Sun Ship Log

Volume 14, Number 3 / April, 1980

Keel Laid For 679

Vessel to be Named John B. Waterman

The keel for the JOHN B. WATERMAN is placed on "A" slab in the North Yard. The placement of the 118-ton center line double bottom marks the start of Sun's construction on the first of the three ships for Waterman Steamship Corporation.

The keel for Hull 679 was placed March 3rd 1980 on "A" slab in the North Yard. On hand for ceremonies were shipyard officers, representatives from Waterman Steamship Corporation and representatives from government agencies. The placement of the 118-ton center line double-bottom marks the start of Sun's construction of the first of the three ships for the New York based corporation. The combination container — ro/ro ships will be used in the U.S. Gulf Coast to Northern European trade. Hull 679 will be named the *John B. Waterman*.

Contract value of the three 692-ft. vessels is approximately $200 million. The vessels are being built with the assistance of the Government's Construction Differential Subsidy Program (CDS) that is designed to enable U.S. shipyards to reach cost parity with foreign competitors. The Maritime Administration will pay approximately 49% of the cost of each vessel, plus $786,500 per ship for certain National Defense features incorporated in the design. The contract calls for delivery of the three 23,500 DWT ships during 1981.

The Program Manager for the three Waterman ships is Bruce Murray; the Ship's Superintendent is Willis Glenn. The contract for the first two ships was awarded in November, 1978; the contract for the 3rd ship in June, 1979.

The vessels have been designed to carry either 20 ft. or 40 ft. containers as well as highway trailers and other over-the-road transportation equipment. The overall cargo carrying capacity of each vessel has been rated at 1548 TEU's (Twenty-foot Equivalent Unit).

The ships will have completely self-sustaining cargo handling capability with a 30-ton crane handling container stowage forward of the house. A large rotating ramp to the second deck at the stern will provide access from either the port or starboard side of the vessel for roll-on/roll-off cargo. An internal ramp and cargo elevator will provide access to all roll-on/roll-off spaces. A short ramp for loading roll-on/roll-off cargo on top of the hatch covers will be installed on the main deck.

The ships will also be capable of servicing 60 refrigerated containers or trailers on the main deck.

The propulsion plant will be a modern steam type with geared turbine drive, producing 32,000 shaft horsepower on a single screw. Centralized control will permit regulation of engine speed and direction from the bridge.

The grouping of these men signals an important event in Sun Ship history. Find out what it is and how far we've come since it happened by turning to page 2.

Sun Ship, Inc.

A Long Way Since the

Sun Ship began its industrial life in 1916 on 50 acres of skunk cabbage on the banks of the Delaware River. Within a year's time, this undeveloped site in Chester, Pennsylvania had been transformed into a major commercial shipyard with inclined ways, shops and store houses. Sun Ship came into being because its parent company, the Sun Company, needed ships to transport crude oil from its Texas fields to its Marcus Hook refinery. The new shipyard was built at a cost of five million dollars.

On a rainy Tuesday in October 1917, Sun Hull No. 1, the S.S. CHESTER SUN, was launched. The 10,600 dead-weight ton tanker "glided majestically down the ways at 12:15 P.M." according to a contemporary newspaper account. More than 600 ships have followed the CHESTER SUN down the ways since that time.

In the 60-odd years since its founding, Sun Ship has played a major economic role in the Delaware Valley through its employment of local workers and its purchase of goods and services from other Delaware Valley businesses.

Shipbuilding is a labor intensive industry and is reflected in Sun Ship's role as a major employer in the region over the years. During the Second World War, 35,000 people worked at Sun Ship building ships for the war effort. Over the past five years, the shipyard has employed an average of 4,000 people.

Labor Intensive Industry

Ships are the biggest self-sufficient mobile structures manufactured, and building them requires a multitude of skills. This complex process requires workers on all levels from skilled craftsmen to technical workers to professionally trained people. The entire shipbuilding cycle from design to delivery takes several years. Three quarters of the workforce at the shipyard is involved in the production aspect of shipbuilding. This group includes such crafts as welding, burning, rigging and shipfitting. The yard also employs engineers, draftsmen and a wide range of other white-collar workers. An estimated 85% of the workforce is drawn from the immediate Delaware County area. The remainder come from Philadelphia and other adjacent Pennsylvania counties as well as the states of Delaware and New Jersey.

