. 1. Built 1867. Y&D masons' shed for storage of lime, sand, cement, 1890-1915; unoccupied, 1916-1918; officers' garage, 1920-1945; officer's garage, yard police, 1946; garage, 1951; garage, gatehouse, 1963-1973.

No. 3. Built 1840. Storehouse, 1890-1905; eliminated 1906.

No. 4. Built 1827. C&R storehouse, 1890-1909; PW workshop, iron foundry, 1911; PW storage, 1912; Labor Board, 1918-1925; vacant, 1934; angle shop, 1935; Naval Reserves, 1937; Labor Board, 1940; yard police, 1946; CPO Club, 1963; Constitution office, CPO Club, visitors' toilet, 1973.

No. 5. Built 1813. Old Navy Stores, 1890; paymaster's office, dispensary, Labor Board office, museum, apothecary, surgeon's private office, apothecary's quarters, guardroom, sailors' waiting room, 1890s; pay office, Labor Board, dispensary, court martial room, naval museum, lyceum, watchroom, hospital steward's quarters, 1902; pay office, Labor Board, dental officer, Navy museum, captain of watch, etc., 1906; pay office, storeroom for officers'luggage, band room, office of boatswain in charge of coaling plant, PW quarterman laborer's office and storehouse, Labor Board, chaplain, museum, court martial room, storage of officers' furniture, janitor's office, denistry, marine's storeroom, sleeping quarters for wireless operator, vacant storage, 1912; Labor Board, Receiving Ship office, commissary stores; court martial room, chaplain's office, 1916; offices of First Naval District, chaplain, museum, library, pay office, commissary stores, 1920; chaplain, commissary stores, band room, marine rifle range, 1936; classroom, ASW officers' mess, BOQ, 1946; BOQ, officers' club and mess, 1963; BOQ, officers' mess, closed and open, 1973.

No. 6. Fire apparatus, 1890; Y&D paint shop, Y&D carpenters' office; Labor Board, 1900.

No. 7. Coal shed, eliminated late 1880s.

No. 9. Furnace, 1890.

No. 10. Built 1852. Pitch house, 1890; C&R paint shop, 1900-1908; GSK storehouse, 1908-1911; storehouse, wireless station, 1911; Inspection Depart., wireless room, washrooms for coaling plant workers, 1912; radio station, quarters for radio operators, office of boatswain in charge of coaling plant, 1916; radio operators' quarters, 1918; laundry, 1920-1946; sonar repair facility 1947-1958; battery charging facility, 1958-1960s; battery charging facility, ship repair space (inactive), 1967-1973.

No. 12. Pitch boiling house, 1890-1897.

No. 16. Built 1868. C&R foundry and storage of machinery, 1890; C&R foundry, 1890-1908; GSK storage 1908; eliminated c. 1910.

No. 19. Built 1873. Yard Scale House/weighing facility, 1890-1973.

No. 20. Barn (commandant's), 1890-1920s. Eliminated late 1920s.

No. 21. Built 1840. Watch house 1890; commandant's storehouse, 1902; commandant's watch house, 1906; commandant's barn, 1911; greenhouse and quarters for commandant's servants, 1912; greenhouse, 1916-1960s; carriage house, 1963-1973.

No. 22. Built 1832, 1840, 1856. Dry dock engine house, 1890; C&R machine shop, pumphouse, 1902; electrical repair shop, C&R testing and inspection room, 1905; C&R machine shop and pumphouse 1906; GSK, 1909; electrical storehouse, riggers & laborers, 1911; Hull Division laborers and laborers' locker room; GSK electrical storehouse; storage for fire brick; unused pumpwell for DD No. 1; office of foreman of laborers and riggers loft, tool room, rigging loft, 1912; PW shops, 1916; PW laborers and mechanics, storage, 1920; storage, 1934; new shipwork, substation, 1946; shipwrights and Production loft, substation, 1951; docking office, woodworking and sheet metal shops, substation, 1963; disaster control space, woodworking shop, substation, industrial hygiene lab, 1967-73.

No. 23. Built 1840. Chapel, 1890; steam box and galvanizing plant, 1902; lunch room, 1906; washrooms for crews of ships in dry dock, 1908; water closets, 1909-1940; eliminated early 1940s.

No. 24. Built 1847. C&R carpenter shop, 1890; rigging loft, naval constructor's office, 1890s; fire, Jan. 15, 1900; C&R offices, carpenters' shop, 1906; fire, Sep. 25, 1910; not is use, partially burned, temporary drill room for marines; rebuilt 1914-1916; riggers and laborers, radio offices, 1916; riggers and laborers loft, 1921-1934; riggers and laborers, new work office, 1934; riggers loft, 1946-1951; riggers loft, offices, and crews' head, 1963; riggers and laborers' shop, docking office, marine railway operations space, public toilet, cafeteria space, 1967-1973.

No. 25. Cart shed, 1890-1897; removed 1897.

No. 28. Built 1850, 1860. C&R tinners and plumbers' shop, 1890; half of first floor used for dynamo room of electric light plant, 1895; entire building used for electric light plant, 1897; old electric light plant, 1906; yard employees' club and lunch room, 1909; restaurant, 1912-46; shipyard

printing shop, 1951; Reference Standards Lab and Methods and Standards Branch, Industrial Hygiene Lab, 1963; Reference Standards Lab, Quality Reliability and Assurance, 1973.

No. 29. Commandant´s office, 1890-1895; demolished 1895.

No. 30. USMC officer of the day´s quarters, 1890-1906.

No. 31. Built 1852, 1857. Muster house, 1890; muster house, captain of the yard´s office, civil engineer´s office, 1892; telephone exchange established 1897; offices of captain of the yard and civil engineer, telephone exchange, 1902; offices of captain of the yard, Board of Inspection, telephone exchange, chemical lab, 1906; telephone exchange, offices of captain of the yard and captain of the watch, chemical lab, chemist´s office and stores, 1912; transportation office, telephone central, chemical lab, captain of the watch, 1916-1918; captain of the watch, telephone exchange, 1920; telephone exchange, 1934; telephone exchange and Red Cross office, 1940; telephone exchange, industrial medicine, 1946; telephone exchange, telephone cable room, hearing clinic, 1963; telephone exchange, telephone cable room, hearing clinic, clock tower, 1967-1973.

