OPEN-AIR SHIPFITTERS' SHOP
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Civilian war workers watch the launching of two DE's they helped build.

America Builds World's Greatest Navy

Official Three-Year Production Report Reveals
Details of Mighty Sea-Air Fleet Built by U. S.

(Another month came official word that the United States now has the mightiest surface fleet in world history, comprising more than 14,000 vessels, and the most powerful naval air force in the world, with more than 18,000 planes. Most of this has been created in three brief years, since mid-1940. The remarkable story of that period—what was built, and where, and how—is told in the Navy's official account, "A Report on Navy Production," which is here reprinted in full.—Editor.)

Modern sea-air power consists of ships, planes and shore facilities. Objective of the Navy's war production program is to obtain those instruments of power, and this report records three years' progress toward that objective.

SHIPS

The phenomenal expansion of U. S. Navy shipbuilding is unequalled in history.

In the 36 months between 1 July 1940 and 1 July 1943 the Navy completed 15,376 new ships of all types, construction and machinery for these vessels cost over $5,300,000,000.

They compose a fleet of more than 14,000 vessels and 18,000 planes.

(Displacement tonnage, the measurement of Naval vessels, is the actual weight of the ship. Deadweight tonnage, the measurement of cargo vessels, is the carrying capacity of the vessel. A cargo vessel's deadweight tonnage is more than twice as great as its displacement tonnage.)

The new fleet completed since 1 July 1940—standing apart from the U. S. Navy in existence on that date—would be one of the largest naval forces in the world. It comprises:

333 combatant vessels aggregating 1,117,054 displacement tons and costing more than $3,000,000,000

1,274 mine craft and patrol craft of 199,765 tons costing $820,000,000

151 auxiliaries and 654 yard and district craft.

12,964 landing craft aggregating 610,781 tons and costing more than $1,000,000,000.

THIS IS THE STORY of a Navy and how it grew—an expansion in ships, planes and shore facilities unequalled in history. What the men of the Navy do with those ships and planes, the Information Bulletin pictures for you every month. In this issue, on the pages that follow, you will find some of the story behind that fleet, and the men and women in work clothes who make it possible.
Navy vessels power plants which, combined, approximate the horsepower of all hydro-electric facilities in the United States on that date.

About two-thirds of the horsepower in new Navy vessels is furnished by steam-driven engines. The other third is diesel propulsion.

This steep increase in production of propulsion machinery has had to be paralleled by a sharp step-up in cutting of gears, one of the most difficult industrial processes.

Ship completions measured by horsepower show the same pattern as ship completions measured in tonnage. Each six months' completions equal or exceed the completions of the prior twelve months.

Work in Place: Completion of ships is the harvesting of the crop, the fruition of enormous prior work.

Best measure of current work and best forecast of future harvests is the value of new construction-in-place. "New construction-in-place" means the new ships still on the ways—unlaunched—and still in the finishing basins—uncompleted. They are the ships which will appear in future completion reports.

A comparison or construction-in-place, therefore, will reflect a rise or decline before a comparison of actual completions. For example, the increase of construction-in-place from $1,800,000,000 on 1 July 1942, to $3,000,000,000 on 1 January 1943, foreshadowed the enormous increase in ship completions which is taking place during 1943-44.

Similarly, the relatively small increase in construction-in-place during the first six months of this year foretells a levelling out in the ship completion trend. Total naval shipbuilding is approaching its peak—as planned.

It has not yet achieved that peak, however. The fact that construction-in-place increased from $3,000,000,000 on 1 January 1943, to $3,200,000,000 on 1 July 1943, shows that, despite its tremendous size, the naval shipbuilding program still moves upward.

In fact, several segments of the program are moving ahead at an unabated pace. Combatant ship construction-in-place increased by almost $300,000,000 in the first half of this year, its second-largest increase. Mine craft, patrol craft and yard and district craft construction-in-place jumped from $347,000,000 on 1 January 1943, to $481,000,000 on 1 July 1943, the largest increase on record for these categories.

Landing craft construction-in-place, which skyrocketed from less than $4,000,000 on 1 January 1942, to $504,000,000 one year later, temporarily dropped back during the first six months of 1943, thereby becoming the principal reason for the slackened rate of increase in total naval construction-in-place.

Building Time: Speed is a requirement of war production. Time required to build Navy fighting vessels of each class has dropped to record lows since Pearl Harbor.

The aircraft carrier Essex, a 27,000-ton ship completed in December, 1942, was built in 20 months compared with nearly 46 months required for the carrier Enterprise, a 19,800-ton vessel completed in May, 1938.

The new 27,000-ton carrier Yorktown, which was completed in 30 per cent less time than the original 19,800-ton Hornet, was built in 17½ months or about half the pre-war building time for a destroyer.

The 45,000-ton battleship New Jersey was completed in 26 per cent less time than the 35,000-ton Washington. Their building periods were 33 months and 45 months, respectively.

The heavy cruiser Wichita, completed in 1939, required 41 months to build while the larger Boston completed in 1943, was built in 24. The 1939 light cruiser Helena was built in 36 months; the 1943 light cruiser Biloxi in less than 26. The destroyer Niblick, turned out in August, 1940, required 24 months, the Gearing, completed in November, 1942, took 7½. Between the Drum in 1941 and the Aspro in 1943, submarine building time was cut 48 per cent.

The Navy's mass-production fighting ships are the destroyer escorts. To complete the first 10 of these vessels at the Bethlehem-Hingham and Consolidated Steel Yards required an average of 302 days each. The average for the most recent 10 from the same yards was 206 days, a reduction of almost one-third.

Man-Hours: Speed has not been achieved by an extravagant expenditure of labor. Yards building Navy ships have made substantial reductions in the labor which they require to complete a vessel.

The New York Shipbuilding Corporation, an old established builder of cruisers, has reduced the man hours needed to build one of these vessels by 25 per cent. The light cruiser Cleveland, completed in June, 1942, required 7,600,000 man hours. The light cruiser Santa Fe, completed in November, 1942, required only 5,700,000 man hours, a saving of 1,900,000 man hours.

The Bath Iron Works is one of the most efficient builders of de-
No other portion of the great aircraft program has moved ahead so swiftly.

In the 36 months between 1 July 1940 and 1 July 1943 the Navy completed 15,567 planes of all types. (All these totals exclude planes which have been turned over to the Navy after being built under Army cognizance. They are planes built under the Navy’s own supervision. They combined airframe weight is almost 84,000,000 pounds. In addition to the 15,567 Navy-built planes, the Navy has received during three years about 8,800 planes built under Army cognizance of which 7,800 were trainers and utility planes, 450 were combat aircraft.

Importance to Strategy: Airpower is the spearhead of attack.

Navy fighters and bombers covered the first American landings against the Axis at Guadalcanal, Morocco and Attu.

Navy bombers struck telling blows against Nazi submarines during the summer of 1943.

In the early months of the war, including the Battles of Coral Sea and at Midway, Navy bombers drove home the attacks which stopped Japan’s expansion.

To replace the Navy planes lost at Midway would have required half a year at the 1940 rate of production. By June, 1942, when the battle was fought, the losses could have been made up in two weeks. Now they could be restored in less than four days.

In the air, as on the sea, therefore, one of America’s great strategic advantages is its power to build—and to continue to build—the weapons of attack.

Trend of Completions: Navy has concentrated on combat planes, obtaining most of its non-combat aircraft through the Army. Therefore, this section of the report will be confined to the output of Navy fighting planes.

Following a pattern which runs through all Navy programs, production of Navy combat planes in each six months beginning 1 January 1941, has equaled or exceeded the output of the preceding 12 months. Against the 1598 Navy combat planes produced in all of 1941, 1,911 were delivered in the first half of 1942. The entire 1942 combat plane production was exceeded in the first half of 1943.

The rise in Navy combat plane production has been so steep that the delivery in the single month of June 1943, account for 10 per cent of all the planes turned out in the three years between 1 July 1940, and 1 July 1943. No other part of the American aircraft program has shown so rapid a rate of growth.

Navy combat aircraft range from big four-engine patrol bombers to fighters.

Recent emphasis has been on
bombers. Torpedo bomber production in the first half of 1943, for example, was larger than during the preceding 30 months of the Defense Program combined. Production of dive bombers and patrol bombers in the first six months of this year approximates total production in the preceding 2½ years.

One of the special achievements has been the production of a new war-inspired, carrier-based fighter capable of matching performance with the world’s best land-based fighters. Contracts for the first two experimental Navy Hellcats were let in August, 1941. First production contract for Hellcats was signed 4 December 1941, three days before Pearl Harbor. War-taught lessons were embodied in the plane as its production proceeded, and the first Hellcats were delivered late in 1942. In the first six months of 1943, monthly production has multiplied 18 times over total 1942 production, and the number of planes delivered by the first three contracts has been delivered.

ORDNANCE

Firepower is a Navy ship’s or a Navy plane’s reason for being.

New Navy fighter planes fire in one minute five times the weight of projectiles that their 1940 predecessors fired. A modern battleship’s armament is 100 times what it was three years ago.

Naval ordnance production, therefore, has filled a compound demand: arming an unprecedented number of new ships and planes—and arming each ship and plane to an unprecedented degree. In addition, it has rearmed the old fleet and much of the merchant marine.

To meet these demands more than $2,500,000,000 of naval guns and mounts, ammunition, torpedoes, mines, depth charges, bombs and fire control devices have been produced since 1 July 1940. This output is without parallel in Naval history.

Rate of production has increased 24-fold. From $46,000,000 in the last six months of 1940, production of these major Naval ordnance items shot up to more than $1,000,000,000 in the first six months of 1943.

Like ship completions, ordnance production in each six months has surpassed the record of the preceding 12 months. Against $275,000,000 produced in all of 1941, $378,000,000 was produced during the first half of 1942. In turn, the 1942 total of $1,086,000,000 was surpassed in the first half of 1943 when production climbed to $1,095,000,000.

Fact subdivisions make up more than three-quarters of the Naval ordnance production program. They are:

- Guns and mounts, including fire control.
- Ammunition.
- Underwater ordnance — torpedoes, mines and depth charges.
- Aviation ordnance — bombs, fuses and aviation fire control.

GUNS AND MOUNTS: Of all Naval ordnance programs, the largest is for guns, their mounts and their intricate fire control devices.

Nearly half of the $2,500,000,000 spent on the major Naval ordnance items has been for gun-and-mount assemblies. Their production increased 130 per cent between the first half of 1942 and the first half of 1943, rising from $208,000,000 to $482,000,000.

By the first half of 1943 four gun-and-mount assemblies made up 97 per cent of the dollar value of total gun-and-mount production.

They are:

- 20-mm antiaircraft guns
- 40-mm antiaircraft guns
- 3"/50 cal. double purpose guns
- 5"/38 cal. double purpose guns

They are the great mass-production Naval guns of this war. They are the principal armament of destroyers and destroyer escorts, the two types of vessels now being completed in the greatest numbers. They make up the secondary and anti-aircraft batteries of cruisers, carriers, and battleships. They are responsible for the enormous antiaircraft firepower of surface vessels, enabling the batteries of Battleship X and Enterprise to shoot down 62 Japanese planes in the Battle of Santa Cruz.

More than 66,600 of these guns (counting number of barrels) have been produced since the defense program started. Firing together, these new guns would throw 4,600 tons of projectiles per minute against the enemy.

The 5"/38 cal. double purpose gun, a standard weapon against surface craft and now the heaviest antiaircraft weapon, was developed by the Navy. Therefore, it was in production in small volume when the Defense Program started. Because both 20-mm and 40-mm antiaircraft guns were new in this country, their production did not start until 1941 and 1942, respectively. Production of dual purpose 3"/50 cal. guns also began in 1941.

Output of each of these guns has doubled and redoubled several times. In the first six months of 1943, for example, the Navy produced almost as many 3"/50 gun-and-mount assemblies as it did during the preceding 18 months.

Ammunition: Modern guns devour ammunition. Therefore, among the four major ordnance programs, ammunition has become steadily more important as fighting intensifies, rising from 22 per cent of the total in the first half of 1942, to 35 per cent in the first half of 1943.

The rate of production has increased abruptly in the first half and second half of 1942. Naval ammunition production trebled in value. In the first half of 1943 production was 170 per cent of the output in the last half of 1942. About $725,000,000 of Naval ammunition has been produced in the 18 months ending 1 July 1943, compared with $725,000,000 in the prior 18 months.

Eighty-six per cent of the Naval ammunition produced in the first six months of this year was for 20-mm, 40-mm, 3"/50 cal. and 5"/38 cal. guns.

(Continued on Page 58)
Behind the mighty sea-air force, revealed in the Navy's three-year report on production (page 2) stands one of the largest civilian organizations of workers in the world—677,000 men and women...more than 13 times as many as the Navy had in peacetime. If all these workers were in one community, they would be the tenth largest city in the country, on the basis of 1940 census figures.

Through all wars civilians have helped to make the Navy. The Navy's policy has been to use civilian personnel to the maximum extent possible; to regard the man in uniform as primarily a man of the fleet, using him ashore only so far as might be necessary for the more efficient employment of the Navy and for purposes of directing and supervising activities of civilian personnel.

At the end of the last war, in 1918, civilian personnel of the Navy numbered 101,000. At the "mid-point" of 1929—halfway between our entrance into the first World War and Pearl Harbor—this number had dropped to a peacetime level of 50,000. Now, at the end of almost two years of war, it has mounted until more than two-thirds of a million people are working directly for the Navy, exclusive of the hundreds of thousands in other industries whose work contributes to the Navy's war effort.

Who are these people behind the ships? What do they do, and where do they do it? What's their "chain of command"? What are their battle stations in this war?

They're workers, mechanics, builders, technicians. They range from unskilled labor through the various classifications of helper and journeyman. They're supervisory personnel, clerical and administrative workers, sub-professional and professional workers. They can be found in some 546 naval establishments throughout the country, and at bases abroad—20,000 of them, for instance, at Pearl Harbor.

At the top, not only of civilian personnel but of the entire Navy, is the SecNav: Frank Knox. Under Mr. Knox, and in direct supervision of civilian personnel activities of the Navy is Ralph A. Bard, Assistant Secretary of the Navy. His is the responsibility for the Navy's labor supply; the management of its internal personnel; labor relations; training
of civilian workers; and, in general, the whole business of procurement and use of the Navy's civilian personnel.

Other top civilians of the Navy are James V. Forrestal, Under Secretary of the Navy, who numbers among his responsibilities the procurement of Navy material; and Artemus L. Gates, who, as Assistant Secretary of the Navy for Air, heads up activities of the world's largest naval air force.

Below these four men are some 677,596 others, with by far the largest number of them located in the Navy yards, helping to carry on the greatest naval building program in history. Here they build the ships. Here they nurse the ships when they come back, repair their wounds, make them good as new again.

Countless other thousands can be found at naval air stations, where they convert and repair the planes of the fleet, service a carrier's planes while the carrier herself is in dry dock, overcome obsolescence of planes by fitting them with the latest equipment and building new improvements into them, convert aircraft to certain specific tasks, and maintain the patrol planes that cover our coasts.

At naval ammunition depots they see that the powder is manufactured, the shells loaded, the fuzes installed. At naval supply depots they supply the fleet with everything it needs, and at operating bases these supplies are put aboard the great ships, in for provisioning.

At naval torpedo stations they manufacture a large part of the torpedoes used by fleet, aerial and submarine forces, and at the naval aircraft factory they help in developmental and experimental work on new planes and on conversion of others. At naval training stations they perform the continuing store-keeping and clerical functions which keep a training station a going concern.

There are civilian inspectors who spend their days going into plants that sub-contract for the Navy, and reporting their findings to inspection officers of the Navy. There are civilian guards, and thousands of workers in the Navy's administrative offices in Washington and elsewhere in the country.

In all these assignments that are necessary to a war, civilians are under the direct supervision and control of Navy personnel, making them truly part and parcel of the Navy's own organization.

When a Captain "Mike" Moran runs into a fleet of Jap ships and says, "Pick out the biggest one and fire,"—these are the people who make it possible . . . who built the ship and forged her guns, protected her with armor and gave her engines and electrical controls, who built the shells that went into the guns, so that they would go fast and true.

These are the people you will read about in this issue: how they salvage and repair the Navy's ships (page 10); how they help keep our air force in the air (page 16); how they supply the Navy (page 20); their part in the victories of "Battleship X" (page 22); what kind of people they are, and their stake in the Navy (page 24); how some of their ideas are helping to shorten the war (page 26); the Army-Navy 'E's they have won (page 30); the dull jobs that have to be fought at desks (page 33); what women are doing on the production front (page 33); how they built the landing craft that made invasion possible (page 36); and what the Chief of Naval Personnel has to say about them (page 40).
CIVILIANS WORK MIRACLES OF SH
Salvage and Repair Crews Put
Crippled Craft Back on Duty

Into Philadelphia one day came
the 314-foot uss Blakeley, an old
destroyer, with more than
60 feet of her bow blasted away by a
torpedo. She had made her way
2,000 miles north from the Carib-
bean, navigating by old style mag-
netic compass. A stubby false bow
had enabled her to push through the
sea.

In the Philadelphia drydock, the
Blakeley's crew saw that they had
tied up bow to bow with an identical
destroyer, the uss Taylor. A
sister ship of the Blakeley, the Tay-
lor had been rescued from the junk
basin for just such a transfusion as
was promptly attempted.

Pneumatic drills clattered and
welding torches flared as civilian
workers cut and sliced at the Blake-
ley's torn bow. Meanwhile, in the
same drydock, other workmen, cal-
culating their work to the fraction
of an inch, were cutting off the bow
of the Taylor.

Finally 60 feet of the Taylor's bow
had been removed. Huge cranes de-
posited the Taylor bow forward of
the Blakeley. The two hulls moved
together. They fitted to the fraction
of an inch.

The Blakeley put back to sea. She
had some other new fittings, too, in-
cluding a regulation anchor to re-
place the makeshift anchor she had
used on the trip home. The make-
shift anchor had consisted of a truck
axle and differential housing fast-
ened at right angles to a length of
railroad track.

The story of the Blakeley, an epic
in itself, is only a minor miracle in
comparison to many other salvage
and repair jobs performed by naval
civilian personnel in World War II.

Pearl Harbor and the Lafayette (ex-
Normandie) were jobs of immense
complexity. There were also the
Boise, the San Francisco, the Shaw.

There were jobs for the British
Navy, too.

Results to date? Only three of the
ships sunk or damaged at Pearl
Harbor are not afloat today. The
Lafayette is afloat. Many a British
warship is back in action. The re-

—Official U. S. Navy Photograph.

DAMAGE: This cruiser, bat-
ttered in battle, was repaired
by civilians in a navy yard.
SURGERY

Sults so far show that the salvage and repair facilities of the U. S. Navy, facilities largely staffed by civilian personnel, are a major factor in the war potential of the United Nations.

While the oil fires still burned at Pearl Harbor, the Navy asked for civilian volunteers from its shipyards throughout America. Electricians, shipfitters, welders, divers—these and a hundred other types of experts went out from the mainland.

Civilians and navy divers worked side by side over the submerged hulls in Pearl Harbor. Measurements were taken and executed for coffer-dams and patches. Underwater concrete was poured. Pumps were manned.

The uss Oklahoma was 150 degrees over, or almost upside down. On the shore concrete anchors, or “dead men,” were sunk in the ground. A complicated system of leverage was worked out. Inch by inch the Oklahoma was pulled upright.

The uss California had huge quantities of gasoline stored forward. The salvage crews had promised themselves that she would be afloat and in drydock on a Wednesday. The preceding Sunday her gasoline exploded. With sinking hearts, the salvage experts watched her bow settle. As soon as they could, they went back to work. The California was in drydock on Wednesday.

Capt. H. N. Wallin, usn, maintenance officer who planned and supervised much Pearl Harbor salvage, explained:

“We couldn’t pump her out, so we worked out a way of balancing her by letting more water in.”

But even after the ships had been raised from Pearl Harbor, the role of civilian salvage and repair workers was nowhere near complete.

“From Pearl Harbor many of the ships put into Puget Sound,” Capt. Wallin continued. “There they were completely rewired, refitted and modernized by civilian Navy Yard experts. These men have received very little credit or recognition for their work. But when they turned these ships back to sea each one was doubtless a better and more modern piece of fighting machinery than it had been before the disaster.”

One ship salvaged at Pearl Harbor was the uss Shaw. There she was rent by three heavy bombs, warped by fire and practically torn in half. A false bow was fitted to her and, on a voyage similar to that of the Blakeley, she put out for a West Coast port. Soon, with a new bow, she sailed again.

THE USS BUCK has her shattered stern trimmed away almost to the aft turret in Boston Navy Yard after a nearly fatal collision.

WORKMEN complete the new stern section. Soon the Buck was back at sea. Last month she was lost in the Mediterranean.
There were new and unexpected dangers in salvage operations at Pearl Harbor. Civilian divers braved them along with naval personnel. Toxic gases were generated in the polluted water. Sewer gas killed a Naval officer and a CPO in the USS Nevada. Thereafter, experts in industrial gases worked out test and counter measures. A system of underwater ventilation was also developed.

Despite the dangers, Navy and civilian divers at Pearl Harbor, before they were through, made more than 3,000 dives totalling more than 9,000 hours—or more hours than there are in a year. Safety precautions made it possible for them to do all this without a single fatality.

Meanwhile, halfway around the world, veteran civilian salvage workers had been called in by the Navy to study the Lafayette. Virtually every porthole and cargo hatch had been wide open when workers aboard her fled the fire that was to capsize her into the Hudson River mud. It was necessary to shut and seal each of these leaks, buried deep in mud, from the outside. There was no way to burrow into the rock ledge on which the Lafayette lay and thus work from the outside. Once the water had been pumped out the pressure from without would have torn off the inside patches.

From this there was to develop the Tooker Patch, an invention that not only helped raise the Lafayette but will doubtless help raise many ships in the future.

A salvage expert named Capt. John I. Tooker, from the firm of Merritt, Chapman, and Scott, tackled the problem of sealing the Lafayette's portholes. Tooker made a few rough drawings, went to his workbench, and within a short time brought to Naval officers a rough working model.

Basically, the Tooker Patch is a measured and fitted patch which can be folded to resemble a broken barrelhead, inserted through the porthole from the inside of a sunken ship, and secured to the outside as a watertight seal.

Small Tooker Patches closed 356 open air ports embedded in mud and water. Bigger patches secured 16 open cargo hatches. The Tooker Patch was one of the main answers to the raising of the Lafayette.

"Although Naval officers super-

vised the job and the Navy used the ship as a diving school," said an officer connected with the Lafayette salvage work from the beginning, "the actual work was all done by civilian salvage experts. And what we learned from them will be of value to us forever."

Civilian carpenters, riggers, electricians, and technicians are also given full credit by the Navy for making the work of the divers possible. Lighting, ventilation, the construction of watertight bulkheads, the underwater work—all were done by civilians. Most underwater work, incidentally, was done by feel since no lights could pierce the muck, muck, and slime within the submerged hull.

Both at Pearl Harbor and New York the value of specially equipped salvage tugs and boats was evident. So evident that the Navy has turned over to Merritt, Chapman, and Scott a fleet of sturdy small ships, which

180 Vessels Reclaimed in Year By Salvage Crews

More than 180 sunken or crippled vessels have been reclaimed in one year by Navy civilian salvage contractors, Capt. B. E. Manseau, Navy supervisor of salvage, revealed last month.

Already 125,000 tons of scrap have been salvaged and shipped direct to mills for conversion into war materials. Scrap from the Pacific area, reclaimed from sunken or crippled vessels, is concentrated at Pearl Harbor and shipped to the mainland. The scrap is collected by Salvage Reclamation Units working at advanced Navy bases everywhere.
the firm has equipped for salvage work. These are manned by 350 civilian salvage experts and today are ready to take on any assignment. They also tow in battered ships that have remained afloat but are in varying stages of helplessness.

During these big and complicated salvage operations, civilian workers at other Navy yards were writing their own stories of ship salvage and repair. Into these yards sailed crippled vessels of not only the U. S. Navy but also of other Allied nations.

To one of the yards came H.M.S. Argonaut, a ship that had taken one torpedo at the tip of her bow and another at the stern. Her useless rudder and shaft were twisted down and out, so that she caught on mud banks in reasonably deep channels. Makeshift shorings and bulkheads were all that held out the sea.

But her measurements were available, and with modern salvage experts measurements are about all that is needed. The shipyard workers trimmed down the Argonaut's scars, built her a new bow and stern, made other repairs, and sent her back to sea.

A salvage record was recently set by the Charleston, S. C., Navy Yard in the reconstruction of a British cruiser all but sunk on her way to Malta. British shipyards estimated that it would take two years to repair this ship. At Gibraltar superstitious Spanish workmen had refused to enter her hold, saying it was death laden, and British sailors themselves had to carry out bodies of 62 comrades who had died in action. One-fifth of the port side had been completely blown away. Armor plating had been forced upward under the main deck. The inner compartments were a mass of tangled wreckage.

Three American Navy yards sent salvage experts to study the patched ship when she arrived here. All agreed that she could be reclaimed. Charleston made the lowest time estimate—eight months. Although unfamiliar with British design, the Charleston workers rebuilt the cruiser from the inside out. Over 500 tons of steel were replaced and 35 miles of wiring installed. The cruiser is in a war zone today.

Civilian salvage experts also turned their attention to enemy craft. In the South Seas Navy divers raised a two-man Japanese submarine and sent her to Mare Island.

As salvage continues at Pearl Harbor and other bases, lessons are learned daily which will be of invaluable use in future and even current operations. The process of rolling over the Oklahoma with cable leverage will be repeated on the Utah, which is believed not nearly so serious a salvage problem. The coffer-dams, patches, air-pressure and underwater experiments which refloated most vessels at Pearl Harbor have already been improved upon by both civilian and Navy experts.

Even the U.S.S. Arizona has been drawn upon for some reclaimed material. She has given up some of her turrets, guns, ammunition, and machinery. Salvage crews believe that the after half of the Arizona can be refloated and removed. The rest must be picked out piecemeal.

Strangely, but fortunately, a problem of marine salvage seems to whet the imaginations of civilians all over, both professional and amateur. Navy officers working on the Lafayette studied more than 5,000 letters from persons who thought they had revolutionary plans for raising her. From sound procedure the letters ran to such suggestions as that the Lafayette should be pulled up by dirigibles or yanked up by cables attached to the George Washington Bridge.

But out of the welter of trial and error, experiment and innovation, have come salvage measures which in the course of the war may save many a Navy ship.

"If a ship goes down in an unknown location, or goes down in deep water," says Captain Wallin, "there isn't much we can do about it. But if we know where she is, and can get at her, we've got an excellent chance to reclaim her under salvage conditions today. And I repeat, no credit is too great for the contributions and work performed by civilian experts."
Pearl Harbor Was Biggest Salvage Job . . .

THE OKLAHOMA slowly comes upright as a new system of cable tension is utilized to raise the stricken battleship. Guns and decks are covered with barnacles.

With the OKLAHOMA almost on even keel, salvage workmen cut through her decks to tackle the problems of mud, oil and wreckage.

THE ARIZONA, which is beyond total salvage, gives up her fittings for war use elsewhere. Above, divers emerge from a flooded hold with reclaimed machinery.

The ARIZONA's guns may yet see service although the battleship eventually will be broken up. One barnacle-covered battery (above) was reclaimed.

THE CALIFORNIA, almost submerged, first gives up her big guns and fixed weights prior to refloating operations. Above, a turret gun is removed.

The CALIFORNIA herself is next reclaimed. Here the 32,600-ton battle wagon is being towed off to drydock after being raised by means of cofferdams.
... Shaw, Sunk There by Japs, Comes Back

1 Torn almost in half, the USS Shaw settled against her drydock soon after Jap bombs apparently knocked her out for good. Her severed bow can be seen against a background of blazing oil.

