PROCEEDINGS OF THE
MERCHANT MARINE COUNCIL

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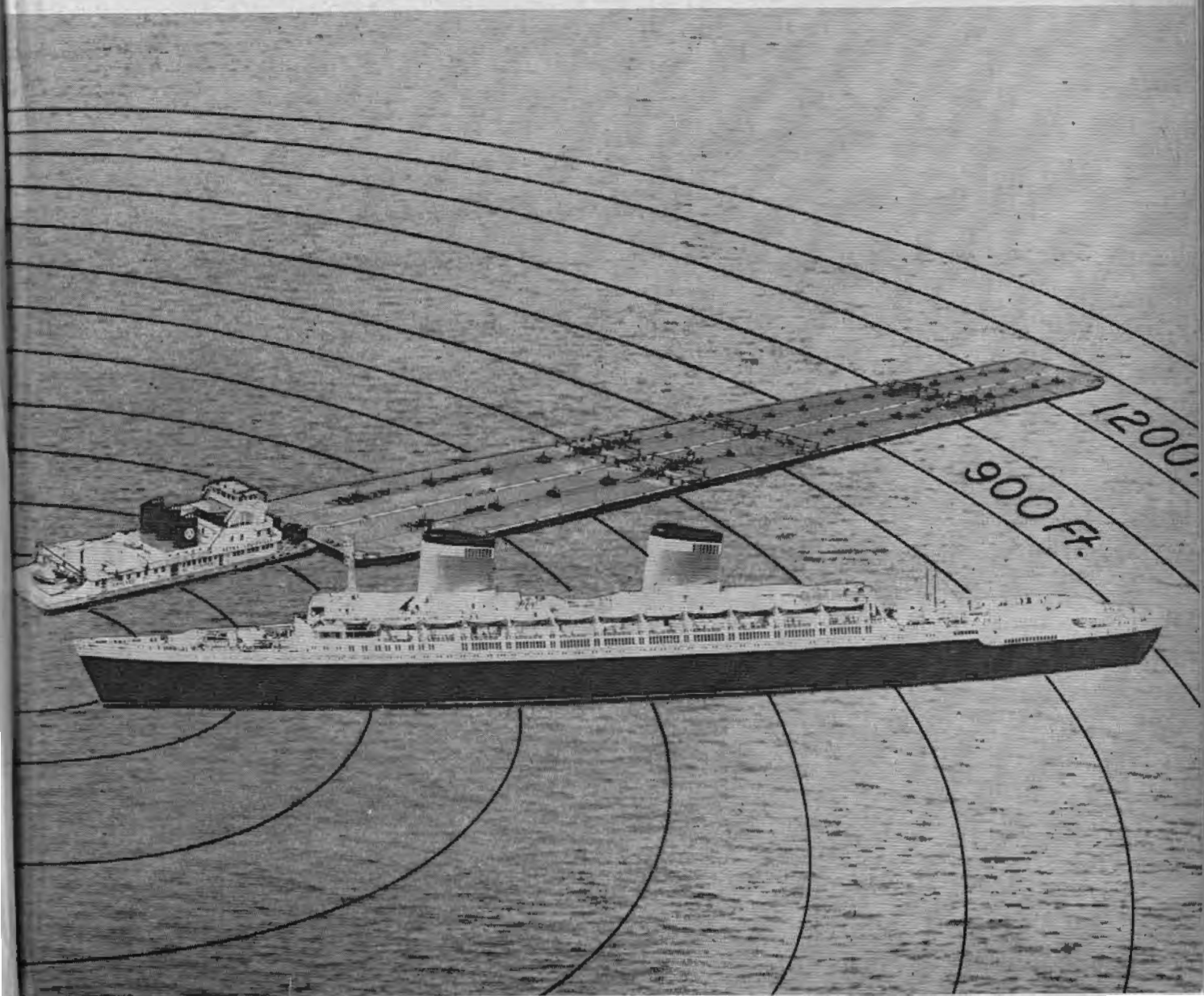

Proceedings of the

MERCHANT MARINE COUNCIL

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The Merchant Marine Council of the United States Coast Guard

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Front cover picture courtesy of The American Waterways, Inc.—see feature article on opposite page for particulars.

"It has been authoritatively reported to the Congress that the day of the atomic-powered surface vessel will come very fast, and that the potential of the maritime application of atomic power is far beyond anything we've ever dreamed. Many of the Merchant Marine ships, to be constructed between 1960 and 1965, will be propelled by atomic power."

—*G. Joseph Minetti, Member, Federal Maritime Board*

"In all the brilliant achievements of the American Navy, and of her sister service in Great Britain, there is none to excel the record that was written in the great and successful invasions of Africa, Sicily, Italy, and France. With the Navy was always the Merchant Marine, in which Americans have served with a devotion to duty and a disregard for danger and hardship that defies any attempt to describe."

—*Dwight D. Eisenhower, USA, General of the Armies, Before the Congress of the United States—June 18, 1945.*

"So far as the military side of our national strength is concerned, it is obvious that there are four great pillars—first, our Navy with its combination of sea and air power, flexible and swift; second the Army; third the Air Force; and fourth, the Merchant Marine. My experience in the Navy has convinced me, as it would have any other citizen exercising the same responsibility, that the Merchant Marine is a necessary arm of both the Army and Navy. It is clear beyond a shadow of any doubt that if we are to escape the disaster of invasion in any future war, we shall have to do our fighting a long way from home. And that means . . . that there must be many millions of tons of shipping ready to carry our troops and munitions to any point where the forces of our enemies are gathered. . . ."

—*James Forrestal, Secretary of the Navy—1945.*

INLAND WATERWAYS TOWS TOP LARGEST OCEAN SHIPS

By Chester C. Thompson, President, The American Waterways Operators, Inc.

Tugboat in the harbor . . . towboat on the river . . . river barge and tow . . . harbor lighter and carfloat . . . inland or intracoastal canal water carrier . . . each member of the vast fleet of commercial vessels operating on the inland waterways of the United States is a mover of the BIG LOAD.

Just as every freight carrier throughout the long history of transportation has been the answer to an immediate need, inland waterway transport of this era is modern design for an entirely new job in the movement of bulk freight.

The grand total of the Nation's current production includes 84 million tons of pig iron and ferroalloy, 125 million tons of steel, 84 million tons of coke, 500 million tons of bituminous coal, 146 million tons of grains, 300 million tons of sand and gravel, three billion pounds of aluminum, 114 billion gallons of petroleum and 100 million tons of chemicals.

Mass production and mass consumption call for mass distribution and a freight carrier of the same Gargantuan proportions. The inherent advantage of inland waterway transportation is this capacity for moving bulk and heavy commodities long distances at transportation costs competitive with rail rates. Actually, only the barge and towing vessel industry has brought forth a carrier geared to modern production and distribution.

There is an economic loss in the transportation of goods if the cost of moving them is greater than the saving resulting from production under the most favorable conditions. An economic loss is a community loss.

Mere availability of one or more forms of transportation is not a guarantee of service adequate to all needs of the community. Each cargo requires a suitable carrier and the markets for each commodity are circumscribed by transportation costs rather than by distances.

Trade barriers erected by the high cost of other forms of transport have been removed by the barge and towing vessel.

Transportation needs of steel mills, blast furnaces, cement factories, oil refineries, chemical plants, grain farmers and elevators, coal mines, aluminum mills, electric powerplants, automobile manufacturers, sulfur mines, paper mills and national defense are being met by river tows hundreds of feet longer than the longest ocean freighters and tankers.

Tows operating on the Mississippi and Ohio Rivers, where mass distribution for mass production industries can best be witnessed, are usually a quarter of a mile long. Some of the modern towboats pushing the big tows are more than 200 feet long. Tied together in their tows may be more than 20 barges. Most barges are either 26 feet wide by 175 feet long or 35 feet wide by 195 feet long. Some are longer and wider.

Only two brand-new tankers in world trade can rival the big oil tows on the rivers in number of gallons of petroleum products delivered in a single shipment.

There are more than 2,200 tankers on the rivers and canals and their average cargo capacity is nearly 1,500 tons each. There are more than 12,000 dry-cargo barges and scows and their average capacity is more than 700 tons each. Actually, the dry-cargo barges one sees in the big tows each carry from 1,000 to 3,000 tons of freight. Hundreds of deck barges of 400 to 500 tons' capacity used by the sand and gravel industry bring down the national average for all types.

The longest cargo vessel plying the high seas is only 780 feet long, compared with Mississippi and Ohio River tows of up to 1,605 feet in length. The longest freighter—an ore boat—on the Great Lakes is only 716 feet long. The oceangoing luxury liner—the United States—has a length of 961.8 feet. (*See front cover.*)

One of the newest American fleets of supertankers is comprised of six vessels ranging in length from 641 to 659.6 feet.

Of the 21 big ore boats operating on the Great Lakes only 2 are longer than 700 feet. Two others are just under that figure and the others range in length from 600 to 647 feet.