No. 32. Built 1857. Shell house, 1890; commandant´s office 1892-1912; commandant´s office, records and stationery storage, 1912; yard pay and disbursing office, 1916-1940; safety engineer, compensation, safety shoe store, credit union, 1946; shipyard credit union and employees´ recreation center, 1952; bank, credit union, 1963-1973.

No. 33. Built 1850. Sail loft, 1890-1900; sail loft, storehouse, inspectors´ office, 1902; sail loft, storehouse, 1904-1911; storehouse for provisions, sail loft, storehouse for sails, clothes, and canvas, 1912; sail loft and general storehouse, 1916-1920. Public Works offices; joiner, plumbers´, and roofing shops; laborers; storage for furniture and old building materials; Production Division sail loft, upholstery shops, storage, 1934. Public Works shops, 1935; receiving ship barracks, 1937; receiving ship barracks, Marine Reserves, mold loft, 1940; Frazier Barracks, receiving station, barber and tailor shops, 1946; Frazier Barracks, mess hall, galley, barber and tailor shops, berthing, 1953; Frazier Barracks, general mess, tailor shop, 1963; enlisted men´s barracks with mess, 1967; enlisted men´s barracks with mess, enlisted men´s lounge, tailor shop, 1973.

No. 33A. Enlisted men´s dispensary; pre-commissioning detail, 1946.

No. 34. Built 1837. Storehouse, 1890; storehouse, chaplain´s office, telegraph tripod, 1890s; storehouse, chaplain, carpenters´ office, 1902; GSK storage of acids, cooperage, empty containers; GSK shipping room and stores assembled for ships; GSK storage of furniture; GSK storage of quartermaster supplies; GSK storage of galley outfits, crucibles, glass, 1912; general stores, 1916-1919; officer of the day, transportation office, post office, trade school, storehouse, chemical lab, 1920; officer of the day, transportation office, post office, storehouse, chemical lab, photo lab, 1921;

restaurant, 1925; post office, photo and materials lab, metallurgical lab, trade school, storage, 1934; post office, labs, 1937-1940; storehouse, post office, photo and materials labs, greeting center, 1946; blueprint and reproduction rooms, photo lab, chemical and metallurgical labs, 1963-1973.

No. 36. Built 1866. Joiner shop, boiler house, 1890s; joiner and block shop, engine and boiler house, 1902; joiner shop and pattern shop, 1907; joiner shop, 1908-1911; block shop and planing mill, joiner shop, upholstery, paint and cabinet shops, storeroom for furniture for quarters, 1912; joiner, cabinet, shipsmith, block, upholsterers´ shops, mold loft; storage, Naval reserves, 1934; storage for new ship materials, mold loft, 1937-1940; template storage, cafeteria, sail loft, substation, 1946; cafeteria, sail loft, substaion, 1951; cafeteria, Industrial Relations services, sail loft, pattern shop, Navy enlisted men´s berthing, 1963; cafeteria, shoe store, sail loft, enlisted men´s barracks, 1967; cafeteria, shoe store, sail loft, MTS & Standards, plant equipment and facility, enlisted men´s barracks.

No. 36A. Electric substation, 1953-1973.

No. 37. Shed for returned stores, 1890. Removed 1890.

No. 38. Built 1854. Storehouse; prison, 1890-1912; prison unoccupied, 1916; storehouse, chapel, prison, 1920; Ingram (EM) Club, prison (unused), 1934; Ingram Club and yard garage, 1937; PW drafting room, Ingram Club, motion picture theatre, yard garage, 1940; Ingram Club, chaplain, repair garage, ships´ services, movie hall, 1946; Ingram Club, chaplain, ships´ services, movie hall, library, bowling alley, barber shop, repair garage, 1963; library, chaplain, theatre, bowling alley, Navy exchange, barber shop, repair garage, 1967; library, chapain, theatre, bowling alley, Navy exchange, enlisted men´s club, 1973.

No. 38A. Storehouse, 1917.

No. 39. Built 1866. Ordnance stores, offices; Equipment foundry, offices; Y&D workshops, 1890s. Equipment machine shop, offices; Ordnance storage, offices, Y&D workshops, office of Inspection Board, 1902. Equipment offices, machine shop; Ordnance offices, shops, 1906. Ordnance maintenance shop, Equipmenmt machine shop, Equipment machine and woodworking shop, Equipment foundry, Equipment power plant, 1909. Accounting Depart.; Inspection office; Hull Division office; drafting room, 1911. GSK storeroom, offices; Ordnance stores; Hull Division offices; Inspection Depart.; armory; commandant´s office; office of captain of the yard, 1912. Central offices, GSK stores, 1914-1918; central offices (commandant, captain of yard, GSK, Inspection, Accounting, Hull & Machinery Divisions), armory, locker room, metallurgical lab, 1920; central offices (commandant, First Naval District, captain of yard, manager, Accounting, Engineer, Production, PW), Coast Guard, general court martial, Labor Board, 1934; offices, shipyard commander, Planning Officer, Administrative Officer, Ordnance Officer, Industrial Engineering Officer, Fiscal Officer, radio station, communications office, bond office, substation, 1946; shipyard commander, Planning, Production, Administrative, Comptroller, Manager, Indman offices, 1963-1973.

No. 40. Equipment heavy hammer house (rolling mill), forge shop, anchor shop, galley shop, 1890s; anchor, chain shops, rolling mill, 1911, mold loft floor, plate storage, bending slap, angle smithery, 1914; angle shop, laying-out floor, bending slab, mold loft, 1920; angle shop, mold loft, 1934; Temporary Service Shop, toilet and locker room, central tool room, 1946; Central Tool and Temporary Service Shop, locker room, 1963; Material Control Center, Temporary Service, locker room, 1973.