2 A temporary false bow was fitted to the Shaw after salvage. Then she reached Mare Island.

3 A permanent new bow was waiting for the Shaw as the destroyer was slowly winched into drydock.

4 The repaired hull of the Shaw and the new bow portion are about to be fitted. Salvage workers line the drydock as the two "halves" of the destroyer are edged carefully together.

5 Still in a cradle of supports, the two parts of the Shaw are finally made one. Old false bow at right.

6 Looking trimmer and stronger than ever, the reclaimed Shaw is shown above shortly before she steamed forth for frontline duty. At this stage she was better fighting machinery than before Pearl Harbor.
A ‘Ground Crew’ 93,000 Strong

Before War Most Didn’t Know a Spark Plug From a Carburetor . . . Now They Help Keep Navy in Air

Naval aviation alone now employs nearly twice as many civilians as those who worked for the Navy in all shore establishments during the period midway between World War I and World War II. A total of 92,013 men and women—not counting the thousands employed by private plants producing for the Navy—is today not only keeping Navy aircraft flying but actually building planes in the Navy’s own factory.

Even though it is not widely realized that the Navy itself builds planes, it is a fact that, of all naval air establishments, the Naval Aircraft Factory at Philadelphia is the largest employer of civilians: 10,125 on 1 August 1943.

After that came the Naval Air Training Center at Corpus Christi, with 8,026 civilians; the Norfolk Naval Air Station, with 7,437; Pensacola Naval Air Training Center, 7,813; Jacksonville Naval Air Station, 5,441.

Seventy-seven thousand of the more than 92,000 civilians employed in naval aviation are stationed at Navy establishments within continental United States—57,915 of them at naval air stations. Three thousand five hundred sixty-eight more are inspectors of naval aircraft and material at domestic plants, and 11,526 are on foreign duty.

The Naval Aircraft Factory is one of four separate commands grouped together by the Secretary of the Navy on 14 July 1943, to form the Naval Air Material Center at Philadelphia. Others are the Naval Aircraft Modification Unit, the Naval Air Experimental Station and the Naval Auxiliary Air Station.

The Philadelphia factory’s production of planes and engines—it’s the only plant in the country that builds both—is primarily for the accumulation of cost data to be used by the Navy in establishing fair prices to be paid for contract work.

In addition, Navy civilians at Philadelphia develop and manufacture many items of aviation equipment not produced by private aircraft plants. There, for instance, catapults for launching planes from ships were developed. One laboratory now is constantly developing new testing aeronautical engines. Others experiment with materials, conduct deck-landing tests, develop navigational instruments.

Besides building Navy planes, thousand of civilians in Assembly and Repair Departments of naval air stations keep ‘em flying. And most of those thousands are men and women who didn’t know, two years ago, the difference between a spark plug and a carburetor.

A good example is the Quonset NAS, where civilians had to be trained from the ground up—as often was the case elsewhere, too. Out of marshes and sandhills, thickets and summer camps, where gulls had undisputed possession of the upper air, Quonset in two short years has grown to be a major operating and repair base for Navy planes—a vast, flat stretch of territory striped with runways and spotted with huge hangars, barracks and all the other installations necessary to a naval air base in wartime.

Skilled manpower had already become scarce when Quonset came into the market. As a result, it was able to beg or borrow only an extremely small nucleus of aircraft artisans from other plants and bases. Most of its personnel has been built up from persons unskilled or skilled in crafts remote from the aircraft industry. Yet today upward of 2,000 civilians—technically qualified—work day and night in Quonset’s A. and R. Department.

No standardized assembly-line procedures ease their task; for dozens of types of planes must be maintained, serviced and repaired. Anything from an SNJ to a huge Coronado bomber may come through the

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IDEA MAN: Jerry Rippetteau, of Corpus Christi NAS, won $200 for a material-saving suggestion and parlayed it into $4,684 for Navy relief.

SHE CARRIES ON as an inspector at the Philadelphia NAMC for her husband, Ens. J. M. Anderson, killed in line of duty in the crash of a Navy plane.

NAS Man Is 4.0
In 36 Years’ Service

Not a day’s sick leave in 36 years’ service.

That’s the record of William F. Hansen, foreman of the paint and fabric shop at Pensacola Naval Air Station. Hansen ran away from his home in Denmark when 14 years old and sailed in Danish, Norwegian and English ships before coming to this country. After serving eight years in the U. S. Navy he went to work in a Navy Yard. He has been employed at Pensacola since 1914.

Hansen has seven brothers and two sisters in Denmark, from whom he hasn’t heard since Germany invaded that country.
FOR CIVILIANS, AS FOR THE NAVY, the battle is the payoff. Smoke rises from burning Japanese installations on Marcus Island as a Grumman Avenger torpedo bomber returns to its carrier. This is the goal for which more than ninety thousand Navy civilians on the home front are working at air stations, supply depots and training centers. A U. S. task force on 1 September destroyed about 80% of the installations on this island base, which is only 990 miles southeast of Tokyo.

hangar doors for overhaul, repair, incorporation of changes or installation of improved equipment.

About half of Quonset's A. and R. civilian employees are women. They, alongside men, climb in and out of fuselages, wield oxy-acetylene torches and automatic riveting hammers, dismantle and assemble engines and propellers. Many of them are wives and daughters of Navy men in active service. Most others—16 to 66 years old—have husbands, sons, brothers or fathers in the Army, Navy, Marine Corps or Coast Guard.

To develop skilled hands for its A. and R. Department the Naval Air Training Center at Pensacola, Fla., has a special Pensacola Vocational School. The A. and R. Department, through its vocational training offices, not only assists in planning the courses but furloughs highly skilled mechanics to the school as both full-time and after-work instructors. Courses are offered in metalsmith and general aircraft mechanic's work, welding, machine work, engine overhaul, instrument shop practice and fabric and paint shop work.

Another important civilian role in naval aviation is the supply of spare parts. Navy planes do fly home on "a wing and a prayer"—tails all but shot off, holes in fuselages, wings clipped or mangled. The titanic task of furnishing parts and accessories to planes on battle fronts around the globe falls on the Aviation Supply Office at Philadelphia.

The ASO supply lines run out from three main depots—at Clearfield, Utah, Mechanicsburg, Pa., and Philadelphia—and two annexes, at Norfolk and Oakland. From these the network of distribution carries the material by air, rail, highway and water to 17 widely flung supply points which, in turn, supply shore and fleet air units.

More than 1,100 civilians are employed by the ASO in Philadelphia alone. Among them are a wounded Army veteran of five major battles in Africa, the widow of a Navy flyer, the former president of a large corporation, a one-time chorus girl, a debutante from one of Philadelphia's old-line families—and three civilian women who were Yeomanettes in the last war.

Nor is it always easy for civilians to hold down these jobs. Housing conditions often are inadequate and transportation problems are difficult. At the Marine Corps Air Station, Cherry Point, N. C., 90% of the civilians must drive more than 20 miles to work. Many live at Greenville, N. C., 65 miles away—which means they must get up at 0400 to make it to work on time.

Many of the male civilians at naval aviation establishments are men too old for military service, boys too young and Navy and Army veterans of this war itself, who have been released from active duty because of wounds received in action. Ex-Navy airmen with medical dis-
chairs, particularly, are filling more and more civilian jobs at naval aviation establishments where, though no longer able to stand the rigors of combat action, they can give to the Navy the benefit of the skills it taught them.

And more than a third of all civilian employees on naval air stations are women. Most of them are forsaking, for the time being at least, the gentle art of homemaking for the rougher but more urgent task of repairing and assembling Navy planes. For well they know—these mothers, sisters, sweethearts of American fighting men—that every rivet they drive is another blow for the victory that will bring their loved ones home or make sure that the sacrifice of their lives has not been in vain.

There’s Mrs. Lillian Anderson, inspector at the Naval Aircraft Factory. Her husband, Ensign J. M. Anderson, was killed in line of duty while searching for a missing plane last March. Their baby son was born after his father’s death. So Mrs. Anderson carries on the two jobs of mother and war worker.

Mrs. Mayme Tyndall, clerk-typist in the A. and R. Department at Pensacola Naval Air Training Center, has her husband with her now—but neither will ever forget what they’ve been through since 7 December 1941.

At Pearl Harbor, Tyndall was serving in a ship berthed close to the USS Arizona when she blew up and sank during the Japanese raid that started our part in this war. Sent back to California on a short leave, he wired Mrs. Tyndall to meet him there. On the trip out she was stricken with appendicitis, and Tyndall had to rejoin his ship while she was critically ill.

Later, as a fireman in a hospital ship, he saw many young Americans suffering from wounds inflicted by the Japanese. Finally he was ordered to duty back in the United States, and there became ill and was given a medical discharge from the Navy. Doctors said the shock of what he had seen and done at Pearl Harbor and in the South Pacific had been too much.

With a citation for his outstanding work with the wounded, Tyndall is now a painter in the A. and R. Department at Pensacola—where his wife still pounds her typewriter.

A more pleasant story, equally revealing of the spirit that sparks civilians in naval aviation, concerns Jerry Rippeteau, mechanic in charge of the A. and R. Department’s rubber and tire shop at the Corpus Christi Naval Air Station.

Jerry developed a new rubber weld process that makes possible a stronger, neater job on the repair of inner tubes with a fifth of the rubber required in the old patching process—and thereby won a $200 prize in a contest for production ideas.

The story might end happily enough with Jerry, good patriot,
buying war bonds with his $200. It does not. Instead, Jerry put the money and several weeks of his spare time into promoting a rodeo. Result: a check for $4,084.29 to the station's commanding officer for use in relief activities.

Such resourcefulness in the interests of the Navy is typical of the civilians in Corpus Christi's A. and R. Department. For more than 4,000 of them Labor Day, 6 September 1943, was just what its name implies. Instead of taking labor's traditional day of rest, they were on the job an hour earlier than usual and contributed an hour's production without extra pay.

During that one hour a shop of the Aircraft Electrical Division, under the direction of Quartermaster C. C. Wyatt, set a record by wiring a trainer from stem to stern in 60 minutes. And in the Overhaul Department, by refusing to punch the time clock even at the end of his extra hour's work, Henry L. Handey contributed his whole Labor Day pay to the Navy. 

TAIL ASSEMBLY of a naval training plane is handled by women civilian employees who have just finished stitching it in the Assembly and Repair Shop of the Naval Air Station at Corpus Christi, Texas.
across the highly polished surfaces, are given a final inspection at the Naval Gun Factory.
AMMUNITION

Over 100,000 Ship Out All Made by Fleet

More than 35,000 uniform garments for enlisted men are manufactured daily at the Naval Clothing Depot in Brooklyn, N. Y. This is in addition to the huge volume of clothing manufactured on contract and shipped to the depot for distribution. Nearly 6,000 civilians are employed now at the depot, compared to the 1,709 employed there at the outbreak of the war.

Besides supplying clothing, the depot has a coffee-roasting plant which supplies all East Coast ships and stations, and a laboratory which tests all the Navy’s dry provisions.

Seagoing armament is manufactured in fifteen naval ordnance plants. Ammunition is manufactured, loaded and handled in 33 depots and magazines. The Navy has several plants which produce armor plate for its warships, and several which manufacture bombsights, rangefinders and other optical equipment.

Although there are 1,800 prime contractors and 25,000 subcontractors working on naval ordnance, Navy plants furnish a large part of the Navy’s ordnance requirements. These comprise guns of all calibers.

Navy civilians also are manufacturing various kinds of torpedoes, for destroyers, cruisers, PT boats, submarines, airplanes; bombs and bombsights; mines of various types; depth charges, nets and booms for protecting a naval anchorage; flares and rockets and other pyrotechnics. In other words, they are building everything which is thrown at the enemy by ships and planes, the weapons which do the throwing, instruments for improving their accuracy, and many of the protective devices to parry the enemy’s blows.

One of the largest Navy plants is the Naval Gun Factory in the Washington Navy Yard. There, many of the large-caliber guns are tooled and assembled. The factory also has a large optical department which turns out delicate devices, such as gun directors and range-finders.

As in other branches of the Navy, women play an important part in ordnance manufacture. Of the 75,000 civilians employed, about 20,000 are women.

—Official U. S. Navy Photographs.

A BIG GUN barrel is rifled by a workman at the Naval Gun Factory, Washington Navy Yard.
When the *SOUTH DAKOTA* and her 16-inch guns turned up unexpectedly off Savo Island, three Japanese cruisers "never knew what hit them."

**The Story Behind 'Battleship X'**

**Workers Who Built South Dakota Ahead of Schedule Had a 35,000-Ton Secret to Keep**

"Battleship X," famous for blasting three Japanese cruisers to the bottom in one southwest Pacific engagement and downing 32 Jap planes in another, last month was identified by the Navy as the *USS SOUTH DAKOTA*, first of a new class of 35,000-ton battleships.

The *SOUTH DAKOTA* would not have been in the Pacific at all, in time to shatter a carefully laid Japanese trap, had it not been for civilian shipbuilders at the New York Shipbuilding Corp. yard in Camden, N. J.

During both engagements (Battle of Guadalcanal and Battle of Santa Cruz Islands, INFORMATION BULLETIN, February 1943 et seq.) the *SOUTH DAKOTA* was commanded by Capt. Thomas L. Gatch, USN—now Rear Admiral and Judge Advocate General. In praising the ship he said: "Her battle record reflects the skill, energy and devotion of the men and women who built her."

Through their efforts "Battleship X" was launched 13 months ahead of schedule. And despite the fact that thousands of people work either on her or near her day after day. In the case of the *SOUTH DAKOTA* there were some complications that made it doubly difficult, and which tested greatly the loyalty of the workers involved.

For one thing, there is around any shipyard a great feeling of pride in the ships they turn out. This was perhaps more so in the case of a yard working on something as new and impressive as the *SOUTH DAKOTA*. It's a natural temptation to voice pride in such a ship—and it is also hard to hold one's tongue under provocation. And the Camden shipbuilders occasionally had plenty of provocation.

A reporter riding on the Camden-Philadelphia bus struck up conversation with another passenger, and asked what people thought of the vast shipyard there. "Hmph," was the answer. "Just like in the last war. It's Fort Dodge," which was a pointed crack at what many people thought, mistakenly, to be true— that shipyard workers there were, as in the last war, given blanket deferments.

Actually, the real situation was vastly different.
Expecting a pushover, Jap torpedo planes skim in for "the kill"—an error that cost them 32 planes. The SOUTH DAKOTA got 20 of the first 20.

Speaking with the heavy Scotch burr which is a natural sound around that yard of ship craftsmen, a marine shipfitter explained what often happened. "A lad gets to yearning to serve in the ship he's built. Some young lads barely finish a ship than they hustle down to the Recruiting Office to get the Navy to let 'em serve in it."

The yard lost 25% more workers this way than through selective service! But people didn't know this. Another thing they didn't know was that the yard had worked out a replacement schedule of its own with the full cooperation of Selective Service, and that it had worked so successfully that it became a model.

"Draft boards are not shipbuilders," said one of the men. "They wouldn't know the difference between a tack welder and a hull welder. You can train the tack welder in a couple of months, but a hull welder is a rare jewel of an artist. Draining off too many of the 'jewels' may break the backbone of a plant, and jam production."

Today every man's record is studied by a joint committee representing labor and management at the plant. They know how well he has worked, his production, his absences, his attitude toward his work; they know how his job rates in importance and whether it would be difficult or easy to replace him. And if he doesn't measure up in the eyes of his fellow-workers, heaven help him. For those men are the toughest of all judges—dour Scotsmen for the most part, lovers of ship and believers in a firm sort of 'joostice' for all.

So well is the system working that, although the committee was originally composed of two men from the workers, two from management, and one (Colonel Henry F. Rhodes) from Selective Service, the Selective Service representative has been able to withdraw from active participation in it, convinced that the job the men are doing is far and away better, fairer and more productive than any selective service mechanism could ever make it.

But, people didn't know that story, and up to now it hadn't been told. The men couldn't say, either, that they were working on something bigger and more powerful than anyone knew. Nobody could know how big she was, or what she was, or how powerful. Nobody in the town knew anything about it. (And that's only part of the story. These men were working on the landing craft program, too, and couldn't tell about that, either.) So they just "took it"—and buttoned their Scotch lips tightly.

Another good reason for keeping mum was the fact that so many of their own boys were in those ships, and the men would never have done anything to endanger the life of a single one.

An example of their devotion to the job that can now be told is the story of what happened when Admiral Gatch went to the yard to bring them the story of "Battleship X" and her exploits, so they would know what a fine ship they had built. Instead of holding a giant rally, as might be expected, the men had another idea. They sent their leaders—the men of the joint labor-management committee—to hear Admiral Gatch. "To take all the men off their work for a whole day would mean time lost on the ship," they said. Let Admiral Gatch tell his story to the men's leaders, and they in turn would pass it on to the men on their own time. And that's what happened.

James McKissock, hull welder and representative of the workers on the yard's labor-management committee, adds a final note: "The morale in this yard is now higher than an eagle's dandruff."

It's men like these who are turning out the ships. Admiral Gatch has said of them: "The men and women of the New York Shipbuilding Corporation can be proud of the accomplishments of the battleship SOUTH DAKOTA... a fine fighting ship built by free American workers."
WHO ARE THEY BACK UP FLEET
AND AIR ARM WITH
WHAT IT TAKES TO WIN

One common denominator runs through all the more than half a million civilian employees in the Navy's hundreds of shore establishments: intimate ties of blood and comradeship with America's fighting men. Only a few typical cases are pictured on these pages; other scores-times-scores could have been chosen with equal justification.

Take, for example, W. O. Shelton, a civilian inspector of naval materials at Tulsa, Okla., who cherishes a letter on White House stationery:

"My dear Mr. Shelton," it begins. "Hearty congratulations to you and Mrs. Shelton. I was delighted to receive your letter of August twelfth accompanying that picture of your seven stalwart sons—six of them already in service in defense of the Nation. You should be proud, as your country is grateful, that you can make such a splendid contribution."

It concludes, "Very sincerely yours, Franklin D. Roosevelt."

Or George Beckwith, supervisor in the joiner shop at the New York Navy Yard. As a chief carpenter's mate in the Navy in World War I he was cited by Admiral William S. Sims and awarded the Conspicuous Service Cross. One Beckwith son, an SF2c, was killed at Pearl Harbor. Another, a CBM, received the Purple Heart for wounds received in action in the aircraft carrier Wasp.

Or John J. Doherty, of the pipe shop at the Boston Navy Yard, for whose son, Ensign John J. Doherty, Jr., killed in action in the aircraft carrier Enterprise during the first attack on the Marshall Islands, a destroyer escort has been named. Or L. H. Snider, shipfitter at the Norfolk Navy Yard, who has seven sons in service; or H. J. Dickinson, chief quartermaster of the Charleston Navy Yard paint shop, who has a son in

(Continued on Page 68)

—Official U. S. Navy Photograph.

AT LEFT, Mrs. Betty Brown (Philadelphian Navy Yard), chauffeurette, receives the Navy Cross for her husband, Major Robert S. Brown, USMC, killed in action on Guadalcanal. The boy is their son, 10-year-old Robert S. Brown, Jr.
CIVILIANS WHO WORK FOR NAVY?

HERO: Charles Driscoll (Boston Navy Yard) was honorably discharged from the Navy after receiving Purple Heart at Guadalcanal.

MOTHER: Mrs. Ruby Buchner (Mare Island Navy Yard) has four sons in the Navy and another in production work near her at Mare Island.

FATHER: John Hayden (Norfolk Navy Yard) has a son in the Navy. A second, an Army captain, was killed in action in September.

SISTER: Rose Piccioni (Philadelphia Naval Air Material Center) has one brother in Army, one in Navy, one missing in action with Navy.

INTERNEES' SON: George Lee (Mare Island Navy Yard) recently received word his parents, Chinese civilians, are Jap prisoners.

WIDOW: Mrs. William Barnes (Charleston Navy Yard) is the widow of a signalman lost with a ship built in yard where she works.

SIXTEEN-YEAR-OLD: Don Lay (Norfolk Navy Yard) joined the Army before Pearl Harbor but was discharged when his age was discovered.

WIFE: Mrs. Winifred Fuller (Portsmouth Navy Yard), an electrician's helper, has a husband and two sons who are serving in the Navy.

VETERAN: Ray Faust (Norfolk Navy Yard) was decorated for service in a destroyer that sank a U-boat in the first World War.
Six Mare Islanders put their ideas together and came up with this "million dollar doughnut" machine. Its pre-packed cable stuffings save the yard hundreds of man hours and thousands of dollars on each ship.

Ideas That Shorten The War
An Engineer’s Hobby, A Janitor’s Suggestion, An Anonymous Tip—Multiplied, They Win Battles

By JOHN A. THOMAS
Lieutenant (jg), USNR

When the historians get around to writing the final story of World War II, they may find that, for all its quiet, unwarlike tone, one of the most important sentences spoken during those years was by a civilian and began: “I suggest . . .”

Because a marine engineer had a hobby, production time on a certain ship job has been cut 80%. A parachute worker found out how to make a sewing machine a war weapon. A gasburner looked at a pendulum—and saved his Navy yard thousands of man hours.

A janitor walked around his plant and saw something that gave him an idea. He brought it to the attention of his bosses. It’s saving 40,000 gallons of oil a year in that one plant alone.

A laborer put a few planks together—and cut loading time for barges by 50%. An 84-year-old bulletmaker celebrated his third war by winning a suggestion award. Six men in a Navy yard created a “million dollar doughnut” that jumped production 20 times.

There are thousands of such ideas all over the country. They are used in Navy yards and in naval supply depots, at the naval aircraft factory and the naval gun factory and naval ordnance plants. Suggestions pour in to private shipyards and ordnance plants and aircraft factories.

Some of them are apparently small in themselves; many represent fabulous savings. All help to shorten the

Civilians at War:
The Blood-Plasma Front

The Navy’s civilians have taken every chance to contribute their blood to the Red Cross for shipment as plasma to the battle fronts.

One example, typical of all, is that of the Washington Navy Yard, where more than 2,700 employees donated blood between 15 February and 15 September, an average of 385 donors a month.

Mobile units of the Red Cross blood bank have found navy yards all over the U. S. a fertile field. One unit collected 1,105 pints of blood during a five-day visit at a navy yard.

The Navy’s civilian employees always have been enthusiastic purchasers of war bonds. How enthusiastic they are Admiral Ernest J. King made clear last month, when he pointed out that 90 per cent are investing a portion of their pay each month in war bonds.

In September 1943, Navy civilians raised their purchases of bonds to the highest peak since the program was started in October, 1941. Total sales in September were $30,477,763, compared with the previous record of $27,783,065 in July, 1943. Under payroll allotment plans, civilians purchased $13,971,094 worth while uniformed personnel of the Navy bought $9,617,150 of bonds.
war, and thus save lives of fighting men.

To get in ideas like these and channel them into productive use, a procedure known as the Beneficial Suggestions System has been established by the Secretary of the Navy for all naval activities. Through this system, new ideas and new ways to help win the war get prompt and thorough consideration at each naval establishment, and the best of them are passed on to headquarters in Washington for further dissemination to other yards and plants. In addition, the 48 largest naval shore establishments have War Production Committees which provide continual stimulus to the business of building not only ships and planes and guns, but ideas.

This suggestion program dates back to the last world war, to 1918, making it one of the oldest such systems in the country. After that war, of course, the impetus for short cuts and conservation naturally dropped and the program languished. In 1942 it came to life again and has since produced results in a big way.

In a period of two weeks at one yard, 90 suggestions were received! In addition to these Navy workers, there are many other workers enrolled in suggestion plans in industries directly contributing to our war production. There are almost a million of them in Shipbuilding and Ship Parts, and close to another million in Ordnance. About 650,000 idea men are in the Aircraft and Aircraft Parts industries. More than 600,000 of them produce Iron and Steel, and a third of a million work on Engines and Engine Parts.

Added to the 677,000 workers in naval establishments, they swell the total of “thinkers up” to almost 6,000,000.

All these workers are bound together in the idea pool through their Labor-Management Committees, enrolled under the War Production Drive. Their suggestions are assured consideration by a committee at their own plant. Best suggestions again flow toward Washington to War Production headquarters, and are considered for Awards, Certificates, or Citations of Merit. These are publicized in a weekly paper which goes out to all plants, so that the winning ideas are spread around.

In one week, workers in California shipyards won 41 production awards for their suggestions. The estimated saving from those suggestions adds

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Because this worker refused to be satisfied with the old 4-hour way of tightening the lifting eye on these gears... . . . he suggested and developed a special wrench, cut the time to 15 minutes. Result: a $37/4-hour saving per engine.
up to 7,847 man hours per ship.

The way an idea gets born is pretty unpredictable. Andrew Caton, for example, sorts and stacks metal tubing, which comes in varying lengths. Not a hard job, but a slow one. As each load of tubing was dumped on his work table, he separated the lengths one at a time. And while he was sorting them, he did a little thinking. He placed metal strips crosswise on his table over the marks indicating the desired tube lengths. The tubing is dumped on top. Then, by simply lifting the metal strips, those above 93 inches in length all come up together; those of 82 inches do likewise. A simple idea—but it ran his production up from 146 pounds of tubing per hour to 516.

For something on a bigger scale, there is the tool invented by Frederick J. Kratchman, quarterman toolmaker at New York Navy Yard. Confronted with the problem of drilling and tapping holes in armor plate for fighting ships, he developed a new tool—"a mechanism for milling internal buttress threads for armor bolts." That's a pretty technical mouthful but what it adds up to is this: it reduces seven operations to one. It takes only one-fifth as long. It saves about 17 minutes per hole—an aircraft carrier, for instance, has about 2016 holes in its armor plate, the saving in man hours of labor can be pretty sizable.

But that's only the beginning. The tapping and recessing tools formerly used are now no longer needed, thereby saving tool costs and critical materials. A co-worker of Kratchman's developed a portable drill head to go with this thread miller, eliminating the necessity for bringing armor plate into the shop. This released cranes and expensive tools for other work. The drilling can now be performed in any convenient place by bringing the tool to the armor, instead of vice versa. All in all, the savings at this one yard are already estimated at $30,000, and the idea can be used at other yards and plants throughout the country. As a result, a lot of big ships are going to hit the water months ahead of schedule.

People who worry about the scarcity of oil should meet Edgar Gaston, who did something about it, thus proving that a janitor gets to the bottom of a lot of things beside buildings. There is a machine which uses great quantities of heavy lubricating oil. The waste shavings were carted off to the smelter covered with this valuable oil. Though the metal was saved, the oil was wasted—until Gaston, a janitor in the plant, made a suggestion. Put perforated false bottoms in the shavings truck. The loaded trucks stand a while, the oil seeps off the shavings, and is drained from the bottom for future
Seven of the nine ideas modestly submitted by this man under the name of "Mr. X" won plant awards before his identity could be discovered. He turned out to be . . .

Joe Kantsky, 63-year-old machinist. His "anonymous" ideas won national recognition and a trip to Washington, where he received a citation at the White House.

Parachutes owe a couple of improvements to Flora Wurster and Alva F. Starr, both of the Naval Aircraft Factory in Philadelphia. Miss Wurster found a way to conserve webbing used for parachute harness by getting two jobs done where one was done before, through a simple marking device of her own.

As for Starr, it is strongly suspected that he is a family man who knows the home uses of a sewing machine. At any rate, he noticed that pilot chute suspension line eyes were being laboriously hand-sewn. He developed a method of using a sewing machine for the same purpose. That touch saves 2,400 man-hours per year at the Naval Aircraft Factory alone and is now being used by outside manufacturers.

