

*THE COAST GUARD AT WAR*

*DEC 7, 1941 - JULY 18, 1944*

*MARINE INSPECTION*

VOLUME XIII

PREPARED IN THE

STATISTICAL DIVISION

U.S. COAST GUARD

HEADQUARTERS

JULY 31, 1944

---

COAST GUARD AT WAR

MARINE INSPECTION

XIII

CONTENTS

*[Click on chapter heading to go directly to that chapter]*

[Introductory Remarks](#) - New Wartime Dangers

[Coast Guard Assumes Protection of Merchant Marine](#)

## [Approval of Plans and Specifications of Vessels and Equipment](#)

[Inspections](#) - During construction, annual and re-inspections

## [Structural Failures of Vessels are Investigated](#)

[Drills](#) - To acquaint seamen with use of lifesaving and fire-fighting devices, how to abandon ship, where to find provisions stowed in lifeboats, etc.

[Welfare of Merchant Seaman](#) - records kept, next of kin notified, etc.

## [Licenses and Certificates granted to Merchant Marine Personnel](#)

[Hearing Units](#) - Complaints heard concerning misconduct, incompetency, etc.

## [Lessons from Casualties](#)

## [British Request Hearing Units](#)

## [General Eisenhower Requests Aide](#)

## [Administration of Motorboat Acts](#)

## [Merchant Marine Council Activities](#)

[Improvement of Safety Measures](#) - Questioning of survivors to get suggestions and learn of better safety measures

## [Improved Lifeboats and Life rafts](#)

## [Improved Lifesaving suits](#)

## [Improved Rations](#)

[Publications](#) - Wartime Safety Measures

[Tankerman's Book](#)

[Items Adopted as Equipment](#)

---

COAST GUARD AT WAR

MARINE INSPECTION

XIII

NEW WARTIME DANGERS

ENEMY SUBMARINES ATTACK ALLIED MERCHANT SHIPS

Only two tortured survivors of the shipwrecked crew from the British merchant ship ANGLO-SAXON lived through the ordeal of thirst, hunger, and exposure after being cast adrift when their vessel was torpedoed in 1940 by a Nazi U-Boat.

INADEQUATE SAFETY PROVISIONS

Eight men had escaped from the sinking ship, but two died of wounds that could easily have been treated with first-aid equipment, two became crazed with thirst and jumped overboard, one gulped large mouthfuls of sea water and died in agony, and the other died of exposure and thirst. Although the lockers on their lifeboat were full of hard tack, the men were unable to eat, for their salivary glands had ceased to function and they could not swallow the dry biscuit which they had chewed into dry powder.

VARIOUS GOVERNMENT AGENCIES ATTEMPT TO DEVELOP WAR-TIME SAFETY MEASURES

Enemy attacks on American seamen and ships, just prior to and after our entry into the war, indicated the urgent necessity for immediate measures to provide more adequate safety precautions in order to meet the conditions of modern warfare. The attempt of various agencies of the Government to develop and institute corrective measures led to a maze of conflicting and, in many instances, ill-considered and unnecessary requirements which, although well-intended; resulted in delays and unsafe conditions. It was apparent to all that the successful prosecution of the war would be jeopardized unless American ships and the men on them were adequately protected.

COAST GUARD ASSUMES PROTECTION OF MERCHANT MARINES

EXECUTIVE ORDER 9083

For that purpose, one central agency was needed-an agency experienced in the consideration and development of safety standards at sea. In the interest of expediting the prosecution of the war, President Roosevelt, by Executive Order 9083, dated March 1, 1942, placed the authority and responsibility for the protection of the American merchant ships and seamen directly upon the Commandant of the United States Coast Guard.

## BMIN TRANSFERRED TO COAST GUARD

To assist in carrying out this responsibility, the President's order transferred from the Secretary of Commerce to the Commandant certain safety-at-sea functions of the former Bureau of Marine Inspection and Navigation. These functions of that Bureau became an integral part of the Coast Guard.<sup>1</sup>

## COAST GUARD THUS CONTINUES ITS BASIC JOB OF PROMOTING SAFETY AT SEA

"If America and its Allies are to win the devastating war now raging over the surface of the entire globe," said Admiral Waesche, "the ships that carry the food, the guns, the tanks, the planes, and other implements of war to our fighting forces on battlefields beyond the seas, must reach their destination safely. Therefore, the Coast Guard at war is still carrying on its basic job of protecting the merchant marine of the United States.

The new duties of merchant marine inspection, conducted for the basic purpose of promoting the safety of life and property at sea, include the following: approval of plans for merchant ships and their equipment; inspection of vessels to check on stability, fire control or fireproofing, life-saving and fire-fighting equipment and other details; administration of load line; administration and enforcement of the laws pertaining to the numbering, issuance of certificates of inspections; examination, licensing and certification of Merchant Marine personnel - masters, pilots, engineers, staff officers, investigation of marine casualties; preparation and publication of rules and regulations to provide protection to passengers, officers, and crews of American ships; Merchant Marine Council activities.

### APPROVAL OF PLANS AND SPECIFICATIONS

#### BLUEPRINTS FOR VESSELS APPROVED

From the moment the keel of a new ship is laid until she retires from active duty, the Coast Guard watches over that vessel's career-testing, inspecting, examining, and, above all, safeguarding. The active interest in her welfare begins before the new ship is built. Blueprints of plans and specifications for the construction of vessels are submitted to a corps of highly trained naval architects and steam and electrical engineers of the Coast Guard, who check the plans to make sure that they conform in every respect to all requirements. Plans submitted to the Coast Guard are those dealing with the hull structure, the main power plant together with necessary pumps and other auxiliaries, arrangement and details of all piping systems, and complete plans of electrical equipment and installation.

#### COOPERATION OF AMERICAN BUREAU OF SHIPPING

The plans and specifications for all merchant ships which are subject to inspection are submitted to the Coast Guard for approval before

work is commenced in order to see that they are in full compliance with rules and regulations for the class of vessel intended and also for the service for which she is designed. The Coast Guard makes the rules and regulations with a view to the safety-of-life at-sea requirements. If possible, structural plans are first sent to the American Bureau of Shipping and then to the Coast Guard, in order to save time. The Coast Guard is not obliged to accept the Bureau's rulings but it is very helpful to have the Bureau check plans first. The Coast Guard is the final authority.

## PLANS FOR GOVERNMENT VESSELS APPROVED

The contract plans and specifications reviewed at Headquarters involve construction, alteration, and repair of merchant vessels, and, in most instances, vessels for the War Department and other agencies of the Government. Basic safety characteristics, as well as the adequacy and arrangement of the vessel and its equipment in all details, are carefully reviewed and checked in order that approval for construction may be given.

## INSPECTIONS

### VESSELS INSPECTED DURING CONSTRUCTION

After the plans and specifications for vessels and equipment have been approved, the Coast Guard sends its experts to inspect the ships in various stages of building, and to test and inspect lifesaving and firefighting devices. The Merchant Marine Inspectors are members of the staff of the District Coast Guard Officers in the various naval Districts throughout the nation. In 1942, there was immense increase in their activities because of the huge expansion in the construction of merchant vessels. In the fiscal year 1943, new vessels inspected during construction numbered 1,556, a three-fold increase over the previous year.

### EQUIPMENT INSPECTED AT FACTORIES AND MILLS

Boiler plates are inspected, tested, and approved at the mills. Completed boilers are similarly treated at the place of manufacture. Lifeboats, rafts, ring buoys, and other items of safety equipment are inspected at the factories where made, and stamped "Approved, " with the initials of the inspector, if found in all respects satisfactory and in accordance with Coast Guard requirements.

### SHIPS' STABILITY TESTED

When launched, a test is made of the ship's stability involving weight placements and complicated calculations. The Coast Guard is the technical adviser on Merchant Marine matters to the United States Army. When additional armaments have been put on a vessel, its stability is affected and in such cases ballast has to be placed in the vessel. The Coast Guard inspects and inclines Army transports to try out their stability. All troopships, United States and foreign, carrying U.S. troops, are Coast Guard inspected. Inclining experiments conducted in the fiscal year 1943 totaled 147 vessels. Lifeboats and life rafts are also tested for stability. The tilt a raft will take without capsizing is a determining factor in its rejection or approval.

### THE LOAD LINE

During the fiscal year 1943, new load-line certificates totaling 1,352, were issued to American ships, and close observation was made of the compliance by shipping of the load-line markings. The administration of the load line is a Coast Guard function. The load line is a line 9 inches long, placed in the middle to the length of the ship to determine the maximum draft to which the ship can be loaded. If the ship is overloaded that line is submerged and the ship is legally unseaworthy. In such a case, the Government can prevent the ship from sailing.

## ANNUAL INSPECTION ON VESSELS

United States merchant vessels are inspected once a year. In that group are all United States ocean, Great Lakes, lake, bay, sound, river and coastwise merchant vessels, including those of the War Department and other Government agencies. During the fiscal year 1943 annual inspections were completed on 6,883 vessels. Transports were visited for like purposes. To facilitate the operation of vessels in war zones, Coast Guard Inspectors were assigned to duty at foreign ports in such zones.

## ANNUAL INSPECTIONS OF LAND INSTALLATIONS

Veterans' hospitals, penitentiaries, forts, army cantonments, federal buildings, and the like are visited about once a year by Coast Guard Inspectors, who inspect and test stationary installations, consisting of boilers, unfired pressure vessels, and other appurtenances.

## STRUCTURAL FAILURES OF VESSELS ARE INVESTIGATED

### NAVY BOARD INVESTIGATES FAILURES IN WELDED VESSELS

A Board of Investigation was convened by the Secretary of the Navy in 1943 to inquire into the design and methods of construction of welded steel merchant vessels, after several failures of inspected vessels. The interim report of the Board, as of June 3, 1944, stated that without an early and general adoption of welded construction in the merchant shipbuilding program, as well as in the naval shipbuilding program, the results in speed and volume of construction which had been accomplished would have been impossible.

### SS ESSO MANHATTAN BREAKS IN TWO

A specific case of structural failure cited in the Report was the case of the ESSO MANHATTAN, a Standard Oil Company Tanker, which, on March 29, 1943, broke in two. The fracture started in a butt weld between plates A-9 and A-10 at the crown of the deck. With a sound described variously as a thump, thud, bang, crash of explosion, the fracture ran across the deck in way of #6 tank, and down both sides, progressing to the bilge port and starboard. The vessel jack-knifed and the bow dug under an oncoming wave. The crew abandoned in lifeboats and were picked up by the USCG KIMBALL. The vessel was repaired and returned to service.

### ELECTRICAL EQUIPMENT OF SS HENRY BERGH INVESTIGATED

A new and exhaustive inquiry started on June 9, 1944, in the wreck of the Liberty Ship HENRY BERGH, which went on the rocks on the Fallaron Islands on June 1, 1944. Testimony in the trial had already disclosed that the ship, built in Richmond in 1943 and converted to a

transport that summer, carried an electrical system "so bad that it looked like a child's work." The new inquiry was to find where that electrical equipment had been purchased and where installed.

## FAILURES NOT ONLY ON LIBERTY SHIPS

Contrary to popular impression, hull fractures were not confined to Liberty ships but were shared by other types of vessels. Practically all fractures originated in discontinuities occasioned by design details and notch effects incidental to imperfect welding. Investigations were continued, looking to further improvement.

## DRILLS AND RE-INSPECTIONS

### SEAMEN DRILLED

Quick thinking and fast action at the command of "Abandon ship" can often mean the difference between life and death. To abandon ship correctly takes practice. Lifeboat training programs drill men in the experience needed for handling lifeboats and equipment so that there will be no danger of their having to learn for the first time on a torpedoed ship. While training, lifeboat crews are repeatedly changed so that all men will know what to do at every abandon-ship position.

### WELFARE OF SEAMEN GIVEN ATTENTION

Special attention is given to accommodations and sanitary conditions designed for the welfare, comfort, and efficiency of the crews under operating conditions. At the annual inspections, the crews are examined in the performance of their duties. They are required to participate in emergency drills until these are satisfactorily executed. To insure safe operation, it is the responsibility of the Coast Guard to see that an adequate crew both as to number and qualification is provided, and no vessel may put to sea until she is manned by at least the number of men of each class required by the inspection certificate unless a waiver is issued. When the Inspectors are satisfied that the vessel is properly manned and in all respects suitable for service, they issue a certificate of inspection authorizing the navigation and operation of the vessel for one year. These licenses may be revoked if the laws are not complied with in every detail during the year.

### RE-INSPECTIONS AND DRILLS

Ships are reboarded from time to time to check on their continued seaworthiness and on the efficiency of the crews. As a result of these inspections, examinations, instructions and drills, the crews acquire a familiarity with their duties and the use of emergency equipment which otherwise would be impossible. These re-inspections and drills are especially important in view of the fact that many devices are constantly being added for increased safety.

### ARMY TRANSPORTS VISITED

During World War II, at the War Department's request, Coast Guard Inspectors visit all Army transports, American and foreign leaving United States ports with American troops aboard, to explain and demonstrate emergency equipment, conduct fire and boat drills and to see

that all such devices are in good condition and ready for immediate use. In many cases, the safety drills and checks were held aboard vessels assembled in convoy. A procedure of granting waivers of compliance with the inspection and navigation laws was placed in effect to speed up water transportation in the interest of the prosecution of the war, without sacrificing the essentials of safety.

## PRE-SAILING VISITS

During the pre-sailing visits to vessels leaving ports of the United States, the Inspectors, besides holding abandon-ship drills and other drills with safety equipment, also check provisions for lifeboats and life rafts, and order repairs of defective or missing equipment. Safety talks are given to the crews. All these precautions have been found to greatly increase morale.

## INSPECTIONS REQUIRED ON VESSELS AT SEA

After the ship is at sea, security inspections are required at various intervals to make sure that everything is in order, that all precautions have been taken against attack, and that all safety provisions have been complied with. Wartime safety requirements also control the safe loading and stowage of cargo and its vent sagging and hogging stresses which might result in the capsizing or breaking of the vessel in a heavy sea.

## WELFARE OF MERCHANT SEAMEN

### RECORDS OF SEAMEN

The Coast Guard maintains the individual files of approximately 500,000 merchant seamen. Each file contains a complete history of the particular seamen's employment aboard United States merchant vessels, and a record of all documents issued to him by the Shipping Commissioners and Merchant Marine Inspectors at the various ports. The types of certificates mentioned below were issued in the following number during 1942, from March through December; Certificates of Identification 63,615; Continuous Discharge Books 17,469; Certificates of Service (unqualified ratings) 62, 012; Able Seamen 8,217; Lifeboatman 19,336; Qualified Member of Engine Department 14,142; Tankerman 686; Staff Officers 377. Standards are prescribed for the guidance of the Shipping Commissioners in supervising the signing of ships articles and the discharge and payment of crews.

### NEXT OF KIN NOTIFIED

The Coast Guard has the further duty of notifying the next of kin of all merchant marine personnel reported dead or missing; of furnishing such information to the Red Cross, the War Shipping Administration, the Office of the Provost Marshal, and operators of the vessels concerned. The heroic action and sacrifice of the officers and men of the Merchant Marine in getting supplies through to our Allies took a heavy toll, which was reflected in the losses suffered by this group in the year ending June 30, 1943, when 271 were reported to have died in action and 2,447 were reported missing.

## LICENSES AND CERTIFICATES GRANTED



## EXAMINATION AND LICENSING OF PERSONNEL

Officers of the Merchant Marine receive licenses and seamen are given certificates of service after having successfully passed the tests given by the Coast Guard. Uniform standards for written examinations are prescribed to be offered to officer candidates throughout the country. Seamen take oral examinations. From March, 1942, to the end of that calendar year, 11,721 deck officers and 11,691 engineer officers qualified for licenses after such examinations. Special uniform written examinations were developed and distributed periodically for examining prospective licensed officers in Maritime Service Training stations. Information is published and disseminated on the subject of obtaining licenses. From March 1942 to the end of the year, 500 pamphlets containing specimen examinations and 381 copies of the Rules and Regulations were distributed, to meet this need.