No. 41. Equipment store shed, 1890; blew down, Mar. 17, 1896.

No. 42. Built 1857. S/E machine shop, foundry, smithery, copper shop, brass foundry, pattern shop, offices; Equipment chain shop, 1890s. S/E offices, machine shop, foundry, boiler shop, pattern shop; C&R brass and copper forge; Equipment chain forge, 1902; S/E offices, shops, forge, old Equipment chain shop, 1906. 42-A, machine shop, heavy machine tools, pump and valve testing shop, storage of misc. shop materials, stock room, ordnance storage; 42-B, machine shop; 42-C, iron and brass foundries; 42-D, boiler and blacksmith shops, electric substation; 42-E, boiler abd blacksmith shops, storage for boiler plate material, machine shop for tools, pattern shop, storage for patterns; 42-F, copper and pipe shops, 1912. 42-A, machine shop; 42-B, machine shop; 42-C, foundry; 42-D, copper shop; 42-E, pattern shop; 42-F, testing and pipe shop, 1916-1918. 42-A, machine and erecting shops; 42-B, machine shop, office, instrument room; 42-C, steel and iron foundry; 42-E, pattern shop and storage, toilet and locker rooms, brass foundry, torpedo testing plant, 1920. 42-A, machine and erecting shops; 42-B, machine shop, offices, instrument room; 42-C, steel and iron foundry; 42-D, pattern shop and pattern storage, toilet; 42-E, locker rooms, brass foundry, torpedo testing rooms, 1934. 42-A, general machine shop, industrial x-ray; 42-B, machine shop office, instrument room; 42-C, foundry, electric substation, 42-E, pattern shop and pattern storage, toilet and locker rooms, brass foundry, 1946. 42-A, inside machine shop, toolmaker; 42-B, machine shop offices, instrument room; 42-C, foundry, pattern shop, substation, vibration and sound lab, ships´ office space, 1946. Inside machine shop, toolmakers´ office, foundry, pattern shop, non-destructive test facilities, substation, ships´ office space, vibration and sound lab, 1973.

No. 43. Built 1856. S/E boiler house, coal shed, 1890s; powerhouse for No. 42, 1909; old powerhouse for No. 42, storage, 1912; washrooms and lockers, 1914-1918.

No. 44. Built 1866. Shed, 1890s; Y&D inspection office, 1902; Y&D storage, 1906; master machinist afloat, 1909; Machinery Division, office for machinist afloat, 1912; abandoned for government puproses, assembly room for Spanish War veterans, 1912-1914; Machinery Division, machinist afloat, 1916-1918; Machinery Division, temporary storage for parts of ships under repair, 1920.

No. 45. Shed, 1890s; recommended for removal, 1897.

No. 46. Shed, 1890s; recommended for removal, 1897.

No. 47. Built 1863. Heavy shell house, 1890s; formerly used as Ordnance magazine, 1902; PW, boatswain´s office, 1911; PW waterfront office for

assistant to captain of yard, 1912-1918; assistant captain of yard, progressmen's office, 1920; office of assistant to captain of yard, 1933; waterfront office, mess hall, galley, ladies' rest room, 1940.

No. 48. Built 1863. Magazine, 1890s; Ordnance magazine and saluting battery, 1902-1918; captain of yard, storage of old material, 1920; removed late 1920s or early 1930s.

No. 49. Shed for battery guns, 1890s; saluting shed, 1911-1916; storage for rigging and waterfront material, 1918; captain of yard, boatswain's locker, 1920; removed late 1920s or early 1930s.

No. 52. Boiler House, 1890s.

No. 56. Built 1866. Barn, 1890s; destroyed, 1902.

No. 57. Shed for transporting wheels for guns; destroyed, 1890.

No. 58. No. 58. Built 1836. Ropewalk, 1890-1946; ropewalk, Industrial Relations Officer, Labor Board, 1946; ropewalk, Industrial Relations and Training Officer, 1953; ropewalk, Industrial Relations offices, apprentice school, storage, 1963; rope manufacturing, Industrial Relations offices, academic and general instruction building, fire station cart house, storage, 1973.

No. 59. Tar pit store shed, 1890.

No. 60. Built 1838. Tarring house for ropewalk, 1890-1963; storage, inactive area, 1973.

No. 61. Old wooden structure, torn down, 1890.

No. 62. Built 1837. Hemp house, 1890s; Equipment, storing and packing hemp, 1902; Hull Division and S&A, hemp house and rope storage, 1911; Hull, storage for oils, storage for hemp and cordage, hemp cleaning, 1912; hemp house, 1916; ropemaking, 1918-1919; ropewalk, storage for hemp and rope, 1920; ropewalk extension, storage for hemp and rope, 1934-1953; ropewalk extension, test lab, 1963; rope manufacturing facility, test lab, 1973.

No. 63. Built 1848. Timber shed, 1890s; S&A, Y&D timber shed, storage for iron, lumber, etc. 1902; timber shed, 1906; iron storehouse, 1911; fire, Mar. 1913; storehouse for iron and steel, 1914-1916; office and rest room, storage, 1918; removed 1918.

No. 64. Built 1848. Timber shed, 1890-1911; GSK, storehouse for timber and stores, survey room for condemned stores, 1912; totally destroyed by fire, 1916.

No. 65. Shed, torn down 1890.

No. 66. Timber bending shop, 1890; iron platters' shop, 1893; damaged by fire, 1899; C&R iron platters' shop, 1902; demolished, 1903.

No. 67. Built 1868. C&R sawmill, shed, 1890s; C&R boiler house, sawmill, 1902; most of building demolished, 1906; remainder renumbered 130.

No. 68. Built 1825. Shiphouse, 1890s; Equipment, C&R, storage, 1902; demolished, 1906.

No. 71. Built 1820. Shiphouse, 1890-1906, demolished 1906.

