

UNITED STATES COAST GUARD

ADDRESS REPLY TO:



MVI

29 AUG 1956

(A. M. BYERS - E. M. FORD -  
C-9 Bd)

Commandant's Action

on

Marine Board of Investigation; collision involving the SS A. M. BYERS and the SS E. M. FORD in the St. Clair River, 19 April 1956

1. Pursuant to the provisions of Title 46 CFR Part 136, the record of the Marine Board of Investigation convened to investigate subject casualty, together with its Findings of Fact, Conclusions, and Recommendations, has been reviewed.
2. The SS E. M. FORD, of 4498 g.t., built in 1898, a converted self-unloading bulk cement carrier, without cargo, was upbound in the lower end of the St. Clair River, and the SS A. M. BYERS, of 6364 g.t., built in 1910, a self-unloading bulk type carrier, was downbound in such river. The weather was cloudy, with good visibility, with current between 3 and 4 mph. Shortly before 2137 19 April 1956 while both vessels were approaching each other at normal full speed, the steering gear on the E. M. FORD jammed with left rudder which, in conjunction with the current, caused the bow of the FORD to veer sharply to the left and into collision with the A. M. BYERS. The collision bulkhead on the BYERS was holed, and the vessel progressively flooded and sank 15 minutes after the collision. The collision occurred at 2137 19 April 1956 in a position 800 ft. north of Squirrel Island Light No. 38. The damage to the FORD was estimated at \$300,000 and the damage to the BYERS was estimated at \$500,000.
3. The Findings of Fact, Conclusions, and Recommendations of the Marine Board of Investigation convened to investigate subject casualty are approved.

(signed) A. C. Richmond

A. C. RICHMOND  
Vice Admiral, U. S. Coast Guard  
Commandant

REPORT  
OF  
MARINE BOARD OF INVESTIGATION

COLLISION BETWEEN  
SS E. M. FORD and  
SS A. M. BYERS in  
St. Clair River,  
19 April, 1956

## FINDINGS OF FACT

1. The steam vessel E. M. FORD, O.N. 150786, 4498 gross tons, 3395 net tons, is a self-unloading bulk cement carrier of 406' x 50' x 28' dimensions, built in Cleveland, Ohio, in 1898, converted to self-unloading in Sturgeon Bay, Wisconsin, in 1956, and is owned and operated by Huron Portland Cement Company, 1325 Ford Building, Detroit, Michigan. The vessel is single screw, has two scotch marine boilers carrying 225 psi steam, and is powered by a four-cylinder reciprocating engine, with full backing power, which develops 1600 H.P. She was last inspected in Sturgeon Bay on 5 April, 1956, was last dry-docked in December, 1952, and she has an established load line last endorsed on 11 April, 1956. The master of the FORD is Captain Thompson Campbell of Detroit, Michigan.
2. The steam vessel A. M. BYERS, O.N. 207504, 6364 gross tons, 4841 net tons, is a self-unloading type bulk carrier of 504' x 54' x 30' dimensions, built in Cleveland, Ohio, in 1910, converted to self-unloader in Toledo, Ohio, in 1955, and is owned and operated by Reiss Steamship Company, Sheboygan, Wisconsin. The vessel is single screw, has two scotch marine boilers carrying 180 psi steam, and is powered by a three-cylinder reciprocating engine, with full backing power, and develops 1760 H.P. She was last inspected in Toledo, Ohio, on 31 March, 1956, was last dry-docked in 1955, and she has an established load line last endorsed on 30 March, 1956. The master of the BYERS is Captain John Englesen.
3. About 2137, 19 April, 1956, the FORD, upbound, and BYERS, downbound, were in collision at a point just north of Squirrel Island Light #38 in the lower end of the St. Clair River. There was no loss of life on either vessel. One person, Michael Wenta, Steward, on the E. M. FORD was injured, not seriously. Both vessels sustained heavy damage in the forward end, with the A. M. BYERS sinking in 30 feet of water approximately 15 minutes after the collision.
4. The collision occurred when the steering gear on the E. M. FORD jammed with the left rudder on the vessel which, in conjunction with the current, caused the bow of the FORD to veer sharply to the left and into collision with the A. M. BYERS as the two vessels approached each other for a port-to-port passage.
5. The FORD is equipped with a Williamson Brothers Steam Steering Engine #2266. Transmission from the wheel stand in the pilot house to the steering engine in the fantail is by shaft and cable, shafting at either end and cables through cargo and machinery spaces. The cable transmission, route and cables, was renewed during the extensive conversion to cement carrier. The cables are now routed down the center line tunnel of the vessel rather than under the spar deck on the port side as before. The steering engine is coupled to the rudder quadrant by means of wheel chains and wire cables. Testimony indicates that the steering gear worked rather hard at fit-out time, but subsequently loosened to about two spokes of slack motion at the time of the casualty. The bridge of the FORD is also equipped with a lighted electric rudder angle indicator and an electric engine order telegraph.