The all-time tonnage record for a single cargo on the Great Lakes was 22,379 long tons.

Cargo capacities of the Great Lakes ore carriers in the 600- to 714-foot class range from 14,000 to 21,000 tons.

The "super" offshore tanker of the World War II period was the T-2. It was about 500 feet long and had a cargo capacity of less than 6 million gallons.

A standard Liberty-size freighter of World War II fame had a cargo capacity of 9,500 tons. The freighters in the ocean-lake trade between the ports of the Great Lakes and Europe are only 250 feet long and carry less than 3,000 tons, although these will be replaced with larger vessels of 8,000 to 10,000 tons capacity when the St. Lawrence Seaway is completed with deeper channels and longer locks.

"Barge-load" today signifies the "big load" in the parlance of transportation. Before the advent of the modern tow, "car-load" expressed the maximum.

The cargo capacity of the present-day freight car averages 53½ tons. The average freight train carries a load of 1,301 tons.

Barges moving more than a million gallons of petroleum products in a single load dwarf the largest railroad tank car of 12,000 gallons capacity. The average capacity of tank trucks is 5,200 gallons.

Grain barges can carry from 20 to 50 times as much grain as the largest grain cars.

Coal barges are usually of 1,000 tons capacity, although many are of 1,200, 1,500, 2,000 and 2,500 tons capacity. Coal cars may be of 40, 50, 60, or 70 tons capacity. One railroad has a thousand coal cars of 110 tons capacity.

Barge transportation is doing more than just breaking big-load records. Low-cost freighting on the rivers and canals is creating new markets for raw materials as well as for the products of the farm and industry. This spells economic development for large areas formerly cut off from the markets of the world by the barrier of high transportation costs.

Barge transport may mean as much as 13½ cents more for the farmer's bushel of grain in the Mississippi Valley. It means a saving of 2 cents on every pound of liquid fertilizer sold to the grain farmers of the Columbia River region. The middle western manufacturer who can receive his steel by barge can pass on to his customers savings of up to $10 on each ton of steel consumed in the manufacture of his products. Farmers and automobile owners are buying gasoline for less and railroads are buying fuel for their diesel locomotives for less when those products are transported by barge.

LET GO THE ANCHOR!

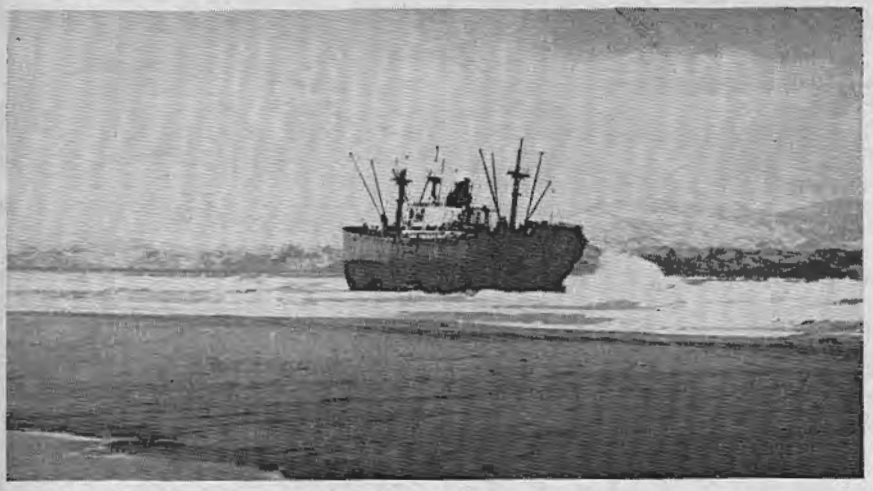

Figure 1.

The noted authority on seamanship, Capt. Felix Riesenberg, added this postscript to his first treatise, to wit, "Seamanship can only be acquired at sea." This broad statement applies particularly to that aspect of seamanship which concerns anchors and their use. When the wind is making up and a vessel is at anchor off a lee shore, the master wants to be sure he has done everything possible to prevent the vessel from stranding. As he watches the ship yawing wildly on a stormy night, with perhaps only one or two dimly lit aids available for cross bearings, he quite possibly is concerned as to whether all precautions have been taken.

Every seaman is or should be familiar with the universal rule for anchoring. *Knight's Modern Seamanship* cites this rule as follows:

"So long as ordinary conditions of wind and tide prevail, use a scope of chain 5 to 7 times the depth of the water."

To follow this rule is the *minimum* that should be done to prevent a vessel from stranding and it follows that when gale winds are expected the scope should be increased appreciably for added holding power. Not only is this practice recommended by seamanship texts, but over a period of years the admiralty courts have given the rule legal significance.

In *Clyde Steamship Co.* v. *United States*, 27 F. 2d 727, the court held that good seamanship required compliance with *Knight's* familiar rule as to the length of the chain to be used. And in *The Djerissa*, 267 Fed. 115, a vessel was held at fault for a collision when she failed to put out a second anchor and veer the proper amount of chain on both anchors before the storm commenced, when the indications of a storm had been apparent for some time. In *The British Isles*, 264 Fed. 318, it was held that a ship should have out a length of chain equal to seven times the depth of the water—*in ordinary weather*.

The reasoning behind this rule for a prescribed scope of chain is that the holding power of an anchor is greatly improved if the pull at the anchor shackle is horizontal. It decreases considerably if the chain is so short that it has a vertical component and pulls at 10 degrees or more from the horizontal. While an anchor chain will hang in a catenary which tends to give a horizontal pull at the anchor shackle, high winds and currents cause increased tension on the chain which will counteract this catenary effect and the pull will develop a vertical component. Any scope less than five times the depth makes an angle of 10 degrees and greater even with the allowance for catenary. Obviously, the longer the scope of chain the more easily a vessel rides to a gale and the less danger there is of dragging her anchor.

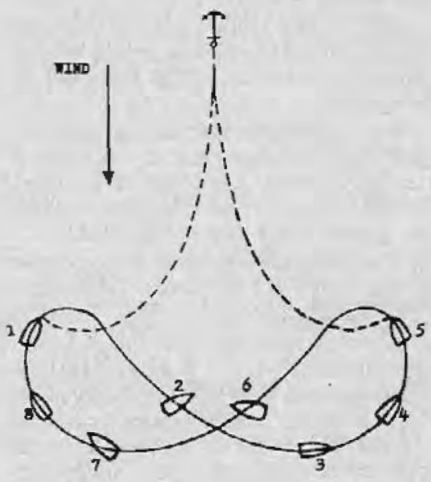

Figure 2.

There is a limitation, however, to the amount of chain that can be veered to keep the anchor from dragging. Too much scope will cause the chain to part before the anchor breaks out. A table giving the length of chain to which it is safe to veer in various depths can be derived from the catenary equation:

Where

$$T=H+wy \text{ and } \left(y+\frac{H}{w}\right)^2-S^2=\left(\frac{H}{w}\right)^2$$

- y is the ordinate and equals $D+d$
- D equals the depth of water in fathoms
- d equals the height in fathoms from the water to the lip of the hawse
- T equals the tension in the chain at any point
- H equals the horizontal tension at any point
- w equals the weight of chain per unit length
- S equals the length of the chain
- 4 equals the safe factor

$$S=\sqrt{(D+d)\left[\frac{T}{2w}-(D+d)\right]}$$

The table is as follows:

Depth in fathoms	Length in fathoms, cast steel, forged steel, or die-locked chain
7½	107
10	119
15	140
20	157

While it is more desirable to drag anchor than to part the chain, the practical procedure is to do neither but instead attempt to ride out a gale by dropping a second anchor, using the tabulated scope of chain on the first anchor. If the vessel is yawing to the first anchor, it is most effective to let go the second when the ship has swung over to the full extent on that side. A review of several cases where vessels have stranded and the second anchor was not dropped indicates that some deck officers are hesitant for fear of fouling the two chains if the wind hauls around. Perhaps too much emphasis has been given to such fouling in seamanship texts. Is

Figure 3.

it not better to ride out a storm with plenty of water under the keel and foul the chains than to fetch up on the beach with one cable out and clear? There was an old sailing ship adage—"He who goes ashore with an anchor on deck is self convicted of negligence" (*see fig. 1*).

In any discussion on riding out storms at anchor some thought should be given to "yawing". Anyone who has watched his ship swing 60 to 70 degrees to an anchor well knows the experience. The ship turns into the wind as she yaws, and as the wind pressure is reduced on the hull, the ship tends to ride up on her chain and thus slacken it (*see fig. 2*). Then, as the ship's head falls off again before the wind, the ship sags off nearly broadside to the wind, gathering momentum down wind with the cable relatively slack until it fetches up with a jerk. This is the moment when the anchor flukes will break out and start to drag. It can be seen that a second anchor at short stay will minimize the yawing.