Putting a couple of planks together doesn't sound too technical, but things happen when it gets done the right way. Clyde A. Rigsbee, leadingman laborer at Naval Supply Depot, Oakland, Calif., saw that loading a barge was not only difficult and dangerous because of the rise and fall of the tide, but time-consuming in the method of handling.

He devised a simple loading platform of non-rationed lumber, to project over the edge of the dock. By this method, he reports, "we now load a barge in 50% of the time, and use less than 50% of the men originally used."

Ideas don't have to be big ones. "One man," according to Donald Nelson, war production chief, "figured out how to cut five pieces out . . ."

(Continued on Page 70)
Winning ‘E’ Pennants—a Navy Tradition

Navy yards and private plants working for the Navy have won the Army-Navy “E” over and over as a by-product of their efforts in building the world’s greatest Navy.

All plants engaged in war production and construction work are eligible for the Army-Navy production award. There is equal opportunity for governmental as well as private plants, those engaged partly on war work as well as those engaged fully on war work, subcontractors as well as prime contractors.

Actually, only about 2½% of all plants engaged in war production have won the “E” pennant. Of the 1,910 plants so honored, 1,188 were nominated by the Army and 722 by the Navy. Proportionately, Navy yards have won more than their share.

Just what does it take to win an Army-Navy “E” pennant?

The standards are extremely high, with Navy plants judged just as strictly as private firms. Many factors are considered, but principally the quantity and quality of production in the light of available facilities.

Other factors considered in awarding the “E” are: (a) overcoming of production obstacles, (b) avoidance of stoppages, (c) maintenance of fair labor standards, (d) training of additional labor forces, (e) effective management, (f) minimum of accidents, high standard of health, sanitation and plant protection, (g) utilization of subcontracting facilities, (h) conservation of critical and strategic materials, (i) low absenteeism.

Size of the plant has no bearing whatever on the awards. A Brooklyn inventor, sole owner and operator of a small machine shop in the basement of his home, turns out precision parts for Navy machine guns on a subcontract. The Navy awarded him his original “E” in December, 1941, and his production record has entitled him to a renewal of the award every six months since that time.

All navy yards now fly the “E” pennant, as well as many other naval activities which are engaged in production work. Certain yards have a pennant with stars, each star indicating that the yard has maintained the same high standard for an additional six-month period.

Army and Navy have separate Boards to determine “E” Awards. The Navy board is comprised of Admiral C. C. Bloch, USN(Ret),
chairman; Rear Admiral George H. Rock, (CC) USN(Ret); Rear Admiral W. T. Cluverius, USN(Ret), with Lt. (jg) James S. Copley, USNR, as secretary. The board meets about every five weeks to pass upon the nominations, which usually originate with the Navy inspectors in the various plants. Navy nominations are passed on by the Army, and vice versa, thus making it a joint award.

The Navy first instituted its "E" in 1906, as an award to vessels of the fleet for excellence in gunnery. Before Pearl Harbor the Secretary of the Navy, with the approval of the President, inaugurated the present system of awarding the Navy "E" to plants showing marked superiority in the production of naval equipment. From this evolved the new pennant.

Army-Navy "E" pennants have been awarded the following naval establishments:

**WITH THREE STARS**
- Navy Yard, Boston, Mass.
- Navy Yard, New York, N. Y.
- Navy Yard, Norfolk, Va.
- Naval Ammunition Depot, Mare Island, Calif.
- Naval Ammunition Depot, Puget Sound, Wash.
- Naval Ammunition Depot, St. Julians Creek, Va.
- Naval Gun Factory, Washington, D. C.
- Naval Mine Depot, Yorktown, Va.
- Naval Ordnance Plant, Baldwin, L. I.
- Naval Powder Factory, Indian Head, Md.
- Naval Proving Ground, Dahlgren, Va.
- Naval Supply Depot, Norfolk, Va.
- Naval Torpedo Station, Alexandria, Va.
- Naval Torpedo Station, Newport, R. I.

**WITH TWO STARS**
- Navy Yard, Mare Island, Calif.
- Navy Yard, Pearl Harbor, T.H.
- Navy Yard, Portsmouth, N. H.
- Naval Ammunition Depot, Iona Island, N. Y.
- Naval Ammunition Depot, Oahu, T.H.
- Naval Ammunition Depot, Hingham, Mass.

**WITH ONE STAR**
- Navy Yard, Charleston, S. C.
- Navy Yard, Puget Sound, Wash.
- Naval Ammunition Depot, Fort Mifflin, Pa.
- Naval Ammunition Depot, Hawthorne, Nev.

**FIRST PENNANT**
- Naval Clothing Depot, Brooklyn.
- Naval Ordnance Plant, Louisville, Ky.

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**HOME FRONT SOLDIER DECORATED:** Rear Admiral C. H. Woodward, USN (Ret), chief of the Industrial Incentive Division of the Navy Department, decorates a worker with the Army-Navy "E" lapel pin that goes to employees of companies that win the pennant.

**THREE STARS IN NORFOLK FLAG:** The Army-Navy "E" pennant is hoisted at Norfolk Navy Yard, signifying outstanding speed and excellence in production for the fleet. It has three stars, which indicate the yard has maintained its record for 18 months since the original flag was awarded. Every Navy Yard holds the "E" pennant.
Typists and filing clerks make up a large part of the Navy's 150,000 civilian office workers.

The People Who Do the 'Little' Jobs

Without Typewriters and Filers, You Not Only Can't Fight a War—You Can't Even Keep Track of One!

The girl at the typewriter and the little old lady at the filing cabinet may seem a long way from the battlefronts of this war, but the connection is a strong one for many of the 150,000 civilian employees of the Navy who do its clerical, office and other desk jobs.

Typical of all is one who came from the far west to work in the Navy Department at Washington, D. C. There were plenty of jobs nearer home for a girl these days, but the motive came out in a letter from her father. "My two sons were lost at Guadalcanal," he wrote. "She's all I have to give, now."

Another girl volunteered for work with the proviso that it be with the Marines. She had just come that her brother had been hospitalized. She wanted to work for the same branch which he had served.

In Washington alone, some 20,000 civilian workers help the Navy in the vast and intricate job of running a war on the "desk" front. They're typists and mail clerks and stenographers; accountants and bookkeepers; engineers and draftsmen and professional technicians. About 71% of them are women—including an 18-year-old from the Dakotas who had been elected "wheat queen" by Army harvest hands, and a white-haired elderly lady of 74, known to her fellow-workers as "Admiral Whitecotton," who came to work last year as a junior clerk!

There are men with honorable discharges from the Army or Navy, and women whose menfolk are in the service. Wherever possible, all other things being equal, preference is given to both these groups in employing civilian personnel for the Navy.

In quiet, unspectacular fashion they do the million and one little unglamorous jobs on which a war depends. They keep the records of all enlisted and officer personnel; receive, verify and maintain muster rolls; account for the whereabouts of every man in the Navy.

They receive all incoming mail, sort it, route to the proper person. Much mail comes to the Navy Department for naval personnel whose station or ship is not known to the sender; this is re-routed, properly addressed, forwarded to him.

They type the military orders, and the specifications for ships and planes; distribute navigation charts to fleet and air force; transcribe medical histories of naval personnel. As engineering draftsmen, some of them design and redesign ships and guns and planes, basing their work on performance reports from the fleet.

They keep the accounts, watch the ledgers, prepare the purchasing orders; drive the cars, deliver the messages, examine the claims. Now that the President has signed the bill amending the Servicemen's Dependents Allowances Act, increasing allowances and extending them to all seven pay grades, an enlarged staff of workers will be busy going over claims and reclassifying enlisted records to extend the benefits of the bill as fairly, efficiently and promptly as possible.

Civilian workers for the departmental service of the Navy are now being actively recruited in 36 states, excepting only the "labor-tight" West Coast, which needs all its own. Naval personnel who have wives or relatives able and willing to serve in clerical positions for the Navy can refer them to Navy Department, Washington, D. C., or to any local establishment of the Federal Civil Service Commission.
WOMAN'S PLACE IS IN THE SHOP

Industry Finds Her Dependable Worker In Difficult Tasks

In navy yards, supply depots and air stations from New Hampshire to Pearl Harbor women today make up more than 32,000 of the employed personnel—a figure that has leaped nearly 800% from the 6,000 women working for the Navy in 1939.

As pipefitters, welders, crane operators and truck drivers, as machinists, woodworkers, lathe operators and precision workers, these American women have freed men to fight—and, more than incidentally, have turned the clock of history far ahead in proving woman's right to an important role in industry.

For industrial experts agree that women, properly trained, are the most dependable of workers. They can invariably be trusted to do a job exactly as they were taught to do it. Said a directive of the Shore Establishment Division on 12 August, 1943: “Within the limits of physical ability, training and experience, women have shown themselves to be as efficient as a similar group of men with the same backgrounds.”

And well it is that women are proving so efficient in their new role: for more and more, as the Army and Navy expand toward the goals set for victory, the job of supplying the men in uniform must fall on their mothers, daughters, wives and sweethearts.

Not that there were no problems in the absorption of women into heavy, high-speed industry. There were—but problems, mainly, not of what women could and could not do, but rather those arising from industry’s inexperience in handling these new workers.

Women’s supposed physical handicaps, which had kept them from many types of work for generations, turned out to be much less serious than had been expected. While a man’s lifting strength is only half a man’s, her pulling strength is two-thirds of his. And a woman will brace herself and use her muscles differently from a man, but not necessarily less effectively. Her thrust on a rivet gun, for instance, was found to be adequate if delivered from the waist rather than the chest.

In most cases, the physical factor proved no real problem when industry adjusted itself to the woman rather than expecting her to act just like a man. Vultee Aircraft, for one, has developed new electrical tools, vises, wrenches, etc., designed to save strength as well as time. With them women are able to do heavy work

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ONE OF NEARLY 4,000 women employed at the Charleston Navy Yard, Mrs. Berta Bell, a helper trainee, was commended for efficiency by the commandant of the Sixth Naval District.
formerly allotted to men only. Similarly, standard tools used for years by men have been modified and re-designed for women.

How to adapt working conditions to women's psychological differences from men also was worked out by research and experiment. A Navy research bulletin defined the problem rather bluntly: "A woman's high-strung sensitivity will break under discipline or criticisms which a man takes in stride. . . . They are more easily discouraged. In many cases, they actually fear machines and are allergic to noise, vibration and confusion."

The solution was not difficult: industrial counsellors and sympathetic supervisors. Grouping of women of similar backgrounds and tastes also proved effective. Older women were spotted among youngsters as a stabilizing influence. Good housekeeping in the shop and personal cleanliness were found invaluable to morale here as everywhere.

On the positive side, woman's natural curiosity makes her want to know just what she is doing and why. Told, she does it efficiently. And in operations that require suppleness and quick motion or manipulation, it has been found, women often are faster and more accurate than men.

What she is doing, and how well, are best told in official figures from navy yards. Portsmouth, N. H., today has 2,000 women workers against 49 in 1939. They are helpers to blacksmiths, electricians, shipfitters, sheetmetal workers, pipefitters; they operate acetylene torches and gas welders.

Of 5,000 women at the Philadelphia Navy Yard, 838 are employed as mechanic learners and 300 more work on drill presses, grinders, and other machines. Washington Navy Yard's 4,498 women include 500 who are rated as ordnance workers. These specialists bevel, trim, clean, inspect and measure precision eyes for rangefinders, one of the most delicate instruments used by the fleet.

In Charleston Navy Yard there was a shortage of men to load and unload supplies. There were women who were willing but not strong enough. Fork lifts and cranes were designed, and today a number of Charleston's 4,000 women workers have replaced the male stevedores. Others are busy at everything from turret lathes to drills.

Hired as unclassified Civil Service employees, the Navy's women workers first are instructed in a program of "In Service Training." Experts drill small groups in the technique of varied jobs. Often individual workers get special instruction directly at the new machine or new assignment. Programs of supplementary after-hours training are available for specialists.

Local schools and colleges now have courses sponsored by the United States Office of Education, the Civil Service Commission and the Navy Department. Such courses
RIVETER AND INSPECTORS:
The skeleton they're working on
will soon be a Navy patrol plane.

as Vocational Training for War Production and Engineering Science Management War Training offer free studies in drafting, engineering and mechanics.

Many war jobs are dangerous. Safety rules and precautions have had to be revised and streamlined to protect the unfamiliar woman worker.

A woman is a special safety risk for many reasons, including her dress, hair and habits. As a consequence standard clothing rules have been adapted in most yards and factories. The wearing of jewelry, open toed shoes, stylish but floppy slacks, flowing sleeves and other decorative frills is prohibited on safety grounds.

Many naval establishments have special clothing shops on the premises for women. Rest periods are standard at most stations and required by local law at some. Women who for years have led normal daytime lives need special safety and

health instruction when they turn to nightshift work.

Near the Mare Island Navy Yard, the Vallejo Housing Authority opened its first nursery for working mothers more than a year ago. Three more have since been added. One operates seven days a week, the others 11 hours a day six days a week. At these nurseries more than 125 children are cared for daily. Without them, many of the mothers would doubtless be forced to give up their jobs.

As the ensuing months bring more and more discoveries as to woman's adaptability to war jobs, the many facets of feminine personality have been utilized to advantage.

Once it was learned that a woman works better when her curiosity as to the meaning and needs of her job is satisfied, this curiosity was put to good use. At Charleston one crew of women was first assigned to the keel work of a DE. As ship construction progressed, it was moved to work on the hull, then to the installation of equipment. By this method the women learned how one job hinges on the other.

Also, although for some time women past 45 years of age were rarely accepted for war work, age is no longer a barrier. Older women, when they can qualify physically, are often found to be the best workers in a unit or entire section.

With most of the problems now solved, the woman worker sticks to her job once she has mastered it. Figures prove that once a woman gets past the first two months of unfamiliar work she rarely leaves it.

The recent report to the Assistant Secretary of the Navy sums up:

"An experienced woman, well adjusted to work in the plant, needs no more special consideration than such a man. Indeed, where women are receiving man's pay for man's work, there would be no logic in their being treated with special ceremony."

DRILLERS: In the prescribed headgear of the Navy's civilian production corps, these women do a man's job on a submarine under construction at Groton, Conn.

CHART MAKER: Elsie starvel plots soundings and positions at the Navy's Hydrographic Office.

MACHINIST'S HELPER: A former West Coast stenographer, now employed at the Puget Sound Navy Yard, grips the handle of an electric grinder as expertly as she once handled a typewriter.

—Official U.S. Navy Photographs.
Building Door-to-Door Invasions
Workers, Managers, Naval Officers Together Rushed Through Huge Landing Craft Program

In reporting the achievements of the building program that made “door-to-door invasion” possible, the Navy Department used the following words: “That sufficient landing craft were ready to more than fulfill the operations requirements set down by the Allied Joint Chiefs of Staff is a tribute to the hundreds of thousands of American workers—men and women—who faced seemingly impossible schedules and met them on time, and to the hundreds of Naval designers, design agents, planners and coordinators who all cooperated in this gigantic effort.”

Swarming ashore in the Aleutians, Solomons and Mediterranean, “invasion boats” have discharged their fighting cargoes all over the world in recent months. Now that the story behind their production can at last be told, it appears that a problem which became famous 32 centuries ago, and which stumped the Spaniards in 1588, was solved for this war just in time—thanks to a small miracle of production.

Some of the craft that made these invasions possible were the giant tank landing ships—LST’s—which were used for the first time. Less than 20 months previously these craft had existed only in the minds of military and naval experts.

Hundreds of large infantry landing craft—LCI (L)’s—were also used. An urgent transatlantic dispatch had started development of these only 16 months previously.

Yet at Kiska, Attu, Rendova, Sicily and Italy, the landing craft were able to write new chapters in the history of invasion, by carrying invasion from door to door.

For months the press and radio of the country, recognizing what was developing and its strategic implications, maintained a strict voluntary censorship on the landing craft program. As the program developed and security permitted, certain portions of the story were unveiled. Now that these craft have been in action with the enemy, the full story behind their development can be told.

The idea of a “portable door-to-door invasion” isn’t exactly new, but some historic attempts have been disastrous. The most successful (before 1943) was probably the oldest, for it took in the Trojans more than 3,000 years ago.

The Greeks had laid siege to Troy for ten years before someone thought up the “Trojan Horse,” a large wooden affair in which several warriors could be hidden.

The Greeks sailed away, apparently giving up the siege as a bad job and leaving the wooden horse as a parting gift. When the Trojans took it into their city, the hidden Greek warriors stole out at night, unlocked the gates and admitted the returning Greek army.

On land, at least, the Greeks had found a method of transporting an invasion successfully to the enemy. The business of doing it by sea still remained a problem, as Philip II of Spain found out centuries later.

Philip sent 130 vessels and 30,000 men against England in 1588. But the English fleet outmaneuvered him, and between the seagoing Britons and severe storms that came up, Philip’s vast Armada was shattered and broken, about half of the original ships reaching home. Successful “door-to-door” invasion was still a long way off.

Today, ships that can land their own troops are a prerequisite to invasion, and the huge armadas that stream toward the enemy’s coasts are heavily composed of landing craft developed especially for this warfare.

The story of landing craft, 1943 model, began in the winter of 1935-36 when the Bureau of Construction and Repair, later part of the Bureau of Ships, initiated designs of various types of personnel landing craft, to be carried in boat davits on troop transports and auxiliary vessels, and
to be used for landing troops and cargo where pier facilities were unavailable. As a result of these craft being tested in the fall of 1936, testing, development, and improvement led ultimately to the standardized models LCV, "Landing Craft, Vehicle"; LCP, "Landing Craft, Personnel"; and LCR, "Landing Craft, Rations" of large numbers of which subsequently were ordered.

About the same time the Navy undertook the development of "tank lighters," designed to carry one light Marine Corps tank, to land in shallow water, and to permit the tank to run ashore over a ramp. Detailed plans were completed in June 1937, and the lighter tested in landing exercises a year later.

As war clouds gathered, it became apparent the role of the tank lighter would be increasingly important. The LCM(3), "Landing Craft, Mechanized (Mark III)" was accordingly developed. By the latter half of 1941 it was also apparent that provision must be made for carrying heavy tanks. This called for a tank lighter which would be larger than any previously conceived, capable of crossing ocean areas under its own power. It would be impossible to launch landing craft this large from other ships.

The British, who had an extensive landing-craft program of their own, had come to similar conclusions. Their early plans were for Commando raids. Now the pattern of invasion was widening, calling for larger landing craft.

In November 1941 a small delegation from the British Admiralty arrived in America to work with the Navy Department on preliminary designs for landing craft, and to arrange under the then recently enacted Lend-Lease Act, for their construction in the United States.

As a result of these conferences it was agreed that BuShips should design the LST, "Landing Ship, Tank," a giant vessel to be capable of transporting and landing hundreds of tons of tanks. Also developed during these meetings were the LCT(5), later LCT(6), "Landing Craft, Tank (Mark V or VI)." This was conceived as an intermediate landing craft, smaller than the LST but larger than the LCM—one that could be carried on cargo ships (in sections) or on LST's; could transport a limited number of tanks or other equipment, could land on shallow beaches, and offered the additional advantage of easy dispersal.

A month later, of course, came Pearl Harbor. The need for ocean-going tank-carrying craft was greater than ever. The need for all kinds of landing craft skyrocketed.

To see what happened in America then, it is necessary to visualize the immensity of the problems facing planners of the landing-craft program. What was the first step? What had to be decided? How was the program to develop? Who should do what? What obstacles had to be met, and how were they to be overcome?

Having the basic problem before them, BuShips design officers went ahead to determine the major characteristics of these ships: their speed, displacement, cruising radius, ammunition, load-carrying capacity, structural strength, stability, seaworthiness and major arrangement features. Tests were arranged at the David Taylor Model Basin.

Soon after construction started, the British tossed another problem into the works. An urgent dispatch from them pointed out the need for a larger type of infantry landing craft. This led to the development of the LCI(L), "Landing Craft, Infantry (Large)."

Once BuShips had developed the basic designs for all these, design agents were appointed: Gibbs and Cox, Inc., of New York, for the LST; New York Shipbuilding Corp., of Camden, N.J., and Manitowoc Shipbuilding Co. of Wisconsin, for the LCT. Shipbuilders were called in, shown the basic plans, given explanation of the tremendous task to be assigned them.

Faced with definite deadlines set by the Joint Chiefs of Staff, BuShips rushed out preliminary orders verbally, by telegrams or by brief air-mail letters.

New sources of shipbuilding had to be found. Already the Navy's own building program was in full swing, yet the landing craft program had to be superimposed. In many instances the Navy turned to heavy industries along the inland waterways. For example, former bridge builders, experienced in working with iron and steel products but totally inexperienced in ship construction.

The gaping jaws of an LST open wide and an American tank heads toward shore. These ships made history at Attu, Rendova, Sicily, Kiska, Munda and New Guinea.
New facilities were constructed practically overnight in former corn fields, in vacant lots, in land along rivers and inland streams. Thousands of people who had never before built ships, most of whom had never even seen a Navy combatant vessel, were hired, trained quickly, and put to work. Every workman was informed that he was helping to make invasion boats, and told why it was important. Some contractors, lacking buildings, started prefabricating in tents.

Even this was not enough. Five U. S. Navy Yards (Boston, New York, Philadelphia, Norfolk and Charleston) and the Newport News Shipbuilding Co. turned over part of their enormous facilities.

An entirely new Navy-owned shipyard at Hingham, Mass., managed by the Bethlehem Steel Co. (Shipbuilding Division) turned in an outstanding production record in building landing craft before the yard itself was completed created out of a marsh. The Bethlehem management, whose historic Fore River yard three miles away built Navy combat ships for many years, including small craft and the original aircraft carrier USS Lexington, poured all its know-how into the Hingham landing-craft program.

The Maritime Commission assisted by contracting for and supervising the construction of landing craft in certain yards used for merchant shipbuilding.

Next problem was materials, the growing scarcity of which was affecting almost every war program. To eliminate frequent production hold-ups, BuShips organized in mid-1942 a Materials Control Agency regarded as the most complete materials coordinating system ever achieved by a Naval shipbuilding program.

At the request of BuShips, Bethlehem Steel Corporation provided a number of key men for the agency. They formed an organization of several hundred persons to work with Naval Inspection Service throughout the country in tracing bottlenecks and expediting production of parts for the program.

Despite these efforts, certain parts still could not be obtained because of previous priority commitments. With the cooperation of the War Production Board, the Navy was given the right of issuing overriding priority orders for materials needed for landing craft. Despite the fact that this program totalled more than one billion dollars, the Navy's overriding priority had to be used for less than four million dollars' worth of equipment — less than three-fourths of one percent of the purchase orders.

As the vessels were turned over to the Government, organizations were set up to take deliveries. Throughout the nation, landing craft converged upon ports from which convoys sail. They're still converging.

Landing craft are writing new chapters in the development of war, by fulfilling their main mission—transporting tanks and troops to the scene of action and landing them.

Fighting on the invasion shores of the world, landing craft are proof that a whole new kind of armada can be created in record time, and that the "door-to-door" invasion which the Greeks carried out on a small scale, and the Spaniards flopped at on a big scale, can be accomplished if you have U. S. production to put behind it.

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**Types of U. S. Navy LANDING CRAFT**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LST</td>
<td>Landing Ship, Tank</td>
</tr>
<tr>
<td>LCI(L)</td>
<td>Landing Craft, Infantry (Large)</td>
</tr>
<tr>
<td>LCVP</td>
<td>Landing Craft, Vehicle, Personnel</td>
</tr>
<tr>
<td>LCM(3)</td>
<td>Landing Craft, Mechanized (Mark III)</td>
</tr>
<tr>
<td>LCT(5)</td>
<td>Landing Craft, Tank (Mark V)</td>
</tr>
<tr>
<td>LCT(6)</td>
<td>Landing Craft, Tank (Mark VI)</td>
</tr>
<tr>
<td>LCC</td>
<td>Landing Craft, Control</td>
</tr>
<tr>
<td>LVT</td>
<td>Landing Vehicle, Tracked (Un-armored)</td>
</tr>
<tr>
<td>LVT(A)</td>
<td>Landing Vehicle, Tracked (Armored)</td>
</tr>
<tr>
<td>LCR(L)</td>
<td>Landing Craft, Rubber (Large)</td>
</tr>
<tr>
<td>LCR(S)</td>
<td>Landing Craft, Rubber (Small)</td>
</tr>
</tbody>
</table>

**Terminology:**
- "Landing Ship" designates largest models, designed for landing; "Landing Craft" designates vessels smaller than ship; "Landing Vehicle" refers to amphibious vehicles.
Landing Craft: Main Types Now in Service

**LST**
LANDING SHIP, TANKS: BIGGEST USED, CROSSES OCEANS.

**LCI(L)**
LANDING CRAFT, INFANTRY (LARGE): TROOP TRANSPORT.

**LCT**
LANDING CRAFT, TANKS: FOR LIGHT TANKS, SUPPLIES.

**LCM**
LANDING CRAFT, MECHANIZED: MOBILE GUNS, TRUCKS.

**LCVP**
LANDING CRAFT, VEHICLE-PERSONNEL: SHIP TO SHORE.

**LCR**
LANDING CRAFT, RUBBER: RAFT WITH OUTBOARD MOTOR.

—Official U.S. Navy Photographs.


"Thanks for a Fine Job"

When the last shot is fired and our task force limps home to survey the damage inflicted by enemy shells and bombs, the battle is just beginning for the Navy civilians on the home front. Those thousands of Navy Yard workers, from Portsmouth to Pearl Harbor, who bind up the wounds of our battle fleet, don't consider themselves heroes. They're just doing a job. When the war is over they will wear no campaign ribbons on their chests. Fourth of July orators will never extol their virtues to the skies.

All they will have is an inner satisfaction in knowing that they did their part toward bringing the war to a speedy and victorious close. They know a ship in the yard for repairs is just as useless as a ship at the bottom of the ocean. It's their job to patch up the scars of battle and send those ships back to the fleet without the slightest unnecessary delay. They must build ships, and more ships, turn out bombs, torpedoes and shells by the thousands. How well they responded after the Pearl Harbor disaster was a miracle of maritime history and an omen of what was to follow.

Navy civilians are not supermen or superwomen. They're just plain folk, many of them fathers, uncles, sisters, sweethearts, wives, mothers—yes, grandmothers—of Navy men. Some could make more money or find easier jobs elsewhere, but they have a personal interest in the Navy and they are glad to make the sacrifice.

When they have worked on a ship, she becomes their "baby." They follow her, so far as censorship will permit, through the vicissitudes of war. If she participates in a raid on Wake Island they talk about it for days, and if the ship is sunk, they feel a profound personal loss as though a member of the family had passed away.

We of the Navy know and appreciate how much we owe our civilian coworkers. In dedicating this issue of Information Bulletin to Navy civilians, we salute them: "Thanks for a fine job. Keep up the good work."

RANDALL JACOBS,
Rear Admiral, USN
The Chief of Naval Personnel.

Quotes of the Month

Seabees in the Aleutians: "The snow comes at you so hard that it blows up your pants and out your neck instead of down your neck and out of your pants."

Comdr. Victor W. Buhr (CEC) USNR: "At one weather station here in Newfoundland the wind averaged 70 knots and rarely falls below 30 knots. We had one gale of 140 knots and the local birds were seen to be flying backwards."

General Marshall: "When you have a man on the run, the important thing is to keep him running. You must cut him down when he is off balance. Battle hazards in the Pacific will be the same because we are going to expose ourselves to hazards, having the means to do it."

Secretary Knox: "The war in the Pacific is the greatest Naval war ever fought by the United States or England."