6. The E. M. FORD was formerly the PRESQUE ISLE of the Cleveland Cliffs Iron Company. She was purchased by the Huron Portland Cement Company and towed to Sturgeon Bay in 1955. The vessel did not operate during either the 1954 or 1955 sailing season. The conversion to a cement boat was a major one and was overseen by the chief engineer, Clarence Nowoszewski, who boarded the vessel in September, 1955. The fit-out of the engineering department was under the direct supervision of the first assistant engineer who boarded the vessel in November, 1955. The fit-out of the steering engine consisted of a routine examination of the entire gear. The cylinders were inspected and all valves and fittings checked. The piston and valve rods were repacked, and all bolts, studs, and fittings were checked for tightness. This examination was considered adequate by the engineering force of the FORD. The steering gear operated satisfactorily at annual inspection.

7. The E. M. FORD departed Sturgeon Bay, Wisconsin, on 12 April, 1956, and loaded her first cargo of bulk cement in Alpena, Michigan, on 14 April, 1956. The vessel unloaded in Buffalo, New York, 16-18 April, 1956, and departed at 1647 on 18 April, 1956, light with draft of 9'3" forward and 16'0" aft, bound for Alpena, Michigan. The wheelhouse log book indicates that the steering gear was examined by the mate on watch before the vessel entered the Detroit River at approximately 1500 on 19 April, 1956. It is noted that the engine room log contained no entries at all relative to the steering gear. The transit up the Detroit River and across Lake St. Clair was uneventful, and the vessel entered the St. Clair River at 2005 at full speed, approximately ten miles an hour over the ground. Testimony by those on watch in the wheelhouse indicates that the steering gear was operating normally at this time and that there was no appreciable error in the gyro compass or in the rudder angle indicator.

8. The watch was changed at 2000 when Third Mate Arthur Bay took over the navigation of the vessel. He continued to give the orders to the wheelman until just prior to the collision. Gerald Johnson was the wheelman and Richard Rajava was watchman with station in the bow of the vessel. The mate was stationed in the open front window of the wheelhouse. The master, Thompson Campbell, was also in the wheelhouse in the close proximity of the front window, and the navigation of the vessel was under his close supervision.

9. After entering the St. Clair River, the FORD passed several downbound vessels without incident, including the large steamship RICHARD M. MARSHALL. Testimony indicates that the FORD was favoring the Canadian side of the channel as is normal with a light upbound vessel. The vessel arrived at a point approximately one-half mile below Squirrel Island Light #38 at about 2135, 19 April, 1956. The vessel at this time was steering on course 041° T with Russell Island Range ahead.

10. The A. M. BYERS departed Toledo, Ohio, early in April and loaded 9561 tons of open hearth mixture limestone at Drummond Island, Michigan, on 18 April, 1956, departing at 2355 bound for Buffalo, New York, with a draft

of 20'0" forward and 20'5" aft on intermediate draft marks. The trip across Lake Huron was uneventful, and the vessel passed Lake Huron light vessel at 1857 and entered the St. Clair River at full speed, making approximately 12 mph over the ground. Both the wheelhouse log book and engine room rough log indicate that steering gear tests were made by personnel of the two departments at 1845 prior to entering the river.

11. The BYERS is equipped with a steam steering engine with shaft transmission from the wheel stand in the pilot house. The steering engine is coupled to the quadrant by means of wheel chains. Testimony indicates that the gear operates very easily and quickly, and that there was no appreciable error in either the rudder angle indicator or in the gyro compass. Engine order signals are by means of an electric chadburn.