No. 73. Shiphouse, 1890s.

No. 75. Built 1848. Timber shed, 1890s; C&R, S&A, boat shop, timber shed, 1902; S&A timber shed, 1904; temporary use by C&R to store articles of ships out of commission, 1906; S&A timber shed, 1911; GSK storehouse for lumber and office of timber storeman, 1912; GSK/Supply timber/lumber storehouse, 1914-1940; Supply Department pipe and bar storage, 1946; Supply Department storehouse, 1963; Supply Department general warehouse (ready issue), 1973.

No. 76. Built 1849. Timber shed, 1890-1940.

No. 77. Built 1848. Mold loft and boat shop storage, 1890s; C&R boiler and engine house, boat shop, 1902-1904; Hull Division boat shop, 1911; boat shop, mold loft, GSK storage, 1912; converted to boat storage, 1914; storage for small boats and equipment, 1916-1937; storehouse for small boats and equipment, hemp storage, 1940; officers´ garages, 1946-1963; garages, PW paint storage, 1973.

No. 78. Equipment coal shed, 1890-1906; PW shed, 1911; PW wagon shed, 1912-1918; Hull Division boat materials storage, 1920; PW, officers´ garages, 1934-1937; unused garage, 1939.

No. 79. Built 1852. Wire rope mill, 1890-1918; manufacture of wire rope discontinued at Boston yard, 1918. Boat shop annex, office, washrooms, locker room, braiding room, 1918; Supply Department storage, 1934; ordnance storehouse, 1937; hemp and ordnance storage, 1940; apprentice school, 1946-1951; material storage and control center, 1963; package store, Production storage, 1973.

No. 80. Built 1866. C&R furnace for mast hoops, 1890-1902; C&R kiln furnace, 1906-1911; unused, 1912; old brick oven, 1914.

No. 81. Wood shed for lower quarters, torn down 1890.

No. 82. Shed, 1890.

No. 83. Old wooden structure (shed), torn down 1890.

No. 84. Built 1869. Watch (guard) house, lower quarters, 1890s. USMC guardhouse, 1902-1906.

No. 85. Built 1825. Mast house, spar shop, 1890s; July 18, 1900, destroyed by fire.

No. 86. Old wooden structure (steam chest), torn down 1890.

No. 87. Timber dock, 1890s.

No. 88. Shed (boiler building), 1890.

No. 89. Shed, 1890; recommended to be torn down, 1897.

No. 92. Shiphouse, 1890; demolished 1894.

No. 94. C&R carpenter shop, boat house, 1902; C&R storehouse for dry dock timbers, 1906.

No. 95. Built 1899. Temporary electric light power station, 1902-1908; abandoned as power station, 1908.

No. 96. Built 1899. Equipment powerhouse for ropewalk, 1899-1908; closed as power plant, 1908; not in use, storage of old machinery for shipment to other yards, 1912; fire, 1916; hemp storage, 1916-1918; fire, Oct. 7, 1919; Supply Department storehouse, 1920; Supply Department storehouse, 1934; hemp storage, 1939; Supply Department storehouse, substation, 1946-1951; Supply Department, storage, 1963; PW fork lift and pump repair building, 1973.

No. 97. Built 1903. Gate and Entrance House, 1903; gate and entrance house, stowage of dry dock gear, 1909; guard and detention room, gatehouse, main yard entrance, guards´ sleeping quarters, 1912; gatehouse, 1920; gatehouse, yard police, 1934; main gatehouse, 1946-1951

No. 98. Oil tank set in ground, 1902.

No. 99. Built 1899. Equipment oil tank, 1902.

No. 100. Built 1900. C&R ship keepers and foreman´s office and lockers, 1902; C&R foreman´s office, laborers´ shed; 1904-1906; Hull Division Planning Office, 1911; Hull Division office and tool storage for dock foreman; vacated and torn down 1913.

No. 101. Built 1900. C&R Timber drying kiln, 1900-1909; Hull Division timber kiln, 1911; Hull Division millwrights´ and belt repair shop, 1912; millwrights´ shop, 1916-1920; Production Department storage, 1934-1937; tool room for outside machinists, 1940.

No. 102. Built 1900. C&R oil tank.

No. 103. Constructed 1903-1904. Equipment chain and anchor storage. Chain and anchor storage, storage workshop, Equipment rigging loft, 1905; chain and anchor storage, electrical shop, 1909; Machinery Division, S&A, electrical shop, chain assembly and storage shed, 1911; GSK storage of chain and anchors, Machinery electrical shop, offices, storage, storage of machinery and piping removed from ships under repair, 1912; electrical shop and chain storage, 1914-1917; electrical shop, 1920; pipe shop, 1929; pipe and electrical shops, radio lab, 1934-1937; sheet metal and electrical shops, 1938-1940; sheet metal and pipe coverers´ shops, 1946; sheet metal shop, 1963-1973.

No. 104. Built 1903-1904. Shipfitters´ shop, 1904-1912; shipfitters´ shop, sheet metal shop, 1912-1918; shipfitters´, plumbers´ and sheet metal shops, 1920; structural shop and sheet metal shop, 1934-1938; strutural shop (sheet metal moved to No. 103), 1938; structural shop, mold loft, substation, 1946; shipfitters´ annex, mold loft, 1949-1973.

No. 105. Built 1904-1905. C&R smithery and power plant, 1905-1912; chain shop moved from No. 40 to No. 105, 1913; blacksmiths´ shop, 1916-1918; shipsmiths and chain shop, 1918; smithery and chain shop, 1920; smithery and locomotive and crane roundhouse, 1934-1946; forge shop, roundhouse, 1963; forge shop, railroad equipment maintenance, 1973.