LETTERS
TO THE
EDITOR

This column is open to unofficial communications from within the Naval Service on matters of general interest. However, it is not intended to conflict in any way with Naval Regulations regarding the forwarding of official mail through channels, nor is it to substitute for the policy of obtaining information from the local commanding officer in all possible instances. Answers to correspondence addressed to the Editor will be through this column only.

To the Editor:

In the May 1943 issue of the Bureau of Naval Personnel Information Bulletin, Page 37 (Insignia of the U.S. Navy), the illustrations showing the "Enlisted Cuff Stripes" do not agree with the U.S. Navy Uniform Regulations, unless they have been officially changed.

Your illustration indicates that a Fireman Second Class would wear three and a Fireman Third Class would wear two cuff mark stripes on the cuff of the sleeve of the dress jumper, whereas the Uniform Regulations specify two and one respectively.

A part of Chapter VIII, Article 8-6, Uniform Regulations (1943), page 28, is quoted as follows: "...Non petty officers... of the second class, two stripes; and of the third class, one stripe."—E. B., Y2c, USN.

Answer: The Bulletin is (or was) right because a fireman third class was "of the second class", etc., but the question is now academic. See page 72 for a BuPers Manual change which establishes third class ratings in the Artificer Branch, making fireman first class equal to a seaman first class, a fireman second equal to a seaman second and drops the designation fireman third class.

To the Editor:

Regulations have been issued concerning the length of time members of the Navy V-12 college training program are to remain in college. It is my understanding that these regulations do not govern the length of training of members of the NROTC. At the present time we do not know when we will be commissioned or receive college degrees.

I have completed two semesters of NROTC training prior to the inception of the V-12 program. I am not an engineering student. I would appreciate any information that could be released concerning commissioning and the receipt of college degrees as applicable to those of my status in the NROTC. —J. H. T., A/S V-12.

Answer: NROTC members are covered by V-12 regulations as

(Continued on Page 76)
THE MONTH'S NEWS:
(Period of 21 September through 20 October)

Allies Push Toward Rome;
Central Solomons Retaken;
Navy Blasts Japs On Wake

The War

The Allies struck crippling blows at widely scattered points last month. The American and British armies rolled back the Germans south of Rome. At Wake Island, the Navy blasted Jap installations. At Alten Fjord, Norway, midget British subs torpedoed the vaunted Admiral Tirpitz.

On 15 October an American and British air armada fought what was termed the greatest air battle in history over Schweinfurt, Germany. When the battle was over, the vast ball bearing factories at Schweinfurt were reported demolished. The raid cost 60 Flying Fortresses, heaviest loss to date.

A Navy carrier joined British surface units for a raid on enemy shipping in Norwegian waters off Bodoe, 4 October. The Navy fliers scored hits on an 8,000 ton vessel and others. It was the first time a Navy carrier had participated in a raid on the European coast.

The biggest Allied airfleet ever assembled in the Pacific smashed at Rabaul on 12 October. Results: 177 Jap planes and 123 Jap ships destroyed or disabled in two hours.

The heralded Moscow conference of three great powers opened. Secretary of State Cordell Hull held his first conference with British Foreign Secretary Anthony Eden and Soviet Foreign Commissar Vyacheslav Molotov on 20 October.

Tension and unrest in Europe were growing hourly. Yugoslav guerrilla armies, apparently using modern equipment and ordnance, were capturing towns and annihilating Nazi garrisons. On 29 September the Yugoslav People's Army of Liberation under General Tito reported their first actual invasion of German soil. This army entered Austria north of Murska Sobota in a thrusting raid.

Elsewhere the fighting forces of
conquered countries were striking, too. Fighting French and freed Italians cleared the Nazis from the island of Corsica, birthplace of Napoleon. These patriots, according to General Giraud, ranged in ages from 15 to 75 years and were uniformed only with an arm brassard proclaiming them “Franc-Tireurs” or guerrilla fighters. They had been organized and armed by Capt. Colonna D’Istria, native Corsican secretly landed on the island by a French submarine months previously.

There was worry for the enemy in the Pacific, too. Starving and unable to receive supplies, the Japanese evacuated their Vila base on Kolombangara Island after an air siege by General MacArthur’s combined Australian and American forces. MacArthur’s Aussies had taken Finschafen in New Guinea and his air arm was blasting the Japanese base at Wewak.

One surprise raid on the roadstead at Wewak bagged seven Japanese ships and 60 planes. In another, Liberators scored a bull’s-eye on the main ammunition dump.

Scarcelli had the Navy announced that Admirals King, Nimitz and Halsey had conferred at Pearl Harbor when a strong task force under Rear Admiral Alfred E. Montgomery launched a heavy attack on Wake Island.

South of Hawaii, the Navy landed a Marine force on Nanumea on September 29 and met no opposition. This coral islet is in the Ellice group and brings Navy striking power to within 325 miles of the Jap base at Tarawa in the Gilberts.

In Russia, the Red Army recrossed the Dnieper River, scene of 1941 battles, and refused to let the seasonal rains interfere with further advances. By October 20, the Red Army threatened entrapment of the German armies in the Dnieper bend and in the Crimea.

On 2 October it was learned that the Nazis had resumed their Atlantic submarine war with undersea craft often equipped with new anti-aircraft weapons. A convoy from Canada fought a ten-day running battle with a wolf pack. Ten ships were lost. Later it was announced the Nazis lost more U-boats than they sank ships.

Within Germany, the Nazis executed citizens for “defeatist utterances” and peace talk although neutral sources, possibly prompted by German propaganda, continued to rumor official German peace feelers.

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**OFFICERS of a Navy escort carrier question one of 65 prisoners hauled (half naked) from the Atlantic after Lt. Robert Pershing Williams, USNR, sent three German subs to the bottom and damaged a fourth in a four-day running battle with an Atlantic wolf pack. Lt. Williams flew a Grumman Avenger bomber with Morris C. Grinstead, ARM1c, and Melvin H. Padon, AMM2c, as crew. It was after this battle that the Navy announced that the Nazi subs, equipped with new deck guns, are now staying on the surface and attempting to shoot things out with attacking planes.**

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**The Navy**

Secretary Knox, back from his Salerno inspection told Americans: “What the men with landing craft accomplished there was an epic. I have brought home a new conception of landing operations.” The Secretary, complimenting Navy men for their work in the invasion, told a story of a youth who took time to perform an emergency amputation on a comrade with a penknife without abandoning or delaying operations of his landing craft.

The Secretary later revealed that the Navy had sunk 98 Jap merchant ships not previously announced and damaged another 50. Total Jap ships sunk or damaged by U. S. subs since Pearl Harbor: 460.

The Navy disclosed that Japan had assembled a huge fleet near Truk for a showdown battle last January. The

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**CASUALTY FIGURES**

Casualties among naval personnel through 20 October totalled 30,671. The totals since 7 December 1941:

<table>
<thead>
<tr>
<th></th>
<th>Dead</th>
<th>Wounded</th>
<th>Missing1</th>
<th>Prisoners</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. S. Navy</td>
<td>9,569</td>
<td>2,989</td>
<td>8,448</td>
<td>1,941</td>
<td>23,944</td>
</tr>
<tr>
<td>U. S. Marine Corps</td>
<td>2,985</td>
<td>2,867</td>
<td>406</td>
<td>1</td>
<td>8,661</td>
</tr>
<tr>
<td>U. S. Coast Guard</td>
<td>565</td>
<td>61</td>
<td>1</td>
<td>1</td>
<td>638</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>11,099</td>
<td>5,466</td>
<td>9,115</td>
<td>4,191</td>
<td>30,671</td>
</tr>
</tbody>
</table>

1A number of personnel now carried in missing status are undoubtedly prisoners of war not yet officially reported as such.
Japs evaded joining battle after a series of defeats in trying to reinforce their troops at Guadalcanal.

The Navy's largest transport plane, the Martin Mars, in an endurance test last month stayed in the air more than 32 hours, travelling 4,600 miles in an area bounded by Baltimore, Norfolk, Cap Cod and New York.

The fishing trawler Adelaide T., operating off the eastern tip of Long Island, was trolling slowly. The crew finally noticed that she was trolling very slowly indeed. So slowly, in fact, that she was going backwards. The crew was still trying to guess what sort of a monster had been netted when a smoke bomb emerged from the water. The next thing that emerged was a United States submarine.

Foraging inland on Sunday souvenir hunting, two Guadalcanal Seabees, one dirty and dishevelled man carrying a Jap rifle. "What'll you take for it?" they yelled. The frightened character dropped the rifle and fled into the bush. The Seabees realized they had collected a souvenir but missed a Jap prisoner.

"Utmost expediency" was the order last summer when a patrol squadron reported to an East Coast Naval Air Station for major changes and overhaul. Some 375 workers (naval personnel and civilians) were put to work on the planes in a hangar about a mile from the dispensary. On his own initiative, Glenn H. George, PhM2c, USNR, established a local dispensary in the hangar. Result: An estimated 700 to 1,000 man hours of work saved by eliminating transportation to the main dispensary.

Seabee Maintenance Detachments to operate and maintain Navy advance bases are being created. Organized into a headquarters detachment, maintenance and operating company, each new unit contains approximately five officers and 270 men.

The name of the Naval Airship Training Command has been changed to Naval Airship Training and Experimental Command and the title of the commander to Chief of Naval Airship Training and Experimentation, in order to express more clearly the functions of the command.

Officers and men of a major ship of the British Navy last month made "hearty acknowledgment of the unfailing courtesy and assistance extended to them on all occasions" while their ship served actively under United States command. The British Admiralty in a message to Cominch said: "The efficiency not only of operating units of the Fleet, but also of U. S. shipyards and all co-ordinate services made a deep impression, and the British vessel returned from her period of duty improved both in equipment and battle efficiency." In its own behalf, the Admiralty expressed its gratitude and the hope that "it may be possible for other units of the British Fleet to operate under similar conditions."

In operation in the Southwest Pacific are several huge Marine Corps trucks that stand out from hundreds of others of the same type because they bear tiny reproductions of the Rising Sun flag painted on their hoods. The machine guns on these trucks assisted in bringing down a Jap plane. Lashed to the top deck of a convoy ship, the trucks were en route to the Southwest Pacific. The convoy was attacked by five Japanese planes. Manning the machine guns, Marine and Seabee truck drivers held their fire until one of the planes peeled off and dropped a bomb about 400 yards to the starboard. Then (along with the guns of a destroyer) they opened up. The plane crashed in flames.

Rear Admiral Thomas Leigh Gatch, telling of the performance of the uss South Dakota (Battleship "X"): "She shot down 32 enemy dive bombers while maneuvering at better than 27 knots. She put up such a hail of steel that our own aircraft commander ordered his men to stay well away from her. The South Dakota is the greatest ship in the world, including the much vaunted Admiral Tirpitz. She ran as quietly and efficiently as a sewing machine and the crew loved her. It usually takes a year for a new crew to learn how to handle a ship in battle. Her crew did it much faster. In her first action she proved that the battleship— with air coordination—rules the seas." (A story on the building of the South Dakota appears on page 22.)

Famous throughout the Navy for his food and service, Cezar Del Valle, CSt (PA), USFR, last month was parted from the ship on which he had spent more than 21 years building a legend of culinary incomparability. Wrote his commanding officer, Capt. J. A. Roberts, USN, com-

NEW DESTROYER NAMED AFTER ADMIRAL SCOTT: The widow, two Navy sons, and a brother of the late Rear Admiral Norman Scott, USN, were in the launching party when a sleek, new destroyer named in his honor slid down the ways at Bath, Me. Admiral Scott, posthumously awarded the Medal of Honor, was killed in the Battle of Guadalcanal while leading a task force against the Japanese. In the party (left to right) are Capt. William G. Ludloue, on the staff of Rear Admiral Morton L. Deyo, USN, Commander, Destroyers, Atlantic; Holman Scott, brother of Admiral Scott; Mrs. Webb C. Hayes, Washington, D. C., wife of Captain Hayes, Director of Recruiting and Induction, BuPers; Admiral Deyo; Comdr. Charles Belknap, USN (Ret.), St. Louis; Ens. Norman Scott, Jr., USN; Mrs. Deyo (behind Ensign Scott); Mrs. Belknap; Mrs. Marjorie Scott, Washington, D. C., sponsor of the destroyer; her younger son, Michael Scott, of the Navy V-12 Unit at Yale; Captain Hayes; Miss Lila Deyo, daughter of Admiral and Mrs. Deyo; Capt. Russell S. Hitchcock, USN, supervisor of shipbuilding for Maine; and Archie M. Main, vice-president of the Bath Iron Works Corp.
mending Del Valle as he left the USS Henderson because of its decommissioning: “You have become more than just a steward and have practically developed into an institution.”

Visit of a Navy insurance officer to the Submarine R-12 just 72 hours before the craft was lost off the East Coast has meant that families of the officers and men aboard will receive $178,000 for their future support. If it had not been for the insurance officer’s timely entrance, these Navy men undoubtedly would have remained uninsured. When the officer left the sub, all hands were insured for $10,000 each except one yeoman who felt he could afford only a $5,000 policy. (An announcement in June 1942, said the R-12’s loss was due probably to accident and not enemy action. The R-12 had a normal complement of 28 men and was engaged in training exercises.)

More than 90 per cent of naval personnel are now protected by Government life insurance as against less than 80 per cent (at most naval activities) prior to 12 April 1943. Average individual coverage now amounts to more than $9,000.

On 27 November Army and Navy will meet in comparative privacy for their annual football classic, at the Military Academy’s 12,000-seat Michie Stadium. Cadets, and those fans lucky enough to live within 10 miles of the Point (and fortunate enough to have a ticket), will be the only spectators. Navy won last year’s game, 14-0, which was played at Annapolis before the midshipmen and Annapolis residents.

Army Corporal George K. Henderson, serving with a Marine Raiders ambush party on New Georgia, confidently used his tommy gun and a hand grenade to dispose of five of an eight-man Japanese patrol. Turning to see what his Marine companions were doing, he discovered he was alone. He had failed to get the order to withdraw. He bedded down for the night, and walked into camp in time for morning chow.

Still in service somewhere in the South Pacific is “The Bug,” two full war years behind her, 1,100 hours in the air, and more than 250,000 miles on her log. “The Bug” is a Navy OS2U Kingfisher scouting seaplane. She spotted the raft containing one of the survivors of Capt. Eddie Rickenbacker’s plane. “The Bug” flew out, landed, and took Rickenbacker and two of his companions aboard for the trip to a Navy base. Rolled off the assembly line in mid-summer of 1941, “The Bug” was at Pearl Harbor on 7 December 1941. Although hit by enemy shells, she was repaired and went Jap-hunting that night.

During an attack on Viru Harbor, Sergeant Lowren W. Schofield, 22, USMC, was hit by enemy fire and thrown 15 feet through the air. He landed on the ground beside Chaplain Paul J. Redmond. “I’m hit father,” Schofield gasped. Examining him, the chaplain found that the bullet had been deflected by a hand grenade he was carrying. Only injury: loss of breath.

Home Front

OPA spokesmen on 22 September predicted that civilians will ultimately be cut to two pairs of shoes per year under new rationing because of increased needs for military services.

New York newspapermen were introduced to the “tanker champion of World War II” last month. This Norwegian ship has made 45 Atlantic crossings and carried enough gas for 39 bombing raids of 500 planes each. The tanker has never contacted a submarine but, early in her career, suffered slight damage from a mine. She was built in Hamburg, Germany, by German workmen using German materials in 1939 and sold to the Norwegian government.

THREE GENERATIONS IN NAVY: Three generations of the McVay family gathered in Washington, D. C., recently and posed for this picture. They are: Admiral Charles B. McVay, Jr., USN (Ret.), of Washington, D. C.; Capt. Charles B. McVay, III, USN, on duty in Washington with the Chief of Naval Operations; and Charles B. McVay, IV, Stc, USN, Seaman McVay, stationed outside of Washington, was on leave when the picture was made.

“Scuttlebuttl” is dead. The long-eared, mongrel pup who joined the crew of a Navy minesweeper when he was only 10 days old (via a San Diego bar and a ship’s cook) died “on the beach” in a veterinary hospital while his shipmates were at sea. Loved by all hands, “Scuttlebuttl” (INFORMATION BULLETIN, August 1943, page 33) was registered in the ship’s log, given a special Navy identification badge and rated ship’s cook, second class. Famous among sailors in the San Diego area, his achievements included learning to hate a caricature of Tojo and to bark upon sight of it.

FLASH BURNS, ranking second to gunshot and shell fragmentation wounds as a cause of Navy and Marine Corps battle casualties, are prevented by a new skin cream perfected by Lt. Comdr. Gordon B. Fauley (MC), USNR, who in photo shows Mayo Pittman, PhM2c, how to apply it.
**THE OFFICIAL WAR AT SEA**
(20 September to 20 October)

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**20 SEPTEMBER**

Allied Headquarters in the Southwest Pacific; Northwestern Sector, New Ireland (Ravens); A South Pacific reconnaissance unit east of Kast庄村 attacked and set on fire a small enemy cargo ship. New Ireland (Cape St. George): Our heavy reconnaissance units damaged a 3,000-ton enemy cargo vessel. New Britain: Our light reconnaissance units destroyed two barges in Reit Bay. In Wilius Strait our naval patrol craft strafed buildings on Beve and Ritter Islands and destroyed two troop-laden barges off Blucher Point. New Guinea: (Hans Bay): One of our medium reconnaissance units at night attacked and destroyed a 1,200-ton enemy cargo vessel.

**London, Air Ministry:** Aircraft of the Fighter Command on offensive patrols over France today attacked and damaged two mine sweepers offshore.

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**21 SEPTEMBER**

**NAVY DEPARTMENT COMMUNIQUES**

**No. 468**

South Pacific: (All dates are East Longitudinal. L.) On 19 September, in the early morning, several enemy vessels bombèd Guadalcanal Island. Slight material and personnel casualties were sustained.

**London, Admiralty:** While on patrol off the Dutch coast near Ushions early yesterday morning, light coastal forces of the Royal Navy encountered an enemy supply ship of large size accompanied by a strong escort of patrol vessels, armed trawlers and mine sweepers. HMS Majesty's ships attacked by torpedoes. Two hits were scored and the vessel sank. Heavily armed enemy escorts also successfully engaged. One trawler was left with her stern awash, adrift and in a sinking condition. A second enemy escort ship was seen to burst into flames. All Majesty's ships returned safely to harbor.

**Moscow, Midnight Communiqué:** Our airmen in the Barents Sea sank an enemy patrol ship and damaged three transports. The Red Banner Battle Sea Fleet Air Arm sank six and damaged 12 high-speed troop-carrying barges.

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Changkung, A Fourteenth United States Air Force Communiqué: B-25's of the Fourteenth United States Air Force bombed docks and shipping installations at Kiukiang. A direct hit was scored on a 225-foot destroyer.

Berlin, Nazi Broadcast: In the waters of the North Cape, German fighters and bombers in conjunction with the antisubmarine defenses of a convoy, shot down 21 out of a formation of 38 attacking enemy planes.

In the Mediterranean region, the German air force repeatedly attacked shipping columns and enemy positions and destroyed two large speedboats.

Near Gibraltar our submarines have sunk three enemy destroyers. They torpedoed a strongly protected oil storage vessel and destroyed a freight sailing ship, as well as an enemy airplane.

In the Tyrrhenian Sea units of the Navy have sunk a steamer of the Badoglio Government of 14,000 gross registered tons when it was going over to the enemy and damaged another large ship, as well as a smaller ship and some other small warships.

In the Aegean Sea a submarine chaser destroyed the Greek submarine Kataporia, which was in British service, and took prisoner part of her crew.

Tokyo, Japanese broadcast: Imperial headquarters has confirmed the recently reported sinking or damaging of seven enemy ships on the Upper Yangtze.

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23 SEPTEMBER

**Naval Department Communiqué No. 469**

South Pacific: (All dates are East Long-itude.) 1. A day earlier, during the early morning, six Japanese planes bombed the vicinity of the air strip on Guadalcanal, with damage to material and installations was sustained. No Allied casualties were suffered. 2. On 21 September, in the morning, about 10 or 16 enemy bombers were over Guadalcanal. Damage and casualties were maintained. Two of the enemy planes were shot down by Allied fighters.

Alexandria, Egypt, Royal Naval communiqué: In addition to acting in close cooperation with the Army. HMS EAGLE in the Mediterranean, Allied light naval forces have recently destroyed two enemy convoys in the Aegean, sinking them in a convoy and damaging that of the other. No Allied naval casualties were incurred.

24 SEPTEMBER

Allied Headquarters in North Africa: On the night of 21-22 September a force of motor torpedo boats and other vessels of the Royal Navy, U.S. Navy, and Royal Australian Navy, under the command of Rear Admiral A. H. Blandy, DSO, RM. attacked enemy shipping at the mouth of the Suez Canal. A large enemy transport of the type used by the Axis powers and enemy tankers were sunk. No Allied casualties were reported.

25 SEPTEMBER

Calra, Egypt, Middle East Air Communique: Beaufighters and four-spice (sic) aircraft attacked enemy shipping at the mouth of the Suez Canal. A large enemy transport of the type used by the Axis powers and enemy tankers were sunk. No Allied casualties were reported.

26 SEPTEMBER

**Significant Victory Lies Behind Communiques**

Communiques reporting sinkings of enemy barges may not seem spectacular individually, but as was the case recently in the Central Solomons, they can add up to a significant victory.

President Roosevelt pointed this out to a press conference by calling special attention to the destruction of Japanese wooden and steel barges. While not large, the barges constituted the principal means of transportation for the enemy evacuating positions in the Solomons area.

Berlin, Nazi Broadcast: In the Mediterranean sector the Luftwaffe yesterday shot down six enemy airplanes and destructively hit a merchant ship. The force returned to base without any casualties in personnel.

London, A joint British Admiralty and Royal Netherlands Navy communiqué: During an offensive patrol off the French coast last night, the US Navy, Royal Navy, and British forces attacked enemy shipping at the mouth of the Suez Canal. A large enemy transport of the type used by the Axis powers and enemy tankers were sunk. No Allied casualties were reported. Six enemy airplanes were shot down on this occasion.

The Big Raid on Rabaul was reported 14 October.
ramming the E-boat. Both these craft returned to base with one officer and two men slightly wounded.

The two ships of E-boats were intercepted and engaged at close quarters in conditions of bad visibility by the 'Vice-Admiral Piddington.' Two E-boats were seen hit but it was not possible to observe the full extent of the damage. No damage or casualties were suffered in this encounter.

The E-boats engaged by 'Vice-Admiral Piddington' inflicted substantial losses on the enemy during the engagement. Three destroyers and two other landing craft were damaged. The enemy also launched a large coastal ship and two small supply ships, two of which were sunk and a third damaged by the E-boats. A large supply ship and two small supply vessels were hit and sunk. The third supply ship was damaged by the E-boats. Torpedo damage and large and small auxiliary vessels were destroyed.

A large supply ship and two small supply vessels were damaged and a large auxiliary was sunk by a large coastal ship. A large supply ship and two small supply vessels were damaged by a large auxiliary. A large landing craft and a small auxiliary were destroyed.

28 SEPTEMBER

Allied Headquarters in North Africa, 28 September: Units of the United States Navy are maintaining patrols in southeastern Italian waters adjacent to attacked areas, protecting shipping and standing by in readiness to lend support with their gunfire to ground operations.

Allied Headquarters in the Southwest Pacific, Northeaster Sector, New Guinea (Wewak area) in the harbor, a newly-arrived convoy with three tankers, three destroyers, and four merchant ships was hit and sunk by warships and aircraft of the Japanese High Command, and as many as 5,000 men were killed or wounded. In addition, 29 barges and tugs were sunk by mine action.

New Delhi, India, RAF: At Rendazua, on the lower Irrawaddy, damage was inflicted on three shipping vessels of about 25 smaller river craft and two more ferries by RAF Beaufighters. Heavy air attacks were launched against merchant vessels of the Japanese High Command, including the sinking of one 9,000-ton tanker.

London, Admiralty: Light coastal forces of the Royal Navy, about 150 miles off the eastern coast north of Havre encountered three heavily armored enemy destroyers. One of the British ships approached within close range and attacked with torpedoes and gunfire, inflicting serious damage on the enemy, who was taken completely by surprise, was lost.

During this short but successful action one patrol vessel was blown up, a second was severely damaged, and the third was left burning fiercely. All His Majesty’s ships returned safely to harbor.

29 SEPTEMBER

Calvi, Egypt, A Middle East air communiqué: A small port of Sfax in the Aegadian Sea was bombarded yesterday, explosions occurring near the naval dockyard and coastal vessel sank.

Angolochang, China: A United States Air Force communiqué: B-27s of the United States Army Air Force, on 27 September, hit Shanghai by V-1s of Tonking in search of enemy shipping. A 200-foot Japanese tank barge was hit by near misses were scored and another bomb exploded beneath the vessel. The ship’s crew were seen to abandon the sinking ship.

Allied Headquarters in the Southwest Pacific, Northeaster Sector, Celebes (Tomioka): Our medium units at night strafed the town and shipping, damaging two oil barges and an 8,000-ton freighter and starting fires in the warehouse and barrack area. Northeastern Sector, New Ireland (Kavieng): Our heavy reconnaissance units attacked and set fire to a small port of Eudorina. Southeastern Sector, New Guinea (Finschhafen): Our night reconnaissance units attacked and hit a small oil barge at Lekeh Island. Solomon’s (South Pacific Forces), Bougainville (Chelmsford): Our night reconnaissance units hit a large freighter and damaged a large merchant freighter and a medium freighter-tranposer. New Britain: Our long-range fighters destroyed two oil barges at Rabaul Island. Solomon’s (South Pacific Forces), Bougainville (Chelmsford): Our night reconnaissance units hit two large freighters and loaded barges off Yigo Island and a 100-ton barge filled with enemy troops off Basamuk Island.

30 SEPTEMBER

Moscow, Midnight Communiqué: The Red Banner Baltic Fleet Air Force sank a 5,000-ton coastal ship off Ecker Island, near Berlin, Nazi Broadcast: U-boats in a light fog are attacking convoy ships to the Mediterranean and enemy supply communications in the Atlantic. British Air Force sank six British warships totaling 42,000 tons and one destroyer. German Navy forces and flak of merchantmen and naval vessels were engaged in the engagement. British destroyer and 30 September, Romanian air artillery plane attacked the neutral Norwegian town of Bodø and damaged a large and small auxiliary vessel.

3 OCTOBER

Naval Department Communique No. 472: South Pacific: (All dates are East Longitude) 1 October: The night of 29-30 October, U.S. reconnaissance plane engaged nine Zero fighters fifteen miles north of Nauru island. One enemy plane was damaged.

Calvi, Euphrates, A Middle East Air Communique: RAF Beaufighters launched a large-scale air and air-borne attack against the recently captured island of Kedibar. Countermeasures have been taken.

London, Germany: Despatches: Yesterday RAF Beaufighters carried out a sharp and concentrated attack on a large polder sluice which had been used by the Japanese on river work up the Irrawaddy. The vessel was found at Myitog, some miles below Magwe, and was subjected to intensive machine gun fire and left with smoke pouring from its whole length.

5 OCTOBER

London, Admiralty: The Home Fleet carried out an operation with destroyers and destroyers against shipping in Norwegian leads (waters between the mainland and the Faroe Islands) in three attacks against the father area early on 4 October. In the course of these attacks, over 5,000 tons of United States ships including an air crew carrier.

So far only preliminary reports have been received, but the United States destroyers-carrier horn aircraft contained hits with over 10,000-ton tanker, two destroyers, and two large destroyers, including an 8,000-ton tanker. Three United States destroyers and four by air attack, and it is possible that some of theirwis have been sunk. Damage to the United States ships is in the neighborhood of 3,000,000 tons.