Although the building and repairing of ships are the yard's primary business, Sun has engaged in opportunities for work in non-marine areas since its founding. These are areas in which the company's facilities and the skills of its employees can be readily adapted. Scotch boilers and reciprocating steam engines were made in the shipyard not only for ships being built here but for vessels being constructed in other yards as well. In 1923, as the reciprocating engines and Scotch boilers passed out of use, Sun bought the rights to manufacture the Doxford Diesel engine. The yard not only manufactured the engines, but produced spare parts for the engines after they were installed.

First All-Welded Ship

This work helped keep the yard busy during the twenties and thirties. Refinery equipment for Sun Oil Company as well as other petroleum companies was manufactured here. The yard constructed fractionating towers, agitators, absorbers, and heat exchangers. The famous Houdry catalytic cases came from this shipyard. The company also did large and small machining jobs and pressure vessels of all sizes were manufactured here. Ironically, one of Sun Ship's most important contributions to the maritime industry originated with the substitution of the weld for the rivet on a pressure vessel.

The first "all-welded" ship dates from 1932 with the construction of the S.S. WHITE FLASH. Prior to this, ships were riveted together. This ship, and the larger vessels which followed it, marked a new era in ship construction. The all-welded method of construction resulted in considerable savings in time and steel and yielded a stronger ship. The development of the all-welded ship also made it possible during World War II for the U.S. shipbuilding industry to produce more than three times the tonnage that could have been produced by the riveted method.

35,000 Employees and 28 Shipways

During the war, Sun Ship delivered 250 ships, which included 40% of all the U.S. tankers. Wartime growth of the workforce made Sun Ship the largest shipyard in the whole world at the time. With its 28 ways, Sun Ship averaged construction of a ship a week during the war years. Most of these ships were the famous T-2's, developed by the shipyard in cooperation with the U.S. Maritime Commission. Although built under emergency conditions, this ship class proved so successful that many of the T-2's have been jumboized and are still sailing today.

Some Sun-built vessels that achieved wartime fame include the S.S. OHIO, built in 1940. This tanker ran the gauntlet of aerial and submarine attacks to deliver desperately needed oil to the embattled island of Malta. Another World War II standout is the CIMARRON (built in 1939), a Navy oiler which participated in every major Navy action in the Pacific. This vessel fueled more ships than any other oiler. Although bombed several times, this vessel never sustained a casualty among its crew.

The shipyard's contribution to the war effort went beyond the construction of ships. The shipyard was innundated with orders for oil refinery equipment for domestic and foreign use.

Umbrella sheltered spectators watch the launching of the first ship constructed by Sun Ship. The sponsor was Mrs. J.H. Pew, wife of the president of Sun Oil Company.

SunShipLog
Volume 14, Number 3
Editor
Carol Luttrell

Start in a Cabbage Patch!

With the placement of a single steel plate, the keel is laid for Hull #1. Company officers and employees were present for the historic event that took place on a cold day in January, 1917. The keel laying signaled the birth of a community job source that contributes $66 million annually in wages.

More Than Just Ships

Sun's products found their way to Russia, the Middle East, and South America. In three war years, Sun Ship manufactured towers, tanks, reactors, kilns and cracking cases for 23 refinery units. 90% of all the aviation gasoline made during the war for the Allied cause by the catalytic cracking method was manufactured in equipment built by Sun Ship. Non-marine work reached a company high during the Second World War.

The glut of vessels resulting from wartime production precipitated an abrupt decline in ship orders after the war. Twenty-five vessels were delivered in the last years of the forties.

The fifties were a lean decade for American shipyards. There were few orders for ships. During this period however, Sun produced some 27 vessels, including the five "Mariner" ships, 15 tankers and the USNS COMET, a Roll-on/Roll-off military vessel.

With the sixties came orders for cargo ships for Moore-McCormack Lines, American Export Lines, U.S. Lines and Grace Lines, Inc. There were 33 ships delivered during this decade.

With the 60's also came the aggressive search for non-marine work and the directive from shipyard management to develop the capability for fabricating the new sophisticated metals. The Aero/Hydrospace and Industrial Products Department were established at this time. Spectacular products came from Sun's efforts in these areas. Sun's modern metallurgy, advanced welding techniques, special tooling facilities and precision machining enabled the shipyard to produce:

—Anchor components for the Verrazano Narrows Bridge, connecting Staten Island and Brooklyn, N.Y. This is the world's largest suspension bridge.