Another procedure is to steam slowly into the wind to reduce the strain on the chain. While it is mentioned only briefly in seamanship texts, this procedure is not necessarily a simple one. Its effectiveness depends largely on the draft of the vessel involved. There is a school of thought that where the vessel is light that this maneuver be used only as a last resort. The undesirable situation that can arise when the engines are put ahead is that the sidewise thrust of the propeller could increase the yaw by letting the ship's head sag off easier which in turn permits the ship's exposed hull to fall broadside to the full force of the wind. It can be seen that only careful conning and judicious use of the engines can keep the ship headed into winds of over force 7 (*see fig. 3*).

Notwithstanding the possibility of riding out a storm at anchor and controlling the yawing by use of a second anchor and engine, the prudent shipmaster will be ever ready to heave up anchor and stand out to sea. This decision may occasion some anxious moments when the anchors are hove short with 4 or 5 shackles on the windlass, as she may start to drag. This will require skillful shiphandling to bring the anchors home, and the complications vary depending on how restricted the anchorage is. The necessity to slip both anchors should be kept in mind, if necessary to expedite the ship's departure for the open sea.

It may be considered more practical in the judgment of some masters to set up on the windlass brakes and steam ahead dragging both anchors along the bottom to an open berth upwind, where the anchors may be weighed in no hurry or laid out again. This would necessarily depend upon the circumstances and the calculated risk of possibly loosing both anchors or damaging the windlass as against the safety of the vessel.

Since we have discussed some practical aspects in riding out storms at anchor, the recent experiences of two vessels at anchor in Pusan, Korea, during a typhoon seem pertinent. On the night of July 6 and 7, 1953, the typhoon "Kit" passed close to Pusan, and found two freighters at anchor in the outer harbor. The next morning, when the winds had abated, one ship, the SS *Cornhusker Mariner*, was hard aground on a lee shore and the other, the SS *Golden State*, was en route back to Pusan having stood out to sea at the height of the storm.

At 1642, July 6, 1953, the *Cornhusker Mariner* anchored in Pusan Harbor. She anchored in 18 fathoms of

(*Continued on page 104*)

Figure 4.

PHYSICAL STANDARDS OF SEAFARERS IN RELATION TO SAFETY AT SEA

This is the third in a series of articles on physical standards of seafarers. The previous articles were printed in the December 1954 and March 1955 issues of this publication.

The Coast Guard is of the opinion that the existing statutory authority concerning physical standards for merchant seamen is inherently weak, and that the regulations based on these laws, which govern the physical standards, are vague and ambiguous. *In comparison with the other major maritime powers, the United States has the most lenient physical standards and, in contrast, the highest standards for materiel and mechanical safety.*

To more explicitly illustrate the knowledge the Coast Guard has had that gave rise to the original draft of proposed physical standards, some typical case histories will be discussed. It should again be mentioned that as far as entry ratings are concerned, i. e., ordinary seamen, wipers and coal passers, *no physical examination is required.* This does not mean that all entry ratings are necessarily physically incompetent, but it does mean that a person who is suffering from any known affliction, contagious, infectious or otherwise, can procure a merchant mariner's document which will authorize him to serve on any United States merchant vessel. Those members of the steward's department, who are food handlers, *are only required to be examined for a communicable disease.* A hypothetical case which is well within the realm of possibility, would be that of a homicidal paranoiac who decides he wants to go to sea. Having applied for a merchant mariner's document with a messman (food handler) endorsement, he would be examined for a communicable disease. If the results were negative, he would be free to sail.

Present statutes and regulations, because of the vague wording, seriously limit medical examiners, in that the cause for rejection in mental illness is listed as "insanity." The diagnosis of mental disease is largely based on the recent behavior pattern of the examinee. Verified histories of mental deviations from normal are generally not available to the medical examiner and the examinee seldom volunteers information of abnormal behavior. During the examination he often demonstrates no abnormal traits, even though his recent past aboard ship was punctuated with abnormal behavior.

Under these circumstances which occur quite often, it is impossible for the medical examiner to render a fair determination of fitness.

Amplification of statutes and regulations are required wherein authentic histories of abnormal behavior, is prima facie evidence of incompetence.

With the foregoing loopholes in physical standards in mind, let us examine a few actual case histories. These cases are representative of the type that are daily reported to the Coast Guard. It will be noted that the ships involved are all United States merchant vessels. These cases are as follows:

WIPER

This seaman has a merchant mariner's document with a wiper's endorsement. On a recent voyage he was hospitalized in Genoa, Italy, for mental observation. During the voyage he repeatedly refused to obey the master's orders to turn to, and on one occasion entered a passenger stateroom while the occupants were asleep. He proceeded to awaken them and asked for assistance, claiming that the crew was plotting to kill him. One of the passengers later described subject as being "wild-eyed, gesticulating violently, and alternately cowering and giggling."

The master was called and confined subject in the ship's hospital for safe keeping. A few hours later, smoke was seen in the passageway and it was found that subject had set fire to the hospital. Fortunately, the fire was detected and extinguished before it was out of control. Subject was placed under constant observation until the ship arrived in Genoa, where he was transferred to a hospital for observation. In a few days, subject was repatriated back to the United States.

Three weeks after being removed from the ship at Genoa, he signed on another in New York. As soon as this vessel got to sea subject commenced a repeat performance—he refused to turn to except when he felt like it and could be found wandering about the decks listening to his portable radio. One day when he did go below to turn to he took off his trousers "to get cool." Another day the third mate, while preparing to take a celestial observation, was surprised to see subject riding a bicycle around the boat deck. Luckily, he didn't drop his sextant from shock.

From the foregoing it is obvious that subject is mentally unbalanced. While some of his antics were amusing, they could just as easily have resulted in injury to a shipmate. Such conduct aboard a modern merchant ship is incompatible with high safety standards.

Subject is now serving a prison sentence and when released, action will be taken against his merchant mariner's document. This is another example where a man was able to get a seaman's document without any medical examination to determine whether he was mentally competent.

WIPER

This seaman was a patient in a USPHS hospital. Against medical advice and at the patient's insistence he was discharged. The medical authorities subsequently advised the Coast Guard that subject had active pulmonary tuberculosis, was unfit for duty, a menace to the general public and other men aboard ship. At this date subject's location is unknown.

It should be noted that even though this man was held to be unfit for sea duty and a public menace, the Coast Guard is barred from taking action against his merchant mariner's document until he signs on a ship for another voyage, thereby exposing the crew to tuberculosis prior to any possible action.

ORDINARY SEAMAN

Subject was issued a merchant mariner's document, endorsed as ordinary seaman, on August 21, 1951. Ten months later, having gone AWOL from a USPHS hospital, where he was a patient, the USPHS advised the Coast Guard that subject had active, advanced, pulmonary tuberculosis and was considered to be a hazard to himself and others.

In accordance with existing regulations subject had been issued a merchant mariner's document with no physical examination. As a result of the lack of an examination, it is very possible that his advanced state of tuberculosis was present when he received his original seaman's document.

MESSMAN

Subject has a merchant mariner's document with various endorsements including that of messman. On De-

cember 1951, subject became aware of the fact that he had syphilis. Notwithstanding this fact, he continued to sail on numerous ships for the next 3 years, until November 24, 1954, when a civil-service examiner suspended his document for 4 months for other misconduct and in addition ordered it withheld until subject could show a USPHS fit for duty certificate.

This is a case where a man was a potential hazard to his shipmates. Present regulations governing seamen's documents only provide an initial communicable disease examination in the case of messmen. From the date of original issuance the messman can contact any known disease and yet there is no way to determine the fact unless he turns himself in to a USPHS hospital, which in this case was not done.

SECOND ELECTRICIAN

On a recent foreign voyage of a freighter, the second electrician suffered five epileptic attacks. When the ship returned to the United States, subject was hospitalized at USPHS hospital. He was treated as an inpatient for 22 days and was then discharged to out patient status and put on $8 per day maintenance subsistence, in accordance with his union contract. He was instructed to report any reoccurrence of the symptoms and to report back to the hospital at the end of 2 months for further observation, and diagnosis.

He was also advised that he should not sail and was warned of the potential danger to himself and others if he should sign on another ship.

On the same day he was released to out-patient status, he was formally charged by the Coast Guard with being physically incompetent for service as a merchant seaman. A hearing before a civil-service examiner was scheduled 2 weeks later. On the day of the hearing, subject did not appear and it was learned that he had signed on another vessel for a foreign voyage on the day he was served the charges and released to out-patient status.

The civil-service examiner heard the case in absentia and ordered subject's mechant mariner's document suspended. It is only hoped that during the present voyage subject does not have an epileptic seizure while engaged in work on some "hot" electrical apparatus where he can endanger himself and others.

It should be noted that a medical diagnosis of epilepsy is generally dependent upon the examining physician seeing the patient in a seizure or on the basis of a verified history of seizure.

MESSMAN

Subject has a merchant mariner's document endorsed as messman. On December 8, 1954, subject's ship departed Monrovia, Liberia, bound for the United States. That evening, he quietly walked into the galley, picked up a meat cleaver, placed his arm on the chopping block and proceeded to chop his hand off at the wrist! Subject then made his bloody way to the steward's cabin, knocked on the door with his other hand, and showed the steward the stump. The steward, awakened from a sound sleep, was visibly shaken but managed to make his way to the captain's cabin and advise him of the incident.