## HEARING UNITS

### RECORDS OF COMPLAINTS

The Coast Guard collects and maintains the records of all cases arising from the alleged misconduct, incompetency, or negligence of merchant marine personnel, looking toward the revocation or suspension of licenses or certificates. Through arrangements with the State Department, Navy Department, and War Shipping Administration, all reports of the misconduct or incompetency of any American

merchant seaman are received at Coast Guard headquarters at the earliest possible moment and relayed to the District Coast Guard Officers concerned, with instructions as to when and where the accused will next arrive in the United States and the action to be taken. There are Hearing Units in all major United States ports and also in several foreign areas. These Hearing Units are a "Johnny-on-the-spot" way of maintaining discipline when a ship is away from its home port. They keep the boys in line.

### FOREIGN HEARING UNITS

Hearing units are also concerned with giving temporary repair to damaged vessels so that a ship may be made seaworthy until it can get to some place where regular repair work is done. In foreign ports, the Coast Guard Merchant Marine Hearing Units also sit as Boards of Examiners to enable Merchant Marine Officers and seamen to be promoted while away from home ports on extended duty. Merchant Marine Hearing Units were established in six British ports, in 1943, to handle discipline problems and to enable Merchant Marine personnel to take examinations for promotion and receive advancement while on duty in the European war zone. These units were located in London, Liverpool, Hull, Bristol, Glasgow and Belfast. Two units were also opened for the use of the merchant seamen in the North African area, one at Casablanca, and the other at Cran.

### ADMIRAL WAESCHE VISITS THE SOUTH PACIFIC

In the summer of 1943, Admiral Waesche made a 28,500-mile tour of Pacific installations, the most extensive trip ever taken by a Commandant of the Service. Conferences were held with General Douglas MacArthur, Admiral Chester Nimitz, Admiral William F. Halsey, Jr., and Vice Admiral Arthur S. Carpenter. As a result of these discussions, it was decided that seven Merchant Marine Hearing Units, similar to those already operating in England and North Africa, would be established immediately in the far Pacific areas. It was

revealed that Admiral Halsey and General MacArthur earnestly desired these units, not only for the purpose of handling discipline problems but also for the important function of sitting as Examining Boards to rate licensed and unlicensed personnel to higher grades, since many U. S. Merchant Marine vessels operating in the Pacific did not touch home ports in the course of the year. It was also necessary that the vessels be inspected by such units in that area.

## LAWS DEALING WITH DISCIPLINE SIMPLIFIED

The laws dealing with discipline in the Merchant marine were simplified, in February 1943, by the amendment of the regulations governing investigation of marine casualties and the suspension and revocation of licenses and certificates. A school for Hearing Officers and Examining Officers was established at New York City for the specialized training of officers assigned to this duty throughout the various Coast Guard districts. Licenses and certificates of merchant seamen suspended or revoked during the year 1943, totaled 339 and 884 respectively. During January 1944, Coast Guard Merchant Marine Hearing Units handled cases involving 234 licensed officers and 1,681 unlicensed men. In the case of the officers, one license was revoked, 90 were suspended, 54 admonitions were given, and 89 cases dismissed. Of the unlicensed men, 25 certificates were revoked, 515 suspended, 570 admonitions were given, and 571 cases were dismissed.

## LESSONS FROM CASUALTIES

### MISUNDERSTOOD SIGNALS

Many lessons are learned from the study and careful analysis of casualties. As a general rule, the immediate cause of most marine collisions is disregard or direct violation of the nautical rules of the road. In convoy, traveling blacked-out, conditions are such that in a fog or in poor visibility, a collision may be quite unavoidable. However, in the case of vessels navigating in the inland or coastal waters of the United States, the majority of collisions are both unnecessary and highly detrimental to the prosecution of the war. In the investigation of such cases, it usually appears that the accident could have been avoided had the masters or pilots of the respective vessels acted with strict conformity with the rules of the road. An illustration of this point is the case of two steamers which, early in 1944, collided on an inland waterway, due to misunderstood signals.

### DISREGARD OF NAUTICAL RULES OF THE ROAD

The collision occurred in the early morning while it was still dark, and when the two downbound and two upbound vessels were abreast, a doubly hazardous situation. When it first became apparent that confusion existed in regard to the signals given and there was misunderstanding for whom they were intended, it was the duty of both masters on the vessels which had drawn dangerously close to reduce the speed of their vessels to bare steerage-way, stop, and back if necessary, until the difficulty had been ironed out. Neither of the vessels concerned followed the proper course of action; had either one done so, there would probably have been no collision. The nautical rules of the road have been carefully worked out for the better safety of navigation, and one of the cardinal points is the rule requiring that when a misunderstanding with regard to signals arises, both vessels must decrease speed or stop.

### A CASE OF POOR JUDGMENT

An American Merchant ship load with an important war cargo arrived off a foreign port after sunset and in bad weather conditions. The wind was howling a gale directly on shore with heavy rain squalls in which the wind reached force 8. The anchorage was congested due to the presence of a number of other vessels, many of which were experiencing difficulty in holding, even with two anchors down. The master of the vessel in question concluded he was close enough the beach to anchor-no soundings having been taken at any time-when he discovered that he was well into the congested anchorage and was dangerously close to the beach. Full use of engines and rudder were insufficient to extricate the ship from this position due in part probably to the shallowness of the water in which she was by that time. Both anchors were let go but the vessel lay in the trough of the sea and drifted broadside onto the beach. A tug was dispatched to her assistance but could not get close enough to pass a line in the shallow water and the heavy seas. The ship was pounding heavily and after about an hour and a half broke in two. Lifeboats and liferafts were launched and a part of the crew reached the beach, although one man was swept off his life raft and drowned and the first lifeboat capsized in the surf. The remainder of the crew stayed by the wreck and were taken off the following day. The master was charged with inattention to duty and unskillfulness, and after a full hearing was found guilty and his license suspended for a period of six months. Inadequate precautions as to lookouts and soundings resulted in his overrunning his estimated position and caused the total loss of a valuable cargo vessel and the death of one of his seamen.

## CONSOLIDATION OF REPORTING

Prior to the war, reports of Marine Casualty were made on a form of the then Bureau of Marine Inspection of the Commerce Department, which was in many respects similar to the report required by law to be filed with the Coast Guard. In 1941 these two reports were consolidated, but they were designed to cover only casualties due to collision on,, foundering, and faulty stowage or construction. However, When U.S. Merchant Vessels and Tankers began to be sunk by torpedo, bomb and mine in 19h2, the Temporary wartime Rules were issued which did not require the report of Marine Casualty (or Accident) to be filed on N.C.G. 2692 (the new combined form) on casualties due to enemy action. The Marine Inspection Division of the Coast Guard, as part of the old B.M.I.N. was termed after consolidation, still needed information of a technical nature on casualties due to enemy and new forms. (924-d-1 and 924-d-2) were devised to obtain this information on such casualties. Whether a report on N .C .G. 2692 should also be submitted on casualties due to enemy action, so that, for statistical purposes, complete files may be maintained, is a question which is now under cons consideration.

## BRITISH REQUEST HEARING UNITS

### BRITISH REQUEST NAVAL COURTS IN U.S.

Secretary of State Cordell Hull, on June 7, 1944, received a request from the British Foreign Office for the establishment of British Naval Courts to try their merchant seamen in the United States. The request, was transmitted by American Ambassador, John O. Winant stated that these Naval Courts were not to be courts martial but civil tribunals established under the Merchant Shipping Acts specifically for the trial of offenses committed by merchant seamen. In World War II, the jurisdiction of these Courts was extended by emergency legislation to meet the needs arising in various parts of the world.

### PURPOSE OF COURTS

The primary purpose of the British Naval Courts, as requested for United States ports, would be to try offenses by British merchant seamen

and, so far as jurisdiction permitted, by all seamen serving on British ships other than United States citizens, against the special discipline which they had undertaken as seamen to observe. The secondary purpose of these courts would be the trial of such seamen for other minor offenses when such trial would be more prompt and less calculated to interfere with the operation of the ship than would trial by the civil courts of the United States. Seamen would be tried for desertion, absence without leave, refusal to comply with agreements to join ships abroad, disobedience to directions to serve in British ships, and other similar offenses, but the seamen would not be tried for offenses which could be tried by civil courts of the United States. There would thus be, in practice, no conflict of jurisdiction, it was stated, and no claim would be made by His Majesty's Government that the crews of British ships were immune from the jurisdiction of United States courts.

## RECIPROCITY INVOLVED

Transmitting the request in the form of an airgram, Mr. Winant strongly recommended that every effort be made to comply with the British proposal, not only for the reasons set forth but also because of the expediency of enabling the British Government to point to the reciprocal features of such Courts in answering critics of the application of the United States of America (visiting forces) Acts, 1942, to required for the apprehension of offenders ashore an possibly in certain circumstances for their detention after conviction. However, it was thought there would not be many cases in which persons would have to be detained, since persons who are sentenced by Naval Courts to terms of imprisonment can be removed to the United Kingdom for detention.

## GENERAL EISENHOWER REQUESTS AIDE

In June 1944, General Dwight D. Eisenhower asked for a high ranking officer, thoroughly familiar with merchant marine problems, and the Commandant recommended Captain Halert C. Shephard, Chief of the Merchant Marine Inspection Division of the Coast Guard. Captain Shephard left for England late in June to become a member of General Eisenhower's staff at a time when the Invasion of Europe on the French coast was giving rise to many problems involving thousands of merchant ships and seamen. In response to a pledge of full support from the Merchant Marine at the liberation invasion of France, General Eisenhower sent the following cable, dated June 28, 1944, to Captain Edward Macauley, U.S.N. (ret.), deputy war shipping Administration: "In behalf of the men of my command, I thank the men of the Merchant Marine for their pledge of full cooperation in our common effort to destroy the forces of tyranny and darkness. The huge quantities of supplies that have been brought across the Atlantic are a testimonial to the job that has already been done."

## ADMINISTRATION OF MOTORBOAT ACTS

### MOTORBOATS LAWS ENFORCED

The general public comes more in contact with Coast Guard officers through the Motorboat Acts than through any of the other laws which the Coast Guard is required to enforce.

### NUMBERS REQUIRED ON SIDE AND TOP

Under the Numbering Act of 1918, all undocumented vessels propelled in whole or in part by machinery must be numbered. Exceptions to this law are public vessels and other craft not admeasuring over 16 feet and temporarily equipped with outboard motors. In 1942, the

Commandant issued wartime regulations which required not only that the numbers painted on the side of the vessel be between 6 and 24 inches high, but also that the numbers in appropriate sizes be placed wherever possible on the top side of all numbered motorboats. This provided a more effective method of aerial and surface identification.

## OPERATORS GIVEN EXAMINATION

The old Motorboat Act of 1910 was superseded by the Act of April 25, 1940, which has as its purpose the greater safety of vessels of that type. An operator of a motorboat carrying passengers is required to pass an examination proving that by character and ability he can be safely entrusted with the duties and responsibilities of that charge. No person is permitted to operate a motorboat or any vessel in a reckless or negligent manner which might endanger the life, limb, or property of any person, under penalty of paying a fine not to exceed \$2,000, or being imprisoned for a term not to exceed one year or both

## COAST GUARD MAY ARREST VIOLATORS-TEST EQUIPMENT

Coast Guard officers can immediately arrest any person whom they apprehend in the reckless navigation or operation of a motorboat. However, when such an arrest is made, the Coast Guard officer is required to bring the person arrested immediately before a United States Commissioner or Judge or Court of the United States for examination of the offense alleged against him. During 1942, many applications and petitions for relief from fines and penalties incurred as a result of violations were reviewed, and final action was taken in regard to requests for mitigation or remission of the fines and penalties incurred. Coast Guard Inspectors test the boilers and other equipment on the motorboats to make sure that requirements are met.

## MERCHANT MARINE COUNCIL

### MERCHANT MARINE COUNCIL CREATED

On June 1, 1942, a Merchant Marine Council was created, by the order of the Commandant, to make studies and recommendations for the efficiency and welfare of Merchant seamen and for the efficacy of safety appliances and equipment aboard merchant vessels. The Council consisted of Coast Guard officers intimately acquainted with the safe construction, equipment, manning and operation of merchant vessels. Rear Admiral Harvey F. Johnson, Chief Engineer of the Coast Guard, was named the Chairman. Chosen as Vice Chairman of the Council, upon his return to Headquarters, was Captain James A. Hirshfield, who as skipper of the CGC CAMPBELL had made history in the victorious battle with six German submariners while on convoy escort duty in the North Atlantic.

### A PANEL OF EXPERTS DESIGNATED

For purposes of discussion, study, and assistance to the Council, a panel of experts was designated, chosen from the country's outstanding leaders in every phase of maritime activity, from industry, labor and Government. The Council also provided a forum where the various elements of the industry could express their opinions on actions and proposals of the Coast Guard affecting their interests. The combination and coordination of the efforts and talents of the entire merchant marine were thus utilized to provide an ever increasing standard of safety for American ships.

## POST WAR SIGNIFICANCE

Although it was impossible at that time to state the part which the maritime industry would play in the world after the victory had been won, it was obvious to all informed persons that no program of post-war economic adjustment could succeed without the efficient utilization of the American merchant fleet. It was with that objective in mind that the merchant Marine Council, with its panels representing all elements of the industry, was created to advise and assist the Commandant on matters relating to navigation and maritime safety.

## IMPROVEMENTS IN SAFETY MEASURES

### SURVIVORS QUESTIONED

As the Battle of the Atlantic increased in tempo, with the greatest destruction of merchant shipping ever known in recorded history, survivors of the torpedoed vessels were interviewed by Coast Guard officials and encouraged to relate experiences.

It is one of the functions of the Merchant Marine Inspection Division to interview the survivors of every American merchant ship which has met with disaster.

### EXCELLENT SUGGESTIONS

"The interview with survivors often brought us excellent suggestions for the improvement of our life-saving equipment." Said Captain Halert C. Shepherd, Chief of the Division. He found that the survivors of lost ships had many suggestions, and it appeared only natural that they should know better than anyone else how lifeboats and such equipment could be improved upon. The one particular suggestion he heard most often was that more boat drills should be held. "After once being torpedoed, they don't mind the precaution of having frequent drills," he said.

### DRINKING WATER AND PROTECTIVE CLOTHING

The particular articles of lifesaving equipment which they recommended more than any of the others were drinking water and protective clothing. "So in view of their suggestions," the Captain continued, "our lifeboats are equipped with 10 quarts of drinking water, and every man is given a rubber immersion suit as protection against the wind and weather."

### SIGNALING MIRRORS

Occasionally a survivor would have an idea for adding something new to the lifeboat equipment. "There's one case where survivors told us how they signaled to a passing ship by tearing off the lid of a tin can and catching the reflection of the sun on its surface," the Captain related. "That gave us the idea of adding mirrors to the lifeboat equipment, along with the parachute flares and other signaling devices." New safety measures adopted by the Coast Guard are based squarely upon the experience and need of survivors, and after consultation with maritime unions and others concerned.

## SENIOR SURVIVORS REPORT CASUALTIES

The law requires that all marine casualties and accidents be reported to the appropriate office of the U.S. Coast Guard and failure to submit the required report was formerly a violation and subject to a penalty. War-action casualties are generally reported by senior survivors upon their arrival at the first U.S. port. However, in those cases where senior survivors fail to report, it is the statutory duty of operating agents to submit certain forms with all the known facts and circumstances of the casualty. Survivors of American merchant vessels attacked and sunk by enemy action off the east coast of Central and South America are thus flown to Miami, Florida, the first port of entry in the United States, where they are questioned by the Coast Guard examiners.

## SURVIVOR TELLS HARROWING TALE

A Coast Guard Cutter picked up eleven oil-stained and flame-seared survivors of a large tanker off the Atlantic coast on March 13, 1942. They were brought to shore at Southport, a tiny fishing village near Wilmington, N.C., after spending nine hours on a tiny raft. The other fifteen survivors were brought to Charleston, S.C. The survivors related a harrowing story of swimming in a sea ablaze from thousands of gallons of oil loosed from the burning ship.