—A 2,247 foot long shock tube for the Naval Weapons Lab.

—A test chamber for NASA's "Launch Phase Simulator" at the Goddard Space Flight Center.

—Solid propellent rocket motor cases for NASA.

—Bi-sphere pressure hull for the Deep Quest.

—Four hold-down clamps for the 7.5 million pounds of thrust of a Saturn V first stage rocket during static firing.

—A giant wind tunnel for the Boeing Vertol Company in Ridley Park.

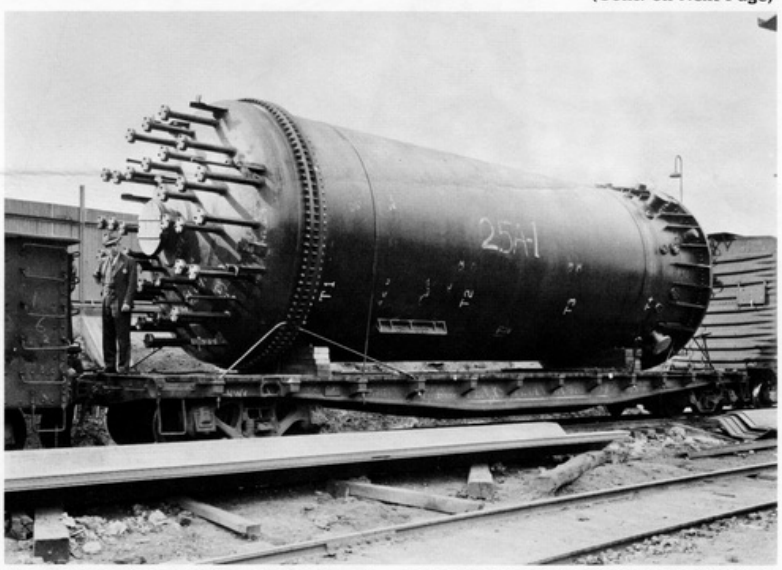
—A 562-ton yoke for a radio telescope in Virginia.

One of the most far-reaching jobs in the late sixties was the conversion of the MANHATTAN into an icebreaking tanker to test the feasibility of transporting Alaskan crude oil to the U.S. East Coast via the Northwest Passage. This was the first successful transit of the Northwest Passage by a commercial vessel.

The sixties also marked the delivery of the ADM. WM. M. CALLAGHAN, a gas-turbine powered military Ro/Ro vessel. On one of its early voyages, the CALLAGHAN set a world's record by crossing the North Atlantic in only four days. Concurrent with construction of the CALLAGHAN, Sun Ship developed its own design "trailership," a general cargo ship that extended the commercial application of the Roll-On/Roll-Off concept to include the waterborne carriage of highway trailers and other over-the-road vehicles. Sun Ship has built ten trailerships to date, and is the acknowledged world leader in the design and construction of this vessel type.

The seventies saw the shipyard participate in a wide range of activities. The MOBIL ARCTIC, the largest ship built in the United States at the time of its construction, was delivered in 1970. This ship measures 940 feet in length and has a cargo carrying capacity in excess of 129,000 deadweight tons.

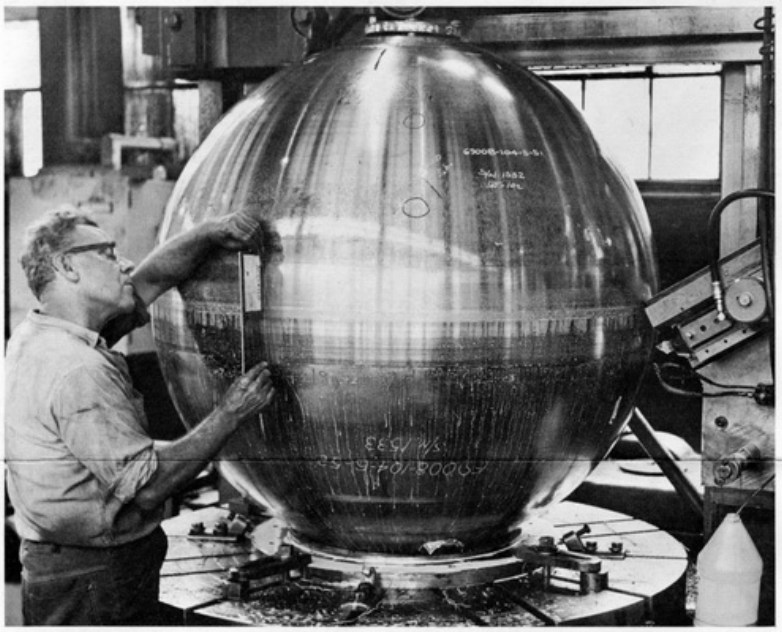
(Cont. on Next Page)



A catalytic cracking case is shown prior to shipment to a Texas oil refinery. The cat-cracker is one of the non-marine products built by "Outside Sales." This unit was delivered in 1943.