The captain applied tourniquets and was able to stop the bleeding and save the subject's life. When the ship arrived in the United States he was transferred to a USPHS hospital. Obviously this man suffered from a mental condition when he committed this act of mayhem. He was diagnosed as a paranoiac, dangerous to himself and others, and was found not fit for sea duty by the USPHS.

In retrospect, it was only good luck that this madman directed the meat cleaver at himself and not against some sleeping shipmate.

Here we have a mental incompetent issued a merchant mariner's document without a physical examination.

SELECTED OUT *

Marine Transportation is the fourth most accident-plagued industry in America. To lower this accident rate shipping concerns have undertaken various safety programs. The Military Sea Transportation Service has been by far the most successful in reducing accidents. In 1953 MSTS had an accident frequency rate of 3.98 as compared to a rate of 22.15 for the whole of marine transportation.

The selection of marine employees is the big factor in the difference in number of accidents between MSTS and other marine transportation groups, which are not so selective. In hiring a seaman, MSTS will review his past record with an eye toward weeding out unsafe, accident-prone employees. If the individual has a record which indicates that he is an easy fall guy for shipboard accidents or that he is "claim happy"—claiming an abundance of injuries in the past—then the safety engineer recommends that the man not be hired.

*Note: These remarks were excerpted from an article entitled "Safety First Last and Always" in the January 1955 issue of MSTS.

TRADITIONS OF THE SEA

The roll of American Seafarers who have performed their duties in an outstanding and meritorious manner in accordance with the highest traditions of the sea is long but never completed. The names of Capt. Anders R. Mortenson and members of his crew in the SS *African Endeavor* have recently been added to this roll.

On the night of June 28, 1953, while proceeding through heavy fog off the New Jersey coast, the *African Endeavor* received word by radio that the SS *Loide-Panama* was sinking after colliding with a tanker. A general alarm was sounded and two boat crews of volunteers were selected for the rescue work. By the time the *African Endeavor* arrived at the scene the Brazilian ship was already abandoned. The two lifeboats from the American passenger ship were quickly launched and disappeared in the fog. In a thorough, 2-hour search, the boats were able to rescue 24 men from the dark water. As a result of her prompt arrival and careful search of the area, the *African Endeavor* saved all but one of the *Loide-Panama's* crew. That one was picked up by the Coast Guard.

> For this heroic rescue at sea, the SS *African Endeavor* won the 1953 annual Ship Safety Achievement Award for passenger ships. This award, which is jointly sponsored by the Marine Section of the National Safety Council and the American Merchant Marine Institute, was formally presented to the ship's captain on May 19, 1954, by the Commandant of the United States Coast Guard.
>
> Captain Mortenson, his crew, and ship can be proud of their conduct in keeping with the finest traditions of the United States Merchant Marine.

SIDE LIGHTS ON THE RULES

It will be recalled that the 14th article in the *Sidelights on the Rules* series was devoted to a brief analysis of the clear weather Steering and Sailing Rules set forth in the International, Inland, Western Rivers, and Great Lakes Rules.

The article pointed out that if the respective Steering and Sailing Rules are taken in turn, it is soon apparent approaching situations are considered in the following order, irrespective of what waters the vessels are in:

(1) Two sailing vessels approach-each other.

(2) Two power-driven vessels approaching each other.

(3) A power-driven vessel approaching a sailing vessel, or vice versa.

(4) More than two vessels approaching each other.

Then, after a comparison of the Steering and Sailing Rules applicable to two sailing vessels approaching each other, the article closed with a notation that the remaining approaching situations would be considered in detail in forthcoming articles.

This article, the 19th in the *Sidelights on the Rules* series will complete the detailed consideration of the four approaching situations which was commenced at that time, by comparing the Steering and Sailing Rules applicable to approaching situations involving more than two vessels.

Unlike the other approaching situations, this situation is not spelled out in the rules.

Instead, each vessel is authorized to depart from the rules governing the actions of vessels in an approaching situation involving two vessels to accomplish a safe passage.

This authorization is set forth in Rule 27, International Rules:

Rule 27. In obeying and construing these Rules due regard shall be had to all dangers of navigation and collision, and to any special circumstances, including the limitations of the craft involved, which may render a departure from the above Rules necessary in order to avoid immediate danger.

It is also set forth in Art. 27, Inland Rules; Rule No. 25, Western Rivers Rules; and Rule 27, Great Lakes Rules:

Art. 27. In obeying and construing these rules due regard shall be had to all dangers of navigation and collision, and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

Rule No. 25. In obeying and construing these rules due regard shall be had to all dangers of navigation and collision and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger. When such departure becomes necessary neither vessel shall have the right-of-way and both shall navigate with caution until danger of collision is over.

IT IS SUGGESTED THE READER REFER TO CG–169, "RULES TO PREVENT COLLISIONS OF VESSELS AND PILOT RULES FOR CERTAIN INLAND WATERS OF THE ATLANTIC AND PACIFIC COASTS AND OF THE COAST OF THE GULF OF MEXICO;" CG–172, "PILOT RULES FOR THE GREAT LAKES AND THEIR CONNECTING AND TRIBUTARY WATERS AND THE ST. MARYS RIVER;" AND CG–184, "PILOT RULES FOR THE WESTERN RIVERS AND THE RED RIVER OF THE NORTH;" WHICH CONTAIN THE LOCAL RULES TO PREVENT COLLISIONS BETWEEN VESSELS ON THE LOCAL WATERS OF THE UNITED STATES. REFERENCES TO RULES AND ARTICLES THROUGHOUT THIS SERIES MAY BE FOUND THEREIN.

Rule 27. In obeying and construing these rules due regard shall be had to all dangers of navigation and collision and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

When more than two vessels are approaching each other simultaneously, the situation falls within the meaning of the words "special circumstances."

To accomplish a safe passage, each vessel is required to navigate with caution . . . and exercise good seamanship.

Neither vessel has the right-of-way over the other.

Moreover, it is immaterial whether the vessels are power-driven vessels or sailing vessels.

The authorization, insofar as it pertains to complex approaching situations, is limited only by the words "immediate danger."

By these words, vessels may depart from the rules governing the actions of vessels in an approaching situation involving two vessels only if the danger is immediate . . . and then . . . only to the extent necessary to avoid that danger.

It is unfortunate that there are differences in terminology in the rules granting vessels the right to depart from the basic Steering and Sailing Rules. However, such differences are to be found throughout all of the rules. In the next issue, when the respective modifications of the Steering and Sailing Rules are compared, these differences will be found to be even more pronounced.

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HIGHLIGHTS ON THE RULES

A prudent seaman will sound fog signals in exact compliance with the Rules. In a recent collision case, *Esso Springfield—Wellesley Victory, 1954, A. M. C. 1835,* the vessel that sounded a "prolonged" blast of *60 seconds' duration* was held to be at fault.

A "prolonged" blast is defined by both International and Inland Rules as a blast of 4–6 seconds' duration. *International Rule 15* (c) (i) requires that a "prolonged" blast be sounded at intervals of not more than 2 minutes.

The collision in question occurred in fog a few miles south of Ambrose Light Vessel at the entrance to New York Harbor. Concerning the fog signal, the court stated: "It may further be true that such one minute blast dulled the hearing of those on board . . . . . for reception of signals in the two-minute interim."

In addition to the question of the improper whistle signal, it was held that both vessels were at fault for excessive speed in fog.

nautical queries

DECK

Q. What is the signal for dismissal of fire drill?

A. The general alarm bell shall be sounded three times, supplemented by three short blasts of the whistle.

Q. When are running lights displayed?

A. From sunset to sunrise.

Q. How often should chronometers be cleaned?

A. Every 3 or 4 years by an experienced watch or instrument maker. A greater interval than 4 years between cleaning will ruin a chronometer.

Q. Will the mere washing of a gasoline tank free it of gases?

A. No. It should be well ventilated also.

Q. How should fire hose be carried on board a vessel?

A. Fire hose should be carried connected to the fire hydrant. Suitable spanners should be secured close to the hydrants.

Q. Where and how does the law require the name and calling port to be marked on vessels?

A. The name of every documented vessel of the United States is required to be marked upon each bow and upon the stern. The home port is required to be marked upon the stern. These names must be painted or gilded or consist of cut or carved or cast roman letters in light color on a dark background or dark color on a light background. The smallest letters used cannot be less than 4 inches in size. Every steam vessel of the United States must also have her name conspicuously placed in distinct plain letters not less than 6 inches high on each outer side of the pilothouse.

Q. If fire were to break out in the crew's quarters, what should you do?

A. Call the master. Sound the general alarm. If possible, put out the fire by extinguishers or smother it with wet blankets, etc. Close all ports and doors to prevent a draft.