12. The watch was changed at 1800 when Third Mate Stuart Minton took over the navigation of the vessel. He continued to give orders to the wheelman until just prior to the collision. Ralph Backie was wheelman and Robert Coello was watchman with station in the wheelhouse to the left of the mate who was stationed in the front window. The master of the BYERS, John Englesen, was also in the wheelhouse, and the navigation of the vessel was under his close supervision.

13. After entering the St. Clair River, the BYERS passed several upbound vessels without incident, keeping to the American side of the channel. The vessel passed Walpole Island Ferry Dock to port at 2126 P.M. Shortly afterward, the third mate brought the ship around to the right, following the channel past Russell Island, and steamed on Grand Point Light #37 ahead on course 228° T. When the upbound FORD was sighted approximately two miles ahead, the mate came over 2° to the right to course 230° T to the right of Grand Point Light.

14. The weather on this particular night was partly cloudy with good visibility. The wind was from NNE and moderate. The current at this point in the St. Clair River was estimated to be normal and between three and four miles per hour. Shore lights, navigational aids, and navigational lights of other vessels were plainly visible to persons on watch on each of the two vessels.

15. When the BYERS was down to a position approximately five-eighths of a mile above Squirrel Island Light #38 and about one mile from the upbound FORD, the third mate sounded a one-blast port-to-port passing signal which was immediately answered by the FORD. The mate testified that at this time the situation appeared normal and that he ordered his wheelman to come 2° more to the right to about course 232° T. The wheelman complied and brought the BYERS to course 232° T. The FORD at this time was heading on Russell Island Range, steering 041° T, approximately three-eighths of a mile below Squirrel Island Light #38. The watch on the FORD testified that the situation appeared normal at this time.

16. When the FORD was a short distance below Light #38, the third mate ordered the course changed to the right to course 048° T. The current sets a vessel to the left in the vicinity of Squirrel Island Light so that considerable right rudder is generally applied to start the vessel swinging. The wheelsman did not remember the amount of rudder he used in this instance; however, the FORD came over smartly. As she swung toward 048° T, the wheelsman applied about 5° left rudder to check the swing. At this moment the FORD and BYERS were between 1000 and 1500 feet apart, closing at about 20 MPH and were in a normal passing situation.

17. When the third mate of the FORD noticed his vessel swinging left a bit in steadying on 048° T, he ordered right rudder to get the bow swinging right again for the passing situation. When the wheelsman attempted to apply the right rudder, the wheel moved about two spokes of slack and then jammed, so that he could not apply right rudder or even take the left rudder off the vessel. He immediately notified the mate and the master that the rudder was jammed and the vessel was swinging left. The exact time of this casualty and resulting collision was not observed on either vessel. It is noted that there are several discrepancies in the bridge log of the FORD with regard to the time and location of the collision.

18. The facts as to just what action was taken on the FORD with regard to signals were not definitely established, as can well be expected when a normal passing turns in an instant into an impossible situation. It was established, however, that the master of the FORD immediately took charge of the navigation of the vessel, and put the engine order telegraph in full astern, which signal was answered promptly and the engines placed in full astern. He also tried to free the wheel, and ordered the mate to sound the general alarm, which was promptly done. A signal was also sounded on the ship's whistle by the third mate, described by the wheelsman and watchman on the FORD to be a danger signal, followed by a two-blast signal. This signal was identified on the BYERS as a simple two-blast starboard-to-starboard passing signal. As for this two-blast signal, the master of the FORD stated that at no time did he contemplate a starboard-to-starboard passage. He knew that this action was impossible at the time the rudder jammed. Both the master and the third mate testified that the only signal they sounded was the danger signal. After the rudder jammed, the FORD swung left considerably prior to the collision, aided by the current as well as the 5° left rudder. This swing was not checked appreciably by the backing of the vessel.

19. On the BYERS, the first indication of impending disaster was when a two-blast signal was heard from the FORD and that vessel appeared to be swinging left. The master of the BYERS immediately took over the navigation of his vessel, and answered the two-blast signal with one blast, as he realized instantly that there was no possibility of a starboard-to-starboard passage. He ordered hard right rudder, placed the chadburn at full astern, which signal was answered promptly, and threw in the general alarm. The third mate was ordered to drop the starboard anchor, which he was able to do prior to the collision. He stated that knowing instinctively that collision was

now inevitable and he was throwing his vessel broadside to the oncoming FORD, he changed rudder to hard left and put the chadburn at full ahead to straighten his vessel out and his bow toward the FORD for a glancing blow. Just before the collision, the master rang up full astern again and ordered the watch out of the wheelhouse. The master of the BYERS testified that neither did his vessel change course appreciably before the collision nor was his speed materially reduced.