HIGHLIGHTS OF THE SIXTIES

- **33 ships delivered**
- **NASA Solid propellent rocket motor cases.**
- **Bi-sphere pressure hull**
- **Manhattan conversion**



A shipyard machinist checks the equator outer diameter on a transfer tank during its machining to remove excess stock after welding. The test sphere was one of the Industrial Products built at the shipyard during the sixties.

The SUN 800 places the gimbal on the *Hughes Glomar Explorer*. The lift, amounting to 630 tons, was the heaviest in the entire construction process of the ship. Following completion here at Sun, the *Glomar Explorer* was used by the CIA to raise a Russian submarine from the floor of the Pacific Ocean.

The *Manhattan* moves through the ice on its way to Alaska via the Northwest Passage. Sun participated in the conversion of this tanker so that it could make the historic 1969 voyage.

In the area of aerospace and hydrospace construction, Sun Ship built the prototype pressure hulls for the Deep Submergence Rescue Vehicle (DSRV) in the early 1970's. The development of this underwater vehicle was the result of the Thresher tragedy. It was designed to provide the U.S. Navy with a fast-reaction undersea rescue capability anywhere in the world. Light enough and compact enough to be transported to a submarine emergency within four hours, it is capable of operating at 3,500 foot depths for as long as 12 hours. Its crew of three has the capability to remove 24 survivors at a time from a stricken submarine.

Another aero/hydrospace product, the commercial submersible GUPPY, was finished in 1972. The GUPPY, a two-man tethered vehicle, was used in an underwater survey of the Gulf of Alaska.

Raised a Russian Submarine

The ship construction that brought the shipyard its greatest notoriety was the HUGHES GLOMAR EXPLORER. Built ostensibly to perform deep ocean mining operations, the GLOMAR EXPLORER became the headline story of newspapers around the world when it was revealed that the Sun-built vessel had been used to lift a Russian submarine from the floor of the Pacific Ocean.

Sun Ship celebrated its 60th anniversary in 1976 with a $45 million capital improvement and expansion program. This major capital improvement program enhanced the shipyard's ability to build the larger and more sophisticated commercial vessels that will comprise merchant marine fleets of the future. Sun Ship now has the capability to build ships up to 1,100 feet long and 197 feet wide. With this capability, the shipyard could conceivably build vessels as large as 400,000 deadweight ton tankers.

An important element in the expansion program was the addition of number four dry dock to the yard's facilities. This two-section dry dock, the largest on the U.S. East Coast, has an overall lifting capacity of 70,000 tons.

The shipyard's present production facilities also include an automatic plate burning installation, fabrication shops, building ways, heavy lift equipment and two outfitting piers.