No. 106. Built 1904. Metal workers´ shop, central tool room, galvanizing plant, 1904; metal workers´ shop, ordnance shop, C&R machine shop, storage, 1909; Hull Division, S&A, storage, metal workers´ shop, office of master shipfitter outside, 1911; galvanizing, nickel-plating, plumbing shops, tools, storerooms, iron plate storage, Hull Division storage, 1912; boiler shop, galvanizing and plating shops, GSK storage for iron stores, boiler tubes, ordnance, 1914; galvanizing shop, boiler shop and storehouse, 1916-1918; boiler and copper shops, galvanizing and plating shops, 1920; new ship construction, 1934; shipfitters´ shop, 1937-1940; boiler shop, substation, storehouse for steel bars, 1946; diesinkers´ shop, boiler shop, 1963; diesinkers´ shop, boiler shop, substation, storage, 1973.

No. 107. Built 1904. Y&D offices and shops, 1904-1909; PW offices, GSK storage, 1909-1911; GSK receiving rooms, storerooms, Y&D offices, 1912-1918; Supply Department ordnance storage, Plant Department electrical, plumbers, pipefitting groups, 1921; Supply storehouse, PW printing office, 1934; PW shops, 1937-1940; PW building trades shop, printing office, battery charging station, 1946; PW building trades shop, 1951-1963; PW paint shop, 1973.

No. 108. Built 1904. Y&D power and boiler house, 1904-6; Central Power Plant, 1911-1973.

No. 109. Built 1903-1904. Equipment, coal pocket, 1904-1910; S&A, coal storage, 1911-1920; PW substation, 1934-1940; PW substation, waterfront office, 1946; waterfront office, substation, 1963-1973.

No. 110. Built 1901. C&R, Hull Division, pitch house, 1902-1934; storehouse, 1937-1940; Production Department soddering house for riggers´ loft, 1946; paint and storage locker, 1951; Production lead room, Shop 72, 1963; Production lead room, Shop 72, 1973.

No. 111. Built 1901. Y&D, locomotive house, 1902-1911; PW storehouse, hand carts, barrows, tools, 1912; repair shop for railroad rolling stock, 1914.

No. 112. Built 1900. Equipment, iron and steel storage shed, 1902; misc. storage, 1914.

No. 113. Built 1901. C&R carpenter, repair shop, storehouse, 1902-1906; C&R millwrights´ lobby and belt shop, 1909; Hull Division millwrights´ shop, 1911; Hull Division, not in use, 1912; storehouse for power house materials, 1914-1920.

No. 114. Built 1903-1904. C&R sawmill and spar shop, 1904-1907; sawmill, spar and shipwrights´ shops, 1909; spar makers´ shop, sawmill, GSK boat storage, 1912; sawmill, spar and boat shops, 1914-1920; sawmill, joiner and boat shops, 1934-1940; sawmill, woodworking, boat and spar shops, 1946; woodworking shop, substation, 1963-1973.

No. 115. Built 1899. Equipment electrical testing lab, 1902-1909; Machinery testing lab, 1911-1912; Machinery planning office for Pier No. 6, 1914-1918; Hull Division tool house, 1920.

No. 116. USMC guard house, 1902-1903.

No. 117. Built 1902. Y&D stable, 1902-1906; PW stable and carriage house, 1911; PW stable, carriage house, motor truck house, 1912; stable, 1916-1918; PW garage, stable, carriage house, 1920; PW, officer´s garage, 1934; storehouse and pipe covering shop, 1937-1940.

No. 118. Built 1901. S/E, water closets, 1902-1906; PW, water closets, 1911-1912; latrine, 1916-1918.

No. 119. Built 1902. S/E latrine, 1902-1906; PW, water closets, 1911-1912; latrine, not in use, 1914; latrine, 1916-1918.

No. 120. Built 1905. Dispensary, 1905-1911; dispensary, surgeon´s office, pharmacist´s quarters, 1912; dispensary, dental office, 1914-1918; dispensary, pharmacist´s quarters, 1920; dispensary, 1934-1940; dispensary, dentist´s office, 1946; dispensary, 1953; dispensary, dental clinic, office, 1963; dispensary, dental clinic, ambulance, 1973.

No. 121. Built 1902. Equipment, underground oil tanks, 1902-1909; Machinery, oil tanks, 1911; Machinery, gasoline and benzine storage tanks, 1912; storage tank for fuel oil, 1916-1918.

No. 122. Built 1902. USMC rifle range, 1902-1925.

No. 123. Built 1906. Pumphouse for dry docks, 1906-1940; pumphouse, substation, 1946-1973.

No. 124. Built 1903. C&R latrine, 1903-1905; Y&D, latrine, 1906; PW, water closets, 1911; PW, water closets for yard workmen, 1912-1963; public toilet, 1973.

No. 125. Built 1905-1907. Paint Shop, 1907-1918; paint shop, substation, 1920-1973.

No. 126. Built 1904. PW, latrine, 1904-1911; PW, water closets for yard workmen, 1912-1940.

No. 127. Built 1904, Y&D/PW latrine/water closets, 1904-1937; WPA paint storage, 1940; PW, latrine/yard workers´ head, 1946-1963; public toilet, classified material incinerator, 1973.

No. 128. Built 1904. Y&D, GSK scale house, 1904-1916; watchman's house at Pier No. 9, 1918; PW, watchman's station, 1925.

No. 129. Built 1904. Equipment, wireless station, 1904-1911; sleeping quarters for warrant officer on night duty, 1912; visitors' water closet, 1914-1916; captain of yard, office, dump, 1920; unused, 1934; refuge for incinerator operator, 1937.

No. 130. Remaining wing of No. 67, which was torn down in 1906. C&R/Hull tackle storage, 1906-1912; to be abandoned and torn down, Oct. 1914; storage for condemned goods, 1916-1920; Supply, storehouse, misc. materials, 1934-1940.

No. 131. Built 1910. S&A, oil storehouse, 1910-1911; GSK, storehouse for oil, paint, alcohol, 1912; oil house, 1916-1918; Supply, storehouse for oil and paints, 1920-1940; Supply, storehouse for inflammable material, 1946-1963; flammable storage, ready issue, 1973.

No. 132. Wire rope mill, 1909.