20. The collision between the two vessels took place about 2137 on 19 April, 1956, in a position approximately 800 feet north of Squirrel Island Light #38, almost in the center of the channel, and right on the international boundary between the United States and Canada. It is noted that each of the four logs involved shows a different time for the collision. According to testimony, no one noted the exact time of the collision and the time was merely estimated. Advancing the BYERS from the last fixed position at the Walpole Ferry Dock puts that vessel at the point of collision at approximately 2137. The vessels came together at near full speed at an angle of approach between 20° and 30°. The port side of the FORD's stem struck the BYERS at a point about 20 feet aft of the stem on the port side and penetrated approximately 20 feet to within inches of the wheelhouse. The collision bulkhead on the BYERS was holed. The bow of the FORD was set back approximately eight feet, and the stem some six feet to port. Damage to both vessels was extensive in the forward area. The BYERS lost the starboard anchor and chain and her port anchor. The FORD's windlass was smashed and the steering shaft leading down from the pilothouse was parted at the first set of bevel gears.

21. The FORD backed clear after the collision and, without steering or anchors available, maneuvered by engine to the American side of the river and finally came to rest heading upstream along the bank approximately 800 yards below Light #38. The FORD did not make any water except for the forepeak. She was towed the next day to Great Lakes Engineering Works, River Rouge, Michigan, where the repairs estimated at \$300,000 will be made.

22. At the time of the collision, Michael Wenta, Steward on the FORD, was injured when the door to his room struck him in the back as he was leaving in response to the general alarm. He was taken off the FORD by the Coast Guard picket boat and transported to Algonac, Michigan, where he received medical aid. He was hospitalized at St. Joseph Hospital, Mt. Clemens, Michigan, where his injuries were diagnosed as a broken rib and contusions to his left side. He was discharged from the hospital on 24 April, 1956, in satisfactory condition.

23. The BYERS made water rapidly as a result of damage to the collision bulkhead which allowed water to enter the tunnels and flood the cargo compartments. The BYERS was maneuvered on hard left rudder toward the Canadian side of the river and grounded forward in 29 feet of water, approximately four minutes after the collision, at a position some 500 yards below

Light #38, and settled by the stern in 38 feet of water a few minutes later.

24. Immediately after the collision, the master of the BYERS called the Coast Guard for assistance and warned all traffic in the river that he was in a sinking condition. All upbound and downbound traffic was able to stand clear of the disaster, and, thus, further casualty was averted. The Coast Guard responded smartly, with rescue craft CG-30379 from the St. Clair Flats Light Station underway almost immediately. The master of the BYERS ordered his crew to abandon ship when he knew she was sinking, and this was carried out without incident, with the engineering force pulling all fires in the boilers prior to leaving. All persons except the master and third mate left the vessel aft in the two ship's lifeboats and Coast Guard picket boat, which was on the scene by this time, having already taken the injured man off the FORD. The master and mate were picked up from the bow of the BYERS, and the two lifeboats were towed to Harsen's Island, Michigan, where the crew of the BYERS was quartered in homes of residents of the island until they went back on board the vessel on 12 May, 1956. No one was injured on the BYERS. It was noted that on each vessel, the master experienced difficulty in reaching the engine room by the sound-powered telephone after the collision. The engine room personnel of both vessels testified that the general alarm bell completely nullified the signal of the phone.

25. The BYERS was successfully raised on 8 May, 1956, pulled out of the channel and then towed to the American Shipbuilding Company, Toledo, Ohio and dry-docked on 12 May, where the repairs estimated at \$500,000 will be made.

26. Examination of the steering engine of the E. M. FORD revealed that two stud bolts on the eccentric rod had backed out and fallen to the engine pan, thus separating the valve from the eccentric and causing the gear to jam. The valve arrangement on the Williamson-type gear is located inboard of the piston and directly under the wheel chain drum in an almost inaccessible location. This engine moves very fast while the gear is in operation, making it dangerous to even get into a position to flash a light down to examine this connection. It would be impossible to test these bolts underway. Testimony indicates that the bolts were tested by wrench at fit-out and also at Buffalo, New York, prior to departure from the port. Several turns of packing were also added to the valve stem packing in Buffalo.