Later two enemy aircraft, one a Heinkel 115 and one a Junkers 88, were蔚来 to a landing in the area by fighters from the aircraft carrier. No other enemy aircraft were sighted.

Allied Headquarters in the Southwest Pacific, New Guinea (Buka): Our units bombarded enemy shipping south of Cape St. George, and our warships bombarded shipping south of Cape Hopkins, the building areas at Gasmere, the airbase and large barge centers at Cape Gloucester and installations on Guadalcanal Island. New Guinea: (No): Six of our night naval units attacked and sank two destroyers and brought the island to a standstill. In two nights actions our warships destroyed large flotillas of barges escorting by gunboats, attempting to evacuate enemy troops from the island. More than 50 barges were sunk by unreported damage and damaged by gunboat and a third damaged by a destroyer.

Chaosou: Our medium, dive and torpedo bombers, with fighter cover, attacked the enemy enemy barge depot at Kukak, causing fires and explosions. More than 50 barges were damaged and fighter twice raided the area, causing moderate damage and casualties. Five planes of the American Navy hit and damaged a large merchant ship anti aircraft. Kolobangar: Our heavy units bombarded the supply and bivouac areas at Villa, starting fires. In two night actions our warships bombarded large flotillas of barges escorting by gunboats. Enemy troops from the island. More than 50 barges were sunk by anti-aircraft fire and damaged by gunboat and several others damaged. Enemy planes caused light casualties on one of our vessels. One of our fighters strafed and burned two enemy vessels and killed 12 men.

London, Netherlands Admiralty: H. M. submarine attacks warships of the Royal Navy in the Mediterranean, has torpedoed and sunk a large American transport ship with 9,000 tons and has destroyed two German transport barges by gunfire.

A Greek communiqué: The Commander in Chief of the Royal Hellenic Navy in the Mediterranean, Captain Karolakos has been sunk.

London, Despatches: On 3 October, landing operations in the eastern Mediterranean were successful. The British frontline was broken and the island was occupied. Six hundred men of the British garrison and 1,500 Italian troops were taken prisoner, and forty guns, twenty tanks, five captured vehicles, and ten captured aircraft were captured. Operations to clear the island of the last enemy resistance were conducted.
Fighting continues heavy in the Solomons.

Aigars, Admiralty; There has been considerable naval activity on the right flank of the American Army on the Arawe coast of New Guinea, and destroyers have engaged in heavy action against enemy positions north-west of Ternioli to dislocate enemy attacks in that area.

8 OCTOBER

Allied Headquarters in the Southwest Pacific: A large force of U-boats, destroyers and fast transports, supported by escort carriers and transports, moved into the area as the enemy retreats to positions farther south. The Arawe coast of New Guinea was bombarded by aircraft and destroyers, and the enemy lost several ships and aircraft.

9 OCTOBER

Allied Headquarters in the Southwest Pacific, Northeastern Sector: Solomon Islands (South Pacific Forces), Chowns: Our fighter-bombers destroyed or damaged eight enemy ships and aircraft along the coast of New Guinea. The enemy was not able to use these ships and aircraft effectively.

11 OCTOBER

Admiralty: His Majesty's submarines have carried out an attack on enemy transport and supply ships in their protected anchorage in the Alten Fjord in northern Norway, inflicting considerable damage on the battleship Tirpitz. This involved hazards of the first order. The attack was made 22 September. Two days later a German official announced that an attack by submarines of the smallest type had been repulsed and that prisoners had been taken.

Insufficient evidence was available at that time to determine the success of the operation. Subsequent photographic reconnaissance, however, showed that the attack had been successful in its objective.
'Advance to the Rear'

An action north of Kievo, as described by the German navy agency, DNB:

"Parts of the attacking (Russian) forces were able to penetrate to the rear of German positions, but German tank grenadiers were able to restore the rearward communications by energetically reversing the fighting direction."

12 OCTOBER

Chungking, China, Fourteenth United States Air Force: B-24s, B-26s and P-40s of the Fourteenth Air Force carried out widespread missions in Yunnan, French Indo-China and off the coast of China. Our 184 bombs, 128 strafed shipping near the China coast. Our bombers scored two direct hits on a Japanese cruiser and an escorting tanker.

The vessels sank in two minutes. Another direct hit caused an 880-ton patrol ship with the bombs bracketing the beam. A 200-foot freighter was also hit, scoring several near hits.

Choson: One of our heavy reconnaissance units sank an enemy cargo ship off the coast.

13 OCTOBER

Allied Headquarters in the Southwest Pacific: bees three enemy vessels sunk near Cape St. George; our heavy reconnaissance units bombed Cape Moalua by air, and sank a 3,000-ton cargo ship.

14 OCTOBER

Navy Department: No damage to the US. Intercepting fighters or to the merchant shipping.

15 OCTOBER

Allied Headquarters in the Southwest Pacific: (Northeastern Sector): our medium units sank a 1,800-ton ship in the harbor of Kupang. We sank a 1,800-ton ship in the harbor. It was damaged.

Tokyo, Broadcast: On the morning of 12 October enemy planes numbering about 260 attacked Saipan, New Bipes. We sank a 4,000-ton ship in the harbor.

In an aerial engagement, eight enemy planes were shot down and four others were damaged, while ground units damaged five planes.

Fifteen Japanese planes were lost in air battles of its own, owing to the Japanese forces.

Pacifik, Nishihama: German U-boats have destroyed 11 ships totaling 74,000 tons and two destroyers. A Japanese convoy was destroyed.

Alligers, United Nations Navals Command: In the early hours of Wednesday, 12 October, unsuccessful operations were carried out against the North Vietnam Bay from land-based aircraft of the United Nations. The capital ships in the same area were later bombarded by light naval forces.

16 OCTOBER

Allied Headquarters in the Southwest Pacific: Our heavy reconnaissance units dropped bombs on New Britain, Cape Gloucester: Our medium units dropped bombs on Bag Island, strafing enemy-held villages and destroying or damaging five vessels.

On the morning of 14 October our light naval craft sank an enemy coastal vessel and strafed enemy ships for 15 minutes on one occasion and damaged eight beached barges at Himmui Island. (South Pacific Forces: Our medium units sank enemy barges off Buka passage.)

The United Nations Navals Command: During the night of 14-15 October British destroyers operating in the Adriatic intercepted and sank two German armed guards. One, laden with 600 tons of bauxite, was attacked by the German and sunk by our forces. The other, a medium-sized tanker, was captured and taken into harbor.

17 OCTOBER


18 OCTOBER

Allied Headquarters in the Southwest Pacific: (Northeastern Sector, New Britain): Our heavy reconnaissance units sank six enemy wrecked five enemy barges off the coast and destroyed two power launches. Adolf Hitler in the Vitu group.

New Guinea, Wewak: A naval vessel of the Minpura Strals was damaged. Madang: Two large destroyers and two small supply ships sank off the coast.

Oro Bay: A large group of enemy ships and barges was attacked. On the 19th our ships and installations were intercepted by our fighters and virtually annihilated before any damage could be done. Solomon Islands (South Pacific Forces): Bougainville (Ruku): One of our night reconnaissance units attacked and destroyed an enemy barge.

19 OCTOBER

Navy Department: No damage.
The Mysteries of Midway
The Story Behind a Great Naval Battle on Which the Japs Staked an Empire

By FLETCHER PRATT

Author of "Sea Power and Today's War," "Fighting Ships of the U. S. Navy" and "The Navy Has Wings."

The Battle of Midway should have been reported by Plutarch. He would have used it to exhibit once more that divine law of compensation which causes men to be destroyed by their own successes. It abounds in the antithesis and paradox of which he was so fond. He would have enjoyed recording that the greatest naval battle in three years of war took place without any vessel sighting an enemy; and that the Japanese leaders, who spent so much of their effort in deceiving their fighting men of all human emotion, themselves gave way to fear of the unknown, lost all their skill, and with it lost an empire which they stood to gain if their plan had succeeded.

It will always seem, until we have positive evidence to the contrary, that the Japanese plan at Midway was at least partly an improvisation. Doubtless there was more than one scheme for the capture of Hawaii filed away in the Imperial archives; and doubtless the best plans included the capture of Midway as a stepping stone, with a simultaneous move against the Aleutians. These would be dictated by the simple military consideration of dividing the defensive forces and gaining some advantages regardless of where the defense chose to concentrate.

But the timing was all wrong, in the sense that the Japanese push into the central Pacific should have been the climax of a victorious campaign in which Japan had everywhere else rendered herself invulnerable and had so damaged our forces afl oat that they were incapable of anything but a desperate defense. The Japanese knew this. But in their strategy at this time there was an element of compulsion. At the Coral Sea they had lost a good deal more than the carrier Ryukaku, an invasion convoy, and the opportunity of extending their empire of the islands southeastward; they had lost face, or some portion of their belief in themselves—an important factor in war. They had also lost time, all the time spent in assembling that gaudy armada whose fragments went slinking home from Misima Island.

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and they were conscious that our production lines had not in the meanwhile been idle. Their war was in fact one in which all the great gains would have to be made early and then defended.

This from every point of view they were urged to a great and daring stroke that should make good the losses of Coral Sea. Probably they were counting on our expecting them to make another major effort toward the southeast toward Port Moresby and Tulagi Harbor. Possibly they believed, on the evidence of Pearl Harbor, that an unexpected attack would always catch us napping.

No one can say whether they might not have been right at another time or against another officer, but in the actual case these were errors of enormous proportions. Admiral Halsey, the vigorous leader of the men who had been at sea when the enemy came down on Pearl Harbor, was the disaster it seemed, since it unready) was ill; and his place was taken by Rear Admiral Raymond A. Spruance, the cold, exact, emotionless tactician known as “the human machine” in the fleet, a man without any psychology at all in the sense of the moderate complement of aircraft from the small carrier Ryujin to accompany them. This squadron (according to the story) consisted of two battle cruisers of the Kirishima class in addition to the carrier, the four big light cruisers of the Mogami type “armed with fifteen guns of 6.1 cal.” a smaller light cruiser, and ten big destroyers.

One was an occupation force expected to land troops; it comprised two armored transports, six troopships, eight to twelve supply vessels, twelve destroyers, and ten submarines, in addition to four cruisers-Chakas, Myoko, Chitose, Choda (again quoting the story)—with 6.1-inch guns.

The third, or striking force, intended to smash up opposition at the point of attack, contained the other two Kirishima class battle cruisers, two cruisers, of the Tome class (new ships with 6.1-inch guns), twelve destroyers and four big aircraft carriers—Kaga and Akagi (the ships that had bombed Pearl Harbor) and the recent Hiryu and Soryu.

There were some very striking inaccuracies in this account—including misspellings like “Choda” for “Chikada” and an understatement of the size of the Mogami-type cruisers’ guns—and it did not list half enough Japanese ships. But when the Midway communique of 14 July came out (one of the finest pieces of prose ever seen in an official document) it gave the strength and organization of the Japanese forces substantially as they had been listed in this press account, though without so many names. The fact that some weeks later the government killed the heads of the McCormick press before a grand jury (unsuccessfully) on a charge of having published information from official sources without official permission, and so having broken the censorship laws, permits the deduction that the Navy did know, and well in advance, what it was going to fight. Other evidence also indicates that it knew when and where the attack would come.

Part of this is furnished by the presence of the carrier Yorktown. She had been in the Coral Sea action with the Lexington, and on the evening of 8 May was steaming southwest and away from that deadly contact with a bombhole in her deck and 44 men dead. Presumably she would have to refuel somewhere, replace planes lost or damaged in the battle, and get repairs that at least implied a visit to a port for spare parts. Yet she showed up at Midway less than a month later, after a run of well over 5,000 miles.
She must have gone like the fabulous bat out of hell, and hardly anything but positive information on the strength and intentions of the enemy could have led the Navy to take their carrier from the static front in the South Pacific and send her on so furious a journey.

**Locating the Attack**

So much for the dating of the Japanese attack. Now as to the placing of it. On straight strategic grounds Alaska was a far more attractive target for the Japanese forces than Midway. The distance they would have to cover was shorter, and much of it was through fogbound seas that would make surprise easy. The Japanese had every reason to believe that the local defenses of Alaska, both ground and air, were not so good as those of the islands to the south. There was thus every reason for our Navy to suspect the Aleutians as the true enemy objective in the absence of positive information, and to rush our mobile defenses, the forces afloat, off in that direction. The Japanese apparently thought we would do that, and to encourage us in the idea they sent a fourth squadron toward the Aleu- tians and made a semi-felt there just before the big attack at Midway.

But Nimitz and Spruance never reacted at all to the Alaskan fake; they kept their ships in the region of Midway. That is, they knew. Some had advanced the theory that they got their information by the same means the British used in discovering there would be a German fleet off the coast of Jutland at the end of May, 1916—through intercepting the enemy's radio messages and breaking down his code.

But even if Nimitz and Spruance knew what the Japanese meant to do there was no guarantee that they would be able to prevent it. For our forces were inferior. From their slender store of available planes the Army sent a handful of fast B-26 bombers to reinforce the air defense at Midway Island; and Flying Fortresses were hastily flown out to Hawaii, whence their immense range would enable them to cover the area. There were a couple of formations of Marine dive bombers, none better in the world, at Midway; and one formation of Navy torpedo planes, the reserve of Torpedo 8, the Hornet's squadron. The ground defenses were put in as good order as a truly desperate shortage of anti-aircraft guns would permit. There were some PBY's, big flying boats, scouts whose military characteristics are described by the fact their pilots called them "The Commuter Command; out by plane and back by rubber boat after being shot down." What chiefly worried Lt. Col. Ira L. Kimes, in charge of Marine aviation at the island, was that his aerial defense consisted exclusively of Fighting 221-25 planes, ancient Brewsters and quite obsolete.

There was no time to reach Midway with anything better, for it is beyond flying distance of a fighter plane even from Honolulu. There were no battleships fast enough to close on the Kirishimas. The submarines that had been ordered to the scene might not get there in time. And there were no PT's for close-in work.

But there was Spruance with the carriers.

Just at daybreak on 3 June, when the Yorktown, at the end of her furious journey, was running fast along the chain of reefs that stretches from Hawaii to Midway, there came a radio flash from Nimitz to the fleet: "Enemy planes attack Dutch Harbor." Twelve hundred miles from the ship and the Admiral who were to be the central figures in it, the Battle of Midway had begun.

**First Move: Dutch Harbor**

The Japanese who made that attack on Dutch Harbor were one of the normal invasion groups that had previously climbed down the ladder of the South Pacific islands. They had two or three cruisers, eight destroyers, a pair of seaplane tenders, and two carriers—one of them a regular Navy ship, the other a converted merchant job. (One of the minor mysteries of Midway is whether this regular carrier was the Ryuyo; she was identified both here and with the Midway support force.) They had transports; and they had ridden without detection thus far along the Aleutian chain, more than half its length, under a fog which probably lay along the eastern edge of a great weather front which was covering their advance toward Midway far to the south.

In Dutch Harbor lay a Coast Guard cutter, an Army transport, three of the old four-piper destroyers, and a minesweeper. At least one of the destroyers had been converted to a tender for the PBY flying boats by removal of half her boilers to make space for the food, ammunition, and men of her attached air squadron. Possibly the minesweeper had been converted also; many of them are. All the PBY's but one were out quartering the mist for the Japanese, whose appearance, in the restrained words of the communiqué, "was not entirely unexpected." That remaining plane was on the water near the tender, about to take off for the States with a load of mail. The antiaircraft stations were manned, the ships all had steam up, when three Mitsubishi's stuck their noses through the low frosty clouds round Mount Ballyhoo and dived to attack. Three more followed and another three-five threes all told in 20 minutes. The gun crews were green and had no help aloft; the attack was well enough delivered to smash a few wooden boxacks and burn up the big mail plane, which could not get unstuck before they hit her. But not one of the ships was touched—nothing vital on shore was touched; and when the Japs went upstairs into their cloud again they left two of
their own bombers blazing on the slopes of Ballyhou, a high percentage of loss.

Everybody at Dutch Harbor expected them back with a lot of their friends, for this was ideal bombers' weather. On the heels of that first attack—obviously intended to disjoint the defense by surprise—Japanese reconnaissance planes began to come over, ducking in and out of the clouds all day long. Now the Japs knew what we had: not very much, no strong naval vessels, no fighter planes, not enough to keep them from landing troops under the combination of air bombing and naval shelling which had been so effective in the southern islands. The Army disposed its troops from Fort Mears, Dutch Harbor tightened belts through, and evening of stand-to, preparing to be another Wake Island, and—nothing happened.

**A Surprise for the Invader**

It is possible that the report of his bombers and the scouts that followed it convinced the Japanese task-force commander that he had all the time in the world to clean up this operation, and he wished to scout the position thoroughly, doing the job with no casualties which he could avoid. It is possible that out there in the fog so thick you could stuff sofa cushions with it he had some accidents in taking in his planes and decided to wait for the clearing weather that comes with dawn before undertaking the major attack. He must have been counting on there being no other American base within 800 miles, so that out there where he was, 70 or 80 miles from Dutch Harbor, he could expect no aerial opposition except from the PBY's. Their pilots would doubtless come in valiantly, but with valor futile against the heavy barrage and fast Zero fighters he could put up.

He waited for daylight; and at daylight, with his Zeros in the air to cover the launching operation, he was just about to get his bombers away and clean house on Dutch Harbor when he was jumped by a formation of American P-40 fighters, escorting some of those wonderful two-motored bombers which can outrun any pursuit ship the Japanese have. Land-based planes—some of which carried torpedoes and all of which came from behind him, from the direction of Japan. It was a touch—and-go raid by a few planes that shed their cargoes of death and were off again like a flash into the mists, not waiting to see whether they got any hits.

We do not know—maybe shall never know—how much material damage was done, but the moral damage was fatal to the Japanese enterprise. The enemy admiral had first to spread his ships, put up defensive patrols, and send out scouts to see what hornet's nest had spawned this brood. Toward afternoon one of the scouts succeeded in following the third or fourth wave of attack home and located their field on Umnak Island, seventy miles west of Dutch Harbor, where no air base had any business being, according to Jap intelligence reports. At this news the enemy admiral pulled himself together enough to get off a squadron of bombers with heavy fighter escort for a damage raid on Dutch Harbor and another for the surprise base at Umnak. They hit both places about 5 p.m. At Dutch Harbor they set fire to an old wooden ship that had been run on the beach as a carpenters' barracks; at Umnak they found the P-40's waiting for them and lost two planes out of nine without any damage for our side. Then these Japs steamed away out of the area and the story.

For all they knew there were half a dozen other bases hidden along the island chain. They had no way of telling that the one at Umnak had only just been achieved by the gigantic efforts of a brilliant engineer colonel, Benjamin Talley, working against ice and 70-mile gales since Pearl Harbor, taking his materials from bases marked for an imaginary Blair Fish Packing Company that had been invented to keep news of the project from leaking out through espionage. Nor had the Japs any way of knowing either that Representative Magnuson would stand up in the House two months later to say that Army bombers from another secret field near Dutch Harbor had failed to take off and smash up the whole Jap force because they had no orders from their own service and would not accept suggestions from the Navy. Is it true? Another mystery.

**The Warning**

Three hours after the Dutch Harbor attack, while the Yorktown was running through bright sunny weather approaching Midway, Ens. Jewell Reid, flying a PBY patrol plane very high 700 miles west by south of Midway Island, saw many objects on the water, dead ahead and far away, looking like ants on a distant polished floor. He flashed a warning—the PBY boys always do this, for they may not last long enough to get home with a full story (on this operation one of them sent the message, "Dogging enemy, please notify my next of kin"). Then Reid moved closer, swinging out abeam of the formation, very high up, to get a count. Eleven big vessels; Reid thought there were two battleships among them, but he came no nearer than was necessary to check their course and speed. Presumably what he saw was actually the Japanese occupation force, with nothing bigger than a cruiser to cover it.

The effective attack range of torpedo and dive-bombing planes is 200 miles. They would not do for this job. Back at Midway curly-haired Lt. Col. Walter Sweeney, Jr., took off with nine Army Flying Fortresses, which regard a 700-mile trip as an average run. None of their crews had ever been
Ensight Davis in plane 2 was caught by the lights: he was not hit, but the ship he was aiming at had time enough to make a sharp turn away from his torpedo. Plane 4 lost the others in the night, never picked up contact again, and got back to Midway toward morning with its last drops of gas.

Ensight Propst in plane 3, who had also lost contact with the leader in some clouds 20 minutes before Richards' attack, picked up the trail and spotted the convoy just about the time it quieted down after the first blow. He too used the moon-path and made a hit. As he climbed away from the uprear a Jap plane came after him and, though it did no damage, the high speed and turns he was forced to use in the getaway took a lot of fuel. The quartering he had done after getting lost in the clouds took more, so plane 3 was still far short of Midway when her tanks went dry and she had to come down at sea. The crew stayed with her till they were picked up by a destroyer, two days after the battle, but by that time their machine was a goner. Still, we could afford to swap one plane (and no casualties) for a big enemy ship (the Navy doubts whether the other went down).

The Attack

4 June. Before the day broke, the PBY’s were out west and northwest of Midway, flying the edge of the weatherfront under which the Japanese striking force was moving toward conquest. The self-confidence of the Japs was undimmed by what must have seemed to them just the sort of partial and ineffective counterattacks with weapons of occasion that a surprised enemy might make. Ens. Howard Ady found them first, an hour after dawn, as he was flying through rain squalls along the edge of the doubtful area, two hundred miles from Midway. He saw first a float plane, low down and at some distance, but clearly identifiable as a cruiser’s observation machine, not of American make. Then he caught a glimpse of the cruiser that had presumably shot it off; a cruiser with the low raking funnel and pagoda bridgework of a Jap. But she ducked under the clouds again and Ady was hunting bigger game, so he kept his radio closed.

Then the PBY’s burst through another rain fit and her crew could see a display of Jap ships lining the whole horizon, with the squall they had just left behind them—two big carriers in the van; giant shapes that would be battleships; cruisers; and “a lot of destroyers. From their position, running into the wind, I believe they had either launched their planes or were getting ready to do so.”
As a matter of fact they had already launched them. It was not more than a minute or two from this time that Lieut. William A. Chase in another PBY sighted over a hundred Jap bombers with fighter escort, flying fast and in tight formation for Midway. He opened up his long-range voice radio, and not bothering to use code, shouted the news. The two reports told Colonel Kimes and Captain Ramsey back at our base all they needed to know. Every plane at Midway took the air at once.

The six machines of Torpedo 8 were the first away. The Flying Fortresses went up—16 of them, which for our purposes can be called the 2nd attack group. So did four Army B-26's under Capt. James F. Collins, armed with torpedoes in another experiment like that of the PBY's at night; they can be called the 3rd attack group. Scout-Bombing 241 (the 4th attack group) went up in two parts, 16 SBD's in one formation under Maj. Loften B. Henderson, 11 in another, under Maj. Benjamin W. Norris. These were the last away; as they picked up formation and headed in the direction Ady had given, the rear gunners looked back in time to see the Jap bombers come in on Midway and our antiaircraft open up.

It fired a beautiful pattern, just 1,000 feet short of the attackers—all but one shell with a defective fuse, which went on up, and by one of the accidents of battle, exploded square on the nose of one of the onrushing bombers. The machine fell apart and one wing, with a bright pennon of flame streaming from it, drifted zig-zag down and down like an autumn leaf. This was the last thing Norris' men could see as they flew west to make their attack.

The Brewsters going out to face the Japanese bombing force, with its escort of Zeros, had met it 20 miles west of Midway. It was the enemy first team, the best they had, who yielded nothing to our Marines in determination, and but little in skill. Four or five of them came down; the rest, so vastly superior in number, swung round to the north away from the area where the Brewsters and Zeros were hammering at each other and came in on Midway from that side, big waves of from 40 to 60 planes each till one observer made the total of 180. The Jap bombers had a 500-pounder apiece, which they dropped mostly from 10,000 feet; then they came down to 1,200 to plant their lighter bombs and to make strafing runs in company with the Zeros.

Too many had no opposition except from the ground antiaircraft fire, and their skill was high—one Jap plane drawing exclamations of admiration from the Marines themselves as it did beautiful slow rolls on the tail of Lieut. D. D. Irwin, whose landing gear had jammed down and who could do no more than try to lead the enemy into ground fire. "It was definitely hot," said the Marine ground captain, Gene Buckner; the men in the pits were glad when silence fell after 20 minutes and what was left of the enemy moved off to the southwest.

Colonel Kimes radioed his fighters to come in (only 12 of the 25 did; the others were all gone, two of them machine-gunned as they drifted down in parachutes) and crawled out from his dugout command post to survey the damage. There were dead men and wounded men all over the island. The administration building was hit, hangars were hit and burning; over on the westerly Sand Island an oil tank was on fire. A machine shop was hit, the canteen had been blown to matchwood, and all the mess halls were destroyed, so that until new equipment came from Pearl Harbor everyone had to live on chillagoolon cooked in big kettles under the sky.

Down through the air as the colonel emerged there were still drifting fragments of the Mitsubishi that had blown up so violently that the marines at first thought these bits were propaganda leaflets. All over the north end of the island marines were happily scrambling for single cigarettes; by a freak of physics the explosion in the canteen had stripped not only the cartons but also the wrappers from all the smokes in the building. And down behind that building one of the classic remarks of the war was being uttered. When the canteen was hit a marine in an emplacement beside it clutched his stomach with both hands and rolled...
over. After the storm had passed two others pulled his hands away to see what they could do for the poor fellow. Out rolled a can of beer, which he had delivered a perfect solar plexus punch.

"I--just--can't take beer on an empty stomach," he gasped and grinned.

The bomb was symptomatic, for the attack as a whole was a failure; it had damaged the gun emplacements little, the plane service establishments hardly at all. The runways had not been touched--perhaps, it has been suggested, deliberately, because the Japs wanted to use them themselves. Forty-three machines had been shot down, or so many that only genuine destruction of the defense plant would have been an adequate return.

**Counterattack**

Meanwhile our four attack groups were over the Japanese ships. The six planes of Torpedo 8 got there first. The main striking force in a tight formation, a swarm of Zeros outside like flies round a garbage can, then cruisers and destroyers masking the big ships. "Get the carriers" had been the brief order given by Admiral Nimitz; the men of Torpedo 8 dived over the escort toward them into a storm of AA fire, small stuff with direct laying, big shells from the cruisers fired with such speed spray can be as resistant as granite. Zeros courageously followed into the fire of their own ships. The communiqué said: "It is believed that this group scored one hit on an enemy ship," but added: "Only one of these six planes returned to its base."

Captain Collins with the four B-25's of the 10th attack group came next; but he had thought they were on a scouting mission. Radio on battle-frequency picked up their exclamations of surprise as they burst through the clouds and saw the Japanese fleet laid out in a panorama not 25 miles away, with the flight of the six torpedo planes going on around it. A flight of Zeros detached itself to meet this new American menace; Captain Collins watched as they flew straight for his formation, and at the ultimate moment before they opened fire gave the word and dived. The Zeros shot past. Sergeant Gogoj in one of the planes remembers a twinge of disappointment; he failed to get a shot at them from the forward gun position; "then I heard Ashley start shooting his gun from the tail. I swung around, and there about 530 feet away was a Jap pursuing us." From another formation which had come out of the cloud to ride them in, Tracer and pompon went past; Collins' landing gear was wrecked; on Lieut. James B. Muri's plane the rear gunner was killed. Both turrets were disabled, and the machine set afire. He dodged between cruisers and destroyers, turned sharp, and headed for the nearest and biggest carrier, which had itself just executed a well-planned lunge and caught fire, but he held on through it to be decorated for bravery. "I didn't have much else to do so I took over the wobble pump, which kept sticking. Finally the gas pressure stopped and the motor quit. We hit the water with a crash but the plane floated and we got out the life-raft"--on which they floated 48 hours till a PBY found them, after the battle.