## DANGERS OF ESCAPING WITHOUT LIFEBOAT OR RAFT

"Buddy, it was just hell," said one young seaman, Herbert L. Gardner, on his first sea voyage. "I saw two of my comrades ground to pieces by the propeller of the ship as they tries to escape the flames." He related that a geyser of crude oil gushed skyward and spread over the sea for hundreds of yards a few seconds after the ship was torpedoed in the blackness of the night. He rushed to the forecastle to get his lifejacket and found the whole ship in flames. Backing sway from one overcrowded lifeboat on the sized in the confusion of the emergency launching. He then went down a line, attempted to right the lifeboat and as he did so he saw a Filipino messboy die in the same attempt.

## HAIR CATCHES FIRE AS HE SWIMS

"Finally, I jumped clear of the side of the ship and hit the water," said Gardner, "and believe me, I just didn't expect to come away from the mess alive. I tried to swim clear of the ship, through blazing oil. Three times I came up to the surface through the oil and felt my hair catch fire. I'd duck under and stay as long as I could, then come up again. Men were screaming as they burned to death in the flaming sea of oil."

## IMPROVED LIFEBOATS AND RAFTS

### APPARATUS TO LOWER LIFEBOATS IMPROVED

Many such testimonials made it apparent that the apparatus to launch lifeboats would have to be improved, and more boats provided. Getting a lifeboat into the sea from the sloping deck of a ship that was sinking or afire, and often had a decided list, was even harder than keeping the little craft afloat in the turbulent water. Wonders have been achieved in the improvement of davits, the apparatus to lower lifeboats into the sea. Vessels are equipped with the improved davits which make it possible to launch lifeboats in spite of the list, and

under the new safety rules American ships have to carry their lifeboats in the outboard position permanently so they can be lowered instantly. There are "skates." Which are devices that help the boat to slide over projections when the vessel is listed.

### DOUBLE NUMBER OF LIFEBOATS CARRIED

Enough lifeboats are carried on both sides of a cargo ship so that either set will be sufficient to take care of the entire crew in case the vessel develops a heavy list. Thus even if the vessel is sinking badly to one side, at least half of the lifeboats, those on the other side, are ready for split-second lowering, all arranged so as to hang free over the water.

### NEW EQUIPMENT OF LIFEBOATS

All lifeboats carry at least one mast and a complete set of sails. With a good wind, a lifeboat with all sails set can go two thousand miles and reach harbor. Other items carried in lifeboats are oil lamps with spare wicks and extra fuel so that the compass can be seen at night, complete first-aid kits, pilot charts, electric pocket torches with extra batteries, matches in waterproof containers, signal flags, at least 6 woolen blankets in oilskin covers, and a drogue or sea anchor. The anchor has a supply of storm oil and a perforated oil bag to help in riding out breakers on rough seas.

### RED OR YELLOW SAILS REQUIRED RICKENBACKER AND PARTY RESCUED

Other safety regulations provide that lifeboat sails should be either red or chrome so they can be seen better from the air or at sea. Yellow dyes spread on the water attract airplanes, and it was in this manner that Eddie Rickenbacker was saved when he was lost at sea while on a flight to the South Pacific. A Navy scout seaplane spied a spot of yellow on the rolling blue swells and taxied over. The yellow spot was a life raft. In the raft was Captain W.T. Cherry, pilot of the ill-starred Rickenbacker plane. He was taken aboard the rescue plane and flown to safety. Hopes for the rescue of Rickenbacker himself were revived for he was floating some place nearby in a self-inflated life raft. Just before nightfall, on November 12, 1942, another yellow spot was sighted and rescuers, landing and taxiing alongside, looked into the smiling face of Captain Rickenbacker and two of his companions. The improved life raft and the yellow dye saved many men cast adrift and floating like tiny specks on a vast ocean.

### REMOTE CONTROL IMPROVED LARGER LIFEBOATS

Testimonies included not only comments on lifesaving apparatus but also on various parts of the ship. One survivor reported that the remote control for the main engine was very stiff and practically unworkable. The Coast Guard immediately made an investigation of the firm which had manufactured the apparatus in question and ascertained what improvements could be made. Topside remote control for propulsion machinery and overboard discharges can be shut off from a position to prevent flooding and capsizing of boats during launching operations while the vessel is in motion. The remote control is also designed to prevent boats and rafts, as well as people, in the water from fouling the ship's propellers.

### LARGER LIFEBOATS



The new lifeboats are larger and designed for fewer occupants. Features of their improved construction are grab rails, skates and skids, as well as motor propulsion for certain boats on each side of the vessel. Lifeboat fall reels, cruciform lowering bits, and life lines from davit spans are also required to insure speedy and safe launching. The underwater contour of the Liberty Ship lifeboats has been improved for greater stability. Marine safety experts are constantly searching for safer lifeboats and better equipment.

## IMPROVED RAFTS AND FLOATS

Improved life rafts, of sufficient capacity to accommodate all persons on board, are also required equipment. Each vessel is required to have two doughnut-type life floats of not less than 15-person capacity, fitted with paddles and self-igniting electric water lights. Merchant cargo vessels are thus equipped with accommodations in lifeboats for twice the number of persons aboard, accommodations in life rafts for all persons aboard, and life floats for a minimum of thirty persons. All together, these ships have lifesaving devices in the way of boats, rafts and floats for more than three times the number of person actually carried.

## TANKER TORPEDOED WHILE LIGHTS WERE SHOWING

When an Axis submarine torpedoed and sank the 6,766 ton Gulf Oil Tanker GULFTRADE, on March 10, 1942, Coast Guard boats rescued sixteen of the thirty-five crew members and landed them at Tompkinsville, Staten Island. Captain Torger Olsen, skipper of the ill-fated vessel, told Coast Guard officials, "After we got as far as Barnegat we thought we were safe. A few minutes before we struck, we saw two ships ahead of us. In order to avoid a collision, I ordered the running lights to be put on. We were torpedoed while the lights were burning."

## BLACKOUTS AS FURTHER SAFETY PRECAUTIONS

Safety measures to aid in the actual prevention of enemy attacks include such precautions as light and noise blackouts and degaussing equipment. Even the glow of a cigarette can be seen as far as a half-mile distant on a clear, dark night. In addition to the blackout of light, there is also need of a blackout of sound. The importance of a silent ship is evident when the perfecting of all types of sound detecting devices is borne in mind.

## EMBARKATION LADDERS AND NETS

Following an attack by mine, bomb, or torpedo, after every effort to save the ship has been unavailing, the interior of the vessel is lighted up with emergency lights and luminations. Two or more avenues of escape are provided for interior spaces, where people are liable to be trapped. Engineering spaces are required to be fitted with flexible emergency ladders for escape purposes. Embarkation ladders and lifesaving nets are required over the ship's side for easy boarding of lifeboats and rafts, and also for rescuing survivors from the sea.

## IMPROVED LIFESAVING SUITS

## INADEQUACY OF OLD FASHIONED LIFE PRESERVERS

Formerly, life preservers in the form of cork slabs, or lifebelts, were used merely to keep people from drowning. As a result many died of

exposure while they were afloat. The adequacy of the old-time, traditional life-belt was illustrated by the disaster of the CITY OF ATLANTA that went down off Cape Hatteras, on January 19, 1942, with all of her crew of 49 men, except 3 who were saved. The New York Times wrote of the survivors, "They all stayed together as much as possible, and for a time shouted to each other. But one by one, the men ceased to shout. The cold numbed them. And one by one, they lost their holds on the bits of their ship."

## LIFESAVING SUITS DEVELOPED

Shortly before the entry of the United States into the war, a great clamor was made by seamen and others for rubber lifesaving suits for men compelled to abandon ship at sea as a result of war action. At that time, no standards existed for the use of suitable rubber suits, so the Coast Guard was constrained to approve such suits as were submitted and appeared suitable for use as coverall immersion suits.

## COVERALL SUITS FOUND INDISPENSABLE

Survivors of vessels lost by war action in northern latitudes indicated that practically the entire crews used suits in abandoning their ship. The following testimonies reveal that the garments approved by the Coast Guard have proved suitable and in many cases indispensable for the preservation of the lives of the seamen cast adrift.

(Oiler) "Lifesaving suits provided ere helpful and the suits kept men afloat and safe from sharks, which were all around me for an hour."

(Mate) "There were hundreds of sharks in the vicinity, which attacked those not wearing suits, but did not attack any of the members that were wearing suits."

(Survivors) " In extremely cold and rough weather, the survivors in rubber lifesaving suits, in groups of three and four, jumped from the vessel into the water and were rescued by the boats of an escorting corvette."

(Master) "Thirty-six persons wore their suits for 61 hours on rafts and boats. The suits were very good. The men would have suffered from exposure if they had not had the rubber suits."

(Commanding Officer, USCG ESCANABA) "During rescue operations rubber suits were used; the procedure being to stuff a member of the crew into the suit, tie a tight line around his chest, pick him up bodily and lower him over the side. He would then swim out from the ship, tow in life rafts and single survivors in the water. The water temperature was 40 degrees, the air temperature was 30 degrees. Suits were of inestimable value."

(Master) "Those rubber suits are fine things keeping you warm, finest thing in the world. If the shoes only fitted well you couldn't wish for anything better."

(Sole Survivor) "The sole survivor feels he owes his life to the rubber suit he was wearing. Others who abandoned ship without this gear froze almost immediately and were washed overboard by the heavy seas."

## DANGERS GREATLY REDUCED

The dangers to shipwrecked seamen, forced to spend long days exposed to the rigors of the open sea, have been greatly reduced due to the development of the rubber immersion suits. As an important aid to all mariners, those grotesque-looking overall suits are provided men on cargo and tank vessels of 1,000 gross tons or over.

## PROTECTION FROM THE ELEMENT

The lifesaving suits are grotesque, however, in appearance only. They have saved many lives at sea, especially in the colder latitudes, when ships have gone down. The new style lifesaving suits are designed to furnish protection from the elements as well as to prevent drowning. After all, it doesn't do a man much good to keep from drowning if he is going to freeze to death. When forced to go overboard, the men wearing the new-style lifesuits can keep reasonably dry, warm and safe.

## ONE-PIECE GARMENTS WITH HOOD

The suit covers the entire body, a mask on some types even protecting the face. These coveralls are made of rubberized material, seamless up to the neck and water-tight. Attached in one piece with the suit are a hood, wristlets and boots.

## WIDE OPENING AT SHOULDER

The openings at the shoulder are very wide so the suits can be quickly donned. With the suit on, a man can carry on his work in the lifeboat or raft without discomfort. A belt is attached to the suit; it can be made fast to a piece of drift wood, a raft, or be used to facilitate the rescue of seamen in the water.

## KAPOK VESTS WORN UNDERNEATH

Buoyancy is provided by a kapok vest, light in weight and comfortable, which is worn under the coverall. These life preservers have to be worn all the time, whereas, the heavy coverall garments are put on when it becomes necessary to abandon ship. Under actual wartime conditions, especially in the North Atlantic, the lifesuits have had to be worn most of the time, at intervals almost lived in. But most of the time the suit is not donned until its owner is safely in a lifeboat or raft.

## LIFEBOATS EQUIPPED WITH EXTRA PRESERVERS

Although all men are instructed to wear their life preservers at all times, some men have been found in the water after abandoning ship not wearing a life preserver and have been lost because their shipmates could not toss them an extra preserver, or reach them in time. Lifeboats are, therefore, equipped with a few extra preservers.

## KEPT IN CONVENIENT PLACE

When not in use the rubber suit is kept in a convenient place. Members of the deck department keep them nearby wherever they work. It has been advisable for the "black gang" to have theirs near the engine passage or on the boat deck, ready for instant use. Each type of suit has individual characteristics; the seamen become well acquainted with it as soon as possible after arriving on board.

#### IMPROVEMENTS WERE MADE CONTINUALLY

Since the suits are made of rubber and synthetic rubber, they demand extreme care. They have to be kept away from steam pipes, heated areas, oil and grease, and be checked repeatedly for holes and cracks. In one of several tests made, holes were punctured in the newest type and the seaman was still kept afloat. The wearer's comfort was further enhanced by attaching a towel in the neck of the suit. This towel also kept out any water that might have filtered through the neck. Tests for improvement continued to be made and suggestions have been widely encouraged.

#### MAN FLOATS ABOUT UNCONSCIOUS BUT SAFE AND FULLY RECOVERS

The importance of the lifesaving suits is being demonstrated continually by rescue reports from sea. One man related that while wearing one of these coverall lifesuits he was blown overboard and knocked unconscious by a torpedo blast. When rescued some time afterwards he was still unconscious but perfectly safe and later fully recovered.

#### LEAD PLACED IN BOOTS

The one essential difference between the standard rubber lifesaving suit and the so-called protective exposure suit is that the standard suit has lead placed in its boots to hold the wearer in a vertical position upon entering the water. The other suits do not keep their wearers in an upright position. The weight of the standard suit with lead in its boots is 13 pounds, and the weight of the other suits without lead is 7 pounds. By removing the lead from the boots of the standard suit, such suit becomes for all practical purposes, an exposure suit.

#### WITHOUT THE LEAD, THE WEARER SURFACED FACE DOWN

Upon entering the water feet first, from any height, while wearing an ordinary exposure suit (with no lead in the boots) the wearer invariably surfaced in a horizontal position, face downward. Even if the wearer entered the water in a position other than feet first, he surfaced in the horizontal position, with face considerably downward. He found it impossible after most exhaustive struggling to place himself in a vertical position. Wearers of the exposure suits entering the water under actual conditions of disaster and in any kind of sea would soon exhaust all their strength trying to get themselves in a vertical position and in all probability lose their heads and drown.

#### ELECTRIC LIGHTS ON SUITS

The lifesaving suits approved by the Coast Guard contain all the desirable features of the so-called exposure suit and in addition keep the wearer upright, with his head and shoulders well above the water. Electric lights have been installed to replace the calcium self-igniting water lights which were attached to life rings and which in modern warfare could be agents of destruction if they should set the sea afire

around a sinking tanker. Thousands of persons wearing life preserver lights during the night have been spotted in the water and rescued who would otherwise have perished.

## IMPROVED RATIONS

### DRINKING WATER FOR SHIPWRECKED SEAMEN

The new laws issued by the Coast Guard give increase protection to shipwrecked men by providing more and better food rations for lifeboats and rafts. The most important single item for men cast adrift has been found to be drinking water. Survivors recounting their experiences have verified the fact that men can live for weeks without food, but after a few days without water they are tortured with thirst and soon perish. The minimum amount of water in a lifeboat is ten quarts per person.

### PROVISIONS INSPECTED

Every item of lifeboat provisions is inspected periodically to make sure it has not leaked, evaporated, or become contaminated. Food and water are carefully guarded. The new laws require that a replacement item has to be made fast in the lifeboat before an item which it is replacing can be removed.

### MODERN MENUS

Everyone knows that hardtack was the sailor's food since time immemorial. In 1942, coast guard Marine Inspectors did away with hardtack. They said, "Shipwreck survivors, after a few days and especially with limited water, lack the strength to masticate the old style sea biscuit." Nutrition experts have brought the lifeboat menu up to date. A new type of biscuit has been developed, softer, containing more food value, and fortified with vitamins. These biscuits are packed in air-proof and moisture-proof containers.

### PEMMICAN AND CHOCOLATE

A compressed food, called pemmican, has been developed, consisting of a pound sugars, fats, and meats, a single ounce of which satisfies almost as much a course dinner. It keeps indefinitely. Pemmican was first invented by the American Indians, improved by Artic Indians, improved by Artic explorers, and then further improved by the Marine Inspection authorities of the coast Guard. Chocolate, always considered a high-energy food, is provided in water-proof packages. It is of a non-thirst producing kind. The last item on the menu consists of malted milk tablets. These can be dissolved slowly on the tongue.

### AMOUNT OF DAILY RATION

Three and a half pounds of food must be provided for every person the lifeboat is certified to carry; that is, fourteen ounces each of the four items. The officer commanding the lifeboat has to decide on the amount of the daily ration, supervise the issuing of the provisions, and guard against pilfering and waste. He has to ration the provisions with the possibility of a long period adrift.