27. The eccentric rod on this steering gear is made from flat bar stock approximately one-half inch thick. The rod fits in a slot on the eccentric strap and is connected to the strap by the two bolts which pass through the strap and are threaded into the eccentric rod, as shown in sketch marked Enclosure No. D.

28. Physical examination of the two bolts, Exhibit No. 8, A, B and C (3 photographs have been substituted for the bolts which are being returned to the owners of the FORD on their request) reveals that they are hot forged one-half inch square headed bolts with 13 threads to the inch. The heads are well worn on the tightening edges. The threads are worn considerably at the



end and also in way of the eccentric strap. The bolts were not stretched and gave the general appearance of having been banged about as they were backing out of the connection.

29. The following persons were interviewed and their testimony is attached:

|                          |                                                                  |                |
|--------------------------|------------------------------------------------------------------|----------------|
| Master                   | Thompson Campbell<br>18973 Northlam Avenue<br>Detroit, Michigan  | SS E. M. FORD  |
| Third Mate               | Arthur Bey<br>919 Third Avenue<br>Alpena, Michigan               | SS E. M. FORD  |
| Wheelsman                | Gerald Johnson<br>Route 2<br>Posen, Michigan                     | SS E. M. FORD  |
| Watchman                 | Richard Kujawa<br>315 June Street<br>Alpena, Michigan            | SS E. M. FORD  |
| Chief Engineer           | Clarence Nowaczewski<br>1023 Merchant Street<br>Alpena, Michigan | SS E. M. FORD  |
| First Assistant Engineer | Vernin Racho<br>21055 North Line<br>Wyandotte, Michigan          | SS E. M. FORD  |
| Third Assistant Engineer | Robert Beaver<br>Loyal, Wisconsin                                | SS E. M. FORD  |
| Master                   | John Englesen<br>505 - 46th Street<br>Sandusky, Ohio             | SS A. M. BYERS |
| Third Mate               | Stuart C. Minton<br>1338 Oakland Avenue<br>St. Clair, Michigan   | SS A. M. BYERS |
| Wheelsman                | Ralph M. Backie<br>Hessel, Michigan                              | SS A. M. BYERS |
| Watchman                 | Robert L. Coello<br>3967 Wedge Street<br>Calumet, Michigan       | SS A. M. BYERS |
| Third Assistant Engineer | Carol W. Farmer<br>261 Kinsey Avenue<br>Kearmore, New York       | SS A. M. BYERS |
| Chief Engineer           | John E. Schmitt<br>151 Cornell Drive<br>Toledo, Ohio             | SS A. M. BYERS |

## CONCLUSIONS

1. That the collision between the steam vessels E. M. FORD and A. M. BYERS occurred at 2137 on 19 April 1956, at a position 800 feet north of Squirrel Island Light #38 (LL 704). The collision occurred slightly to the westward of the center of the channel, the point of impact being in United States waters.
2. That the SS A. M. BYERS sunk at approximately 2150 on 19 April, 1956, at a position 800 yards south of Light #38 in 29 feet of water forward and 38 feet of water aft. The vessel sank right on the international boundary between the United States and Canada.
3. That the collision occurred when the E. M. FORD sheered left into the A. M. BYERS as a result of a steering engine casualty which caused the rudder to jam while carrying 5° left rudder.
4. That the angle of impact between the two vessels was approximately 30° caused by the sheer of the FORD to left from the normally parallel course at the time of passing.
5. That the speed of each vessel had not materially reduced from full speed before collision. The FORD backed for approximately one minute before the collision and the BYERS somewhat less than a minute. It is the opinion of the board that the BYERS was going about 11 MPH over the ground and the FORD about six MPH over the ground at the instant of impact. The difference in speed is due almost entirely to the current, estimated at three MPH.
6. That the rudder of the FORD jammed as a result of material failure of the steering engine of that vessel when the two bolts linking the eccentric rod to the eccentric strap on the port valve assembly backed out of this connection and fell to the engine pan.
7. That the exact reason why this connection failed could not be resolved. This engine and many others of the same design have operated satisfactorily for periods over 50 years without a casualty of this type being experienced. After a careful study of the facts in the case, the board concludes that the most logical reason for the bolts to become loose in their connection and ultimately back out was possibly due to the tightening of the packing gland on the valve stem of the port slide valve beyond a normal tightness when several turns of packing were added to this valve in Buffalo, New York. It is felt that this tightness would tend to set up an undue stress on the eccentric rod which was transferred to the bolts in the form of excess reverse bending stress as the engine worked prior to the casualty. This reverse bending stress would have a tendency to loosen the bolts. It is believed that once one bolt began to loosen, the progressive backing out of that bolt and then the other was inevitable. The physical appearance of the two bolts indicates that they backed out slowly and were banged about in the process.