Q. What is the signal for the assembling of the emergency squad?

A. The nature of the signals or other means for assemhling the emergency squad shall be left to the discretion of the master, but such signals shall not conflict with navigational or general alarm signals.

ENGINE

Q. What is the purpose of the pressure vacuum relief valve installed on the vent line of some tank vessels and what care should it receive?

A. A pressure vacuum relief valve is a device used for automatic regulation of pressure or vacuum. It prevents pressure from building up within the tank during loading operations and temperature changes and keeps a vacuum from forming while discharging or from temperature changes. They are usually arranged so that the discharge of vapors will create the least fire hazard or danger to personnel working about the deck.

Pressure vacuum valves should be examined frequently to determine if they are seating properly and to see that the flame screens are intact and free of any accumulation of oil or dirt.

Q. What precautions should be observed when pumping machinery space bilges in port?

A. All machinery space bilges should be cleaned and pumped dry while the ship is still a satisfactory distance from coastal waters and routine pumping of bilges overboard should not be carried out again until the ship is a satisfactory distance off shore outbound. All bilges should be kept clean and free of oil and sludge. Bilges that are oil contaminated while in port should be pumped only to a barge or to shore or to a suitable ship's tank.

Q. List the common causes through which coastal waters may become oil contaminated by maritime vessels.

A. Spillage due to overflow while loading, discharging or transferring oils or oily ballast in port. Improper handling of hoses or overboard discharge valves while loading or discharging oils or ballast. Discharging oily ballast or bilge water too close to the coastal waters.

Leaks in seams or rivets of the oil tanks.

Leaks in lubricating oil coolers.

Improper stowage or disposal of oily wastes.

Collision or grounding of vessels.

Q. What is the fire alarm signal?

A. The general fire alarm signal shall be a continuous rapid ringing of the ship's bell for a period not less than ten seconds supplemented by the continuous ringing of the general alarm bells of not less than 10 seconds.

NEW BOILER SAFETY MANUAL

The National Safety Council has just announced the issuance of a *Safety Manual for Marine Oil-Fired Watertube Boilers.* The publication was sponsored by the Marine Section of the National Safety Council. Entirely new in content and format, the text was prepared by a committee of highly qualified experts, as follows:

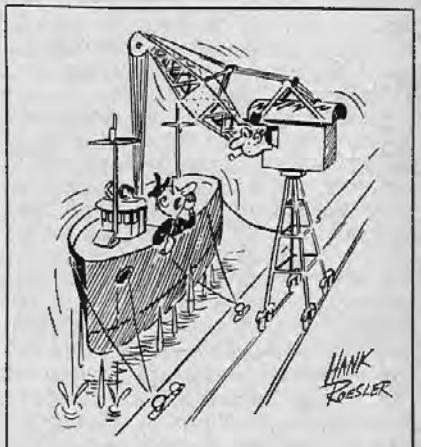
Mr. Arthur R. Gatewood, Chairman
American Bureau of Shipping
Captain R. A. Smyth
United States Coast Guard
Mr. H. R. Glennon, Sr.
Moore-McCormack Lines, Inc.
Mr. J. M. Dempsey, Jr.
States Marine Corporation
Mr. A. Christer
Gulf Oil Corporation
Mr. F. R. Benson
Newport News Shipbuilding and Dry Dock Company

The Manual completely covers general operation and maintenance and repair, from placing the boiler in service to laying up boilers. Particular emphasis is placed on all the principles of safety involved in operation, maintenance and repair. It includes a discussion of specific safe practices and of fire prevention.

The book consists of 72 pages 6" x 9" in size, illustrated, with heavy paper covers. Prices are:

1–9 copies	$1.50
10–99 copies	1.25
100–999 copies	1.15

Copies are now available. Inquiries should be addressed to:
National Safety Council
425 North Michigan Ave.
Chicago 11, Illinois



"CAN YOU HEAR ME NOW?–ALL I WANTED TO KNOW WAS THE CORRECT TIME!"

Courtesy Maritime Reporter

LESSONS FROM CASUALTIES

DON'T BE THE FALL GUY

The most frequent type of personnel accidents or injuries reported occurring in the Merchant Marine is from falls. It is a tossup whether the greater proportion of such accidents is caused by the likelihood of falls due to vessel structure and layout, or by the propensity of certain crew members to fall.

There follow, in brief, accounts of a few of the falls, some tragic—some comic, which have been reported in recent months.

A porter, age 54, was returning aboard a Great Lakes vessel with a "handy" six-can container under his left arm. A surge of the vessel loosened his one-hand grip on the ladder. His other-hand grip on the six-can pack remained intact, but he hit the concrete dock on his left arm and hip, seriously injuring his head. The six-can package was not hurt.

A coal passer, age 39, was returning aboard his Great Lakes freighter carrying five packages of shoes, clothing and sundries when, about 12 feet up the ladder, a package started to slip. In an attempt to grab the one, they all went, including the coal passer, who fell on the concrete dock suffering severe injuries.

In descending a cargo hold ladder of an ocean freighter, an AB fell a distance of 35 to 40 feet, landing on his back at the foot of the ladder. This man suffered a ruptured spleen and numerous internal injuries. The ladder was found to be in good condition. Since he did not cry out as he fell and did not later remember the fall, the only possible explanation was a momentary mental lapse or "blackout" since the man was sober, healthy, and normally alert.

An AB was painting the ship's side in a foreign port and climbed a straight ladder from a small barge alongside to the painting stage, rather than descend to the stage from deck. Midway up the ladder, the small barge moved out and splashed him in the drink. Injuries were minor but the man suffered a few days from immersion, exposure, and humiliation.

In mounting the gangway of an ocean tanker, a steward arrived at the top and leaned forward to grasp the handline to the rail. He slipped and fell 30 feet to the dock. The medical report mentioned multiple fractures, contusions, lacerations, and concussion. Although this gangway was rigged in a manner common to many vessels, the light trim of the vessel and the stage of the tide placed the gangway at an angle of about 56° from the horizontal, which for the ordinary-type gangway, cannot be considered safe under any circumstances, except for squirrels.

As a freighter was backing out from a pier one night, the boatswain heard someone say a mooring line near the bow was fouled. He stepped on top of a chock to investigate and slipped in such a way that he had to jump down onto the pier to save himself from falling between the pier and the ship. He sustained fractures of both legs, both heels and the right tibia. The vessel continued on its voyage leaving the boatswain in the hospital. The ship's log indicated that he had jumped from the ship apparently with the intent to desert, or at least miss the voyage. When the vessel was later notified of all of the circumstances, this mistake was rectified. It was presumed that a man wishing to remain behind would have used an easier means of reaching the dock.

An electrician was returning to his vessel in a jovial mood, having been consorting with *Bacchus*. Instead of walking serenely over the gangway he elected to climb over the side in the vicinity of No. 2 hatch. He grasped a firm hold on a line. The line was not made fast. The electrician fell between the vessel and the dock. He was found lying on a camel bleeding from both ears. The camel was unhurt. The electrician sobered up in the hospital—a sadder but wiser man.

A Great Lakes freighter, approaching the unloading dock, was opening the sliding-type hatch covers. An ordinary seaman was handling the bridle from the hatch-pulling cable connected to the deck engine. He slipped and fell into the cargo hold onto the ore pile, a fall of about 15 feet, and was hospitalized for bone fractures and scalp lacerations. This man had fallen into the cargo hold on two previous occasions without injury and it is a good assnmption that his keen respect for the possibilities of such a fall had been blunted. Since this painful occurrence, he has not even come close to falling in any cargo holds.

A water tender was AWOL for 5 days. Following a bit of carousing and celebrating, he returned aboard the fifth night. However, this return proved uninteresting and he started back ashore in a rowboat. Stepping out of the rowboat, he missed his footing, grabbed a handy line and swung on it, turning under it and striking his back against an iron bitt. He was hospitalized for a contusion of the sacroiliac. It is only by sheer luck that he was not also treated for immersion.

An electrician was closing the cover on a boat davit limit switch which had been opened for inspection. As a platform to stand on to reach the switch he selected, not a ladder, not a box, not a stable platform—he stood on a garbage can. In due course, as the ship rolled, the can fell over and the electrician returned to the deck but with a broken ankle. Someone else picked up the garbage.

On a passenger vessel moored in a foreign port, the purser entered an AB's room to advise him to pick up his shoreside pass. The AB started to get out of his bunk, caught his foot in a draw curtain he had rigged across the bunk and fell to the deck. His fall was broken by the purser who had arrived at the right spot at the wrong time. The AB suffered a wrenched back. Injuries suffered by the purser were only to his dignity. The purser now calls to this seaman from outside the door.

On board a freighter at sea, a careless seaman threw or dropped a beef sandwich on the boat deck. An ordinary seaman having called the mate for the watch, turned to walk away, stepped on the beef sandwich, and hit the deck. His head struck a sharp angle iron. He was treated for a cut on the head, a sore right side and right wrist and, naturally, a headache. The final disposition of the beef sandwich was not stated.