## PUBLICATIONS - WARTIME SAFETY MEASURES

### WARTIME SAFETY MANUAL

As a result of interviews with thousands of merchant seamen, the Coast Guard compiled a war book, entitled "Wartime Safety Measures for Merchant Marine," and distributed copies to operators, officers, and crew member of all American merchant ships. In many respects one of the most extraordinary publications of the war, the book contains all information a mariner can need when cast adrift and all hope seems gone, and has become a sort of bible to thousands, second only to food and drink. Such a book had long been needed and often discussed, but this was the first actually produced.

### EDUCATIONAL MATERIAL INCLUDED

The manual, compiled by the Merchant Marine Inspection Division, was prepared in memorandum form in July, 1942. It was printed and released and released to the general public in January 1943. Extensive research was done in its preparation. The regulations are arranged according to subject. Educational material is added from a digest of information obtained from various sources.

### CASE OF SURVIVORS INJURED

For example, an article was contributed by the Division of Preventive Medicine of the Bureau of Medicine and Surgery, U.S. Navy. It tells what to do in caring for survivors: first-aid treatment for shock, burns, heat exhaustion, sun stroke, fractures, flesh wounds; what to do for a case of extreme thirst, starvation "immersion foot", frostbite, and prolonged exposure to cold, sunburn, eye inflammation, emotion disturbances. Foreign regulator authorities, masters, officers and seamen of American and other United Nations vessels furnished part of the material. The suggestion for safety taken from the comments and recommendations of survivors are the results of close analysis and careful study. From the gruelling experiences and bitterly learned lesson of the men who had looked death starkly in the face many times, the Coast Guard found out what were the needs of persons cast adrift for weeks without rations or with only a limited supply, and published its findings in the manual. Many survivors tell in detail to what heights of ingenuity the human mind will rise when faced with the final test of life and death. However, men often perished not because no food or water was on hand but because they didn't know how to use what was available.

### CALMNESS STRESSED

Over a hundred detailed instructions are given in the safety publication to show the men adrift how to help themselves. Calmness and human ingenuity are stressed as the strongest weapons in the victim's long struggle for survival. The mental struggle is not ignored. Under Hints, on page 99 of the book, a paragraph on attitude in boats states: "Men in boats should remember that their chance of survival depends primarily on their mental attitude and cooperation with the officer in charge. If you can't be cheerful, be quiet. Experience has sown time and time again that the comfort and indeed the chances of survival of those adrift depend upon the frame of mind of the boat's company."

### ADVISED TO KEEP BUSY

Men are advised to break the monotony of the day by eating and drinking a little many times, instead of following the instinct of the hungry or thirsty person and gulping down the slender rations all at once. No matter how small the ration, it is a great relief to men, totally alone on the wide expanse of ocean, without diversion of any sort, with hardly room enough to move, to have something definite to do at stated intervals, like passing rations. The person in charge is advised to get the boat's company settled down as soon as possible and, in order to prevent moping, to assign each person a regular job. Survivors are told to occupy themselves some way or other.

### SURVIVORS TOLD OF USING TIN CAN TO SIGNAL SHIPS

The group of survivors who flattened out a tin can and fastened it to the blade of an oar, did so because there seemed to be little chance of their being picked up by rescue craft unless they had some way of attracting attention for as far as ten miles. They hoped that as they rowed, the light reflected by the tin can could catch the eye of someone on the lookout in a plane or surface ship who would otherwise not see them. Based on one chance in a thousand, the device succeeded and the men were picked up by a craft which had sighted their flashing light across several miles of ocean.

### COAST GUARD DEvised SIGNALING MIRRORS

The Coast Guard has devised signaling mirrors along lines that eradicated completely the element of chance. In the book "Wartime Safety Measures for Merchant Marine," the Coast Guard tells the survivor, by the use of explicit instructions and diagrams, how to put the mirror to the best use. Two mirrors, in a waterproof container, have become required equipment on every lifeboat and raft. The signaling mirror somewhat resembles the laryngeal mirror used by physicians, is rectangular in shape, and has a hole in the center through which the survivor can sight his objective. By tilting the mirror, he can beam the reflected sunlight directly to the rescue ship or plane even though it is as far as ten miles away. It is a simple device, almost like a toy, yet it can mean the difference of life or death to a man in mid-ocean, where any lifeboat is like a tiny, fragile speck.

### AFTER FOOD AND WATER WERE GONE

The stories related by the survivors showed that it was entirely possible for men, tossing about helplessly for days in a sparsely equipped and highly vulnerable boat or raft, to keep alive long after their food and water had gone, if only the men knew how.

### KARSTAAD TELLS ABOUT TURTLES

One survivor, Kaare Karstaad, told how he and eight other Norwegian seamen sustained themselves for forty-eight days while drifting over almost a thousand miles of the Atlantic. After all their supplies were gone, they kept alive from what sustenance they could get from the sea. Karstaad's story of the turtles served as one pattern of survival which could be useful to thousands of other shipwrecked seamen. "Turtles swim around on moonlight nights, and occupants of a raft should keep quiet and not move around, because a turtle is curious and will come to see what it is. When it gets near the raft, you can grab it by its legs...and turn it over on its back. Then it is powerless. We lashed them down on their back till daylight. When daylight came, we killed the turtle by knocking it on the head and utilized blood by using a long chisel, striking it into the turtle's breast between the forelegs. The heart is at about the middle of the backbone. The thrust will make the blood come out like a fountain. Catch blood in a glass and drink it right away. As soon as you drink the blood, you take off the bottom shell

and open it up in the middle. Get rid of the stomach. Take out the liver and eat at once. If it is kept any length of time it will get sour and become poisonous. Don't eat the kidneys at all. When you are opening the turtle, you will see in the body cavity a fluid between the different parts that look like bouillon or consommé. You can drink this fluid. It is delicious and not extremely fishy. You should eat a good portion of the meat from the neck and legs while it is still fresh and raw. It looks like fresh chicken meat and does not taste at all fishy unless the fat gets into it; then it turns bitter. The back legs are good too."

From such accounts, shipwrecked men get hope and inspiration to carry on even when rescue seems far off. They learn of ways to do things, how to feed themselves and quench thirst. Thirst is responsible for more deaths

## COAST GUARD BOOK SHOW HOW TO OBTAIN FLUIDS

than hunger. Coast Guard officials fear most the tendency of men half-crazed with thirst to drink sea water. In a very short time, the high sodium and magnesium content of sea water is fatal to the drinker. The Coast Guard book has elaborated on methods of securing fluids; how to catch rain water, etc. Survivors are counseled to catch rain water by using the canvas stowed on their boats or rafts. However, because illnesses and even deaths have resulted from salt spray blowing into the stretched canvas, the book instructs seamen to throw away their first canvas-full of water and to spread the canvas as high as possible above the boat or raft.

## SUGGESTIONS FOR SAFETY INVITED

The Shipping industry, maritime unions, the public and others interested have been strongly urged to send in all suggestions for increased safety to the Coast Guard Headquarters in Washington. Among such suggestions received was Governor Pinchot's idea for providing all lifeboats and rafts with fishing kits so that men adrift in the ocean could keep alive after their food and water supply had been exhausted. Fishing kits had been considered for some time and the moment was ripe for installing this necessary item in lifeboats.

## GOVERNOR PINCHOT'S IDEA

Admiral Waesche met with Governor Pinchot and other civic-minded citizens who had various plans for perfecting the fishing kit idea so it could be quickly adopted and put to use.

## THE FISHING KIT WAS ADDED TO PROVISIONS

An emergency fishing kit, to be opened only for actual emergency use, became the required equipment of every lifeboat or raft on all Navy and merchant ships of 3,000 tons or more. This kit, wrapped in a heavy canvas bag called a "bib-apron," is designed to be worn by the senior officer or master fisherman on the lifeboat. The equipment includes fishing tackle, hooks and lines, sinker, fishing rigs of varied sizes and types, a dip net, pork rind bait, knife, whetstone, cotton gloves, and an instruction sheet on fishing. Besides telling how to fish, the instruction sheet also tells of other ways of gaining sustenance from the sea and on uninhabited islands. All this material is packed in a two-quart, waterproof, key-opening can.

## FINDING WATER



Survivors landing on uninhabited islands are given instructions for finding water by digging on beaches and near ponds. They can boil water in a section of bamboo. Turtle eggs can be found by trailing the turtle across the sand when it comes from the water at night to bury its eggs. The turtle itself, which is good to eat, can be captured by being turned over, caught by the shell near a hind leg and flipped forward diagonally. Of course, men know, and are reminded that coconuts provide both food and drink on tropical islands. Survivors learn that the large tender bud, or cabbage, at the top of many palm trees and rattans is edible, that bamboo sprouts can be eaten raw or boiled. Bread fruit and fish can be cooked in a hole in the ground, with hot stones under a covering of earth and leaves.

## CATCHING FOOD

The instructions also tell of tricks for catching freshwater fish and shell fish. The modern Robinson Crusoes are advised that birds and animals on tropical islands can be eaten—that includes monkeys, bats, lizards, land turtles, frogs and even snakes. It is safe to eat grubs and grasshoppers, toasted on a stick. But caterpillars are not to be eaten. "Nearly all the native peoples are friendly," the instructions declare. "Show them that you are friendly, too. Except along the coast and in the Northern mountains of New Guinea, you can almost always go to them safely for help." The final word of advice about islands and other problems, for that matter, is this: "These instructions do not and cannot cover all cases. The best advice of all is to keep using your head. Many men before you have saved their lives by doing just that."

## A FEW USEFUL THINGS TO REMEMBER

The Coast Guard has issued the following suggestions to men cast adrift with only a limited supply of water on hand: 1. If you had a good drink before the casualty, it is not necessary to take a drink for the first 24 hours. 2. From the beginning, ration out your water at the rate of 16 ounces (1 pint) per man per day. 3. Water is all-important, food is only a secondary consideration. One can live for at least 20 days without any food whatsoever, but without water, in a hot climate, one would be lucky to survive for 5 days. 4. Eating meat, fish, or fruit which has been dried makes you thirsty. If you have plenty of water, that is, from 24 to 32 ounces per day, it is all right to eat the flesh of birds, fish, turtles, etc. which you may catch. If you are on the minimum pint-a-day ration, it is better to avoid eating such foods, as the kidneys would have to draw water from the body to dispose of the minerals and waste products formed from them. Biscuits, too, are thirst-producing unless water is plentiful. 5. If you have any anti-seasickness pills, take one every 6 hours for the first day or two, as water is, of course, wasted in vomiting. 6. If you are in a hot climate, take extra pains to see that as little water is lost through perspiration as possible. To effect this, rig an awning overhead to protect you from the sun's rays, but leave the sides open to enable the breeze to cool your body. To this end, most of the clothes should be removed during the hot hours of the day. If you have no way of improvising shade, sit upright so that the least possible body area is exposed to the heat of the sun. Keep your clothes constantly soaked with sea water in the daytime, for this will cool your body by evaporation and conserve your body water. Clothes should be dried out before evening, however, for you may get a chill even in the Tropics once the sun has set.

## TANKERMAN'S BOOK

### ADVICE FOR TANKER OFFICERS

As a result of many requests and because of the intrinsic need, a pamphlet was prepared and widely distributed entitled "Suggested Safety

Measures for the Guidance of Tanker Officers in Case of Attack by Submarine." This pamphlet, based on the

Experience of 1,000 tankermen attacked by submarines, first appeared in 1942. A second printing of this publication, in 1943, added two sections: one was entitled "The Gas-freeing of Tankers on the Ballast Voyage," the other "Suggestions for the reduction of Oil Hazards in Marine Salvage Work." The information collected by the Government on each tanker casualty is in such great detail that it is possible to make special studies of the effect of moonlight, darkness, weather, and so forth, on attack and the effectiveness of various types of lifesaving devices.

#### MORE ATTACKS IN CALM SEA

The book states that experience has shown that more attacks are made in a calm or moderate sea than in a rough sea. The enemy seldom is sighted before the attack but in 40% of the cases he was sighted after the attack. In a paragraph on "Lookouts, the book says, "It has been stated that there are certain conditions of visibility and sea when experience indicates that attack is less likely than at other times. This does not mean that the vigilance of lookouts should be relaxed in the slightest at such times. While true there is less chance of attack in a rain squall or in a fog, it is also true that you have excellent chances of catching the enemy on the surface at close range under these conditions. Many submarines have been destroyed by merchant ships under these exact conditions."

#### LIFESAVING GEAR ESSENTIAL

It is assumed that each member of the crew is in possession of his personnel lifesaving gear, consisting of life preserver, lifesuit, whistle and jack-knife, and that each man is familiar with this equipment and his lifeboat and fire station.

#### ABANDONING SHIP

Advice about abandoning ship reminds the seamen that many men have been lost from tankers due to launching lifeboats with too much headway on the ship. The average tanker, when attacked, is to be abandoned in 11 minutes if afire and 22 minutes if not on fire. Naturally the spectacle of a tanker on fire would produce a very understandable urge to get away, but many men have lost due to excessive haste.

#### BURNING OIL - USE OF LIFEBOATS

Burning oil on the water causes men in lifeboats to jump out of them from fright. The Coast Guard points to the fact that lifeboats have been rowed through burning oil on the surface of the water many times, that they have gone alongside the ship to take off other men, passing on the way through patches of burning oil, and having completed their mission, they have returned in safety. The records show that lifeboats are the best of all lifesaving apparatus and can be relied upon when properly handled.

#### LAUNCHING OF RAFTS

Men are warned against riding down on rafts-rafts usually turnover when they strike the sea. The rafts are intended as a place of safety for those jumping from the ship or falling into the sea, and are not to be released until the ship has lost considerable headway, otherwise they

may be some distance from the ship when it finally comes to a stop.

## DIVING AND SWIMMING

Men are advised that the best place from which to dive is on the side of the ship opposite to the damaged side. When swimming through oil-covered water the following swimming strokes are advocated: "By using the modified breast stroke a path can be cleared through the oily water by pushing the oil away and to the sides of the swimmer. Thus, a clear path for swimming is opened in front of the swimmer. The same clearing of oily water can be done when swimming the dog paddle stroke. The eyes and mouth should be kept closed until the shoulders of the seamen are clear above the oily surface." Men are advised to swim windward so as to get away from the oil patch as quickly as possible. Under-water swimming is also advocated.

## ATTACK DRILLS

It is suggested that attack drills be held at which every attempt is made to simulate the actual emergency condition of enemy attack. After describing the condition, each officer is to be asked, by the Master of the vessel, what action he considers appropriate. These conditions and the reasons for certain actions are to be explained to the unlicensed personnel frequently and in detail.

## A LOG BOOK FOR SURVIVORS CAST ADRIFT

### LOG BOOK ISSUED

In 1944, the Coast Guard issued a Log Book, to be used by United States merchant seamen cast adrift. The 89-page book also contains information for use in lifeboats and rafts. It has been so difficult to get detailed information on the problems which faced survivors cast adrift, that the Coast Guard officials felt that the condition could be remedied and much useful data obtained by recording events as they occurred day by day. In the log book, besides the daily events, survivors can enter comments and suggestions for better means of abandoning ship and for improving lifesaving apparatus.

### WHAT IS ENTERED

The person in command is advised to assign someone to keep diary of log book. First, he is to enter the names and addresses of the persons in the lifeboat or raft; second, the conditions and incidents of abandonment; third, information regarding the other boats and rafts known to have "gotten away" successfully (including the names of other known survivors, if possible); and fourth, a running log of the events of each day, the course, the speed, weather conditions, etc. An inventory of water and provisions is to be taken as soon as possible and entered in the log book, with a daily record of how much remained on hand, since the welfare of everyone depends on intelligent use of food and water.