8. That normal maintenance procedures of the steering engine were being carried out by the engineering force of the FORD. All evidence indicates that the engineers properly fit-out and tested the engine prior to the start of the season and that periodic examinations of the engine were being made. Additional packing was added at Buffalo, New York, and the bolts tested for tightness. Physical examination of the bolts by the board shows that the bolts had been tested for tightness many times with a wrench.

9. That physical underway examination of this connection is not possible because of the inaccessibility of the two bolts and inherent danger to anyone getting close to them, both from the engine itself and from the large wheel chain drum mounted almost directly over the connection. The board arrived at this conclusion as a result of visiting the FORD and observing the steering engine, the location of the bolts, and obstructions in the way.

10. That the third assistant engineer cannot be criticized for failure to detect the loosening of the bolts during his watch from 2000 to 2137. He casually observed the engine as he went on watch at 2000 and noted nothing unusual at that time. The vessel was in the St. Clair River his entire watch and it is normal for the engineer to stand by the throttle at this time. Whether the impending casualty could have been detected prior to its occurrence, either by sound or visual examination, is questionable; however, it is concluded that for one to have noted a loosening of the bolts, that connection would have had to be specifically suspected. Testimony indicates that both the chief engineer and first assistant were not able to discover the cause of the casualty on their first examination after the collision, even knowing that something had caused the gear to jam.

11. That the engine room log of the E. M. FORD should have contained entries pertaining to the examination and condition of the steering gear in Buffalo, New York, when the packing was added or an entry made in the official log of the vessel at that time. This omission constitutes a violation of Title 46, CFR 97.15-3(b). However, it is the opinion of the board that this failure on the part of the chief engineer and assistant engineers did not in any way contribute to the casualty and should not reflect upon their attention to duty.

12. That both vessels were navigating properly with proper running lights and were on their respective sides of the channel up to the point when the rudder jammed on the FORD. It is the conclusion of the board that neither would the accident have occurred nor would there have been a near miss if the steering gear had not jammed.

13. That all engine orders were answered promptly and efficiently on both vessels.

14. That the navigation of the BYERS did not contribute to the collision. It is the belief of the board that once the master of the BYERS realized

that the FORD was sheering toward him, there was no action that he could have taken to prevent the collision. The failure of the master to answer the two-blast signal heard from the FORD with a danger signal was not material. Answering with a single blast conveyed the same meaning and could not have misinformed the FORD. The vessels were already in extremes and the collision unavoidable. His hard right rudder, full astern, followed by hard left rudder and full ahead reverse action of a prudent mariner finding himself in an impossible situation.

15. That the rapid sinking of the BYERS was caused by the hole in the collision bulkhead which allowed progressive flooding of the entire vessel. The crew of the BYERS responded in a professional manner to this emergency. The acts of pulling all the fires in the boilers, securing the engineering department of the vessel, and then abandoning ship without incident reflect the practice of good seamanship and sound judgment by the ship's company. The chief engineer and the third mate can be singled out for their efforts during the casualty.

16. That the first whistle signal sounded by the FORD after the rudder jammed was one which sounded like two blasts instead of the intended danger signal. It is felt that both the master and third mate of the FORD erred when they stated that it was the danger signal that was sounded. The testimony of all other persons on the two bridges at the time indicated that a two-whistle blast was initiated by the FORD. It appears that the master intended that the danger signal be sounded, for he testified that a starboard-to-starboard passage was not considered at all when the rudder jammed and he wished to sound the alarm. He backed full, whereas it is believed he would have continued at full speed had he hoped to cross the bow of the BYERS. It is concluded that the error in the signal must have occurred in the method of sounding this signal by the third mate under the stress of the situation. There were a number of danger signals and abandon-ship signals sounded by the vessels during this emergency.