No. 133. Built 1905. Equipment coke shed, 1905-1909; Machinery coke shed, 1911; Hull, GSK, coke shed, storage of boiler brick, 1912; to be abandoned and torn down, Oct. 1912.

No. 134. Built 1906. Powerhouse for Wabash, 1906-1912; old boiler house, 1914; old boiler house, unused, 1916; rebuilt as battery charging substation, 1918; substation, 1920-1934; substation, unused, 1937; surveyed and removed, 1940.

No. 135. Built 1910-1911. PW, refuse kiln/ garbage incinerator, 1911-1920; PW, storage, 1934-1940.

No. 136. Built 1909. USMC administration building, 1909-1973.

No. 137. Machinery, storage of coal and coke for iron foundry, 1912.

No. 139. Machinery, storage for rivet steel, 1912; pump house for gasoline storage, 1914-1940.

No. 140. Stone crusher, 1916-1918; removed 1918.

No. 141. Built 1914. GSK/Supply, pump house for fuel oil storage, 1914-1934.

No. 142. Built 1915. Storehouse for condemned goods, 1915-1934; Supply, storehouse, 1937-1940.

No. 143. Built 1917. PW, lavatories, 1917-1937; WPA paint shop, 1940; toilet and locker building, transportation, 1946; chapel, 1950-1973.

No. 144. Built 1917. PW, locomotive and crane house, 1918-1920; recommended for removal, 1920.

No. 146. Built 1917. Supply, storehouse, 1918-1934; old storehouse, 1937; storehouse, WPA cement storage, 1940.

No. 147. Built 1917. Supply, storehouse, 1918-1934; old storehouse, 1937; razed 1940.

No. 148. Built 1917. Supply, storehouse, 1918-1934; old storehouse, 1937; razed 1940.

No. 149. Built 1918. Supply, general storehouse, offices of IND, 1918-1919; Supply, general storehouse, 1920-1946; Supply, main storehouse, offices, substation, Comptroller Depart. offices, 1963; Supply, offices, general warehouse (bulk), substation, CASDO, PERA, 1973.

No. 150. Built 1918. Garage, 1918; garage, Edison auxiliary service substation, 1920-1940; power plant switch station, Edison auxiliary substation, movie exchange, 1946; power plant, garage, 1953; power plant switching station, Edison auxiliary substation, garage, storage, 1963; power plant switching station, Edison auxiliary substation, planning files, filling station, 1973.

No. 151. Built 1918. Supply, storehouse, 1918-1920.

No. 152. Temporary coal bins, 1918.

No. 153. Built 1917. Supply storehouse, Ordnance submarine charging station, 1918; Supply, battery charging station, 1920-1934; ordnance storehouse, 1937-1940.

No. 154. Built 1917-1918. Machinery storehouse, 1918; Hull, storehouse, 1920; Supply, storehouse, 1934; old storehouse, 1937.

No. 155. Built 1917-1918. Machinery, storehouse, 1918-1920; Supply, storehouse, 1934; old storehouse, 1937.

No. 156. Built 1917-1918. Machinery, storehouse, 1918-1920; Supply, storehouse, 1934; old storehouse, 1937.

No. 157. Built 1917-1918. Machinery, storehouse, 1918-1920; Supply, storehouse, 1934, old storehouse, 1937.

No. 158. Built 1917-1918. Machinery, storehouse, 1918-1920.

No. 159. Temporary coal bins, 1918; Supply, storehouse for coal, 1920-1925.

No. 160. Temporary storehouse, 1918.

No. 161. Machinery officers´ shelter, 1918; Machinery, shop offices, 1920.

No. 162. Supply, storehouse for coal, 1920-1925.

No. 163. Built 1917. Bandstand, 1917-1940.

No. 164. Built 1918. Storehouse and clearing house, 1918-1919; Machinery, toilet, washroom and locker building for No. 42, 1920; storehouse and clearing house, 1934-1937.

No. 165. Built 1919. Oxy-hydrogen plant, 1919; Hull, acetylene plant, 1929-1934; destroyed Nov. 1934; rebuilt 1937; acetylene plant, 1937-1940; oxy-acetylene storage building, 1946; Supply, gas cylinder storage, 1963-1973.

No. 165-A. Acetylene storage, 1951; Supply, gas cylinder storage, 1963.

No. 167. Built 1918. Air house, 1918; Machinery, storehouse, 1920; Production, air house, 1934; surveyed and removed, 1940.

No. 168. Machinery, storehouse, 1920-1925.

No. 177. Built 1918. Supply, storehouse, 1918-1934; old storehouse, 1937.

No. 178. Built 1918. Supply, storehouse, 1918; Hull, storehouse, 1920; Supply, storehouse, 1934-1946; Supply, storehouse for scrap, 1963; Supply, lumber storehouse, 1973.

No. 179. Hull, storehouse, 1920-1925.

No. 180. Built 1919. Storehouse, 1919; Hull, storehouse, 1920; Production, storehouse, 1934; old storehouse, 1937.

No. 181. Hull, storehouse, 1920-1925.

No. 182. Hull, storehouse, 1920-1925.

No. 183. Hull, storehouse, 1920-1925.

No. 186. Built 1919. Storehouse, 1919; Hull, storehouse, 1920; Production, storehouse, 1934; old storehouse, 1937; razed 1940.

No. 187. Built 1919. Storehouse, 1919; Supply, steel storage shed, 1920; Supply, storehouse for steel, 1933-1940; Supply, general storehouse, 1946-1973.

No. 188. Hull, storage for pipe, steel, etc., 1920.

No. 189. Built 1919. PW, transportation office, 1919; Hull, plate storage office, 1920; PW, transportation office, 1934; old transportation office, vacant, 1937; air house, 1940.

No. 190. Ingram Club, 1920-1925.

No. 191. PW, pump house, salt-water circulating loop, 1934-1973.

No. 191-A. Salt-water intake screen house, 1963-1973.