### SPACE FOR DAILY ACCOUNT

There are 62 blank pages in the book, allowing for a 2-page account for thirty-one day adrift. Pages 63 through 89 contain advice of all sorts, much as has been worked out in the Coast Guard Manual for wartime safety for merchant marine. The suggestions include what to do

when in a boat or raft, medical and first-aid instructions for caring for the sick and injured, and instructions for navigation. About a dozen pages entitled "Navigation in Emergencies," were prepared by Dr. Bart J. Bok of the Harvard Astronomical Laboratory, and are intended to enable shipwrecked men to find their position and to plot their

course for the nearest land or position where rescue can be reasonably expected. "When you have been rescued," the Foreword in the Log Book states, "do not forget that you may be able to help in locating other survivors of your ship in boats or rafts by reporting what information you have to the proper authorities." The log book is to be delivered to the first Coast Guard officer or district Coast Guard office available. If the survivors land in a foreign country they are to deliver the log book to the American Consul, requesting that he forward it to the Commandant of the U.S. Coast Guard, Washington, D.C.

### ITEMS ADOPTED AS EQUIPMENT

#### STANDARD LIFEBOAT EQUIPMENT

If all the items possessing merit, which have been proposed by survivors and others, had been adopted, a half dozen additional lifeboats would have been required just to carry the equipment. As it is, the list chosen, after extensive and painstaking consideration of all the testimonies, is imposing. It is as follows:

- Bailer
- Bilge pump
- Blankets
- Boast Hooks
- Bucket
- Bullet-hole plugs
- Canvas Hood and side spray curtains
- Compass
- Daytime Distress signals
- Distress lights
- Distress parachute flares
- Distress signal pistol
- Ditty bag
- Drinking cups
- Drinking water and containers
- First-aid kit
- Flash lights
- Grab rails
- Hatchets
- Illuminating oil
- Lantern

Life line  
Life preservers  
Locker  
Manila line  
Massage oil  
Mast and sails  
Matches  
Oars  
Painters  
Pilot chart  
Plugs  
Provisions  
Rowlocks  
Rudder and tiller  
Sea anchor  
Signaling mirrors  
Signal flag  
Storm oil  
Portable radio transmitter

#### STANDARD PERSONAL EQUIPMENT

Every person is furnished with a life preserver. A substantial number of additional life preservers have to be stowed in chests strategically located so as to be immediately available. Each person is also furnished with a whistle, jack-knife, life-preserver light, and on non-passenger vessels, with a rubber lifesaving suit for immersion or exposure.

#### ABANDON SHIP KITS

Vessels are provided with at least two abandon-ship kits containing morphine in syrettes, sulfa drugs, cleansing oil, chemical heating pads, and other first-aid items. With these are included instructions for their use.

#### LIFE SAVING DEPENDS ON EQUIPMENT

Analysis of war casualties shows that the number of survivors saved depends on the readiness and availability of lifesaving equipment. The skill of the officers and crew in using equipment to the utmost advantage and without panic is a direct result of the efficiency of the Master and officers in drilling each member of the crew until everybody is thoroughly conversant with the various items.

#### NEED FOR EQUIPMENT

Statements from survivors of torpedoed vessels prove not only the desirability but also the absolute necessity for the requirements contained in the Coast Guard book "Wartime Safety Measures for Merchant Marine." The Statements showed for example, that additional rafts have saved about 15% of the survivors and have served as a temporary refuge for an additional 20%. Every lifeboat carried a sack of soft wood plugs as its equipment to plug up holes made by machine-gun bullets.

### PORTABLE ELECTRIC MEGAPHONES

A portable electric megaphone which provides emergency communications facilities aboard ship, in the event of failure to the regular communications system, has been approved by the Coast Guard and has become required equipment on all merchant ships. The new device is self-contained, operating independently of the vessel's electrical system. Thus, in the event of damage to the vessel's electrical system or communications equipment, the new megaphone provides adequate communication between the various parts of the ship.

### MICROPHONE ATTACHED

Located in the mouth-piece of the new megaphone is a microphone. The new device is equipped with an amplifier and a battery carried in a case slung over the user's shoulder. The operator squeezes the switch in the pistol-type handle and speaks into the microphone, the amplifier providing sufficient power to carry the voice a distance of several hundred yards with great clearness. The Merchant Marine Inspection Division of the Coast Guard has made full tests aboard ships at sea to demonstrate the satisfactory performance of the new equipment, and commercial designs have been approved by the Commandant. Every vessel is required to have two of these power-operated megaphones for the issuance of orders to fight or abandon ship, or for issuance of such other orders and instructions as may be necessary.

### LIGHTS ON LIFE PRESERVERS

Thousands of persons wearing life-preserver lights during the night are spotted in the water and rescued. They would otherwise have perished. During winter gales, seamen wearing rubber lifesaving suits have jumped into the icy ocean and have been rescued by escorting vessels. Portable radio transmitters in lifeboats have warned approaching Allied vessels of lurking submarines so that these vessels could divert their course and avoid attack.

### LOSS OF LIFE DECLINES

From the beginning of the war to the summer of 1943, statistics show that due to the new safety measure, the loss of life from marine casualties due to war action had decreased 75%. It was the objective of the Coast Guard to further reduce that percentage so that the only possible loss of life would be such as was the direct and casual result of shell, bomb, or torpedo explosions.

### DISTRESS SIGNALING EFFECTIVE

The survivor statements indicate that daytime and nighttime distress signals, including signaling mirrors, attract the attention of high-flying planes and distant vessels and have saved people who were adrift at sea in boats and rafts for many weeks.

## APPENDIX A

### BUREAU MARINE INSPECTION AND NAVIGATION

#### FUNCTIONS TRANSFERRED TO THE U.S. COAST GUARD

The functions of the former Bureau of Marine Inspection and Navigation which were transferred to the Coast Guard are as follows: approval of plans for the construction, repair, and alteration of vessels; approval of material, equipment, and appliances; classification of vessels; inspection of vessels and their equipment and appliances; issuance of certificates of inspection and of permits indicating the approval of vessels for operations which may be hazardous to life or property; administration of load line requirements; enforcement of other provisions for the safety of life and property on vessels; licensing and certificating of officers, pilots, and seamen; suspension and revocation of licenses and certificates; investigation of marine casualties; enforcing of manning requirements, citizenship requirements, and requirements for the mustering and drilling of crews; control of log books; shipment, discharge, protection and welfare of merchant seamen; enforcement of duties of ship owners and officers after accidents; promulgation and enforcement of rules for lights, signals, speed, steering, sailing, passing, anchorage, movement and towlines of vessels and lights and signals on bridges; numbering of undocumented vessels; prescription and enforcement of regulations for outfitting and operation of motorboats; licensing of motorboat operators; regulation of regattas and marine parades; all other functions of the Bureau, Offices and Boards which were not transferred to the Bureau of Customs; and all other functions of the Secretary of Commerce pertaining to shipping which were not transferred to Customs, including the remission and mitigation of fines, penalties and forfeitures under the laws governing these functions. This transfer was for the duration unless changed by Congress to go back to Commerce.

#### FUNCTIONS TRANSFERRED TO THE BUREAU OF CUSTOMS

The functions of the Bureau of Marine Inspection and Navigation which were transferred to the Bureau of Customs were those pertaining to the following: registry, enrollment, and licensing of vessels, including the issuance of commissions to yachts, the assignment of signal letters, and the preparation of all reports and publications in connection therewith; measurement of vessels, administration of tonnage duties, and collection of tolls; entrance and clearance of vessels and aircraft, regulation of vessels in the coasting and fishing trades, and limitation of the use of foreign vessels in waters under the jurisdiction of the United States; recording of sales, conveyances, and mortgages of vessels; protection of steerage passengers; all other functions of the Bureau of Customs on behalf thereof; and the power to remit and mitigate fines, penalties and forfeitures incurred under the laws governing those functions. These functions were transferred to the Commissioner of Customs, to be exercised by him under the direction and supervision of the Secretary of the Treasury.

#### MERCHANT MARINE INSPECTORS COMMISSIONED

Former civilian Merchant Marine Inspectors in the Districts and principal administrative officers of the Merchant Marine Inspection Division at Headquarters have been commissioned by Regular Reserve Officers in the Coast Guard.

## REGULATIONS WAIVED

Many of the regulations governing marine inspections may and have been waived by the Commandant, U.S. Coast Guard, under section 501, Title 5 of the Second War Powers Act delegating such power to the Secretary of the Navy and the general waiver of the Secretary of the Navy and the general waiver of the Secretary of the Navy on October 1, 1942, delegating his powers in this respect to the Commandant, U.S. Coast Guard.

---

**APPENDIX B**

U.S. Merchant Vessels 1,000 tons or over engaged in Deep-Sea Trades.

|              | <u>Number of vessels</u> | <u>Gross Tonnage</u> | <u>Total Personnel</u> |
|--------------|--------------------------|----------------------|------------------------|
| 15 Nov. 1941 | 1,127                    | 6,670,566            | 49,409                 |
| 15 Dec.      | 1,131                    | 6,720,042            | 49,439                 |
| 15 Jan. 1942 | 1,117                    | 6,562,387            | 47,428                 |
| 15 Feb.      | 1,131                    | 6,679,541            | 48,672                 |
| 15 Mar.      | 1,121                    | 6,627,382            | 48,332                 |
| 15 Apr.      | 1,087                    | 6,462,204            | 46,990                 |
| 15 May       | 1,095                    | 6,599,854            | 47,281                 |
| 15 June      | 1,079                    | 6,626,264            | 47,410                 |
| 15 July      | 1,029                    | 6,534,965            | 44,964                 |
| 15 Aug.      | 1,012                    | 6,386,375            | 44,327                 |
| 15 Sept.     | 1,079                    | 6,833,855            | 45,583                 |
| 15 Oct.      | 1,125                    | 7,211,128            | 47,606                 |
| 20 Nov.      | 1,203                    | 7,792,803            | 51,581                 |
| 20 Dec.      | 1,219                    | 7,998,845            | 51,633                 |
| 20 Jan. 1943 | 1,235                    | 8,157,590            | 52,891                 |
| 20 Feb.      | 1,351                    | 8,982,158            | 57,816                 |
| 20 Mar.      | 1,423                    | 9,524,223            | 61,383                 |
| 20 Apr.      | 1,498                    | 10,103,746           | 65,491                 |
| 20 May       | 1,565                    | 10,734,772           | 69,154                 |
| 20 June      | 1,695                    | 11,653,386           | 74,998                 |
| 20 July      | 1,821                    | 12,599,147           | 80,004                 |
| 20 Aug.      | 1,917                    | 13,360,524           | 84,999                 |
| 20 Sept.     | 2,020                    | 14,316,163           | 89,339                 |
| 20 Oct.      | 2,078                    | 14,651,203           | 92,657                 |



|              |       |            |         |
|--------------|-------|------------|---------|
| 20 Nov.      | 2,089 | 14,747,658 | 92,781  |
| 20 Dec.      | 2,247 | 15,702,484 | 100,073 |
| 20 Jan. 1944 | 2,331 | 16,612,799 | 104,297 |
| 20 Feb.      | 2,419 | 17,265,093 | 107,913 |
| 20 Mar.      | 2,490 | 17,782,125 | 111,024 |
| 20 Apr.      | 2,603 | 18,701,370 | 118,581 |
| 20 May       | 2,687 | 19,319,396 | 122,447 |

Source: U.S. Maritime Commission, Division of Economics and Statistics

### APPENDIX B (Con't.)

| APPENDIX B                        |                         |                           |                     |   |         |                 |
|-----------------------------------|-------------------------|---------------------------|---------------------|---|---------|-----------------|
| U.S. MERCHANT SHIP LOSSES         |                         |                           |                     |   |         |                 |
| Dec. 7, 1941 to Mar. 30, 1944 (1) |                         |                           |                     |   |         |                 |
| MONTH                             | NUMBER<br>OF<br>VESSELS | TOTAL<br>GROSS<br>TONNAGE | TONNAGE<br>CONVOYED | NUMBER OF VESSELS WHERE<br>LIVES SAVED WERE |         |                 |
|                                   |                         |                           |                     | 75% or more                                 | 25%-75% | 75% or less (2) |
| Dec. 1941                         | 22                      | 81,819                    |                     | 4   | 2       | 2               |
| Jan. 1942                         | 22                      | 110,128                   |                     | 5   | 3       | 4               |
| Feb.                              | 28                      | 162,112                   |                     | 8   | 2       | 11              |
| Mar.                              | 35                      | 186,359                   | 11,533              | 13  | 7       | 6               |
| Apr.                              | 40                      | 204,691                   |                     | 28  | 6       | 2               |
| May                               | 46                      | 233,060                   | 23,528              | 31  | 12      | 3               |
| June                              | 55                      | 265,561                   | 43,327              | 39  | 5       | 4               |
| July                              | 47                      | 262,218                   | 127,004             | 34  | 7       | 0               |
| Aug.                              | 19                      | 109,425                   | 52,681              | 13  | 4       | 1               |
| Sept.                             | 29                      | 149,671                   | 67,202              | 11  | 4       | 4               |
| Oct.                              | 26                      | 141,977                   | 43,997              | 14  | 3       | 3               |
| Nov.                              | 26                      | 131,186                   | 36,749              | 13  | 2       | 3               |
| Dec.                              | 10                      | 59,476                    |                     | 1   | 0       | 0               |
| Jan. 1943                         | 22                      | 112,573                   | 59,191              | 9   | 2       | 1               |
| Feb.                              | 25                      | 131,408                   | 108,725             | 12  | 5       | 1               |
| Mar.                              | 37                      | 208,308                   | 173,096             | 19  | 3       | 4               |
| Apr.                              | 15                      | 85,875                    | 63,103              | 7   | 2       | 1               |
| May                               | 13                      | 65,297                    | 36,579              | 5   | 0       | 0               |
| June                              | 10                      | 57,317                    | 12,727              | 4   | 0       | 1               |
| July                              | 17                      | 111,014                   | 31,826              | 13  | 0       | 1               |
| Aug.                              | 8                       | 23,653                    | 21,612              | 2   | 0       | 0               |
| Sept.                             | 12                      | 62,841                    | 27,726              | 3   | 2       | 0               |

|           |     |           |           |                                 |     |      |
|-----------|-----|-----------|-----------|---------------------------------|-----|------|
| Oct.      | 13  | 39,700    | 25,598    | 1                               | 0   | 1    |
| Nov.      | 14  | 27,040    |           | 13                              | 0   | 0    |
| Dec.      | 29  | 86,878    | 1,685     | 18                              | 1   | 3    |
| Jan. 1944 | 16  | 72,634    | 43,096    | 11                              | 0   | 0    |
| Feb.      | 10  | 41,522    | 23,457    | 7                               | 0   | 0    |
| Mar.      | 9   | 57,934    | 17,542    | 7                               | 1   | 0    |
| TOTAL     | 655 | 3,261,677 | 1,051,984 | 345                             | 73  | 56   |
|           |     |           |           | 52%                             | 11% | 9%   |
|           |     |           |           | Vessels making casualty reports | 474 | 72%  |
|           |     |           |           | Vessels making no reports       | 181 | 28%  |
|           |     |           |           | TOTAL                           | 655 | 100% |