17. However, it is concluded by the board that the two-blast signal by the FORD instead of the danger signal did not contribute to the collision. The BYERS was not misinformed by the signal and trapped into collision. Both masters stated that they knew immediately that a collision was in the making. The vessels were by this time too close to each other for maneuvering out of collision and beyond the whistling state. Both rang the general alarm at the time of the whistles indicating grave concern over the situation, which alarm probably was responsible for the fact that no one was injured up forward on either vessel. It is easy to see how the errors in whistling by both vessels occurred when in one instant a normal passing turned into an impossible situation.

18. That the master of the FORD acted as a prudent mariner in the emergency, irrespective of the whistle signals and errors in the bridge log book. He took the only action possible when the rudder jammed in ringing full astern. After the collision, he exercised good seamanship in maneuvering his vessel safely to the American side of the channel without rudder or anchor available.

It is felt that the errors and erasures in the log book were unintentionally made by the master under the stress of the collision. His testimony indicates that he was trying to write the correct entries and establish the time of the collision, and any changes were made in that effort.

19. That the Master of the BYERS carried out an excellent act of seamanship throughout the casualty. He took proper action to avoid the collision, if possible. He tried to take proper action to minimize its effect. He navigated his vessel in a sinking condition to the Canadian side of the river where she sank in comparatively shallow water. At the same time he took all proper action for the safety of his crew so that there was no loss of life or injury on his vessel. He demonstrated calm, cool, correct action with a well-organized and administrated ship. He was generous with praise for his officers and crew, citing the Third Mate, Stuart C. Minton, and the Chief Engineer, John E. Summitt, with his engine room crew for special mention.

20. The testimony and manner of testifying indicates a well-run, organized and administrated ship in the case of the BYERS and what is commonly known or termed a "loose" ship in the case of the FORD.

21. That the general alarm bells in engine rooms on the two vessels were too loud with relation to the sound-powered telephone calling bell. In each case, the Master had considerable difficulty in contacting the Chief Engineer or the engine room. Even though this condition did not affect the situation in this particular casualty, the board concludes that this is a glaring deficiency which could cause additional disaster in a case where it might be an absolute necessity for the bridge to establish voice communication with the engine room.

22. That no personnel of the Coast Guard or any other government agency contributed to the casualty. The Coast Guard responded smartly to the emergency and had rescue vessels underway within minutes of the collision. The Board feels that comment is due upon the appreciation that both vessels have for the efforts of the rescue craft of the Coast Guard in their behalf during and following the immediate casualty.

23. The board would also like to note the appreciation of the crew of the BYERS for the assistance given to them subsequent to the collision by the residents of Harsen's Island. The residents of the island quartered the entire crew and set up messing facilities for them. This treatment was very much in evidence when the board visited Harsen's Island to interview the BYERS' crew.

24. That no aids to navigation, uncharted or incorrectly charted areas or objects, were involved.

25. That there was no evidence of an act of misconduct, negligence, inattention to duty, or wilful violation of any law or regulation on the part of any person on either vessel which contributed to the casualty.

## RECOMMENDATIONS

1. That the steering engine on the SS E. M. FORD be provided with a positive means of locking the bolt connection between the eccentric rod and eccentric strap on the valve arrangement. In this regard, the owners of the FORD have advised that the connection has been made positive by the use of a lock washer nut and cotter pin.
2. That all inspection offices be advised by means of Merchant Marine Safety Instructions of the possibility of this casualty occurring on similar steering engines, many of which are still believed to be in use, and that steps be made to provide positive locking of the rod and strap on these units.
3. That both vessels be required to supplement the sound-powered telephone sound signal in their respective engine rooms with an additional sound signal energized from the vessel's electrical system in accordance with provisions of 46 CFR, Subchapter J, Part 113.30-25(e)
4. That consideration be given to making the provisions of 46 CFR, Subchapter J, Part 113.30-25(e) mandatory for all existing vessels.
5. That the case be closed and no further action taken.

(signed) Edward O. Clark

EDWARD O. CLARK  
Commander, USCG - Chairman

(signed) Kolbjorn Hansen  
KOLBJORN HANSEN  
Commander, USCG - Member

(signed) Garth H. Read  
GARTH H. READ  
Lieutenant Commander, USCG - Recorder