RUST-COLORED PAINT

A coat of paint always improves the appearance of a ship but it can also cover up a multitude of sins. Such a situation was found to exist recently on a tanker which had docked in Port Everglades, Fla.

This particular tanker was discharging a cargo of bunker "C" through an 8-inch cargo hose connecting the aft discharge crossover line to the shore connection. The oil was being discharged at a rate of approximately 3,500 barrels per hour with 100 p. s. i. pressure on the discharge line. Thirty minutes after the pumps were started a coupling on the 14-inch, fore and aft, discharge line carried away. Before the pumps could be stopped, the deck was flooded

and oil had flowed over the 4-inch scupper plate into the water. It was estimated that 75 barrels were spilled on the deck and 20 barrels went overboard (*see fig. 1*).

After the spillage had been cleaned up, the coupling was examined. This coupling consisted of a gasket which fitted over the pipeline joint and an upper and lower cast housing fitted over the gasket. The two sections of the housing were bolted together on two sides of the joint (*see fig. 2*). It was found that the head of the port side coupling bolt had corroded so badly that the 100 p. s. i. pressure caused the bolt head to pull through the housing. The heavy coating of paint on this coupling had prevented a visual examination of the bolt heads for corrosion and wasting. The chief engineer stated later that the aft discharge crossover line had not been used since he joined the ship, some 10 months before.

This tanker was permitted to carry combustible and inflammable liquids of Grade "A." It is indeed fortunate that the coupling let go when bunker "C" was being discharged and not some highly inflammable liquid. In any event such an accident is undesirable.

This accident shows the need for a continuous inspection of lines and joints that carry liquid under pressure so that corrosion will be detected—more so than another coat of paint.

Figure 1.—Aft crossover line and coupling showing broken coupling forward of the line.

Figure 2.—Top housing of coupling showing wasted head of starboard bolt.

DEATH OF A VETERAN

Most of the "Splinter Fleet" of World War I vintage, the 110-foot wooden subchasers which were turned out by the dozen, complete with gasoline engines, have long since gone by the board. Their leaping, rolling, plunging antics are but a memory. One of the last of the breed, converted to diesel power and used as a fishing vessel and cannery tender, sank to her watery destiny recently in the Gulf of Alaska. Built hurriedly to fulfill a wartime need, she had nevertheless given long faithful service for some thirty-odd years, until one day her master asked just a little too much of the old veteran.

Sailing from Alaska with a considerable cargo of canned salmon in her small holds, and the owner's automobile stowed on deck aft, she was accompanied by another vessel of the same company, a self-propelled schooner barge. The barge was lightly powered and could not make headway. In an attempt to shorten the trip to Seattle, the master of the 110-footer decided to take the barge in tow.

Now there were two important factors involved, which the master should have considered carefully. First, the regular sturdy towing bitt could not be used as it was located forward of the automobile on the after hatch. Second, the timbers of the old craft, dry and brittle with age, could stand just so much punishment and no more. Only 2 months before all of the seams had had to be recaulked. However, the tow was attempted.

Since sea conditions were moderate, there was no trouble encountered in

passing the towing hawser and making it fast on the 110-footer to a wooden bitt just 2 feet forward of the extreme stern. Immediately upon getting underway, the towing vessel experienced difficulty, laboring excessively in the moderate sea due to the awkward strain of the hawser made fast at the very stern. Shortly thereafter, it was noticed that she was making water in the lazaret. Leakage quickly worked forward and flooding started in the after cargo hold. The tender started to settle—fast!

Attempts were made to pump out the after compartments using a portable gasoline-powered pump. All hands manned a hand pump, but to no avail. Ten minutes after the leakage was first noticed the water began to lap at the ankles of the pumpers (*see fig. 3*). The impending doom of the "splinter" boat became all too obvious and the crew abandoned ship. Using a fishing skiff they reached the barge, just in time to render a final salute to the veteran of two wars as she slid beneath the waves, stern first. Fortunately, the barge was able to proceed alone to the nearest port and land the survivors, who were slightly the worse for wear but happy to be alive.

It is certain that the primary reason for the foundering was the undue strain placed upon the wooden timbers of the old subchaser. Long and narrow, she was not suited for towing purposes. With the hawser made fast at the very stern, each surge as she rose and fell with the seas placed a racking stress on the ancient timbers. The once sturdy planking which had resisted the onslaughts of the sea for many years, could resist no longer. The seams opened and the issue was never in doubt.

Towing on the high seas is an exacting skill calling for experienced judgment and superior seamanship. A vessel of questionable seaworthiness undertaking a heavy tow is assuming a difficult burden which may overwhelm her at any moment. Foundering or collision with the tow, damage or injuries from the hawser, and engine trouble due to the heavy load are all possibilities. When the vessel undertaking the tow is not suitable in every respect for the job, these possibilities become probabilities.

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LET GO THE ANCHOR

(*Continued from page 97*)

water with 6 shackles of her port anchor chain on the windlass. It will be noted that when the 4-fathom height from the hawsepipe to the water is considered, the scope ratio was closer to 4 to 1 than to the 5 to 1 minimum of the accepted anchoring rule. One mile to the southeast was a small rocky island, Oryuk To. The vessel anchored during a period of inclement weather, with moderate southwesterly winds, force 4 to 5. At that time the ship had received no specific typhoon warnings for that area other than the routine weather "mercasts" which stated that "Kit" was somewhere in the China Sea. The master had plotted its position and determined that the expected course would take it well clear of Pusan. Before turning in, he issued night orders that the anchor should be checked every 15 minutes and that *he should be called if there was any change in the anchor bearings or the weather.*

A quarter of a mile away the *Golden State* was lying at anchor. She had anchored the day before in 15 fathoms of water and had her port anchor out with 5 shackles in the water. (This was the minimum scope of 5 to 1.) Shortly before the *Cornhusker Mariner* arrived the *Golden State* received a blinker message from the shore signal station ". . . winds to 55 knots expected at 0300, be ready to move at 4 hours notice." This message was not received aboard the *Cornhusker Mariner.*

The Captain of the *Golden State,* Frank P. Mitchell, stated later that by 2200 the wind had increased to force 6–7 and had hauled around from the southwest to the south. This increase was accompanied by a slowly falling barometer. During the 2000–2400 watch the port anchor was veered to 6 shackles in the water and the starboard anchor was let go with 2 shackles in the water. In addition, the engines were placed on standby.

About midnight the *Golden State* commenced to yaw and the helm was used to ease the swinging. At 0315 engines were put slow ahead to ease the strain on the chain. The bridge bell book shows that from then until 0417 the engines were maneuvered at slow and half ahead. At 0417 it was necessary to use full ahead at times to keep the vessel's head into the wind. At 0436 the order was given to commence heaving in the anchors preparatory to getting underway. At 0456 the *Golden State* stood out to sea to ride out typhoon "Kit." The captain stated that at no time did the anchor bearings show that the anchors were dragging but he did not wish to take the risk that they might.

Aboard the *Cornhusker Mariner* a different routine was being followed. Anchor bearings taken during the 2000–2400 watch showed that she was not dragging. Although the wind intensified during this watch the anchor chain was not veered. At 0000 the third officer relieved the watch and noted in the log, "Day starts with driving rain and force 6 wind." At 0100 the vessel began to yaw 45 to 60 degrees but the master was not called and the chain was not veered. There is a question as to how many anchor

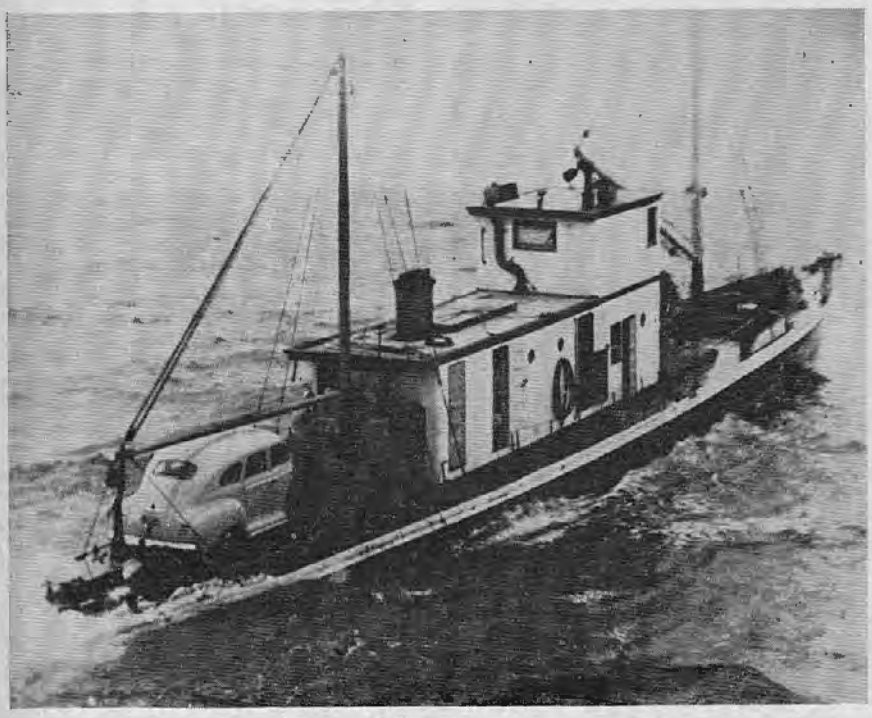


Figure 3.

bearings were taken during this watch and if so their accuracy. It was later established that the mate plotted cross bearings at 0330 which showed the ship had moved toward the beach. He apparently was doubtful of this plot and took another round of bearings and at 0340 was satisfied that the ship was dragging. The engines were immediately put on standby and he went below to call the master. One minute later, at 0341, the *Cornhusker Mariner* fetched up hard aground on Oryuk To island (*see fig. 4*).