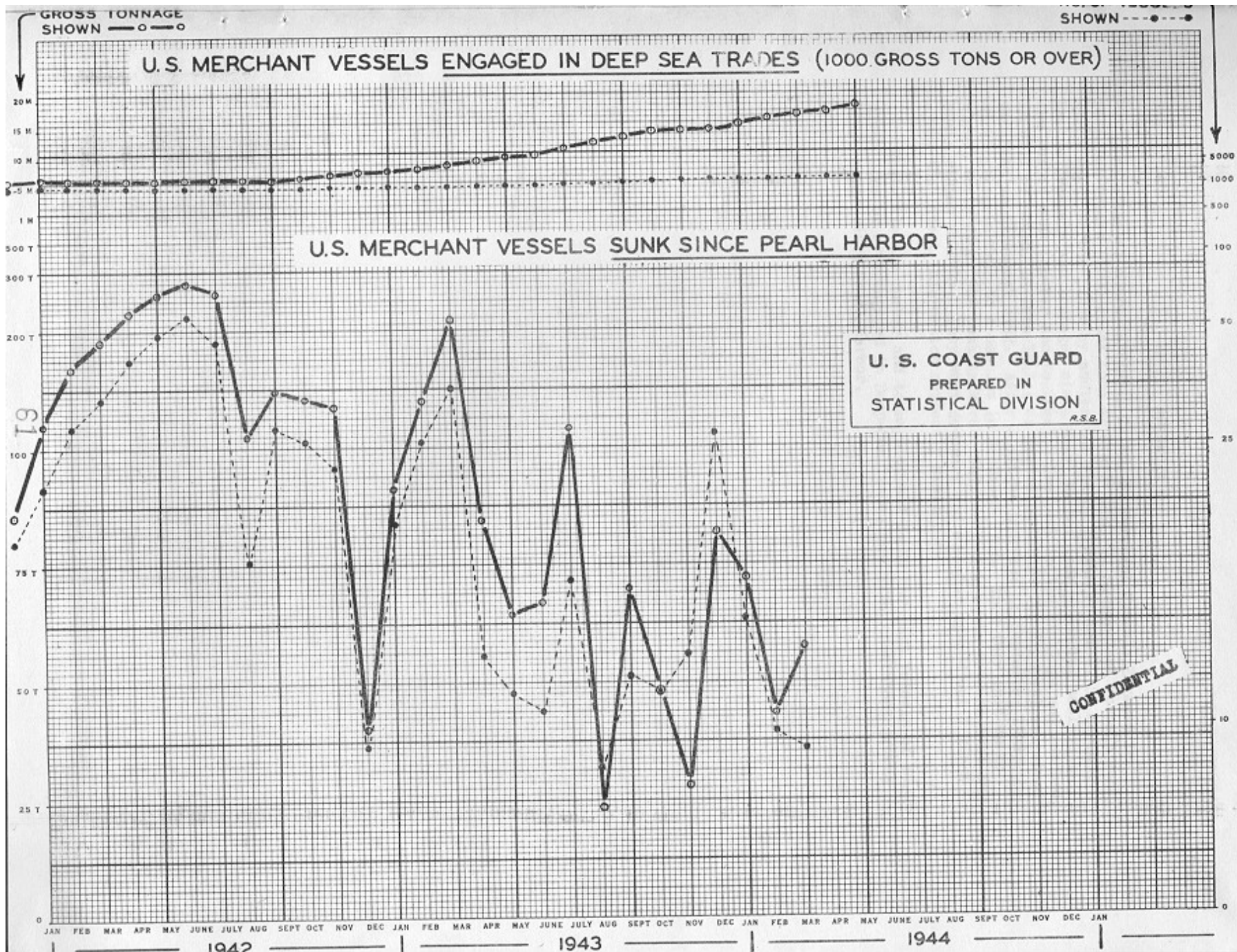
Note (1) The above table shows 4 fewer vessels and 115,960 less total gross tonnage than the figures from which the accompanying charts were made, several vessels having been erroneously reported lost at the time the charts were prepared.

Note (2) Includes only casualties on which reports (N.C.G.2692 or 924-D-1-2) were made.

## APPENDIX C

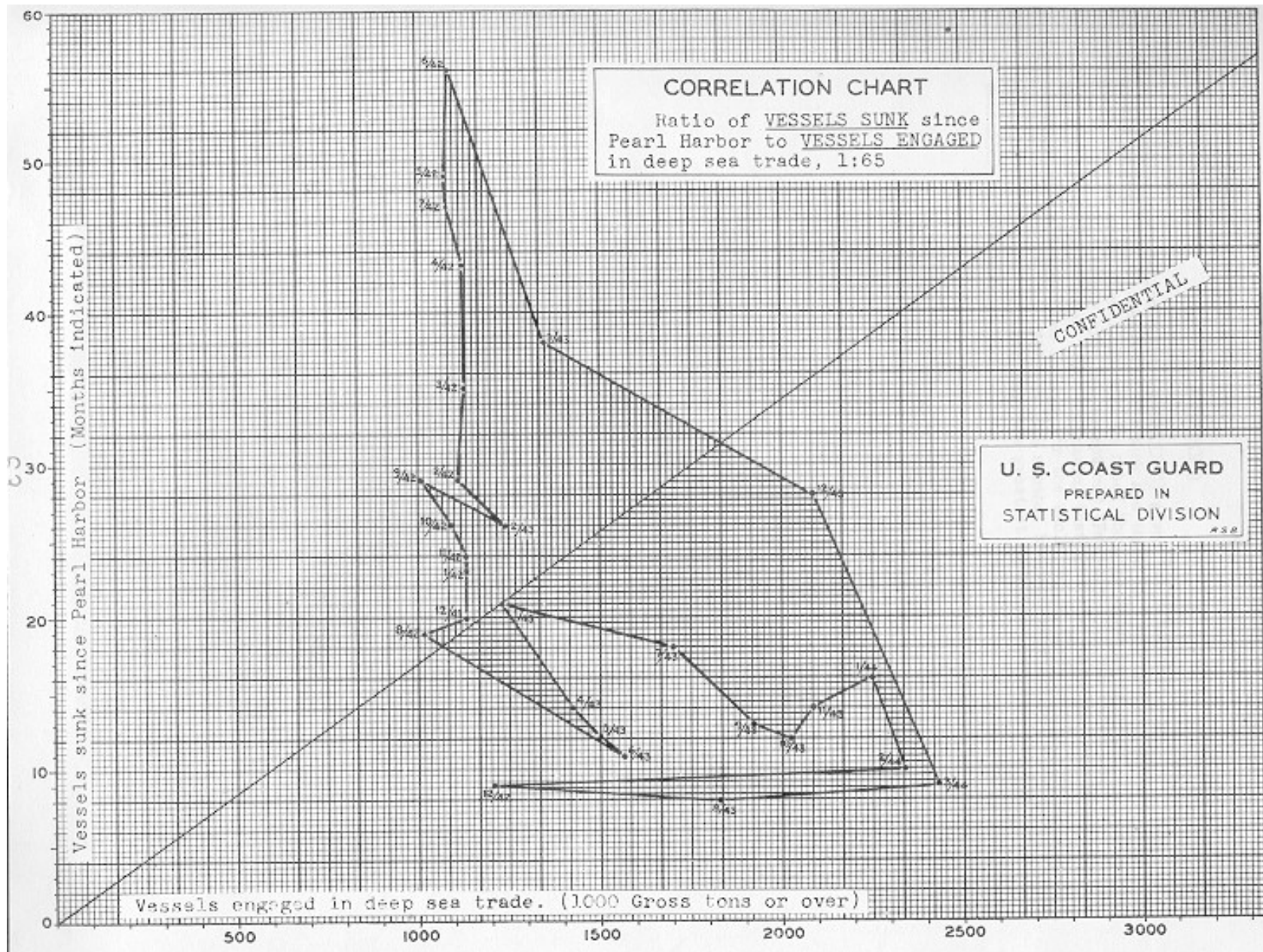
The attached chart (APPENDIX C) "U.S. Merchant Vessels Engaged in Deep-Sea Trades (1,000 gross tons or over)" and "U.S. Merchant Vessels sunk since Pearl Harbor" show by months the steady growth of the U.S. Merchant Marine (vessels and tonnage) since Pearl Harbor (see preceding tables) and the number sunk (number and tonnage). The peak in the sinkings was reached, it will be noted, in June 1942 (see preceding tables for figures) and steadily declined until August 1942. After a slight increase in September 1942, the sinkings again fell to a new low in December 1942. Then they shot up to almost their June 1942 peak in March 1943, declining again to June 1943 and again rising in July. They went downward and somewhat upward until March 1944, the latest information currently available.

Meanwhile the number and tonnage of all U.S. Merchant Vessels of 1000 gross tons or over engaged in Deep-Sea Trades has shown consistent growth every month since Pearl Harbor.



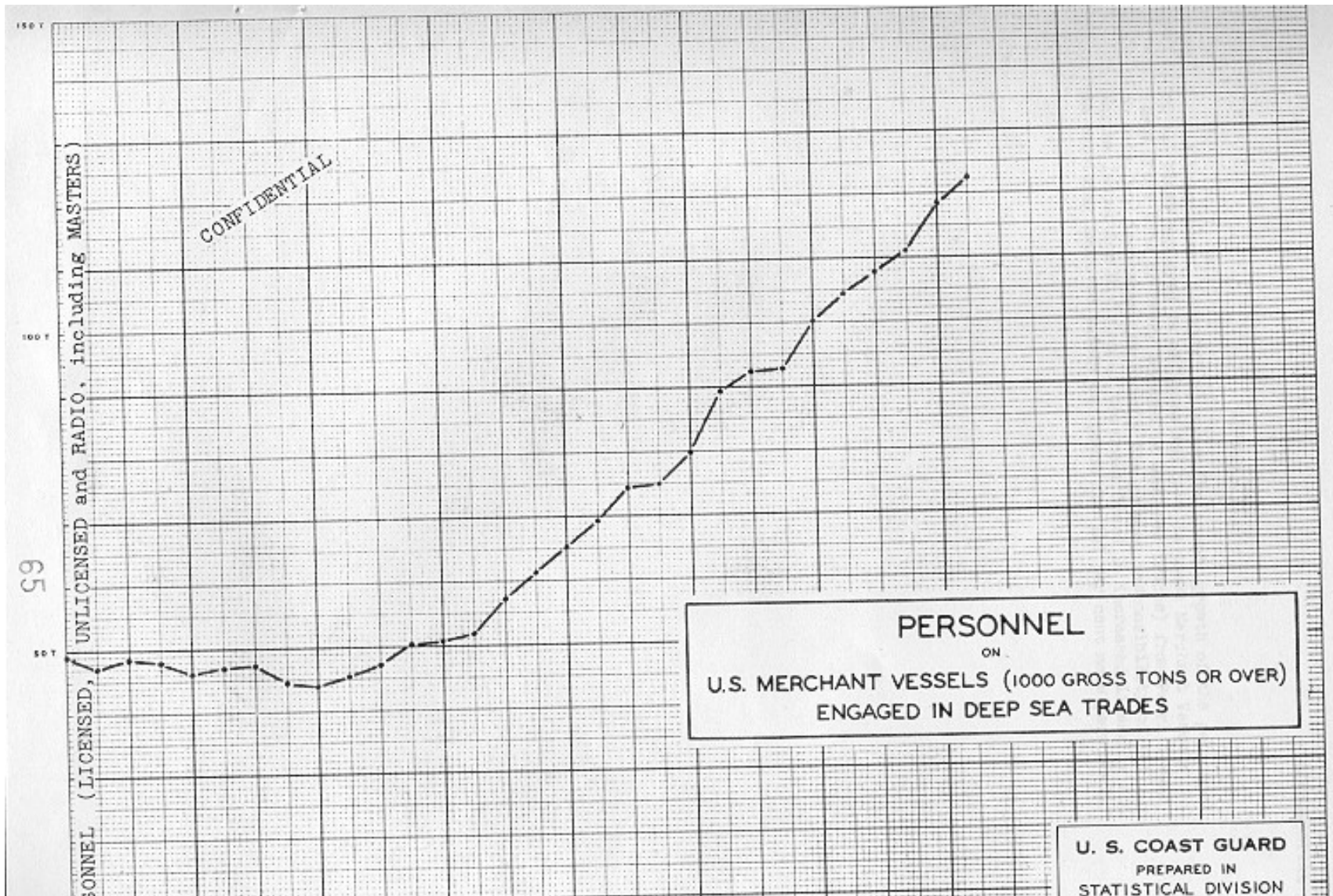
**APPENDIX D**

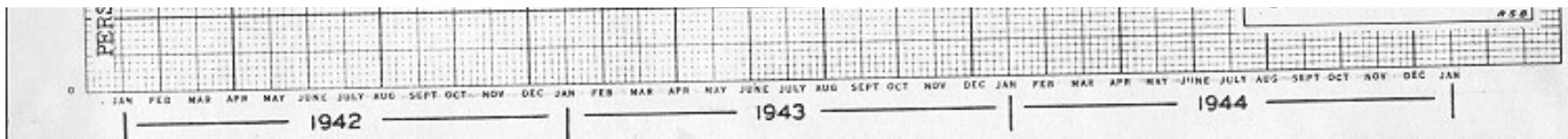
Another correlation chart (APPENDIX D) gives the relationship by months between U.S. Merchant Vessels sunk and those in the Deep-Sea (1000 gross tons or over) fleet. It will be noted that the dates noted above the "Line of Regression" with two exceptions (February 1943 and March 1943) are all in the years 1941, 1942, indicating that in those years the monthly sinkings were all above the average for the whole period (December 7, 1941 to March 30, 1944). The 1943 and 1944 months, however, were all below the 2 1/2 years average and in March 1944 the greatest number was reached with the second lowest sinkings.



## APPENDIX E

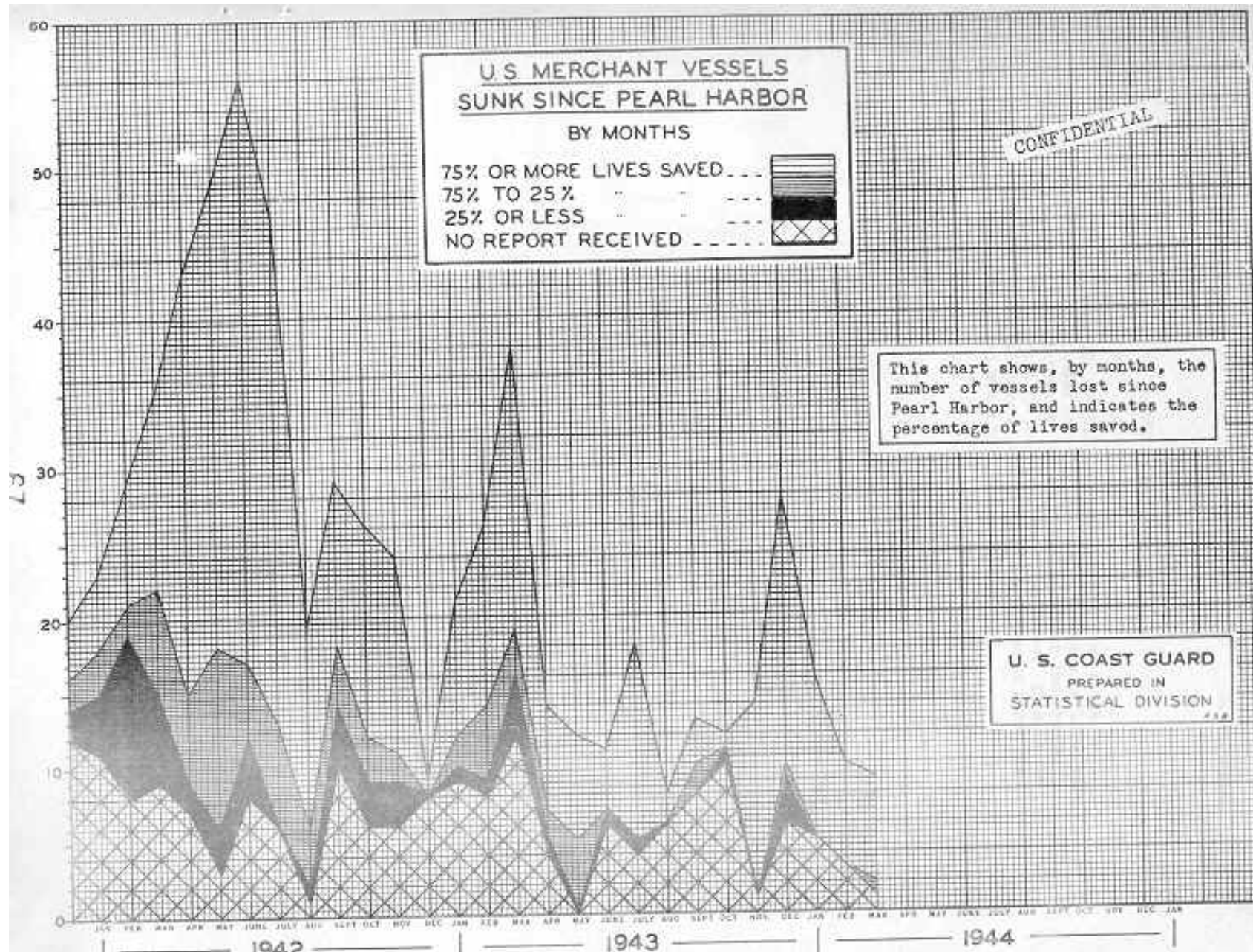
A third chart (APPENDIX E) shows the steady growth of the personnel of all kinds employed as officers and crew on these Merchant Vessels (1000 gross tons or over, engaged in Deep-Sea Trades) from Pearl Harbor to date, and indicates graphically the growth responsibility of the Marine Inspection Division of the Coast Guard in increased licensing and in providing improved safety equipment for 141 per cent more personnel.