No. 192. Electric substation, 1934-1949; PW, substation, toilets, 1946; demolished 1947 or 1948; rebuilt; substation, public toilets, 1963-1973.

No. 192-A. Substation extension, 1963-1973.

No. 193. Built 1937. Salvage stores, 1937-1973.

No. 194. Gasoline filling station, 1940-1973.

No. 195. Built 1938. Pipe and shipfitting shops, 1940; pipe shop, assembly and welding shop, shipfitting shop, boiler, shop. 1946; pipe shop, structural shop, ordnance shop, welding equipment repair and welding lab, meter calibration lab, 1963; pipe and copper shop, shipfitting shop, weapons shop, outside machine shop, welding equipment repair and welding lab, temporary service shop space, meter calibration lab, 1973.

No. 196. Built 1939. Ship machinery testing plant, 1940-1946; Production, testing plant, inside machine shop, 1963; Production, test plant, inside machine shop, civilian cafeteria space, 1973.

No. 197. Built 1941. Electronics and electrical building, 1945-1947; outside machinists, electrical, electronics shops, electronics office, 1953; electrical, eletronics, weapons, outside machine shops, 1963; electronics. electrical, weapons systems shops, central tool shop space, optical shop, 1973.

No. 198. Built 1941. Temporary storehouse, 1946. Production, material storage control center; Production, electronics school and equipment restoration, ship strip material storage; optometrist, post office, military band, ships' offices, 1963. Electronics paint shop space, ship repair shop storage, restoration material storage, riggers' shop space, eye clinic office, substation, mail room, 1973.

No. 199. Built 1941. Supply, general storehouse; Supply, storehouse, electronics and electrical building facilities, 1949; Supply, general storehouse, substation, 1963; Supply, general warehouse, cold storage warehouse, substation, 1973.

No. 200. Built 1942. PW, offices, fire station, security; security office, police and fire station, PW offices, Industrial Relations Department, public address system, 1946; security office, police and fire station, PW administration offices, public address system, 1973.

No. 201. PW, storehouse, 1946.

No. 202. Ammunition inspection office, 1946.

No. 203. Built 1942. Incinerator building, 1946; incinerator (inactive), sandblasting facility, 1963; incinerator (inactive), abbrasive blast facility, 1973.

No. 204. Built 1942. PW, garage, transportation office, 1946-1963; automotive vehicle maintenance office, Industrial Manager, IND, office, 1973.

No. 205. Supply, salvage stores, 1946.

No. 206. Built 1942. Production, locker building, 1946; Production locker, head, washroom; office space for ships, storage, 1963; locker, public toilet, ships´ service space, storage, 1973.

No. 207. Paper salvage building, paint storage, 1946; motion picture exchange, disaster control storage, PW storage, garage, 1963; film exchange, disaster control storage, PW paint storage, 1973.

No. 208. Built, 1943. Production Repair Superintendent, 1946-1951.

No. 209. Vacant, 1946.

No. 210. Built, 1943. Production, salvage building, 1946; Supply, lumber storage, 1963-1973.

No. 211-A. Production, industrial service building, Pier No. 5, 1946.

No. 211-B. Production, industrial service building , Pier No. 5, 1946; Production, industrial service building, 1963; Production, shipfitters shop, temporary service shop space, public toilet, 1973.

No. 211-C. Production, industrial service building, Pier No. 5, 1946

No. 212-A. Production, industrial service building, Pier No. 6, 1946.

No. 212-B. Production, industrial service building, Pier No. 6, 1946.

No. 212-C. Production, industrial service building, Pier No. 6, 1946.

No. 213-A. Production, industrial service building, Pier No. 7, 1946.

No. 213-B. Production, industrial service building, Pier No. 7, 1946.

No. 213-C. Production, industrial service building, Pier No. 7, 1946.

No. 214-A. Production, industrial service building, Pier No. 8, 1946.

No. 214-B. Production, industrial service building, Pier No. 8, 1946.

No. 215. Vacant, 1946.

No. 215-B. Production, industrial service building, Pier No. 10, 1946.

No. 215-C. Production, industrial service building, Pier No. 10, 1963; Supply, industrial service building, Pier No. 10, 1963.

No. 216. Production, pattern storage, misc. storage, 1946.

No. 217. Production, lumber storehouse, 1946; Supply, lumber storehouse, 1963-1973.

No. 218-A. Built 1943. Supply, lumber shed, 1946; Supply, lumber store house, 1951-1973.

No. 219. Vacant, 1946; warf builder occupancy, 1951.

No. 220. PW, underground oil storage, 1963-1973.

No. 221. PW, underground water storage, 1963-1973.

No. 222. Water storage reservoir, 1967-1973.

No. 223. Water storage reservoir, 1967-1973.

No. 224. Substation, 1967-1973.

No. 225. Fire pump house, 1967-1973.

No. 226. Industrial service office, public toilet, substation, 1967-1973.

No. 227. Fire pump house, 1967-1973.

No. 228. Industrial service office, public toilet, substation, 1967-1973.

No. 229. Fire pump house, 1963-1973.

No. 230. Production, industrial service building, 1963; Production, industrial service office, public toilet, substation, 1973.

No. 231. PW, switching station, 1963-1973.

No. 232. PW, fire pump station, 1963-1973.

No. 233. Production, industrial service building, 1963; Production, industrial service office, public toilet, substation, 1973.

No. 234. Supply, track scales, 1963-1973.

No. 235. Supply, truck scales, 1963-1973.

No. 236. Tennis court, 1963-1973.

No. 237. Tennis court, 1963-1973.

No. 238. PW, floodlight tower, 1963-1973.

No. 239. PW, floodlight tower, 1963-1973.

No. 240. PW, floodlight tower, 1963-1973.

No. 242. Flag pole, 1963-1973.

No. 244. Gatehouse, 1963.

No. 245. ComOne garage, 1963; gardener´s shed, 1973.

No. 246. PW, floodlight tower, 1963-1973.

No. 247. PW, floodlight tower, 1963-1973.