Major Norris and his second echelon of the 4th attack group came through the worsening weather at an angle that would have forced them to run through the AA and Zero opposition of the whole fleet to reach the carriers; so they picked out a "lovely battleship" and came down on her through a terrific blaze of fire. Two hits, and down went the fantail, where the screws and rudder have but little armur, left the battleship burning enthusiastically.

It was now near 8:30 in the morning. The main Japanese striking force had split into two, one group with the giant carriers (Kaga and Akagi, one of them with a torpedo hole under her ribs), one with the Hiryu and damaged Soryu; while the support force began to move in to lend its guns and float planes to the help of the main body. The 16 Flying Fortresses from Midway had taken off in the morning under orders to go for the occupation fleet with its transports--but now new orders had reached them: to switch to the main enemy force, against which nothing could be too much. The change in direction and the relative slowness of the B-17's (if anything that travels over 250 miles an hour can be called slow) brought this second group of planes to leave, last to strike, onto that striking force just after the Marine whirlwind had blown itself out, about 8:34.

Beneath broken clouds they found "a big battle line, with destroyers outside, cruisers, and then battleships, and away back the carriers, which we picked out for our targets." All the ships they could see looked in good shape, which probably means they came on the Kaga and Akagi, and that the Zeros would be invisible. The flak was thick, well directed, and well calibrated; all the big bombers took punctures and on at least two of them the radio or bellmen were killed. But the Zeros were neither numerous nor very earnest about
pressing home their attacks on the oncoming Fortresses.

Colonel Sweeney cleverly led his Fortresses down an easy gradient on their run. Beneath them the Jap ships were firing furiously, now mostly overs—"They couldn't seem to get it through their skulls to shorten range"—and weaving in the complex pattern of avoidance. But 16 Flying Fortresses can lay bombs over a wide area. One carrier was hit on the port bow, flame and fragments leaping up to join the flame and shells from her guns aft. A battleship was hit, and another ship, never clearly identified, probably a big destroyer. One Fortress came down, but not in the battle area, and her crew too got picked up later, all but one man.

End of Round 2

The second phase of the battle was over. The Japs had been hurt, but back at Midway things looked none too good. Returning American planes limped and reeled down the runways with their injuries and many dead; there were gaps in all the formations. "Millions of them out there!" cried one overwrought young Flying Fortress pilot as he pulled off his helmet. And the Marine gunner who had counted said, "Sixty-three ships; hell's bells, we're through." Henderson was gone, and more than half his men; more than half the fighter pilots; half the B-26's. The remaining planes were pretty well shot up and the repair facilities in none too good shape. The PBY's were out doing their duty of tracking, but we were losing some of them, too; every now and then one would go silent, shot down, or report itself low on fuel and landing among the waves. The aerial defense of Midway was in fact near breaking point, which is to say that the island now had precious little left to keep the enemy at arm's length, and prevent him from moving into range of his battleship guns and shelling all hell out of the place under cover of another aerial attack.

But if the situation looked lowering at Midway—if a hard-boiled Marine could pat a gun breech and murmur grimly that all he asked was one more crack at those bastards before they tipped him over—there must have been something like a case of funk on the bridge of the Japanese flagship.

The Japs had probably not expected to repeat the complete tactical surprise of Pearl Harbor; but they must have counted on achieving strategic surprise, on catching Midway with only a small permanent garrison on the job. The presence of the Flying Fortresses indicated either that this surprise had failed or that the permanent party at Midway was far stronger than had been anticipated. The Japanese themselves had suffered a couple of nasty tactical surprises in the torpedo attacks by night of the PBY's and by day of the B-26's, and they did not know how many more like that we had up our sleeves. One of their carriers was in bad shape; at least one more and a battleship had been hit hard enough to make them something less than fully maneuverable. By this time their destroyers were certainly sending in reports of American submarines in the neighborhood. And the losses in Japanese aircraft had been extremely heavy.

Anyhow, the Jap occupation force was ordered to spin round on its heel and speed back in the direction of Japan; and the Jap striking force turned a couple of points west of north to get deeper under the front of heavy weather with its damaged carriers. All the Jap planes except the ordinary patrols were taken in for refueling and rearming. The support force now apparently closed the gap from the rear and added its strength to the damaged striking force. If all went well the Jap admiral could perform on a large scale the maneuver adopted by his planes at Midway on a smaller one—circle to attack the American base from another direction. His reshuffle was completed sometime between 8:34 and 9:30 that morning—the morning of June 4th.

It seems certain that he had no idea of the approach of Admiral Spruance and the American carriers, which had been hurrying past Midway in a northwesterly direction through the Pacific haze on that eventful morning, as has been mentioned before.

(Mr. Pratt's account of the Battle of Midway will be concluded next month.)
Navy Production

(Continued from P. 7)

Output of these types of ammunition has kept pace with the mounting production of the corresponding guns. In all, the Navy has received 890 million rounds of 20-mm ammunition, 23 million rounds of 40-mm ammunition, 2.5 million rounds of 3¡°70 cal. ammunition and 2 million rounds of 5¡°38 cal. ammunition.

Underwater Ordnance: Underwater ordnance consists of torpedoes, mines and depth charges.

About 46,000,000 of underwater ordnance was produced for the Navy in the first half of 1942. The second half of 1942 showed an increase of ten per cent to a total of about 85,000,000. The first sharp increase came in the first half of 1943 when production doubled to a total in excess of $107,000,000.

The most spectacular recent increase has been in the production of torpedoes. When the defense program began the Navy had one torpedo plant turning out about three torpedoes a day. By June, 1943, the Navy had seven torpedo plants producing scores of torpedoes a day.

Each semi-annual period beginning in July, 1940, has shown a steady increase in torpedo output. From the last half of 1940, to the first half of 1941, production increased 64 per cent. An increase of similar size was registered in the second half of 1941. Thereafter, the rate of increase began to move up more steeply. In the first half of 1942, almost as many torpedoes were produced as during all of 1941, and in the second half of 1942 production shot up another 70 per cent.

A six-fold increase in torpedo production between the last half of 1940 and the last half of 1942 is especially remarkable because it was achieved by two plants. Throughout 1940 the Navy torpedo plant at Newport, Rhode Island, was the only manufacturer. It continued to carry the bulk of the burden during the first half of 1941, but the Navy’s Alexandria plant got into production in the ensuing year and a half these two plants pushed production up 258 per cent.

The sharpest increase of all, however, came in the first six months of 1943 when five privately-managed plants came into production.

Indicating continued momentum and bigger production to come, August torpedo production was two and one-half times the monthly average for the first quarter of this year, and approximates the total torpedo output during all of World War I.

Aviation Ordnance: Reflecting the growth of Naval air power, production of Naval aviation ordnance has increased in size and relative importance.

In the first half of 1942, aviation ordnance production amounted to $40,000,000. It increased to $71,000,000 in the second half of 1942 and reached $220,000,000 in the first half of 1943, becoming the third most important ordnance program. Of the $223,000,000 of aviation ordnance produced in the past 18 months, more than half was turned out in the last six months. (Aerial torpedoes and mines valued at $25,878,526 are included in “Underwater Ordnance”.)

Armor: Although armor is not one of the four major ordnance programs discussed above, the expansion of armor work is one reason for the accelerated ship program presented special difficulties.

The 48,783 gross tons of armor produced in the first half of 1943 is 20 times the tonnage produced in the 1940 fiscal year.

Facilities Construction

The Navy facilities construction program showed a decline in the first six months of the current year, in keeping with the national policy of curtailing construction. This decline followed a series of phenomenal increases in the value of work done in each succeeding semi-annual period since 1 July 1940. The smallest of these period-to-period increases was 58 per cent and the largest 87 per cent.

(Navy facilities construction, in this report, consists of all projects which have been placed under Navy commitment, including Navy projects financed by Defense Plants Corp. It also includes, in addition to the cost of construction per se, the cost of machinery and equipment, the entire floating drydock program, and advance base facilities.)

As in the shipbuilding and ordnance programs, the value of work done during each six month period through 1942 was more than equal to that done in the preceding 12 months.

From 1 July 1940, to 30 June 1943, a total of $81,160,000,000 of facility construction work was scheduled and committed for by the Navy. The value of work done in this period has amounted to $5,500,000,000 or 81 per cent of the work scheduled.

Navy construction program falls into two grand divisions which in turn have ten subdivisions.

The smaller of the two grand divisions includes one of the industrial facilities. Industrial facilities construction scheduled since 1 July 1940, amounts to $3,200,000,000, and 81 per cent of it—or $2,600,000,000—was completed by 1 July 1943.

Sixty per cent of Navy industrial facilities construction was for shipbuilding and repair. The other 40 per cent was divided about equally between ordnance and aircraft.

In the second grand division of the facilities construction program—non-industrial facilities—the Navy has scheduled $4,800,000,000 of work since 1 July 1940, and here again 81 per cent of the work or $3,900,000,000, had been completed by 1 July 1943.

Almost 30 per cent of the money spent for non-industrial facilities has been for naval aviation shore facilities. These facilities make up the largest single subdivision in the Navy’s non-industrial facilities program. The other subdivisions in the order of their importance are: advance bases, structures for naval personnel, storage, ordnance depots, fleet facilities and miscellaneous facilities. Of these various subdivisions only the advance base program is less than 75 per cent complete.

Direct Navy Work: Of the construction completed by 1 July 1943, about $4,600,000,000 comprises the Navy’s direct shore construction program. Work on this huge program has been five times as fast as normal peacetime construction under Federal auspices. In fact, this entire Navy program has progressed as rapidly as the fastest 5 per cent among the peacetime projects.

Large graving docks—the big permanent, excavated drydocks in which battleships and cruisers can be overhauled—are one of the most difficult shore installations to build. Prior to Pearl Harbor construction of these docks averaged 50 months each. Since Pearl Harbor the average has been cut to 22 months.
In July, 1940, the Navy received five newly completed vessels; in June, 1945, almost 1,200.

In July, 1940, the Navy received 25 new airplanes; in June, 1943, almost 2,000.

Between those two dates the Navy built 2,290,000 tons of ships. It added to its air arm 22,000 planes. It completed $6,500,000,000 of shore facilities.

Three years ago, when the defense program began, the Navy had a fleet of 1,076 vessels displacing 1,875,000 tons. Of this fleet, 398 vessels were warships; battleships, carriers, cruisers, destroyers, submarines. The weight of this fighting fleet was 1,315,000 tons.

During the intervening three years the Navy has lost 58 warships: a battleship, four carriers, nine cruisers, 32 destroyers, 12 submarines. It has transferred to other nations or converted into non-combat vessels 129 other warships. In all, it has lost or given up 484,521 tons of fighting ships—a small navy in itself.

But at the end of three years the United States has the mightiest surface fleet in world history. Against the 1,076 vessels of three years ago the Navy now has 14,072. Their combined tonnage is almost 5 million tons against 1,875,000 tons for the fleet of mid-1940.

In the new fleet the Navy, despite its losses, has 613 warships compared with 398 three years ago. Their tonnage 2,217,982 tons—exceeds that of the 1940 fighting ships by 70 per cent.

On July 1, 1940, the Navy air arm consisted of 1,744 planes of which 1,197 were fighters and bombers. Since that time the Navy has lost or written off as obsolete 6,800 planes. It has transferred 2,100 to other agencies. The Navy air arm of mid-1940 has been erased more than five times over.

But the United States now has the most powerful Naval air force in the world. Where there were 1,744 naval planes three years ago, on 31 July 1943 there were 18,269, a ten-fold net increase.

In the midst of war, the United States has built its Navy into the greatest sea-air power on earth. Its size is dwarfed only by the size of the task which confronts it.

Enroth's Note: Ship and plane totals in the above summary cannot be derived from figures in the preceding sections because (a) the summary totals include ships converted into Navy Auxiliaries or small craft whereas preceding figures do not; (b) the summary totals allow for the large number, but comparatively small tonnage, of landing craft, small craft and auxiliaries which have been lost or transferred, and (c) the summary totals include July 1943 production.
DECORATIONS and CITATIONS

Mother of Famous Flyer Receives His Medal of Honor

A grief-stricken mother whose son was lost after sinking a Japanese carrier and other warships in the Coral Sea received his Congressional Medal of Honor recently from Admiral Royal E. Ingersoll, USN, commander of the Atlantic Fleet.

Her son, Lt. John J. Powers, USN, of New York City, who sank or damaged four Japanese ships before his plane was shot down, was exalted by President Roosevelt more than a year ago in a radio talk. The flyer's last words were: "I'm going to get a hit if I have to lay it on their flight deck."

In three attacks on enemy warships 4 May 1942, Lt. Powers scored a direct hit which instantly demolished a large gunboat or destroyer, a near miss which severely damaged a large aircraft tender, and another damaging a 20,000-ton transport. He strafed a gunboat, which left a heavy oil slick in its wake and was beached.

On 7 May Lt. Powers led his attack section of three divebombers against a carrier, diving in the face of heavy fire to an altitude barely above the ship in order that he might obtain a hit on a vital part.

This bomb hit caused a tremendous explosion, and the carrier sank.

As he left the ready room the next day, Lt. Powers expressed his determination to get a hit in the words of his now-famous quotation. A few minutes later, without fear or concern for his own safety, he led his divebombers down from an altitude of 18,000 feet—almost to the very deck of an enemy carrier, and did not release his bomb until certain of a direct hit. When last seen Lt. Powers was attempting recovery from his dive only 200 feet above the water, amid a terrific barrage of shell and bomb fragments, smoke, flame and debris from the stricken carrier.

The flyer's parents, although they had been told that their son was missing, first heard of his galantry in the Presidential broadcast. His father never fully recovered from the blow of his son's death, and died recently. His mother has never completely recovered her health, which was impaired by the shock.

Lt. Powers was graduated from the Naval Academy in 1935 and served five years in the USS Augusta and the USS West Virginia. He finished flight training at Pensacola in January, 1941.

---Official U. S. Navy Photograph---

Lt. John J. Powers

Nine Latin American Officers Honored

Nine South American naval officers have been awarded the Legion of Merit in various degrees for outstanding contributions to hemispheric defense and the promotion of continued friendly relations between the two Americas.

Decorations went to Vice Admiral Julio A. Pinto, commander-in-chief of the Chilean Navy; Rear Admiral Juan R. Sepulveda, commander-in-chief of the Chilean Fleet; Capt. Carlos C. Jullian, Chilean naval attaché at Washington, D. C.; Capt. Juan F. Anda y Maldonado, head of the Guatemalan Navy; Comdr. Cesar A. Mogollon y Cardenas of the Ecuadorian Navy; Lt. Col. Hernando Mora A., director-general of the Colombian Navy; Rear Admiral Frederico D. Dulanto, Peruvian minister of marine and aviation; Rear Admiral Roque Salidas, of the Peruvian Navy; and Capt. Mariano H. Melgar C., commander-in-chief of the Peruvian Fleet.

Captain Briscoe Decorated Twice

The Legion of Merit and a Gold Star in lieu of a second Legion of Merit for meritorious conduct in two actions about a month apart have been awarded Capt. Robert F. Briscoe, USN, of Centreville, Miss.

The first medal was for operations against Japanese forces in the Solomon area when as commander of a task group Captain Briscoe skillfully directed the destroyers under his command through almost continuous combat for two months, including bombardment of troops and installations, engagement in four air actions and on three occasions the repulse of attacks by 18 to 20 hostile dive bombers.

On 5-6 March 1943, in the same area, Captain Briscoe conducted a fierce bombardment of enemy positions at Munda Point, directing his operations so efficiently that his task group incurred no loss of life or material casualty.

Torpedo 8 Wins Two Unit Citations

Torpedo Squadron 8 has become the first unit in the Navy to receive two Presidential Unit Citations.

Cited the first time by President Roosevelt for its heroic air attack on the Japanese fleet during the Battle of Midway, it now shares in a citation which went to the First Marine Division, Reinforced. Torpedo Squadron 8 served with this Marine organization during the capture of Guadalcanal and the fighting to retain the island against repeated Japanese thrusts.

Between 7 August and 17 November 1942, the squadron executed 40 attack missions—17 against ship targets and 23 against ground installations. Fourteen ships were hit with torpedoes—1 battleship, 5 heavy cruisers, 4 light cruisers, 1 destroyer, 1 cargo ship, and 2 aircraft carriers. A heavy cruiser and a light cruiser were bombed.

GOLD ★ STAR

In Lieu of Second Navy Cross

Lt. Cdr. William E. Hank, USN, Norfolk, Va. (missing in action): As commanding officer of the USS Laffey, Lieutenant Commander Hank boldly engaged a Japanese force of two destroyers and a cruiser off Cape Esperance, Solomon Islands, on 11-12 October 1942. Under his direction the Laffey sank one destroyer, damaged another, and assisted in sinking a cruiser.

NAVY CROSS

Rear Admiral Glenn B. Davis, USN, Norwalk, O.: Commanding a warship in the battle off Savo Island, Admiral Davis skillfully maneuvered his ship through perilous waters and...
repeated torpedo attacks against numerically superior Japanese forces. Gunfire from his ship is credited with sinking one enemy ship and damaging others. His own ship came through the engagement undamaged. (14-15 November 1942.)

Capt. Anthony L. Danis, USN, Washington, D. C.: as commanding officer of the USS Kearny when she was torpedoed by an enemy submarine on 17 October 1941, Captain Danis skillfully utilized every item of equipment to the greatest advantage and succeeded in keeping his ship afloat and in restoring her fighting efficiency.

Capt. Independent W. Gorton (SC) USN, Everett, Mass.: When off Savo Island 14-15 November 1942, his battle station in a warship was struck by shells which started fires and killed all other men in that area, Captain Gorton remained at his post although faced with almost certain death from a broken steam line. He removed wounded from inside the superstructure tower and worked incessantly toward their evacuation and care.

Comdr. John B. Taylor, USN, Churchville, Pa.: As commanding officer of the USS Benham in a battle with Japanese naval forces off Savo Island, Commander Taylor inflicted severe damage on superior forces before his own ship was struck by torpedoes. With his ship badly buckled by the terrific force of explosions and the bow completely gone, he fought grimly to keep her afloat until heavy weather forced him to abandon her. Then Commander Taylor managed to save every man aboard. (14-15 November 1942.)

Comdr. Charles E. Tolman, USN, Concord, Mass. (missing in action): As commanding officer of the USS Defiance, Commander Tolman operated his ship as group leader during bombardment of enemy-held plantations on New Georgia Island and was directly responsible for demolition of important buildings and large fires and explosions in adjacent munition dumps. Later, when eight Japanese dive bombers viciously attacked his ship and dropped a bomb on the navigating bridge, Commander Tolman courageously carried on until two internal explosions destroyed the Defiance.

Lt. Comdr. John B. Fellows, Jr., USN, Fitchburg, Mass.: As commander of the USS Gwin during the battle off Savo Island, Lieutenant Commander Wirtz with uttermost determination and courage engaged the enemy and inflicted considerable damage on the superior force before withdrawing to continue his voyage.

Lt. John M. Eaton, Jr., USNR, Concord, Mass.: As a gunnery officer of Patrol Squadron 21 temporarily based at Midway Island during the attack by Japanese naval forces on the night of 7 December 1941, Lieutenant Eaton organized a crew of untrained civilian workmen and ingeniously directed the launching of heavily overloaded Catalinas after enemy gunfire had damaged or destroyed several of the flying boats, the hangar, and other installations.

Lt. Frederick L. Edwards, Jr., USNR, Kingston, N. C.: As boarding officer from the USS Eberie when an enemy blockade runner was intercepted on 10 March 1943, Lieutenant Edwards was the first to board her in the face of spreading fires and explosion of demolition charges. Only after several explosions had rocked the ship and she was sinking did he dive into the sea, from which he was rescued later.

Lt. (jg) Hugh B. Davis, USNR, Houston, Tex.: Serving in the USS Astoria during the Battle of Savo Island, Lieutenant (jg) Davis supervised the moving of personnel to a safer location after enemy shells set fire to a fuel tank. Finding men trapped in the engine room and suffocating from heat and smoke from fires on the upper decks, he entered the blazing mess compartment, forced open the water-tight door, and guided the men to safety. (8 August 1942.)

Ens. Kenneth H. Muir, USNR, Pelham, N. Y. (missing in action): As Armed Guard officer in a merchantman which was torpedoed and sunk in the Caribbean Sea, Ensign Muir disregarded his own severe injuries and ordered three men near him to jump clear of the ship, then rushed back to help more men escape. He was still urging his gunners over the side when the ship went down.

Philip A. Donahue, CBM, USN, Lawrence, Mass.: While a member of a repair party in the USS Boise, Donahue dived into a flooded compartment, undogged an escape scuttle in the deck and attached a line to the scuttle. Swimming to the surface, he assisted in pulling the scuttle open and releasing a man
trapped in the lower compartment (11-12 October 1942, off Cape Esperance).

Robert Halperin, CSp, usn, Chicago, Ill.: While in charge of a scout boat during the assault on Mehdia, French Morocco, Halperin took his boat in complete darkness from the transport area seven miles off the coast into a position to locate and mark landing beaches. When all had landed he assisted the shore party in locating roads inland, and personally captured two enemy officers. (9 November 1942.)

**DISTINGUISHED SERVICE MEDAL**

Col. Perry K. Smith, usmc, Coronado, Calif.: As commanding officer of a Marine aircraft group in the Southwest Pacific, Colonel Smith instituted flights to Guadalcanal when the airfield was under heavy siege, set up his own schools for the training of personnel, and evacuated casualties to base hospitals. Undeterred by darkness and tropical squalls, his vital air transport contributed materially to the defense of Guadalcanal.

**LEGION OF MERIT**

Vice Admiral Charles S. Freeman, usn, Brooklyn, N. Y.: As commander of the Northwest Sea Frontier from the time of our entry into the war until 1 December 1942, Admiral Freeman developed and maintained the air, sea, and land forces necessary for the successful prosecution of hostilities in the Northwest Pacific. He had intimate knowledge of the locality and was of invaluable service during the fierce engagement in Kula Gulf, March 1943, where two Japanese ships were sunk, and in the devastating bombardment of enemy defenses on Kolombangara Island.

Rear Admiral Robert B. Carney, usn, Cardano, Calif.: As commander of a warship, Admiral Carney’s brilliant leadership contributed to successful operations against Kolombangara Island and the sinking of two Japanese warships in Kula Gulf (5-6 March 1943).

Rear Admiral Aaron S. Merrill, usn, Natchez, Miss.: As a task force commander during an engagement with Japanese forces in the Solomons Area on the night of 5-6 March 1943, Admiral Merrill directed the intercepting and sinking of two enemy warships and the subsequent bombardment of installations on Kolombangara Island. His task force withstood the composition and came through unscathed.


Capt. Geron de Macedo Soares, Brazilian Navy: While serving as Chief of Staff to the Commander Brazilian Naval Units Under the Fourth Fleet, Capt. Soares contributed greatly to the increased efficiency of these units and to the successful conduct of the war in the South Atlantic.

Capt. Leighton Wood, usn, Riverside, Conn. (posthumously): While commanding a warship in action against Japanese forces in the Solomons, January-March 1943, Captain Wood directed his ship with superb skill in a heavy attack by Japanese torpedo planes. Later, his ship assisted in sinking two of a group of warships encountered in Kula Gulf, and participated in the devastating bombardment of defenses on Kolombangara Island and the occupation of Russell Island.

Comdr. William D. Brown, usn, Annapolis, Md.: As operations officer and senior aide to a task force commander, Commander Brown’s intimate knowledge of the locality was of invaluable service during the fierce engagement in Kula Gulf, 5-6 March 1943, where two Japanese ships were sunk, and in the devastating bombardment of enemy defenses on Kolombangara Island.

Comdr. Charles F. Flower (MC), usn, Berkeley, Calif.: As medical officer of the uss Astoria during the battle of Savo Island, 9 August 1942, Commander Flower improvised a dressing station while a severe fire raged about it. Later, when the wounded were transferred to a destroyer, he supervised the installation of temporary operating stations and continued administering treatments.

Comdr. David C. Gaede (MC), usn, Loma Linda, Calif.: As medical officer for a Marine aircraft wing in the South Pacific, from 22 September 1942 to 15 April 1943, Commander Gaede organized facilities for evacuation of casualties by air, maintained constant training and indoctrination for all flight surgeons and medical personnel, and provided rest homes and recreational leave for combat pilots.

To Comdr. Lawrence E. Tull (CEC) usn, Washington, D. C., and Lt. Comdr. Frank L. Johnson (CEC) usn, Los Angeles, Calif.: As commanding and executive officers of a construction battalion, they supervised the erection of an important airfield in the South Pacific Area although hampered by extremely adverse weather and heavy enemy bombings.

Comdr. Ralph E. Wilson, usn, Salem, Oreg.: As naval liaison officer at Army headquarters on Guadalcanal during January and February 1943, Commander Wilson displayed extraordinary ability and judgment, and was invaluable in coordinating joint service details of technical and administrative nature.

Lt. Comdr. Andrew J. Hill, usn, Poplar Bluff, Mo.: As commanding officer of a warship in the Solomons, Lieutenant Commander Hill directed his ship in continuous antisubmarine patrols, bombardments of enemy shore positions, and participation in hazardous landing missions. On one escort assignment when his vessel was attacked by hostile bombers, the gunfire from his ship destroyed or damaged six of the hostile planes.

Lt. Comdr. Frank L. Johnson, usn, Delaware City, Del.: As commanding officer of a warship in the Solomons, Lieutenan Johnson helped disrupt numerous air attacks and attacked and sank a submarine. In two night bombardment operations against Munda, his ship led the task group into position. He brought his crew through a series of fierce engagements without damage.

*Official U. S. Navy Photograph.*

**KEPT PLANES FLYING:** Capt. Henry R. Oster, usn, of Washington, D. C., was presented the Legion of Merit by Secretary of the Navy Frank Knox recently for his tireless work in keeping planes of the Pacific Fleet overhauled and in repair. Captain Oster, from June, 1940, to October, 1942, was material officer for various groups in the Pacific area.
Lt. Comdr. Donald J. MacDonald, USN, New York, N.Y.: While commanding a warship in the Solomons, Lieutenant Commander MacDonald participated in three night bombardments of Guadalcanal, New Georgia and Kolombangara Islands, and on two occasions was attacked by low-level bombers. During several night patrols his vessel was of invaluable service in fighting off air attacks.

To Lt. Comdr. Desmond K. O'Connor, USN, Newport, R.I., and Lt. Edward C. Hines, Jr., USN, Wilmington, N.C.: As officers attached to the USS Cole during the assault on Safi, French Morocco, 8-11 November 1942, they contributed in large measure to the success of the operation. Lieutenant Commander O'Connor, in charge of the deck force, directed the disembarking operations of Army and Navy patrols, while Lieutenant Hines, as navigator, employing the limited data available, laid an accurate course to the Safi breakwater.

Commissioned Warrant Officer M. Ines Harper, Royal Australian Naval Reserve: While on temporary duty with Amphibious Force, South Pacific, July-August 1942, in the Solomons, Warrant Officer Harper piloted the leading transport in action against Japanese forces. Through his familiarity with the waters in the vicinity of Guadalcanal and Tulagi, he piloted ships through extremely hazardous channels and assisted in refloating and bringing to safe harbors those damaged in action.

Joseph P. F. Hartney, SMIc, USN, New Britain, Conn.: After the USS Juneau was sunk some distance from San Cristobal Island, 13 November 1942, Hartney swam a considerable distance through shark-infested waters to obtain a life raft dropped by plane. He then set out with two comrades, including a seriously wounded officer, to obtain medical attention and expedite the rescue of shipmates left behind. Although both his companions were irrational at times and could give little assistance, Hartney took his flimsy craft through terrific storms and hazardous coral reefs without food or water for several days, until he finally brought them to an island and subsequent safety.