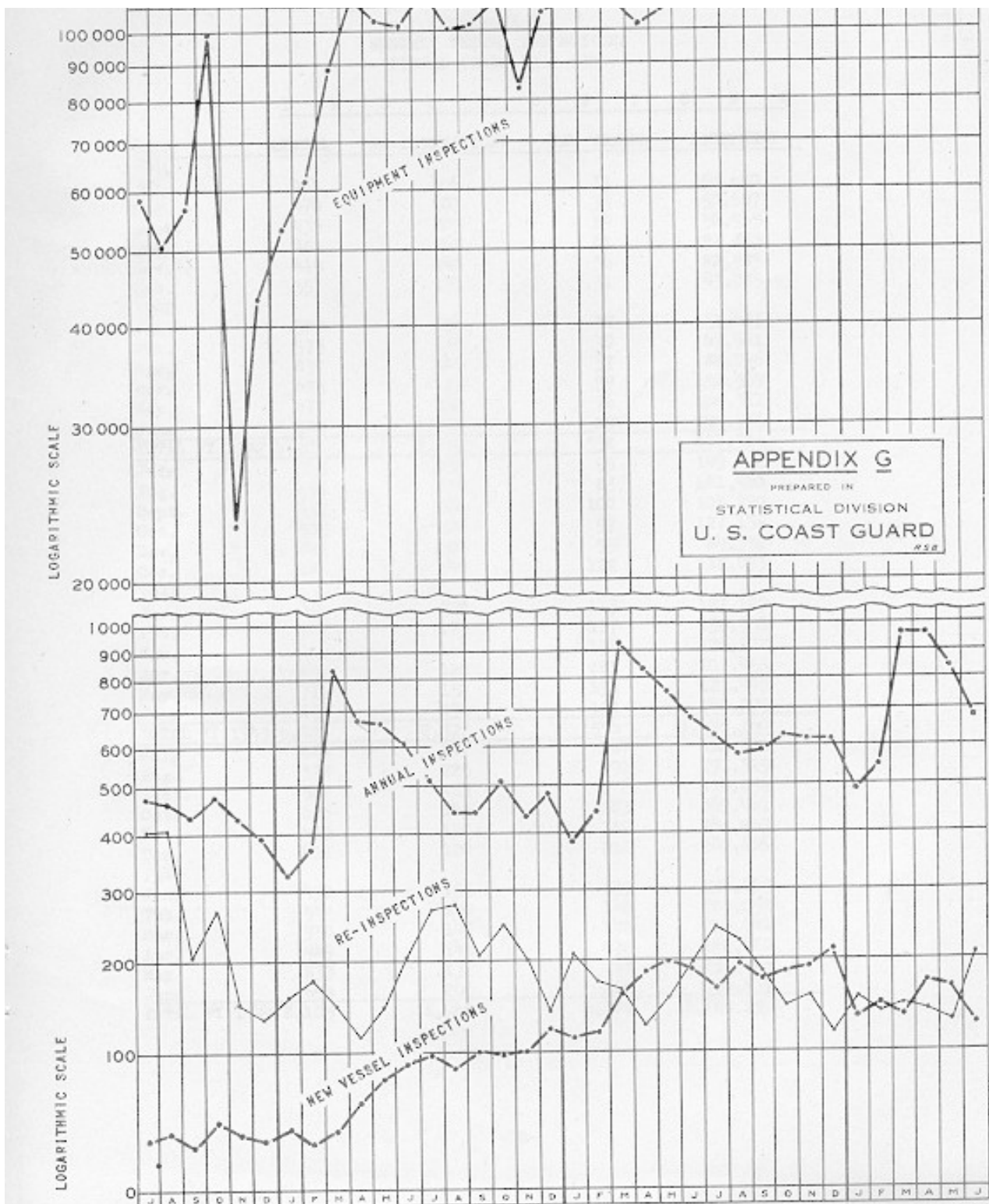




## APPENDIX F

A fourth chart (APPENDIX F) "U.S. Merchant Vessels sunk since Pearl Harbor by months" (showing those on which various percentages of lives were saved) is a graphic presentation of the fact that in by far the greater number of sinkings 75% or more of the lives have been saved. This is the best indication of the efficiency of the methods and equipment which the Coast Guard has approved and whose use it has enforced.







## APPENDIX G

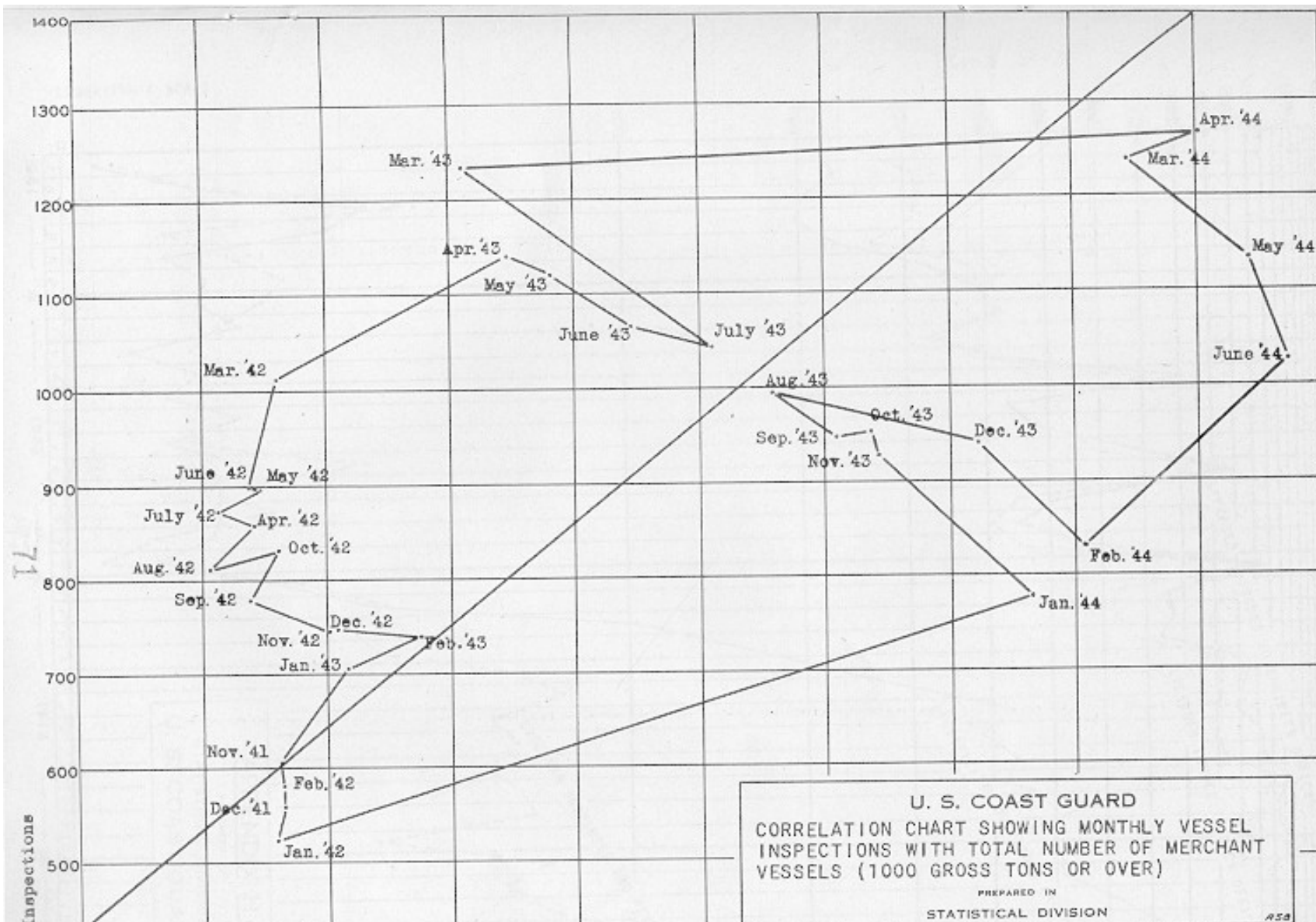
COAST GUARD AT WAR - MARINE INSPECTION XIII  
 APPENDIX G  
 MONTHLY VESSEL INSPECTIONS  
 FISCAL YEARS 1942-1944

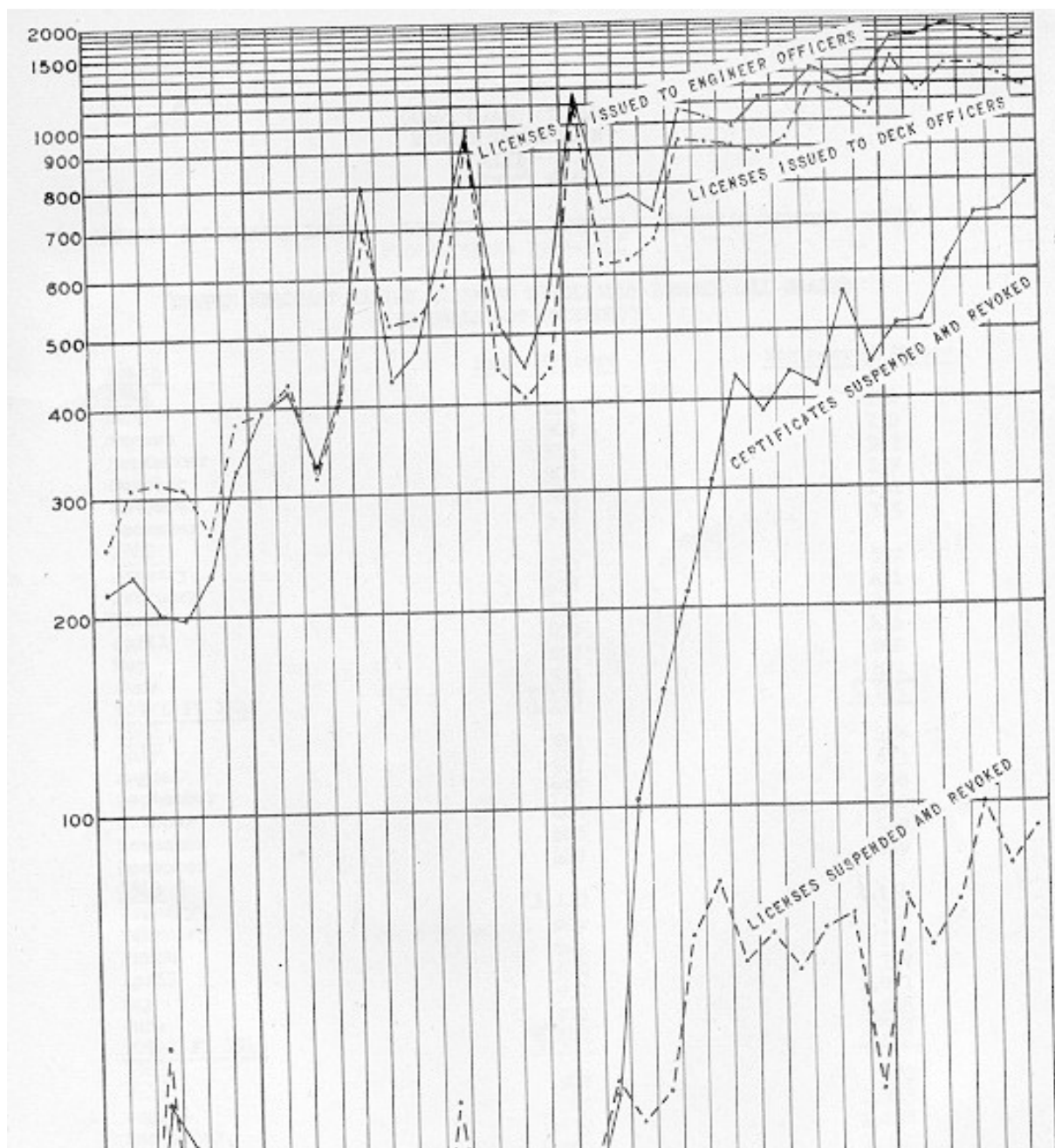
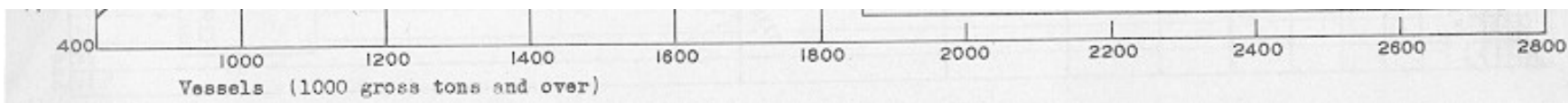
I N S P E C T I O N S

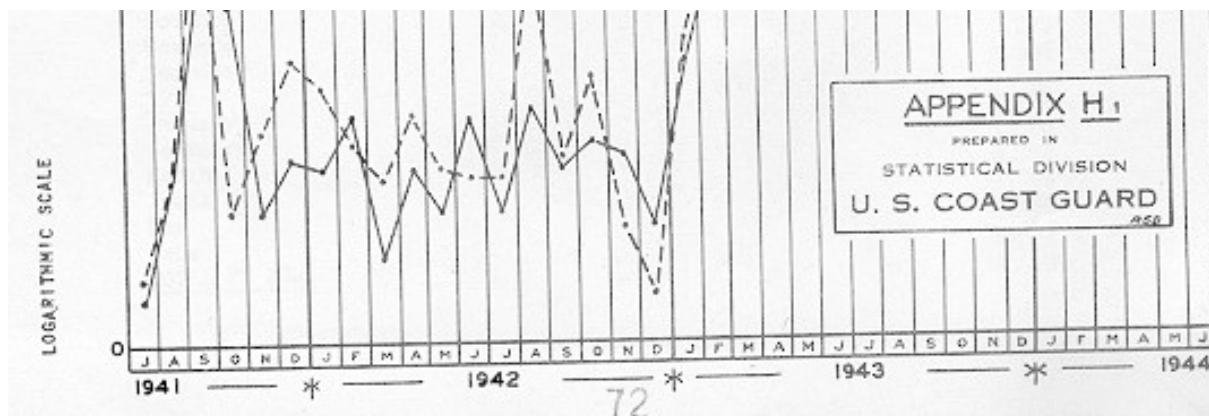
| DATE          | ANNUAL | RE-INSPECTIONS | NEW VESSEL | EQUIPMENT |
|---------------|--------|----------------|------------|-----------|
| 1941          |        |                |            |           |
| July          | 494    | 406            | 33         | 58,640    |
| Aug.          | 470    | 407            | 39         | 50,607    |
| Sept.         | 439    | 203            | 29         | 56,965    |
| Oct.          | 481    | 265            | 41         | 97,853    |
| Nov.          | 419    | 148            | 36         | 22,985    |
| Dec.          | 397    | 131            | 31         | 43,085    |
| 1942          |        |                |            |           |
| Jan.          | 329    | 154            | 38         | 53,683    |
| Feb.          | 375    | 174            | 30         | 61,941    |
| Mar.          | 830    | 146            | 37         | 88,296    |
| Apr.          | 685    | 113            | 59         | 132,569   |
| May           | 677    | 142            | 76         | 108,371   |
| June          | 605    | 203            | 89         | 102,331   |
| TOTAL FY 1942 | 6,201  | 2,492          | 538        | 877,326   |
| July          | 515    | 258            | 99         | 149,422   |
| Aug.          | 453    | 274            | 83         | 101,460   |
| Sept.         | 452    | 206            | 100        | 104,890   |
| Oct.          | 505    | 228            | 97         | 127,132   |
| Nov.          | 445    | 200            | 99         | 84,952    |
| Dec.          | 486    | 140            | 122        | 118,093   |
| 1943          |        |                |            |           |
| Jan.          | 384    | 208            | 113        | 127,129   |
| Feb.          | 448    | 173            | 117        | 138,553   |
| Mar.          | 914    | 164            | 156        | 126,172   |
| Apr.          | 831    | 128            | 181        | 107,453   |
| May           | 771    | 152            | 198        | 121,499   |
| June          | 679    | 196            | 191        | 140,005   |
| TOTAL FY 1943 | 6,883  | 2,327          | 1,556      | 1,446,760 |
| July          | 629    | 247            | 167        | 162,451   |
| Aug.          | 578    | 225            | 191        | 197,319   |
| Sept.         | 587    | 183            | 176        | 214,836   |
| Oct.          | 625    | 145            | 183        | 269,461   |
| Nov.          | 615    | 120            | 189        | 268,869   |
| Dec.          | 611    | 120            | 210        | 242,606   |
| 1944          |        |                |            |           |
| Jan.          | 490    | 155            | 133        | 256,019   |
| Feb.          | 544    | 140            | 146        | 205,252   |
| Mar.          | 950    | 149            | 140        | 219,041   |
| Apr.          | 949    | 146            | 172        | 262,480   |
| May           | 833    | 132            | 168        | 234,466   |

|               |       |       |       |           |
|---------------|-------|-------|-------|-----------|
| June          | 694   | 206   | 126   | 196,837   |
| TOTAL FY 1944 | 8,105 | 1,968 | 2,001 | 2,729,639 |