It would serve no purpose to labor on the obvious things that could have been done to have kept this ship off the rocks, but, the incident does demonstrate one fact—no matter how large and well constructed ships are, the forces of nature will always be able to cast them ashore, unless the officers manning them use prudent seamanship to keep water under the keel.

SHIP'S TANK OR COFFIN?

One day not long ago a tanker which had just arrived at her loading port was engaged in discharging ballast before beginning to load cargo. During stripping operations, it appeared that a pipeline leak had developed in No. 8 center tank. As this tank was known to be gas free, the pumpman entered the tank to investigate and make repairs. A man was detailed to stand by on deck, but was called away to help out on another job. In the meantime, the Chief Mate had directed the watch to close down the tank lids to make ready for loading. Not knowing the pumpman was down in the tank, they did as they were told and lowered all the tank tops, including No. 8.

You can imagine the pumpman's feelings by that time. Think how you would have felt—hearing the clang of the tank lid closing—the sudden darkness—realizing that any moment black oil would be rushing into the compartment—realizing that his shouts for help might never be heard. Imagine his feelings as he climbed the ladder and shook the flame screen as hard as he could.

As luck would have it the Chief Engineer, who was observing the connecting of bunker hoses on the after deck, happened to glance toward the No. 8 center tank hatch and noticed the screen moving and immediately had the top opened.

When the tank lid was raised, out clambered the pumpman. Our records don't show whether he was scared or mad, but a lesson was learned by a number of people on that ship.

Courtesy—Life Preserver.

MERCHANT MARINE PERSONNEL STATISTICS

MERCHANT MARINE OFFICER LICENSES ISSUED

QUARTER ENDING 31 MARCH 1955

DECK

Grade	Original	Renewal
Master:		
Ocean	40	443
Coastwise	10	44
Great Lakes	23	193
B. S. & L.	17	131
Rivers	10	82
Radio officer licenses issued	24	135
Chief mate:		
Ocean	49	138
Coastwise	3	6
Mate:		
Great Lakes		
B. S. & L.	2	14
Rivers	10	21
Second mate:		
Ocean	48	153
Coastwise		1
Third mate:		
Ocean	58	85
Coastwise		1
Pilots:		
Great Lakes	41	77
B. S. & L.	175	47
Rivers	102	44
Master: Uninspected vessels	7	26
Mate: Uninspected vessels	9	3
Total	637	1,644
Grand total	2,281	

ENGINEER

Grade	Original	Renewal
STEAM		
Chief engineer:		
Unlimited	76	735
Limited	27	177
First assistant engineer:		
Unlimited	65	285
Limited	7	30
Second assistant engineer:		
Unlimited	81	381
Limited		5
Third assistant engineer:		
Unlimited	106	302
Limited	1	3
MOTOR		
Chief engineer:		
Unlimited	8	89
Limited	32	157
First assistant engineer:		
Unlimited	2	16
Limited	18	14
Second assistant engineer:		
Unlimited	4	11
Limited	4	1
Third assistant engineer:		
Unlimited	12	150
Limited	1	
Chief engineer: Uninspected vessels	8	16
Assistant engineer: uninspected vessels	6	8
Total	458	2,380
Grand total	2,838	

INVESTIGATING UNITS

Coast Guard Merchant Marine Investigating Units and Merchant Marine Details investigated a total of 911 cases during the first quarter of 1955. From this number, hearings before examiners resulted involving 9 officers and 115 unlicensed men. In the case of officers, no licenses were revoked, 1 was suspended without probation, 6 were suspended with probation granted, no licenses were voluntarily surrendered, 9 cases were dismissed after hearing and 14 hearings were closed with admonition. Of the unlicensed personnel, 7 documents were revoked, 7 were suspended without probation, 46 were suspended with probation granted, 37 documents were voluntarily surrendered, 14 hearings were closed with admonitions, and 9 cases were dismissed after hearing.

ORIGINAL SEAMEN'S DOCUMENTS ISSUED

QUARTER ENDING 31 MARCH 1955

Type of document	Atlantic coast	Gulf coast	Pacific coast	Great Lakes and rivers	Total
Staff officer	61	14	24	1	100
Continuous discharge book	2	1			3
Merchant mariner's documents	966	431	604	540	2,541
AB any waters unlimited	104	28	68	28	228
AB any waters, 12 months	31	12	42	88	173
AB Great Lakes, 18 months	4	1	4	65	74
AB tugs and towboats, any waters	1		1		2
AB bays and sounds [1]	1				1
AB seagoing barges					0
Lifeboatman	66	10	173	4	253
QMED	86	37	42	106	271
Radio operators	7	2	3		12
Certificate of service	960	410	596	516	2,482
Tankerman	5	23	4	36	68

[1] 12 months, vessels 500 gross tons or under, not carrying passengers.

NOTE.—The last 11 categories indicate number of endorsements made on United States merchant mariner's documents.

WAIVER OF MANNING REQUIREMENTS

Waivers	Atlantic coast	Gulf coast	Pacific coast	Great Lakes	Total
Deck officers substituted for higher ratings			1		1
Engineer officers substituted for higher ratings	1			1	2
OS for AB					
Wiper or coalpassers for QMED	1				1
Total waivers	2		1	1	4
Number of vessels	2	1	1		4

NOTE.—In addition, individual waivers were granted to permit the employment of 7 able seamen holding certificates for "any waters—12 months" in excess of the 25 percent authorized by statute.

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 2-55

(Excerpts of)
February 25, 1955

Subj: Waivers of navigation and vessel inspection laws and regulations; authority and procedures for

1. *Purpose.* The purpose of this circular is to bring to the attention of all concerned that the following general personnel waivers are being cancelled effective 27 February 1955, in accordance with a notice published in the Federal Register dated 27 January 1955 (20 F. R. 590): (1) waiver to permit certificated ordinary seamen who have served a minimum of 8 months on deck at sea or on the Great Lakes to compose up to one-half of the number of able seamen required on Great Lakes cargo and tank vessels; (2) waiver to permit seamen certificated for other engine room ratings who have served a minimum of 3 months in the fireroom of coal burning Great Lakes vessels to serve as firemen on such vessels, and (3) waiver to permit seamen examined and rated able seamen after 12 months at sea or on the Great Lakes to compose up to one-half of the number of able seamen required on vessels navigating other than the Great Lakes.

2. *Circular cancelled.* The instructions in this circular are the same as those contained in Navigation and Vessel Inspection Circular No. 10-53, dated 10 December 1953. Navigation and Vessel Inspection Circular No. 10-53 is, therefore, cancelled as of 27 February 1955.

3. *Part I, General information.*

(a) Public Law 891, 81st Congress, 2nd Session, approved 27 December 1950, authorized the Secretary of the Treasury to waive compliance with the navigation and vessel inspection laws to such extent and in such manner and upon such terms as he may prescribe whenever he deems that such action is necessary in the interest of national defense. This same Public Law 891 repealed Public Law 27, 80th Congress, as amended, which authorized the Commandant of the United States Coast Guard to waive compliance with the navigation and vessel inspection laws administered by the Coast Guard. By an order published in the Federal Register on January 26, 1951 (16 F. R. 731), the Secretary of the Treasury conferred and imposed upon the Commandant of the Coast Guard, with respect to the navigation and vessel inspection laws administered by the Coast Guard, all the rights, privileges, powers, or duties to waive compliance of the navigation and vessel inspection laws in the interest of national defense which were vested in the Secretary of the Treasury by virtue of Public Law 891, 81st Congress, 2nd Session. A copy of Public Law 891 and a copy of the notice appearing in the Federal Register dated January 26, 1951, are enclosed with this circular.

(b) The procedure for effecting waivers, which are applicable to only one vessel in any one waiver order, is set forth in Part II of this circular. These individual waivers are subject to stated terms and conditions. Under this procedure and when conditions so warrant, relaxations may be made in the manning scales and other requirements with the following specific exceptions and limitations:

(1) Waivers to permit the substitution of unlicensed personnel to fill billets of licensed deck or engineer officers will not be granted without the prior approval of the Commandant. The application for this waiver will be filed with the representative of the District Commander at the port and referred by him to Coast Guard Headquarters with his recommendation.