Lt. Daniel S. Baughman, Jr., USN, Madison, Wis.: As commander of a motor torpedo boat division in the Southwest Pacific, Lieutenant Baughman made repeated attacks on small Japanese ships and severed a valuable enemy line of communication. He commanded a patrol which sank an enemy submarine.

Lt. (jg) Theodore F. Bruno, USN, Pensacola, Fla.: As commanding officer of a torpedo boat in the Southwest Pacific, Lieutenant Bruno launched an attack at close range against a surfaced submarine, which broke in half and sank. Although his torpedoes and depth charges were exhausted when he was attacked by a second ship, he maneuvered so skillfully as to avoid four torpedoes fired at his boat.

GOLD ★ STAR
In Lieu of Second Silver Star

Lt. Comdr. Roy M. Davenport, USN, Kansas City, Kan. As commanding officer of a submarine, Lieutenant Commander Davenport took full advantage of every opportunity to attack enemy shipping and sank a number of Japanese ships.

Silver Star

Capt. Archibald E. Uehlinger, USN, Long Beach, Calif.: As executive officer of a warship during action against Japanese naval forces off Savo Island on the night of 14-15 November 1942, Captain Uehlinger remained at his post after his battle station had been struck by shells which killed or wounded most of the men in that area. He carried on despite the danger of scalding from ruptured steam lines and fires which had cut off all chance of escape.

Capt. G. V. B. Faulkner, British Navy: During the attack on Sicily 10-12 July 1943, Captain Faulkner, as commander of a British warship, maneuvered his ship near shore and put out of action strong points of resistance, thus facilitating the seizure of beaches by a division of the U.S. Army.

To Lt. Comdr. Moore P. Huffman, USN, Bedford Hills, N.Y., and Lt. Randall T. Boyd, Jr., USN, South Weymouth, Mass.: As first lieutenant and gunnery officer, respectively, of the USS Dallas during the assault on French Morocco 8-11 November 1942, their efficient conduct and courage under heavy fire from shore batteries contributed materially to the capture of the Port Lytton airfield by Army raider troops.

Lt. Comdr. Frank L. Johnson, USN, Delafield City, Del.: While commanding a warship, Lieutenant Commander Johnson established sound contact with a submarine after
a patrol plane had located it. He skillfully dropped a pattern of charges and shortly afterward three violent explosions erupted large quantities of debris to the surface as positive evidence the submarine had been destroyed.

Lt. Comdr. Richard D. Shepard, usnr, San Diego, Calif.: When his ship was badly crippled and set afire in action with a Japanese cruiser in the Solomons, Lieutenant Commander Shepard organized a fire-fighting party, formed a bucket line and brought raging fires under control. Later, he entered a flooded compartment by swimming through a jagged shell hole in the vessel’s side, and made repairs so that water could be pumped out and a great deal of the ship’s list corrected.

Lt. William S. Farrel, usn, Chula Vista, Calif.: As damage control officer in a warship during an engagement with Japanese forces off Guadalcanal on 7 August 1942, Lieutenant Farrel entered a burning compartment to remove explosives and assist in extinguishing the fire. His prompt action helped keep the ship in action and undoubtedly prevented further dangerous explosions.

To Lt. Robert J. Hauge, usnr, Bryant, S. D.; and Lt. Lenard O. Reichel, usn, Los Angeles, Calif.: As patrol plane pilots in the Solomons December-January 1943, they participated in many hazardous operations despite extremely unfavorable weather. On twelve occasions they assisted PT-boat squadrons by illuminating evasive hostile targets in the face of heavy anti-aircraft fire.

Lt. (jg) James M. Boone, usn, San Diego, Calif.: When fires were raging on his warship during a battle with Japanese forces off Savo Island 14-15 November 1942, Lieutenant (jg) Boone, then a chief boatswain’s mate, led the way in extinguishing nearly every fire on the weather decks. He put out several fires unaided, and rapidly controlled all threatening topside fires.

To Lieut. (jg) William H. Deibler, Jr., usn, Selinsgrove, Pa., and Lieut. (jg) William S. Rent, usn, Haverhill, Mass.: As gunnery officer and junior officer of the deck, respectively, in the uss Cole when she entered the harbor of Safi, French Morocco, to land Army assault troops 8-11 November 1942, they skillfully performed their duties under enemy fire.

To Lieut. (jg) Ralph L. Richards, usnr, Glen Ridge, N. J.: As commanding officer of a PT-boat in action against Japanese forces near Savo Island on 1-2 February 1943 Lieutenant (jg) Richards ordered his crew to abandon ship after it was bombed, strafed and set afire during the night by enemy aircraft. Although wounded by shrapnel, he attempted to save a seriously wounded man who was strapped to his back, and fought off repeated attacks of sharks with his hands, feet and pistol. The injured man finally died and was cut loose, but Lieutenant (jg) Richards continued to battle sharks the remainder of the night until rescued by a searching PT-boat.

Carpenter Charles L. Carter, usnr, Peoria, Ill.: When a hostile plane was shot down and exploded on board the uss George F. Elliott (off Guadalcanal 8 August 1942) Carter cut through bulkhead over oil ranges to rescue comrades who were trapped in the machinery. Despite flame and suffocating smoke, he cut his way through a deck to the chief petty officers’ quarters to continue fighting the fires.

To Joseph C. Nicholson, CCM, usnr, Port Orange, Fla.; and Robert W. Berglund, BM1c, usnr, Streator, Ill.: While serving in the uss George F. Elliott in action against Japanese forces off Guadalcanal on 8 August 1942, an enemy plane was shot down and exploded on board the ship. Nicholson and Berglund risked their lives to carry a fire hose down to No. 3 hold and fought their way back up through flaming, smoke-clogged passageways to the main deck.

To Frederick D. Mann, BM1c, USCG, Ellerson, Va.: When the uss George F. Elliott was transformed into a blazing torch by a Japanese plane which exploded on board (off Guad-
To Lt. MacGregor Kilpatrick, usn, Southhampton, N. Y.; Lieut. (jg) Edward L. Feightner, USNR, Elida, O.; and Lieut. (jg) Roland R. Witte, USNR, Hollywood, Calif.; while in a combat patrol over the uss Chicago 30 January 1943 east of Rennell Island they intercepted a force of twelve Japanese torpedo bombers which were preparing to raid the cruiser. In the ensuing engagement, Lieutenant Kilpatrick shot down two Japanese planes before they could release their torpedoes. Lieutenant (jg) Feightner downed three. Lieutenant (jg) Witte got two and probably a third.

To Capt. Oliver O. Kessing, usn, Indianapolis, Ind.; and Comdr. Elmore S. Pettijohn, usnr, Ann Arbor, Mich.: When enemy bomb hit a raging fire in a supply and ammunition dump, they organized a fire-fighting party and made their way, under constant danger of further air attack, to the dump. Working in a blazing inferno of exploding ammunition, they finally extinguished the fire.

To Lt. Comdr. Lloyd M. Johnson, USNR, Brighton, Mass.; and Lt. Joseph F. Kilduff, USNR, Boston, Mass.: Boarding a tanker which had been set afire in a collision, they led a party which fought continuously for 25 hours to control and extinguish the fire. When hot metal threatened to ignite a stream of gasoline, the officers crawled along the deck in stifling heat to plug up the broken line with bars of soap.

To Lt. Comdr. Emmet E. Napp (MC), USNR, New Rochelle, N. Y.: As regimental surgeon in the First Marine Division at Guadalcanal, Lieutenant Commander Napp repeatedly exposed himself to terrific fire in order to evacuate wounded comrades. On the night of 13-14 October 1942, he voluntarily abandoned his shelter at the height of a bombardment and worked his way through an intense barrage to give medical aid to the injured.

To Lt. Comdr. Richard R. Smith, USCG, Piedmont, Calif.: While supervising the rescue of personnel from a U. S. ship which was wrecked on the rocks, Lieutenant Commander Smith made repeated trips to the stranded ship in a power boat, through mountainous seas and treacherous waters. He rescued about 45 men, while other boats under his command saved 155 more.

To Lt. James W. Henderson, USN, Pensacola, Fla.: When gales and rough seas threatened to destroy seaplanes at his base, Lieutenant Henderson directed to a plane, ingeniously effected temporary repairs, and flew it safely to another area.

NAVY and MARINE CORPS MEDAL
Four Win N&MC Medal for Heroism in Fire

The Navy and Marine Corps Medal was presented three officers and an enlisted man recently by Vice Admiral Jonas Ingram, USN, Commander, South Atlantic Force, for heroism on a burning merchant ship in a Brazilian harbor. The four men boarded the blazing ship in the face of danger from gasoline explosions, assisted in fighting the fire, and cast off the mooring lines so that the vessel could be towed away and would not endanger a U. S. warship, shore establishments, and other ships. In the photographs, each of the four men receives his medal from Admiral Ingram.

Lt. William F. James, USNR, Richmond Heights, Mo.: When his ship, the USS Joseph Hewes, was torpedoed and sunk 11 November 1942 off Fedala, French Morocco, Lieutenant James supervised the lowering of the sick and wounded over the side and directed the men at the rail in abandoning ship. Just as the ship was making her final plunge, he turned back and assisted in freeing a soldier who was pinned under a mass of debris. *

Lt. Alvin C. Wilson, Jr., USNR, Baltimore, Md.: When a pilot crashed in the sea in the vicinity of Florida Island, Lieutenant Wilson dived overboard without a life jacket and swam to the wrecked plane, knowing that his ship might not be able to stop and pick him up. He brought the pilot’s head above water and held him up until a rescue boat arrived.

Lt. (jg) John T. Pigott, Jr., USNR, San Francisco, Calif.: During the 15 September 1942 rescue of survivors from the USS Wasp, Lieutenant (jg) Pigott brought a small boat close to the ship’s listing hull, despite constant danger from blazing oil and intermittent explosions of ammunition and gasoline, in a search for stranded and helpless personnel. He undoubtedly saved the lives of many who might otherwise have perished.

Lieutenant (jg) Herbert E. Van Meter (ChC) USNR, Moline, Ill.: Hearing the cries of distress from a companion being swept into the sea by the strong current near the mouth of New River, N. C., Lieutenant (jg) Van Meter plunged in and went to his assistance. Realizing the futility of attempting to swim against the current, he and a Marine kept the victim afloat until help arrived (29 July 1943).

Lieutenant (jg) Lars Wanggaard, Jr., USN, Racine, Wis.: As ship’s boat officer aboard the USS Laffey 15 September 1942 during the rescue of survivors from the torpedoed USS Wasp, Lieutenant (jg) Wanggaard brought his boat close to the burning and exploding carrier innumerable times to rescue exhausted survivors. He swam to the assistance of many who were in a weakened condition and brought them to safety.

Vernon A. Boyd, GM3c, USNR, Charles City, Iowa: As a member of an Armed Guard, Boyd plunged overboard 29 June 1943 and swam through treacherous currents to rescue a seaman who had been rendered unconscious when his small boat overturned.

Wallace B. Hamilton, PHM3c, USNR, Fort Worth, Tex.: Although
wounded himself while administering aid to front-line casualties 13 January 1943 on Guadalcanal. Hamilton remained on duty to assist in caring for the wounded, despite the fact that he was limited to the use of only one arm.

Charles R. House, S1c, USN, Rome, Ga.: When a boat loaded with troops capsized near Fedala, House voluntarily plunged into the dangerous surf and gallantly rescued men struggling in the water. (During occupation of French Morocco, 8–11 November 1942.)

Milton L. Knudsen, S1c, USN, Polo, Ill. (killed in action): While serving in the USS Laffey 15 September 1942 during the rescue of survivors from the torpedoed USS Wasp, Knudsen dived over the side of his ship many times to swim considerable distances with a line to rescue survivors, many of whom were completely exhausted.

Henry B. Kulczak, S1c, USNR, Chelsea, Mass.: Pulling alongside a United States vessel, Kulczak and other members of a boat crew noticed that a nearby ship had caught fire. Despite exploding ammunition and gasoline, he and other members of his party took their boat to the burning vessel and rescued their shipmates from the water. (During occupation of French Morocco, 8–11 November 1942.)

Robert W. Harden, S2c, USNR, Darden, N.C.: When a boat loaded with troops capsized near Fedala, Harden voluntarily plunged into the dangerous surf and assisted in rescuing men struggling in the water. (During occupation of French Morocco, 8–11 November 1942.)

GOLD STAR
In Lieu of Third Air Medal

Eduardo P. Brown, CPhoM, USN, Chula Vista, Calif.: While attached to Commander Aircraft, South Pacific Force, Brown took part in numerous flights over enemy territory. He obtained aerial reconnaissance photographs often while under fire from Japanese planes and anti-aircraft batteries.

GOLD STAR
In Lieu of Second Air Medal

Joseph F. Muller, PhoM2c, USNR, Seattle, Wash.: Attached to Commander Aircraft, South Pacific Force, Muller participated in numerous flights over enemy territory and successfully obtained aerial reconnaissance photographs, often while under fire from enemy planes and anti-aircraft fire.

Flight Lt. R. S. Duncan, Royal New Zealand Air Force: As a member of a flight group in the Solomons, Flight Lieutenant Duncan intercepted a Japanese fighter, closed in dead astern to fifty yards, and opened fire. His deadly stream of fire severed the tail section of the Zero and sent it crashing into the sea.

Flight Lt. D. A. Grieg, Royal New Zealand Air Force: While operating with a group of our fighters over the Russell Islands, Flight Lieutenant Grieg observed a Zero closing in on the tail of a friendly plane. He launched a furious attack, following the plane down in an almost vertical dive, until it crashed in flames.

Lt. Frank J. Hill, USN, Bruceville, Ind.: On an aerial flight in the South Pacific, Lieutenant Hill sighted an enemy submarine on the surface about three miles away. He quickly attacked with two depth charges shortly after the craft had dived, and probably damaged or destroyed it.

Lt. Delbert M. Minner, USN, Dover, Del.: Locating survivors of an Army bomber which had been forced down at sea, Lieutenant Minner made a precarious landing in the midst of threatening swells 5 March 1943, took aboard the stranded crew, and made a successful take-off despite high winds and excessive weight.

Lt. Stanley O. Raithel, USNR, Coronado, Calif. (missing in action): While commanding a patrol plane in action against Japanese forces in the Aleutian Islands during June 1942, Lieutenant Raithel fulfilled hazardous scouting missions, took part in all-night aerial patrols and launched repeated bombing attacks on Japanese ships in Kiska Harbor.


Lt. Roger S. C. Wolcott, USNR, Washington, D. C.: As pilot of an Inshore Patrol plane in the Solomons, Lieutenant Wolcott spotted a Japanese submarine on the surface about three miles away. Sweeping low, he released two depth bombs which exploded directly beneath the submarine. It burst clear of the surface, rolled upside down, and sank in a swirl of oil slick and air bubbles.
Five Submarines
Given Presidential
Unit Citations

Five submarines which struck
devastating blows at Japanese war-
ships and merchantmen have been
presented Presidential Unit Citations
for their achievements.

The USS Wahoo fought a 14-hour
battle with an armed convoy, de-
stroying the entire force of two
freighters, one tanker and one trans-
port. She destroyed 31,890 tons of
shipping during a single patrol.

During two patrols the USS Guard-
fish accounted for more than 66,000
tons of Japanese shipping destroyed
and approximately 14,000 tons dam-
aged.

In three patrols the USS Greenling
destroyed nine ships totalling 61,800
tons and severely damaged another
22,000 tons, including a converted
aircraft carrier.

The USS Trout sank a total of 43,-
200 tons of enemy shipping and dam-
aged an additional 31,500 tons, in-
cluding an aircraft carrier.

During three aggressive patrols
the USS Nautilus inflicted severe
damage to shipping in enemy-con-
trolled waters.

These People
(continued from page 24)

The Army, one in the Marines, four
in the Navy—and a daughter who is
a Navy nurse.

The list could be almost endless.

Of the Navy's total civilian em-
ployees, nearly a fourth are women—
each releasing a man for military
service. In addition, more than half
the Navy's male civilian employees
are too old or too young for military
service or are disqualified physically.

George F. McDuffee, 79, who put
on the fireworks display in New
York City when Admiral Dewey re-
turned home from Manila, is a learn-
er-welder in the Boston Navy Yard.
In the same yard's structural shop,
Paul Alpert, 29 years old and one
inch less than four feet tall, is a
handy welder to send into cramped
compartments where a full-size man
couldn't work. The breech mechani-
nism shop alone at the Washington
Navy Yard employs 39 16-year-old
apprentices.

Of male civilian employees qualified
for active military service, it has
been the policy of the Navy Depart-
ment to release to the armed forces
all but the most essential skilled
journeymen, machinists, and tech-
nicians in Navy Yards and shore es-
stablishments. The main group of
military-age men is scheduled for
orderly release as replacements are
trained. For the most part, members
of this group enter the Navy when
released to the armed forces and
take into the service with them valu-
able naval experience acquired in
shore activities.

Even for boys almost certain to
leave soon for military service Navy
shore establishments provide valu-
able pre-Navy technical training.
Many navy yards and naval air sta-
tions have worked out programs for
such training in cooperation with
local schools. Lads of 16 and 17 go
to school mornings and work after-
noons as apprentices in Navy shops.
Often the boys get credit in school
for practical instruction received at
work.

One graduate of such a program,
Frank H. Thames, Jr., spent his sum-
mer vacations working in the
Charleston Navy Yard, where his
father is head planner. Upon gradu-
ation from the V-7 school at the
United States Naval Academy, he
requested—and received—duty in a
Charleston-built destroyer.

Page 68
OVER THE SIDE: Landing and Loading Of Men and Material

GOING OVER THE SIDE, the rifle is slung on left shoulder, butt held close by inserting canteen through sling, muzzle held to shoulder by inserting bayonet grip through sling. The belt is loosened until man is in boat. Then one quick motion can remove pack.

LEFT LEG FIRST over the side. This avoids the possibility of fouling each other in attempting to scramble over every which way. Also, by going over the side in uniform fashion there is a minimum danger of accidents and loss of ordnance and materials.

VERTICAL ROPES of the cargo net are for the hands. Horizontal strands are for the feet. By grasping vertical strands in hands you eliminate the possibility of having your fingers stepped on. The cargo net must always be full if the landing boat is to be loaded rapidly.

MANY DIFFERENT KNOTS and slings are used to lower ordnance and valuable materials over the side. There is no set rule except to get the material ashore safely. See that ordnance and materials are made ready in time. See that they’re safely stowed in boat.

IN THE LANDING BARGE, all heads must be down. Nothing should show above the gunwales except (when necessary) the coxwain who is piloting the boat to shore. Belts are now fastened, equipment inspected and assembled, while men keep safely out of sight.

MEN DEBARKING from the starboard side hold their rifles free in their right hands as shown above. Men debarking from the port side carry rifles and equipment in their left hands. When debarked, head for cover.
New Ideas

(Continued from Page 29)

of an aluminum sheet that previously yielded only four. Result: an increase of 25% in the material available for his job. Someone else redesigned a gadget and saved an ounce of brass. An ounce saved on each of a million gadgets is 31 tons of brass.

One of the strangest of all idea stories concerned the mysterious "Mr. X." Ideas and suggestions for improving production kept dropping into the Suggestion Box at an Indianapolis war plant, all of them signed "Mr. X." That they were good ideas is indicated by the fact that seven of the nine turned in won plant awards. But no one turned up to receive the award certificates.

When his identity was finally discovered, it was found that "Mr. X." was 63-year-old Joe Kaufsky, machinist, who had seven suggestions for improving production kept dropping into the Suggestion Box at an Indianapolis war plant, all of them signed "Mr. X." That they were good ideas is indicated by the fact that seven of the nine turned in won plant awards. But no one turned up to receive the award certificates.

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A new schedule of increased government payments to dependents of service men became a law November 1. The law increases only the government's share in dependency payments. The service man's contribution remains at $22 where limited to wife and children and $27 where it also includes other relatives.

The new benefits are extended to all seven pay grades. The first three grades have the option of choosing between the new benefits and continuing the old quarters allowance for dependents. No new applications can henceforth be filed for quarters allowance for dependents.

Service women's relatives are also eligible for the new allotments if they can prove dependency.

New benefits compared with the former amounts:

<table>
<thead>
<tr>
<th>Dependent</th>
<th>Formerly</th>
<th>Now</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wife</td>
<td>$50</td>
<td>$50</td>
</tr>
<tr>
<td>Wife and 1 child</td>
<td>$62</td>
<td>$89</td>
</tr>
<tr>
<td>Wife and 2 children</td>
<td>$72</td>
<td>$100</td>
</tr>
<tr>
<td>Each additional child</td>
<td>$78</td>
<td>$90</td>
</tr>
<tr>
<td>Child but no wife</td>
<td>$45</td>
<td>$62</td>
</tr>
<tr>
<td>Additional children (no wife)</td>
<td>$10</td>
<td>$20</td>
</tr>
<tr>
<td>Divorced, widowed, child</td>
<td>$45</td>
<td>$62</td>
</tr>
<tr>
<td>Each additional child (divorced wife)</td>
<td>$10</td>
<td>$20</td>
</tr>
</tbody>
</table>

The new law makes a distinction between Class B dependents and a new Class B-1, the difference being the amount of support furnished by the person in service.

Class B dependents include a father, mother, brother, or sister. Unlike the wife and children, these relatives must prove that they are dependent upon the enlisted man for a substantial portion of their support. The amount payable to Class B dependents is $37 a month; that amount is payable whether only one relative or several relatives may be members of this class.

Class B-1 dependents similarly include the parents, brothers, and sisters; but the amounts payable to Class B-1 dependents are higher—$50 for one parent, $85 for two parents or for one parent and one brother or sister, with $11 additional for each other parent and each subsequent brother or sister. The first brother or sister receives $42 if there is no parent, and each other brother or sister receives an added $11. But in order to qualify as a Class B-1 dependent, each such relative must show that he or she is dependent upon the enlisted man for the chief portion of his or her support—that is, for more than 50 per cent of the relative's net income.

A child, brother, or sister may receive a service only dependent if or she is unmarried, is under 18 years of age, or, if older, is incapable of self-support because of mental or physical handicap.

After 1 November, during the month in which the enlisted man enters on active service, his relatives are eligible for an initial family allowance, if he applies within 15 days. This initial allowance is paid entirely by the government. Thereafter the payment of the stated amounts is made partly out of government funds and partly out of the enlisted man's own pay. If the enlisted man has only one class of dependents, his pay is reduced by $22; if he has dependents both in Class A and Class B or Class B-1, it is reduced by $27. The remainder is paid by the government.

Relatives of enlisted men who have been receiving family allowances in the past need not apply for increases in their payments. The higher amounts which the new law provides on account of children or on account of Class B-1 dependents are paid by the Navy Department automatically or after a special communication is sent to the relatives concerned.

Every enlisted man is informed of his rights to allowances when he enters on active service. But in most cases two or three weeks will elapse before the individual dependent may receive an allowance check. If it is clear that the enlisted man has failed to apply, a wife or child may apply by letter directly to the Navy Department (Bureau of Naval Personnel, Washington, D. C.). But application for parents, brothers, or sisters must be made by the enlisted man himself. If such a relative has reason to believe that the enlisted man has not applied for an allowance, the relative should write direct to the man—not to the Navy Department.

**WHAT YOU DO ABOUT THE NEW CHANGES**

**Lower four pay grades**

Class A—changes will be made by the Bureau automatically.

Class B (and those who will change to class B-1)—the Bureau will take the question up directly and individually with each present recipient of an allowance; neither the person in the service nor the dependent should initiate action to effect the change. No letters are necessary.

**First three pay grades**

If not now receiving quarters allowance for dependents, personnel may apply to the commanding officer for all family allowances.

If presently receiving quarters allowance for dependents, personnel should decide whether it is best to continue as at present or apply for family allowances. If it is decided to continue with quarters allowance, no action is necessary. If, however, family allowance is desired, notice must be given to the commanding officer and application for family allowance can then be made through the commanding officer. Family allowance cannot be granted if quarters allowance is in effect.

**Note:** Personnel in the first three pay grades receiving or having made application for quarters allowance for dependents are compelled by the new law to register an allotment in favor of the relative on whose account they are receiving the quarters allowance, and that allotment must be at least as great as the allowance.
In the most comprehensive revision of the enlisted rating structure since the war began, the Navy last month established 17 new ratings and 33 subdivisions of ratings. In addition, four ratings were changed from one pay grade to another and six were abolished and replaced by others.

The changes include re-establishment of third class ratings in the Artificer Branch, Engine Room Force, and necessary readjustment of firemen ratings; revision of musician's rates and pay grades, and establishment of Mineman, Special Artificer, Airship Rigger, and Ship's Service Man ratings.

Following a thorough study by BuPers of the entire enlisted rating structure, it was concluded that, in the interest of efficiency, it was essential to have additional means of identifying men with special training or skills in order to place them where they could serve to the best advantage.

The new system insures: (1) retention of men with special training and skills in activities where they are best fitted, (2) that such men will not be lost in transfer.