Sun 800

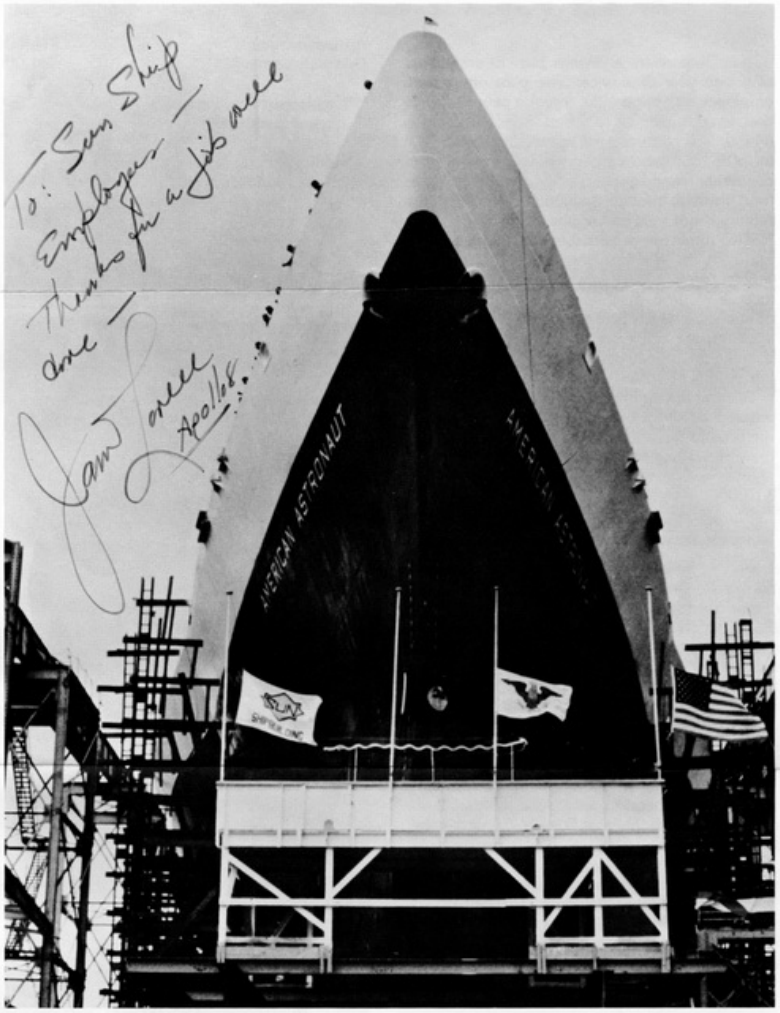
The yard's heavy life equipment includes the SUN 800, a floating derrick capable of lifting 800 tons. When not involved in shipyard construction programs, the SUN 800 provides outside customers with a complete, mobile heavy lift service for use in a wide range of applications including construction, marine salvage and cargo handling.

The SUN 800 made its biggest lift in 1978 when it placed a 788-ton drawspan in position on the Benjamin Harrison Bridge in Hopewell, Virginia.

Ship Repair

Since its establishment in 1921, the yard's ship repair department has repaired thousands of vessels. In 1977 the department set a record while working on the MANHATTAN DUKE. Repairing the 220-foot long whole in the tanker's port side required 1,230 tons of steel, a shipyard record for a damaged vessel in terms of steel weight replacement.

The shipyard is actively seeking U.S. Navy work in the repair area and is currently completing the overhaul of the U.S.S. PORTLAND. Overhauls completed by the shipyard during the past three years have included the PONCE and EL PASO.



"Thanks for a job well done" was James Lovell's message to shipyard employees when his wife christened Hull 649, the *American Astronaut* in 1969. Mr. Lovell was part of the crew that circled the moon in preparation for the first lunar landing.

Sun Ship also provides a wide variety of non-marine products for government and private interests. The shipyard's Industrial Products Division is currently completing an order for 20 components for nuclear reactors. These reactor components are to be used by public utilities to generate nuclear power for commercial purposes. Additionally, the Industrial Products Division has major contracts with the petrochemical industry in general as well as Scott Paper, U.S. Steel and Sun Company. At present the division is completing a 200-foot structure for Bechtel Corporation to be used in the Arco Refinery in Philadelphia, a wood digester for Westvaco and a bed plate, built to strict U.S. Navy specifications, for the USS VANGUARD.

The shipyard's industrial construction is abetted by its location on the Delaware River since many industrial products are oversized and must be shipped by water to their ultimate point of delivery and installation.

Current Contracts

Sun's current contracts total nearly half a billion dollars. The current workload includes two liquefied natural gas (LNG) ships for Pacific Marine Associates, two product tankers for Sun Company, a containership for Matson Navigation, three container — ro/ro vessels for Waterman Steamship Corporation, a Hopper Dredge for the U.S. Army Corps of Engineers and the barge portion of an integrated tug/barge contract for California and Hawaiian Sugar.

Sun Ship hopes to add to its construction backlog and is actively pursuing business in the new construction, ship repair and industrial products areas.

Interest – ing Savings Plan

Sun Ship offers a savings plan to employees with one year of service. The plan offers each employee an opportunity, through payroll deduction, to contribute up to 5% of his or her salary to a fund. The company will match this contribution by 50%. Further, each employee may elect to contribute an additional 6% of his earnings to the fund through payroll deduction. However, this money is not matched by the company.