-70-







**APPENDIX H (1)**

COAST GUARD AT WAR  
MARINE INSPECTION  
XIII  
APPENDIX H (1)

OFFICER'S LICENSES ISSUED, SUSPENDED AND REVOKED - SEAMEN'S RECORDS ISSUED  
FISCAL YEARS 1942-1944

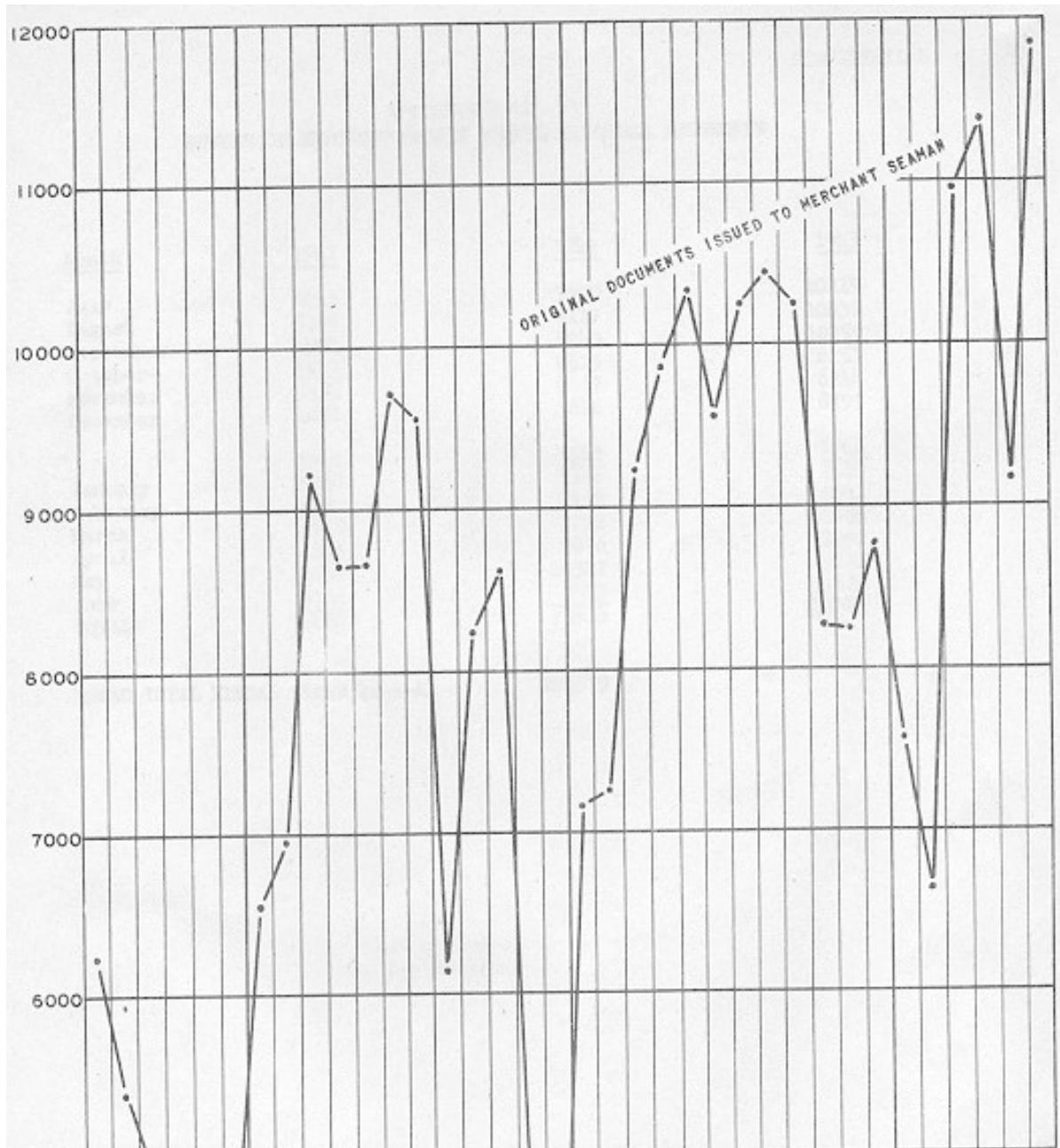
NUMBER MERCHANT MARINE LICENSES ORIGINALLY ISSUED, ALL GRADES  
(RENEWALS NOT INCLUDED)

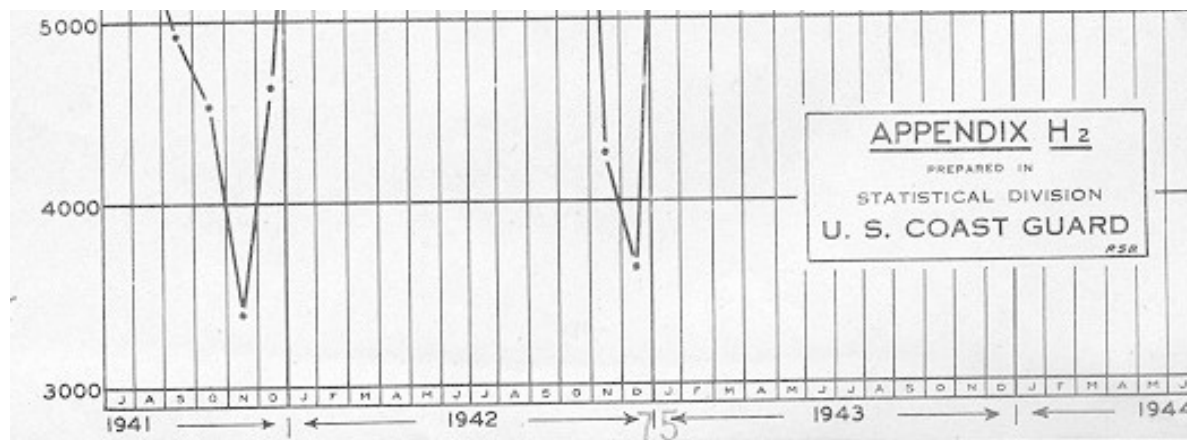
| Month         | <u>Deck Officers</u> | <u>Engineer Officers</u> |
|---------------|----------------------|--------------------------|
| <u>1941</u>   |                      |                          |
| July          | 254                  | 218                      |
| August        | 308                  | 230                      |
| September     | 314                  | 201                      |
| October       | 308                  | 199                      |
| November      | 264                  | 231                      |
| December      | 379                  | 325                      |
| <u>1942</u>   |                      |                          |
| January       | 393                  | 392                      |
| February      | 428                  | 421                      |
| March         | 318                  | 323                      |
| April         | 409                  | 414                      |
| May           | 697                  | 800                      |
| June          | 521                  | 431                      |
| TOTAL FY 1942 | <u>4,593</u>         | <u>4,185</u>             |
| <u>1942</u>   |                      |                          |
| July          | 531                  | 476                      |
| August        | 587                  | 673                      |
| September     | 955                  | 988                      |
| October       | 446                  | 512                      |
| November      | 406                  | 449                      |
| December      | 442                  | 559                      |
| <u>1943</u>   |                      |                          |
| January       | 1,110                | 1,154                    |
| February      | 619                  | 752                      |
| March         | 624                  | 770                      |
| April         | 674                  | 737                      |
| May           | 931                  | 1,071                    |
| June          | 916                  | 1,018                    |
| TOTAL FY 1943 | <u>8,241</u>         | <u>9,159</u>             |
| <u>1943</u>   |                      |                          |
| July          | 902                  | 993                      |
| August        | 883                  | 1,115                    |
| September     | 930                  | 1,122                    |
| October       | 1,200                | 1,310                    |
| November      | 1,129                | 1,239                    |
| December      | 1,036                | 1,265                    |
| <u>1944</u>   |                      |                          |
| January       | 1,418                | 1,654                    |
| February      | 1,153                | 1,686                    |
| March         | 1,380                | 1,862                    |
| April         | 1,378                | 1,735                    |
| May           | 1,254                | 1,586                    |
| June          | 1,195                | 1,647                    |
| TOTAL FY 1944 | <u>13,858</u>        | <u>17,244</u>            |

## NUMBER OF LICENSES AND CERTIFICATES SUSPENDED AND REVOKED

| Month                | Licenses Suspended<br>and Revoked | Certificates Suspended<br>and Revoked |
|----------------------|-----------------------------------|---------------------------------------|
| <u>1941</u>          |                                   |                                       |
| July                 | 3                                 | 2                                     |
| August               | 9                                 | 9                                     |
| September            | 40                                | 32                                    |
| October              | 7                                 | 25                                    |
| November             | 13                                | 7                                     |
| December             | 19                                | 11                                    |
| <u>1942</u>          |                                   |                                       |
| January              | 17                                | 10                                    |
| February             | 12                                | 14                                    |
| March                | 9                                 | 4                                     |
| April                | 14                                | 10                                    |
| May                  | 10                                | 7                                     |
| June                 | 9                                 | 11                                    |
| <u>TOTAL FY 1942</u> | <u>162</u>                        | <u>145</u>                            |
| <u>1942</u>          |                                   |                                       |
| July                 | 9                                 | 7                                     |
| August               | 31                                | 15                                    |
| September            | 11                                | 10                                    |
| October              | 18                                | 12                                    |
| November             | 6                                 | 11                                    |
| December             | 2                                 | 6                                     |
| <u>1943</u>          |                                   |                                       |
| January              | 21                                | 19                                    |
| February             | 34                                | 32                                    |
| March                | 27                                | 103                                   |
| April                | 32                                | 150                                   |
| May                  | 62                                | 210                                   |
| June                 | 77                                | 309                                   |
| <u>TOTAL FY 1943</u> | <u>330</u>                        | <u>884</u>                            |
| <u>1943</u>          |                                   |                                       |
| July                 | 55                                | 433                                   |
| August               | 62                                | 384                                   |
| September            | 53                                | 437                                   |
| October              | 63                                | 418                                   |
| November             | 67                                | 562                                   |
| December             | 32                                | 447                                   |
| <u>1944</u>          |                                   |                                       |
| January              | 71                                | 507                                   |
| February             | 58                                | 516                                   |
| March                | 70                                | 620                                   |
| April                | 100                               | 722                                   |
| May                  | 80                                | 726                                   |
| June                 | 91                                | 792                                   |
| <u>TOTAL FY 1944</u> | <u>602</u>                        | <u>6,564</u>                          |

-7L-





**APPENDIX H (2)**

**NUMBER OF MERCHANT SEAMEN ISSUED ORIGINAL DOCUMENTS**

|           | <b>1941</b> | <b>1942</b> | <b>1943</b> |
|-----------|-------------|-------------|-------------|
| July      | 6243        | 9507        | 10219       |
| August    | 5399        | 6117        | 10439       |
| September | 4901        | 8240        | 10259       |
| October   | 4537        | 8615        | 8257        |
| November  | 3398        | 4267        | 8244        |
| December  | 4628        | 3648        | 8795        |

|          | <b>1942</b> | <b>1943</b> | <b>1944</b> |
|----------|-------------|-------------|-------------|
| January  | 6566        | 7168        | 7580        |
| February | 6950        | 7282        | 7580        |
| March    | 9205        | 9212        | 10966       |
| April    | 8662        | 9876        | 11392       |
| May      | 8687        | 10332       | 9174        |



|        |       |       |        |
|--------|-------|-------|--------|
| June   | 9708  | 9559  | 11826  |
| TOTAL: | 78884 | 93913 | 113782 |

GRAND TOTAL FISCAL YEARS 1942-44: 286,579

---

### Sources for Monograph on Merchant Marine Inspection

Captain R.E. Coombs, Acting Chief, Merchant Marine Inspection Division, has reviewed the MS and made valuable suggestions. Through his cooperation much of the basic material was obtained.

1942 Report of Activities: "Work of the Merchant Marine Personnel Division during 1942 - by Commander H.T. Jewell, Chief.

1942 Report of the Merchant Marine Inspection Division

Notes from the files of Lt. Savonis and other in the Merchant Marine Inspection Division

Interview with Captain Halert C. Shepherd, Chief of the Merchant Marine Inspection Division

Article entitled "Lifeboats that Really Save Lives" in the September 1942 issue of Esquire Magazine. This article was recommended by Capt. Shepherd who said material for the article had been furnished by his Division.

Annual Reports to the Secretary of the Treasury.

Navy Press Releases.

Coast Guard Alumni Association Bulletin.

"Wartime Safety Measures for the Merchant Marine." a book prepared by the Merchant Marine Inspection Division of the U.S. Coast Guard.

"The Mast," January, 1944, a magazine of the U.S. Maritime Service.

"Helpful Information Regarding Fishing," a pamphlet prepared for publication and consisting almost entirely of material quoted from advice given by Dr. T.P. Shultz, of the National Museum. (Pamphlet given by Capt. Shepherd.)

Magazine article in U.S. Coast Guard Magazine of August 1943, on improved lifesuits.

Radio Script prepared by U.S.C.G. Public Relations, in which Capt. Shephard speaks of his work in interviewing survivors.

War Shipping Administration Release dated June 28, 1944, giving General Eisenhower's expression of thanks to Merchant Marine.

"Functions and Activities of the Bureau of Marine Inspection and Navigation," a pamphlet describing the work of the former BMIN, recommended by Merchant Marine Inspection Division.

"The U.S. Coast Guard Wartime Safety Measures for Merchant marine," and article and book review of the book by that name prepared in Merchant Marine Inspection Division.

Sources Cont'd

Pamphlet entitled "Suggested Safety Measures for the Guidance of Tanker Officers in Case of Attack by Submarine."

"Log Book and Certain Information for Use in Lifeboats and Life Rafts," a log book published January 2, 1944, prepared by the U.S. Coast Guard.

"Proceedings of the Merchant Marine Council, USCG," January 1944 and May 1944 issues.

"Laws Governing Marine Inspection," a pamphlet prepared by the USCG.

Miscellaneous articles and notes recommended by Merchant Marine Inspection Division Officers and other Coast Guard Officers.

Notes taken in an interview with Mr. Harrison of the Merchant Marine Inspection Division.

1 See Appendix A for detailed list of functions transferred to Coast Guard from the Bureau of Marine Inspection and Navigation, and list of duties transferred by that Bureau to the Bureau of Customs.