(2) No waivers will be permitted to allow an alien to serve as a watch officer, radio officer or staff officer on United States vessels.

(3) No waivers will be permitted authorizing the shipment of licensed or certificated personnel not in possession of valid licenses or certificates, or temporary documents in lieu thereof.

(c) There are no *general waivers* of manning requirements in effect at this time.

(d) Representatives of the Commandant of the Coast Guard have no authority to grant waivers which have application to more than one vessel in any one waiver. All *individual waivers* issued in accordance with the procedure set forth in Circular 10-53 which were approved on or before 27 February 1955, will continue to be valid for the period stated in the waiver form or until the completion of the particular voyage for which issued.

(e) It is the policy of the Coast Guard, in the current administration of the laws and regulations relating to navigation and vessel inspection, to further the interests of national defense by simplifying the procedure involved therein, eliminating all causes of delay in the sailing of vessels, and by bringing about a proper balance between the factors of safety at sea and the national defense effort. While it is not the policy of the Coast Guard to countenance wilful violations of the laws and regulations or negligence in meeting the requirements thereof, neither is it contemplated that masters who exercise all reasonable efforts to comply with the requirements in effect be cited for violations on technical grounds.

4. *Part II, Procedure for effecting individual waivers of navigation and inspection laws.*

(a) Enclosure (1) issued pursuant to Public Law 891, 81st Congress, 2d Session, is an order of the Commandant in which he finds it necessary in the interest of national defense to make effective certain waivers to the extent and in the manner set forth therein. This order outlines the procedure under which the requirements of the laws in question may in urgent situations be relaxed by Coast Guard District Commanders and their designated representatives in ports located within their respective districts, and by designated representatives of the Commandant in other than domestic ports at which Coast Guard officers are assigned to duty. The objective of this order is to make possible a flexible means of maintaining a proper balance between safety at sea and the interest of national defense.

(b) Each Coast Guard District Commander may designate, in writing, qualified commissioned or civilian officers of appropriate rank or position to act as his representatives in the carrying out of the provisions of enclosure (1). Copies of such designations shall be forwarded to Headquarters. The ports at which such representatives are designated shall be determined by the respective District Commanders.

(c) It is to be noted that under this procedure application may be made by any person interested in the vessel involved, including representatives of any interested Government agency. It should also be noted that applications are to be forwarded to Headquarters for action by the Commandant in all cases in which it ap-

pears to the Coast Guard officer concerned that the delay involved in Headquarters' action will not prevent the vessel from sailing on time or otherwise be contrary to the national defense effort.

(d) Enclosure (1) does not authorize general waivers. Only the Commandant is authorized to issue general waivers which affect more than one vessel in one order.

(e) Although the certification of the person making an application should always be given due consideration, it is not contemplated that the Coast Guard officers authorized to make the waiver effective will be guided solely by the representations contained in applications. If after full consideration of the application it is the judgment of the Coast Guard officer concerned that the national defense effort justifies the risk so calculated then the waiver should be made effective to the extent deemed justified. On the other hand, if the Coast Guard officer concerned after having given such consideration to the application is of the opinion that the waiver is not justified he shall refuse to issue the waiver order regardless of the representations contained in the application.

(f) Of the factors listed above which should be given consideration in connection with each application for waiver, perhaps the most important is the effect of relaxation upon the safety of the vessel and the persons on board. Consequently, it is expected that provisions of these laws and regulations will be made inoperative only in cases of extreme necessity and that in each such case, unless the application has been sent to Headquarters, the Coast Guard officer concerned will, if time permits, consult the head of the appropriate division at Headquarters by telephone prior to making the waiver effective.

(g) Applications for waiver under enclosure (1) and the waiver order will continue to be made on Coast Guard Form CG–2633.

(h) One copy of every application filed and acted upon in the field shall be forwarded to Coast Guard Headquarters regardless of whether the application is granted or denied. In cases where the application is denied a notation to that effect, signed by the Coast Guard officer concerned, shall be made on the face of the copy of the application sent to Headquarters.

5. *Action Required.* Each District Commander or his representative will take the necessary steps to assure that the instructions in this circular are followed on and after 28 February 1955.

NUMBERED AND UNDOCUMENTED VESSELS

The table below gives the cumulative total of undocumented vessels numbered under the provisions of the act of June 7, 1918, as amended (46 U. S. C. 288), in each Coast Guard district by customs ports for the quarter ending 31 March 1955. Generally speaking, undocumented vessels are those machinery-propelled vessels of less than 5 net tons engaged in trade which by reason of tonnage are exempt from documentation. They also include all other vessels propelled in whole or in part by machinery which have not been issued marine documents by the customs, owned in the United States and found on the navigable waters thereof.

Coast Guard district	Customs port	Total
1 (Boston)	(4) Boston	13,116
	(1) Portland, Maine	8,649
	(2) St. Albans	929
	(5) Providence	3,981
	Total	26,675
2 (St. Louis)	(45) St. Louis	9,440
	(12) Pittsburgh	1,927
	(34) Pembina	74
	(35) Minneapolis	2,058
	(40) Indianapolis	4,027
	(42) Louisville	2,516
	(43) Memphis (part)	4,818
	(46) Omaha (part)	306
	(47) Denver	21
	Total	25,187
3 (New York)	(10) New York	41,807
	(6) Bridgeport	7,928
	(11) Philadelphia	17,737
	Total	67,472
5 (Norfolk)	(14) Norfolk	15,611
	(13) Baltimore	22,581
	(15) Wilmington, N. C	7,411
	Total	45,603
7 (Miami)	(18) Tampa (part)	23,253
	(16) Charleston	1,502
	(17) Savannah	2,964
	(49) San Juan	418
	(51) St. Thomas	97
	Total	28,234
8 (New Orleans)	(20) New Orleans	20,223
	(18) Tampa (part)	568
	(19) Mobile	7,506
	(21) Port Arthur	4,279
	(22) Galveston	8,153
	(23) Laredo	1,347
	(24) El Paso	15
	(43) Memphis (part)	65
	Total	42,216
9 (Cleveland)	(41) Cleveland	7,663
	(7) Ogdensburg	2,617
	(8) Rochester	4,915
	(9) Buffalo	3,692
	(36) Duluth	2,474
	(37) Milwaukee	3,455
	(38) Detroit	17,886
	(39) Chicago	6,470
	Total	49,172
11 (Long Beach)	(27) Los Angeles	10,319
	(25) San Diego	1,973
	(26) Nogales	109
	Total	12,401
12 (San Francisco)	(28) San Francisco	12,564
	Total	12,564
13 (Seattle)	(30) Seattle	17,972
	(29) Portland, Oregon	8,829
	(33) Great Falls	506
	Total	27,307
14 (Honolulu)	(32) Honolulu	3,100
	Total	3,100
17 (Juneau)	(31) Juneau	7,384
	Total	7,384
	Grand total	347,315

U. S. GOVERNMENT PRINTING OFFICE: 1955

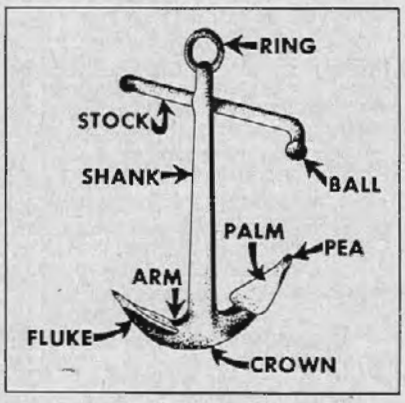
Development Of The "HOOK"

AS ANCHORS DEVELOPED THROUGH THE AGES

2000 BC | 800 BC | 400 BC | 1066 | 1866 | 1916

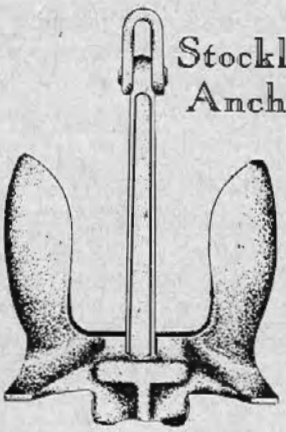
Wooden Stock Anchor

18th CENTURY



Old-Style Anchor

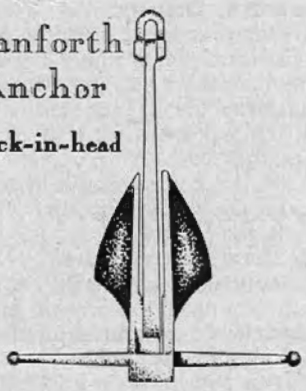
1846



Stockless Anchor

Danforth Anchor

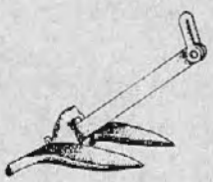
Stock-in-head



CONTEMPORARY ANCHOR DESIGNS

MUSHROOM

MOORING-ONE ARM



LIGHTWEIGHT STOCKLESS

EELS

MSTS Magazine, August, 1954.