In general the changes include the following:

(a) New ratings:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Abbreviation</th>
<th>Pay Grades (Inclusive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineman</td>
<td>MN</td>
<td>4-1</td>
</tr>
<tr>
<td>Chief Soundman</td>
<td>CS/M</td>
<td>1A-1</td>
</tr>
<tr>
<td>Chief Radarman</td>
<td>CR/M</td>
<td>1A-1</td>
</tr>
<tr>
<td>Special Artificer</td>
<td>BA</td>
<td>4-1</td>
</tr>
<tr>
<td>Special Artificer (Optical)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Artificer (Instruments)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Artificer (Special Devices)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airship Rigger</td>
<td>AR</td>
<td>4-1</td>
</tr>
<tr>
<td>Ship's Service Man</td>
<td>SM</td>
<td>4-1</td>
</tr>
<tr>
<td>Chief Barber</td>
<td>BB</td>
<td>4-1</td>
</tr>
<tr>
<td>Chief Coffer</td>
<td>CB</td>
<td>1A-1</td>
</tr>
<tr>
<td>Chief Launderman</td>
<td>TL</td>
<td>1A-1</td>
</tr>
<tr>
<td>Chief Mate, Third Class</td>
<td>MM/3</td>
<td></td>
</tr>
<tr>
<td>Motor Machinist's Mate, Third Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Tender, Third Class</td>
<td>WTM/3</td>
<td>4-1</td>
</tr>
<tr>
<td>Boiler Tender, Third Class</td>
<td>BTM/3</td>
<td>4-1</td>
</tr>
<tr>
<td>Metalsmith, Third Class</td>
<td>M/3</td>
<td>4-1</td>
</tr>
<tr>
<td>Chief Machinist</td>
<td>CM/1</td>
<td>4-1</td>
</tr>
<tr>
<td>Chief Machinist, Third Class</td>
<td>M/3e</td>
<td>1A-1</td>
</tr>
<tr>
<td>Chief Patternmaker</td>
<td>CM/1</td>
<td>1A-1</td>
</tr>
<tr>
<td>Patternmaker, Third Class</td>
<td>PM/3</td>
<td>1A-1</td>
</tr>
<tr>
<td>Chief Painter</td>
<td>CP/1</td>
<td>1A-1</td>
</tr>
<tr>
<td>Insigneater, Third Class</td>
<td>BM/3</td>
<td>1A-1</td>
</tr>
<tr>
<td>Chief Musician</td>
<td>BM/3</td>
<td>1A-1</td>
</tr>
<tr>
<td>Musician, Third Class</td>
<td>BM/3</td>
<td>4-1</td>
</tr>
</tbody>
</table>

(b) Subdivisions of ratings in addition to general ratings from which derived:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Abbreviation</th>
<th>Significance</th>
<th>Pay Grades (Inclusive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boatswain's Mate A</td>
<td>BMA</td>
<td>Master at Arms</td>
<td>3-1</td>
</tr>
<tr>
<td>Torpedoman's Mate V</td>
<td>TTV</td>
<td>Torpedoman's Mate</td>
<td>4-1</td>
</tr>
<tr>
<td>Fire Controlman</td>
<td>FC</td>
<td>Fire Controlman (M)</td>
<td>4-1</td>
</tr>
<tr>
<td>Fire Controlman R</td>
<td>FCR</td>
<td>Same as Fire Controlman (M)</td>
<td>4-1</td>
</tr>
<tr>
<td>Soundman H</td>
<td>So/M</td>
<td>Harbor Defense Soundman</td>
<td>4-1</td>
</tr>
<tr>
<td>Printers L and M</td>
<td>Pr/L(M)</td>
<td>Lithographers and Multilith Operators</td>
<td>4-1</td>
</tr>
<tr>
<td>Painter V</td>
<td>Pt/V</td>
<td>Aircraft Painters</td>
<td>4-1</td>
</tr>
<tr>
<td>Machinist's Mate E</td>
<td>ME</td>
<td>Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Machinist's Mate G</td>
<td>MG</td>
<td>Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Machinist's Mate R</td>
<td>MR</td>
<td>Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Machinist's Mate S</td>
<td>MS</td>
<td>Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Aviation Machinist's Mate C</td>
<td>AMC</td>
<td>Aviation Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Aviation Machinist's Mate F</td>
<td>AMF</td>
<td>Aviation Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Aviation Machinist's Mate H</td>
<td>AMH</td>
<td>Aviation Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Aviation Machinist's Mate I</td>
<td>AMI</td>
<td>Aviation Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Aviation Machinist's</td>
<td>AMMI</td>
<td>Aviation Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Aviation Machinist's</td>
<td>AMMO</td>
<td>Aviation Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Aviation Machinist's</td>
<td>AMOR</td>
<td>Aviation Machinist</td>
<td>4-1</td>
</tr>
<tr>
<td>Aviation Machinist's</td>
<td>AMOT</td>
<td>Aviation Machinist</td>
<td>4-1</td>
</tr>
</tbody>
</table>

(c) Changes of rating in pay grade:

Effective upon receipt of BuPers Circlot 205-43—

<table>
<thead>
<tr>
<th>Rating</th>
<th>Present Pay Grade</th>
<th>New Pay Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musician, First Class</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Musician, Second Class</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Fireman, First Class</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Fireman, Second Class</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

(d) Ratings to be abolished:

Effective upon receipt of BuPers Circlot 225-43—

Fire Controlman (B) Replaced by PCBM
Fire Controlman (3) Replaced by PC
Bandmaster Replaced by CMT
First Musician Replaced by Music

Effective 1 January 1944—

Fireman, Third Class To be replaced by AS

Effective upon establishment of Mineman qualifications—

Gunner's Mate (M) To be replaced by MN

Inasmuch as present complements, in most cases, already cover the specialities in the broad general ratings which have been subclassified, it should not be necessary to change the total number in a complement. Inclusion of AMMC's in a complement, for example, should be accompanied by a corresponding reduction in the number of AMMC's.

No changes or advancements to new ratings listed in paragraphs (a) and (b) will be effected until complements are established and qualifications published, other than the following changes of ratings, within the same pay grade, which shall be effected immediately.

<table>
<thead>
<tr>
<th>General Rating</th>
<th>Additional Rating</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM</td>
<td>BMA</td>
<td>Not physically qualified to perform duties at sea</td>
</tr>
<tr>
<td>TM</td>
<td>TMO</td>
<td>Attached to aviation activities.</td>
</tr>
<tr>
<td>FC</td>
<td>PRC</td>
<td>Same as for PCBM</td>
</tr>
<tr>
<td>MM</td>
<td>MMR</td>
<td>Graduates of NTAent/Tac/En, N. Y., and Anthony Ave., Chicago, Ill. (aircraft and fleet system)</td>
</tr>
<tr>
<td>AMM</td>
<td>AMMC</td>
<td>Graduates of NTAent/Tac/En, N. Y., and Anthony Ave., Chicago, Ill. (aircraft and fleet system)</td>
</tr>
<tr>
<td>AMM</td>
<td>AMMF</td>
<td>Graduates of NTAent/Tac/En, N. Y., and Anthony Ave., Chicago, Ill. (instrumentation)</td>
</tr>
<tr>
<td>AMM</td>
<td>AMMI</td>
<td>Graduates of NTAent/Tac/En, N. Y., and Anthony Ave., Chicago, Ill. (hydraulics system)</td>
</tr>
<tr>
<td>AMM</td>
<td>AMMF</td>
<td>Graduates of NTAent/Tac/En, N. Y., and Anthony Ave., Chicago, Ill. (hydraulics system)</td>
</tr>
<tr>
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</tr>
<tr>
<td>AMM</td>
<td>AMMT</td>
<td>Graduates of NTAent/Tac/En, N. Y., and Anthony Ave., Chicago, Ill. (hydraulics system)</td>
</tr>
<tr>
<td>AMM</td>
<td>AMOF</td>
<td>Fire-fighter instructors.</td>
</tr>
<tr>
<td>AMM</td>
<td>AMOM</td>
<td>Class V-1A control tower operators.</td>
</tr>
</tbody>
</table>
BuPers Bulletin Board

Former Rating
BMatr (abolished)
1st Mus (abolished)
Music
FC (M)

New Rating
CMus
Music
Music
FC

Qualifications
Same as for former Bmatr,
Same as for former 1st Mus,
Same as for former Music,
Same as for former FC (M).

Pending publication of qualifications for the new ratings listed immediately above, all candidates for advancement in these ratings must pass the examination for the general rating, as prescribed by Part D of BuPers Manual.

Changes in pay grade of the fireman ratings shall be effected as follows:

(a) Effective upon receipt of BuPers Circlet 205-43, no further advancements to firemen, first class, shall be effected until the rating of fireman, first class, is changed from pay grade 4 to pay grade 5.

(b) Men now in the rating of fireman, first class, may be changed to new third-class artificer ratings when qualifications are published, or they may be advanced to second-class artificer rates under current instructions.

(c) Qualified fireman, second class, may be advanced to new third-class artificer ratings when qualifications are published.

(d) On 1 January 1944 all firemen, second class, and firemen, third class, shall be changed to fireman, first class, and fireman, second class, respectively.

It is intended to include in the specialist (X) rating such miscellaneous essential specialists as draftsmen, model makers, visual-training-aid experts, telephone-switchboard-operator supervisors, pigeon trainers, air station operations desk and sea-frontier operations personnel performing duties deserving of a petty officer rating. No changes to this rating will be authorized until designators to identify specialties have been published.

Men classified as USN (1) or USNR, except fleet reserves, will be considered for the specialist (Y) rating, provided they are not qualified to perform the duties of a general service rating. Bureau authority in each case must be obtained. In this connection, it is desired to emphasize that it is not the practice to authorize physically fit young men to change to specialist ratings.

Qualifications for the specialist (F) rating, to include men with long experience as civilian firemen who are now serving as key men in fire-fighting organizations, will be published at a later date.

Revised NAVPERS Forms 625 and further instructions will be issued as soon as practicable.

(Convulsational Leave Policy Established for Officers)

Convalescent leave not to exceed 30 days now may be granted to officer patients by medical officers in command of U. S. Naval Hospitals.

To be eligible for convalescent leave an officer must (1) be under treatment for an illness or injury which has necessitated his evacuation from overseas or which was incurred aboard ship under combat conditions; (2) be no longer in need of active treatment in a hospital but be not fully recovered nor fit for active duty, and (3) have reached a point where a period of convalescence with his family could be expected to hasten his recovery and return to duty.

Such officers may be granted permission to report to the naval hospital near their homes upon expiration of convalescent leave. All male officers will be brought before a board of medical survey when fully recovered and fit for duty.

Convalescent leave will not be granted to officers who are admitted to a hospital from their place of duty in the United States or to those who are permanently disabled. In such cases leave, or sick leave, and authority to transfer to other naval hospitals for continuation of treatment should be requested in accordance with established procedures.

(Dependents' Out-Patient Care Must Be by Navy)

Out-patient medical service is provided for the wives, children, and other actual dependents of naval personnel, but only by naval medical officers at naval dispensaries, naval hospitals, or other Medical Department activities where an out-patient service for dependents has been established.

The Navy Department may not authorize, pay for, or assume any responsibility in connection with medical, dental, or hospital care obtained by or for dependents from civil physicians, dentists, or other practitioners, in civilian hospitals, clinics, etc., or in the hospitals or medical facilities of branches of the Government other than the Navy.

During such times as the Coast Guard may continue to operate as a part of the Navy, naval medical out-patient service is available for Coast Guard dependents in like manner as for naval dependents.

(Maternity Care Plan for Lower Pay Grades Only)

Emergency maternity and infant care for wives and infants of enlisted men in the armed forces is available (effective 1 October 1943) only to dependents of enlisted personnel of the fourth, fifth, sixth, or seventh pay grades.

However, commitments made prior to 1 October 1943 in cases of wives and infants of enlisted men of the first, second, or third pay grades, are valid. Massachusetts, Oregon and Pennsylvania have been added to the list of states having the program in operation. (See Information Bulletin, October 1943, page 67.)

(More Lightweight Magazines for Men Afloat)

Pony editions of nine popular magazines are now being printed for
YOUR FAMILIES AT HOME ARE RATIONED SO YOU CAN HAVE ALL YOU WANT

DO YOUR PART BY TAKING NO MORE THAN YOU CAN EAT
Seamen, Firemen May Be Rated as Corpsmen in Same Grade

Authority to change the ratings of seamen and firemen of the fifth and sixth pay grades to Hospital Corps ratings in the same pay grades, provided they have had specified training, has been extended to commanding officers of all shore-based activities outside the continental United States, except construction battalions and base companies.

The authority formerly was limited to those shore-based activities outside the continental limits having a permanent authorized complement of two or more medical officers, and to vessels having a permanent authorized complement of two or more medical officers. (Details in N. D. Bul. [semi-monthly], of 1 October, R-1449.)

Wounded Men Should Apply For Purple Heart Medal

It has come to the attention of BuPers that all men who are entitled to receive the Purple Heart Medal have not applied for it. This medal is awarded to anyone who is wounded in action against an enemy or is wounded as a result of the act of an enemy, if such wound necessitates treatment by a medical officer. Full details concerning the Purple Heart Medal appear in Navy Department General Order No. 188 of 21 January 1943.

U. S. Shore Duty Officers To Relieve Outlying Bases

BuPers plans to relieve in the near future a number of officers serving at outlying and advance bases. Reliefs will come from physically qualified, experienced officers at shore establishments in the continental United States who have not recently served at sea or on foreign shore.

Color blindness, dental deficiencies, minor deformities, when not coupled with organic defects, are not considered disqualifying for outlying or advance base duty.

Each activity may, if it so desires, submit a priority-of-detachment list by ranks of those officers considered physically capable of performing duty at advance or outlying bases. (Details in N. D. Bul. [semi-monthly], of 15 October 1943, R-1500.)

Officers Duty Requests Must Be Forwarded

It has come to the attention of BuPers that all officers’ requests for change of duty are not being forwarded according to the provisions of U. S. Navy Regulations, Article 2020, which states that “All officers through whom communications from subordinates are sent for transmittal to higher authority shall forward same if in proper form…” BuPers has directed that officers comply with this regulation. (Details in N. D. Bul. [semi-monthly], of 1 October 1943, R-1547.)

A Problem for the Admiral

The Flag had 21 warships which he wished to have in nine straight lines with five ships in each line. How did he do it?

(See page 79 for solution.)
Short Cuts in Handling Enlisted Service Records

Two suggestions for saving time in entering transfers on the service record have been received by the Bureau and are recommended for use where applicable.

Commands transferring large drafts of personnel may arrange in alphabetical order the original and duplicate copies of the transfer pages 9 & 10 and secure them with rubber bands, rather than placing them in the various service records. The command which receives the draft may then mimeograph the receipt endorsement. Obviously this procedure will be of benefit only for large drafts of men ordered to the same place.

The command transferring a man may fill in the space showing “Last station” as well as the entries showing the transfer. The command receiving the man may then stamp or mimeograph the remainder of the receipt.

$15,000,000 War Bond Sale Is Pearl Harbor Day Goal

An unofficial goal of $15,000,000 has been set for the bond sale within the naval establishment on Pearl Harbor Day, 7 December 1943, and no further cash sales will be held until that date. Total sales for Pearl Harbor Day last year were $7,418,000.

The goal is twice as big as last year’s because the Navy has greatly increased its activities and personnel and it has been possible to give more advance notice. (Details in N.D. Bul. [semi-monthly], of 1 October 1943, R-1429.)

Personnel May Apply For Suspended Compensation

Any person who, upon enlistment or appointment in the armed services of the United States, suspended his or her rights to Government compensation or pension paid on account of the death or disability of another person, now may apply for resumption of such payments.

Although a person on active duty cannot receive more than one award from the Government for his or her own service, he or she now (under Section 15, Public No. 144, 78th Congress, Act of 13 July 1943) may receive an award (in addition to his or her own active duty pay) based on the death or disability of another person.

Forms, on which to apply for resumption of suspended benefits, may be obtained by writing the Veterans Administration, Washington, D.C.

Disabled Veterans May Ask Rehabilitation Aid

Any honorably discharged, disabled veteran of the military or naval service, who served after 6 December 1941 and prior to termination of the present war is entitled to vocational rehabilitation to fit him for employment consistent with the degree of disablement, according to information received by SecNav from the Veterans Administration. Limit on length of training courses is four years and they will not be afforded beyond six years after the termination of the present war. Full information regarding vocational rehabilitation may be obtained from the Veterans Administration, Washington, D.C.

Letters to the Editor

(Continued from Page 40)

well as NROTC regulations. According to the Regulations for Administration and Training (NROTC 1943, Navpers 2422), "The course for all NROTC students shall be five 16-week terms plus the two terms spent as a V-12." Total: seven terms. Following successful completion of the course, an NROTC student would be commissioned in the Naval Reserve, if qualified, and ordered to active duty. Due to the exigencies of war, it is not required that NROTC students receive a degree before leaving college. Engineers and students are an exception to the regulation concerning length of course as they are required to remain in college the full eight terms. For individual cases, consult your PNS&T.

‘FER A GUY WID MY BRAINS DIS IS SILLY’

"I wanna be a cook?" "I wanna be a baker!"
"I wanna be a clerk or a candlestick maker!"
"I wanna be a captain!" "I wanna blow the horn!"
"I wanna stay at home an’ help pappy out the corn!"
"I wanna do this; I wanna do that!"
"I wanna do anything but what they got me at!"

Suppose, my discontented friends, you quit your silly griping
And at the Aza aim your shots and everlasting sniping.

There’s just one thing we’ve got to do
—and you know what it means,
Beat the Aza off the map! Smash to smithereens!

That’s our main assignment; each has his role to play,
Your chance to do the other things will come on Vict’ry Day.

So buckle down, train hard and fast,
and don’t go on a bender—
The order still remains the same—Unconditional Surrender!

—Maj. Julius Schreiber,
Camp Callan, Calif.

"Ho hum—back to flight school!"

—Dope Sheet (NAS, Norfolk)
Proper Marking of Baggage To Avoid Loss Is Directed

Because of difficulty in identifying bags and hammocks separated from men during transfer, BuPers has directed strict inspection of personal affects to insure proper marking at all times.

Baggage should be inspected on transfer and measures instituted whereby bag and hammock, secured as one piece, are properly tagged with name, rating, service number, and destination. BuPers has suggested a linen reinforced eyedet stringed tag, firmly tied to the baggge, as the most suitable means for ready identification.

Baggage masters at rail and bus terminals frequently are unable to determine ownership of unclaimed baggage readily because effects are not marked. In other cases clothing is stenciled with two or more different names.

In the event baggage is lost by the railroads after it has been properly checked, claim for reimbursement should be submitted direct to the general passenger agent of the initial line over which the baggage was checked. Claim should contain a detailed list of articles lost, the valuation declared at the time of checking, and the name signed on valuation check. (Details in N. D. Bul. [semi-monthly], of 1 October 1943, R-1432.)

ALNAVS ISSUED

The following Alnavs were issued in the period 21 September 1943 to 20 October 1943, inclusive:

No. 163—Requesting applications for two-year post graduate course in naval construction and engineering.

No. 164—Requesting applications for seven-months course in naval architecture leading to designation as CC-V (S).

No. 165—Appointing certain Lieutenant Commanders of the active list of the regular Navy and of the Naval Reserve to the rank of Commander.

No. 166—Appointing certain officers of the regular Navy and of the Naval Reserve to the next higher grade or rank.

No. 167—Referring to Alnav No. 166 in regard to physical examinations form.

No. 168—Directing commanding officers to take immediate steps to prevent shipment of any personal articles dangerous to life.

No. 169—Amending Alnav 131-42. (Alnav 131-42 referred to pay of officers on sea duty.)

No. 170—Regarding address of correspondence and despatches intended for information or action by Office of Naval Operations.

No. 171—Directing task force and unit (afloat) commanders to submit special letter reports on performance of captains and commanders attached to the task force or unit.

No. 172—Restricting emergency maternity and infant care for wives and infants of enlisted men to dependents of men in the fourth, fifth, sixth and seventh pay grades.

Postgraduate Training Open To Many Qualified Officers

Postgraduate training in the following curriculums is open to certain qualified Navy officers:
Aerological Engineering, Aeronautical Engineering, Aeronautical Engineering (Armament), Civil Engineering, Communications (Applied), Naval Engineering, Naval Construction and Engineering, Ordnance Engineering, Ordnance Engineering (Aviation), Ordnance Engineering (Reserves), Radio Engineering, and Naval Architecture.

Training in all curriculums is of a technical nature and length of courses will range from seven months to 2½ years. It is expected that classes will be ordered in 1944. Applications for the Naval Architecture course should reach BuPers prior to 25 December 1943; those for Aeronautical Engineering, Aeronautical Engineering (Armament), and Ordnance Engineering (Aviation), prior to 1 January 1944, and those for the other courses by 1 March 1944.

In order to make certain that the boards (to select candidates) will have before them all applications, any applicant who may have indicated his preference for postgraduate instruction on his report of fitness, or by letters, should now renew his request by letter.

Details in N. D. Bul. [semi-monthly], of 1 October 1943, R-1448.)

V-12 BULLETINS

The following V-12 Bulletins were released during the period, 21 September to 20 October, inclusive:
Nos. 82, 90, 93, 94, 96, 97, 98, 99, 100, 102, 104, 106, 107, 110, 112, 114, 116, 117, 118, 122.

Commanding officers of V-12 units should be certain that copies of all V-12 Bulletins are made available to the Academic Dean or the V-12 Liaison Faculty Member. Since each V-12 Unit now is receiving three copies of every bulletin, this number should be sufficient for academic and Navy use.

If all numbers have not been received, they may be obtained upon request from the Training Division, BuPers.
What the Well-Dressed Wave Will Wear

Next spring Women’s Reserve personnel will don gray-and-white, striped seersucker dresses (first photograph at left), replacing the navy-blue cotton suit. The skirt of the new uniform dress has a generous kick pleat and set-in belt. A new button-on tie is fastened at the collarline of the bodice, eliminating bulky material at the back of the neck.

To complete the new uniform a long sleeved collarless jacket of matching design will be worn over the dress (second photograph). Fitted snugly at the waist, it has one real and three simulated flap pockets. Except for the crown which carries out the striped seersucker motif, hat styles will not be altered.

Officer personnel will wear exactly the same uniforms except for insignia of rank and officer hat (third photograph). The change was made to provide more convenient washable hot-weather garb, and in basic design will be similar to present uniforms.

A new working smock (fourth photograph) has been designed for spring wear for personnel of hospital corps and other activities authorized to wear smocks in place of regular uniforms. With a full-cut, bias skirt and draped back, the new navy-blue broadcloth smock will give more practical comfort.

Both officer and enlisted personnel will wear a new lightweight raincoat (extreme right photograph) for spring showers next year. In basic design, but lighter fabric, it is identical with the regular Women’s Reserve raincoat. An officer’s havelock will cover the hat and snap securely under the chin.

Changes in winter uniform regulations for Women Reservists: (1) The navy blue shirt may be worn by all personnel at work; (2) the reserve blue shirt, or the white shirt, may be worn optionally for dress.

Black, moderately styled, dress shoes with regulation dress heel of 2-inches may be worn with the working uniform, except during periods of drill at which time the commanding officer may prescribe service shoes. Plain rayon, silk or lisle thread hose are within regulations at all times and on all occasions.

Honorable Service Buttons
Ready for Issue This Month

Honorable service lapel buttons (INFORMATION BULLETIN, September 1943, page 55) will be distributed beginning this month to officers and enlisted personnel of the naval service (including Women’s Reserve) who receive honorable discharges or certificates of discharge with character “Good” on or after 9 September 1939.

Enlisted personnel who have been discharged without having received this button, may apply to BuPers or other naval activity authorized to issue the button.

The new button is in addition to the “U. S. Navy Honorable Discharge” and “U. S. Naval Reserve Honorable Discharge” buttons previously issued to enlisted personnel. It will not be issued to enlisted men discharged during the present war for the purpose of reenlistment.

(Details in N. D. Bul. [semi-monthly], of 1 October 1943, R-1446.)

―Hospital Hi-Lites. (US Naval Hospital, Pearl Harbor.)

“Comin’ in on a ui . . . Omigosh! Comin’ in on a prayer!”
What Is Your Naval I. Q.?

1. How many civilians are employed by the Navy in its far-flung activities over the country? 2. The Navy in 1846 "outlawed forever" and made a punishable offense the use of a certain word because the word had caused confusion and accidents. Do you know what the word is? 3. Here are starboard, topside and bow-on silhouettes of a heavy cruiser. To what nation does she belong?

4. What is a williwaw? 5. True or false? When walking with a civilian, naval personnel should always walk to the left. 6. The number of feet in a nautical mile is: (1) 6080.2; (2) 5280; (3) 5820.6; (4) 6000. 7. What is: (1) "sea dust"? (2) a "dog"? (3) "Dutchman's breeches"? (4) "his name"? 8. What naval craft are named after fish? 9. This is the Navy's newest fighter. What is its name? What is its special virtue?

10. Paramushiru is: (1) a key U.S. base in the Aleutians; (2) one of the Japanese cities bombed by Gen. Doolittle; (3) an enemy stronghold on the northern tip of the Kurile Islands; (4) the main Chinese stop on the India-China run. 11. What was the first U.S. naval ship to be sunk by German forces in the present war? 12. In parades which include U.S. troops, does the order of precedence place military academy cadets ahead of naval academy midshipmen and members of the Regular Army, or does the Army head the line of march? 13. When a Navy man talks about the tonnage of a ship just what does he mean? 14. Identify the Navy insignia at right. 15. True or false? The Army salutes when uncovered, the Navy does not. 16. A primary objective in the treatment of "immersion foot" is: (1) relieve the pain by the use of heat; (2) keep the feet and legs moist; (3) restore circulation gradually; (4) warm the feet and legs immediately; (5) cool the victim to lower body temperature. 17. What is: (1) the Tyrrhenian sea? (2) The Ligurian sea? 18. How many men comprise the flying crew and ground crew required to keep one B-17 (Flying Fortress) operating? 19. Each flight crew aboard an aircraft carrier has a definite designation and a definite job. Name the crews and their jobs. Now give the identifying colors each crew wears. 20. Give the order of precedence of the following medals: Legion of Merit, Distinguished Service Medal, Navy Cross, Medal of Honor.

Answers

1. Less than 700,000. 2. Larboard. (In the early days it became confused with "starboard," the word "port" for the left side of the ship was substituted. 3. Germany. She is of the 10,000-ton Admiral Hipper-class. 4. A sudden, strong blast of wind from the mountains to the sea, especially prevalent in the Aleutians. 5. False. 6. (1) 6000.2. 7. (1) Salt; (2) Bont metal fitting used to close water-tight doors, hatches, ports, etc. (3) A small patch of ice seen after a gale is breaking. (4) A float placed between a vessel and the dock; also a float chained to a ship to reduce her draft when going through shallow water. 8. Submarines. 9. The Grumman Helcat. Added speed and climbing power, range, maneuverability and altitude capacity. 10. (3) An enemy stronghold on the northern tip of the Kurile Islands. 11. rubber boots. 12. The order of precedence would be: West Point Cadets, Annapolis Midshipmen, Coast Guard Cadets, Regular Army, U.S. Marines, U.S. Navy, U.S. Coast Guard. 13. The Navy measures tonnage of warships as "displacement," that is the weight of the volume of water displaced by a vessel. 14. Hospital Corps device. 15. True. 16. (3) Restore circulation gradually. 17. (1) North of Sicily; (2) North of Corfu and Sardinia. 18. The flight crew is composed of nine men, the ground crew 20. 19. Handling crew: pushes and spots planes,ewise blue shirts, fire-fighters: rescue personnel from burning planes, flight crew, wear red helmets and shirts; plane directors; superintendence; porters, wear yellow shirts and helmets; shockers; throwers, wear purple; arresting gear crew: operate on deck and do arrest work, wear green; deck crew: part of arresting gear crew: specialized duties, wear red helmets, heavy clothing, spiked tops, gasoline crew: fuel planes, responsible for gasoline and oiling, wear red helmets but no red jackets; loaders: transmit the order, wear brown shirts and pants. Other flight deck crew personnel includes a medical officer and two or three corpsmen wearing white helmets or white armbands with red cross, a book observer, and, although not officially listed as deck crew, plane captains and navigation men. 20. Medal of Honor, Navy Cross, Distinguished Service Medal, Legion of Merit.

V-12 Exams

A qualifying test for the Navy V-12 Program and the Army Specialized Training Program (A-12) will be held in high schools and colleges throughout the United States on 9 November. The test is open to all male high-school seniors in their last semester and graduates, who will reach their 17th but not their 22nd birthday by 1 March 1944.

Coast Guard Plants

1,100 Navigation Aids

United States Coast Guard established more than 1,100 aids to marine navigation in United States waters in the fiscal year ending 30 June 1943. Total number operated as of stations with Women's Reserve officers, the Coast Guard last month closed its Pay and Supply School for male personnel at Curtis Bay, Md., and opened one for women at the Coast Guard Training Station (SPARS), Palm Beach, Fla. In the first class were 25 enlisted women who will be commissioned ensigns upon successful completion of the four months' training course.

Staff College Graduates

The new Army and Navy Staff College (Information Bulletin, September 1943, page 31) graduated its first class of 30 Army, Navy and Marine Corps officers on 30 September.

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This Month's Cover

They stand together to defeat the Axis: Navy men in uniform and in overalls. The photograph shows a sailor watching a Charleston Navy Yard burner at work. Inside the front cover: This photograph of a shipfitters' open air shop was taken at the Naval Drydocks, Terminal Island, San Pedro, Calif. Opposite page: A boy apprentice and women on the assembly line at the Burbank, Calif., Vega Aircraft Factory. The planes are Vega Venturas, the Navy's new antisubmarine bombers. Starting on page 2 of this issue, the INFORMATION BULLETIN reports on the achievements of the Navy's civilian personnel in building, repairing and supplying the world's greatest sea and air fleets. (All cover pictures are Official U. S. Navy Photographs.)

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YOUR FAMILIES AT HOME ARE RATIONED SO YOU CAN HAVE ALL YOU WANT

DO YOUR PART BY TAKING NO MORE THAN YOU CAN EAT