Two funds are provided in the program. One, Fund "A" is based on investments in the stock market; the other, Fund "B", is based on a fixed income method. Each employee has the option of choosing which plan he wants to invest in. In addition, the employee has the option of further dividing the money between the two funds in any increments of 10%.

Seen at the right is an outline of how much an employee will have credited to his account as of the second quarter of the Sun Ship savings program, if he had started his account in July. The figures are ased on an annual income of $16,000.

Annual Income	$16,000
Quarterly earnings	4,000
Employee contribution 5% (payroll deduction)	200
Additional employee contribution 6% (payroll deduction)	+240
	$440
Company contribution — 50% of payroll contribution of 5%	+100
	per quarter $540
As of second quarter	$1080.

If the employee had decided to invest this money in Fund "A" this is how his account would look:

Total contribution from paycheck	880
Company contribution (1st & 2nd Q.)	200
Earnings — 1st Q.	5.39
" 2nd Q.	18.92
TOTAL	$1,104.31

FUND "B"

Total contribution from paycheck	880
Company contribution (1st & 2nd Q.)	200
Earnings — 1st Q.	10.94
" 2nd Q.	66.72
TOTAL	$1,157.66

The Shipyard Savings Program Adds Up

Results Election Announced

As a result of the elections held on Sunday, March 9, the following employees hold offices in the Sun Ship Employees Federal Credit Union:

Officers

President: Bill Russo (98 Dept.)
Vice President: Hal Horn (12 Dept.)
Secretary: Vic Laushance (61 Dept.)
Treasurer: Walt Novak (15 Dept.)
First Asst. Treasurer: Paul Amalfitano (21 Dept.)

Board Members

Membership: Kyriakos Pakalidis (21 Dept.)
Delinquent Loans: Jack Herbert (13 Dept.)

Credit Committee

Chairman: Elwood Ruley (92 Dept.)
Secretary: Phil Evans (80 Dept.)
Member: Bill Walsh (14 Dept.)
Loan Officer: Lynn Francis (Credit Union Employee)

CHESTER PA.

BULK RATE
U.S. POSTAGE
PAID
PERMIT NO. 20

W WALLS 00-1087
520---11TH AVE
PROSPECT PARK PA 19076

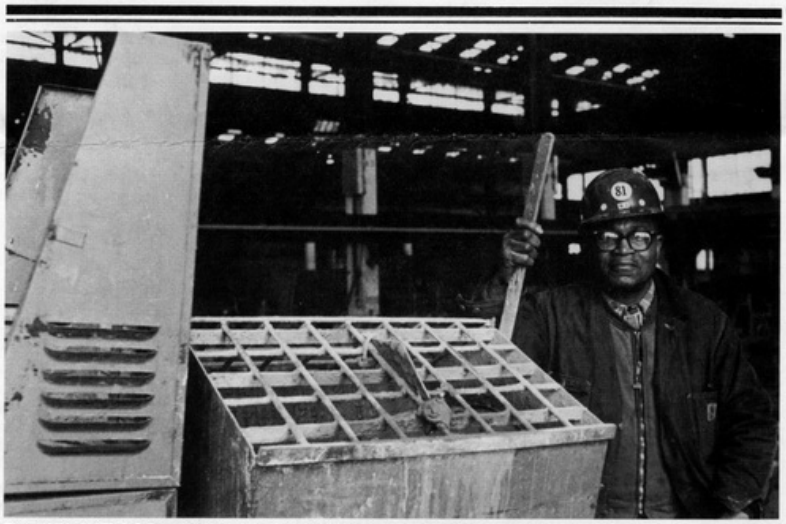
April 80

New Feature to be Started

Beginning with the June edition, the SUN SHIP LOG will contain a section devoted to "Departmental News." This section will contain a column from shipyard departments that submit on-the-job and social news. This section was a prominent feature in "Our Yard Magazine," the predecessor of the Sun Ship Log.

Correspondents from the department will have responsibility for gathering material, organizing it and submitting it to the Sun Ship Log editor in time to meet the monthly deadline.

Employees interested in writing for the section are asked to contact the Log editor, Carol Luttrell, on extension 795.



The SUN SHIP LOG is published each month for shipyard employees such as Mr. B. Cooke. "Cookie" is a handyman in 81 department (Yard Labor) and has nearly 38 years of service. Here he is shown operating a cement mixer in the Fab Shop.