No. 248. PW, floodlight tower, 1967-1973.

No. 249. PW, floodlight tower, 1967-1973.

No. 250. PW, floodlight tower, 1963-1973.

No. 251. PW, floodlight tower, 1963-1973.

No. 252. PW, floodlight tower, 1963-1973.

No. 253. PW, floodlight tower, 1967-1973.

No. 254. PW, floodlight tower, 1963-1973.

No. 255. PW, floodlight tower, 1963-1973.

No. 258. Police shelter building, 1963.

No. 259. Production, sand hopper, 1963; Production, abbrasive grit hopper, 1973.

No. 260. Bandstand, 1963-1973.

No. 261. Saluting battery platforms, 1963-1973.

No. 262. Supply, bridge crane supporting structure, 1963.

No. 263. Production, pickling tanks, 1963.

No. 264. PW, cooling tower, 1963-1973.

No. 267. Gatehouse, 1963-1973.

No. 268. PW, ash silo, 1963-1973.

No. 269. Garages, 1963-1973.

No. 270. Historical plaque, 1963; memorial plaque, 1973.

No. 271. Production, paint spray booth, 1963-1973.

No. 272. Saluting battery ammunition structure, 1963-1973.

No. 273. Abbrasive grit hopper, 1967-1973.

No. 274. Substation. 1967-1973.

No. 275. Substation, 1967-1973.

No. 276. Historical plaque, 1973.

No. 277. Oxygen bottle fill and storage, 1973.

No. 278. Substation, Pier No. 5, 1973.

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I. Research Guides and Bibliographies
II. Primary Sources: Published
III. Primary Sources: Unpublished
IV. Navy Administrative Histories of World War II
V. Histories of Boston Navy Yard
VI. Secondary Sources.
VII. Other

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Coletta, Paola E. (comp.). A Bibliography of American Naval History. Annapolis: U.S. Naval Institute Press, 1981.

Guide to the National Archives of the United States. Washington: General Services Administration, 1974.

Hanson, Edward W. (comp.). A Guide to the Records of the Boston Naval Shipyard. Boston: 1981. Lists the holdings of the Office of the Curator, Boston National Historical Park. Its appendices contain organizational charts for the Boston Naval Shipyard, 1971-1973; a guide to the shipyard's departments, divisions, offices, and other units; a list of yard commandants and shipyard commanders; a list of the commandants, First Naval District; descriptions of material in other repositories; Wood's guide to the records of the Bureau of Yards and Docks (see below); Wood's guide to the Records of the Boston Navy Yard in the National Archives (see below); and the Schwartz and Sagesser guide to the same collection (see below).

Heimdahl, William C. and Marolda, Edward J. Guide to United States Naval Administrative Histories of World War II. Washington: Naval History Division, 1976. A guide to such works as are included in section IV of this bibliography.

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II. Primary Sources, Published

Annual Reports of the Navy Department. In the late nineteenth century and early years of the twentieth century, included a report from each bureau, in which was contained a description of the activities of that bureau's department in each navy yard. After World War I, becomes Annual Report of the Secretary of the Navy and is increasingly general, with fewer and fewer references to particular yards.

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III. Primary Sources, Unpublished

National Archives, Record Group 181.

The papers of the Boston Naval Shipyard are part of the National Archives Record Group 181, Records of Naval Districts and Shore Establishments. That section of RG 181 consisting of Boston Navy Yard and First Naval District material is located in the Federal Archives and Records Center, Waltham, Massachusetts. Guides to this collection have been prepared by Wood (1946) and Schwartz (1966), listed in section I of this bibliography. Within the past year, the Waltham staff has proposed to the National Archives a rearrangement of the collection so as to eliminate errors and to integrate additional items. The architect of the rearrangement is Mr. S. Tozeski. What this means for the user is that there are three numbering systems for entries in the collection: Wood, Schwartz, and Tozeski. It should also be mentioned that some of documents for the years 1951 to 1969 are in the custody of the Records Center at Waltham as distinct from the Federal Archives.

The chief chronological parts of the collections are:

Correspondence 1823-1908, Tozeski entries 1 through 38. This part is organized according to the identity of the correspondent.

Correspondence 1909-1924. Tozeski entry No. 39, Schwartz, No. 101. Documents grouped according to subject and filed by year.

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New York Times.

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REPORTS OF THE DIVISION OF CULTURAL RESOURCES
North Atlantic Regional Office, National Park Service

The Division produces and prints reports on archeological, curatorial, historical, and historic architectural topics that identify, evaluate, document, and interpret cultural resources in National Park Service units of the North Atlantic Region. Some of these reports are of general interest for their presentations of substantive, bibliographic, technical, or methodological information. These are listed below. Those that are listed with an NTIS number are only available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22151. Others are available from the Division of Cultural Resources, NARO, National Park Service, 15 State Street, Boston, MA 02109. Prices are listed.

Cultural Resources Management Studies

No. 1	Archeological Resource Study, Roger Williams National Monument. Public Archaeology Laboratory, Brown University, 1979.	NTIS	PB81	18513
No. 2	Archeological Overview and Evaluation at Minute Man National Historical Park. Vernon G. Baker, 1980	NTIS	PB81	18514
No. 3	Historic Resources Study, Jamaica Bay: A History. Gateway National Recreation Area, New York-New Jersey. Frederick R. Black, 1981.	NTIS	PB81	22664
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No. 17	Chapters in the Archeology of Cape Cod, V: Indian Neck Ossuary Francis P. McManamon, James W. Bradley, and Ann L. Magennis, 1986	5.00
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No. 19	Interdisciplinary Investigations of the Boott Mills Lowell, Massachusetts. Volume II: The Kirk Street Agents' House.	12.00

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	Volume 4, North Bridge Area and Miscellaneous Collections, 1986	9.00

Other Publications

Cultural Resources Inventory, Lowell National Historical Park and Preservation District: Report. Shepley, Bulfinch, Richardson and Abbott, Architects, 1980.	NTIS PB81 189169
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