

"MORRO CASTLE" AND "MOHAWK" INVESTIGATIONS

MAY 13 (calendar day, JUNE 3), 1935.—Ordered to be printed

Mr. COPELAND, from the Committee on Commerce, submitted the following

PRELIMINARY REPORT

[Pursuant to S. Res. 7]

Under date of March 16, 1935, the Senate passed Senate Resolution No. 7, which reads as follows:

[S. Res. 7, 74th Cong., 1st Sess.]

Resolved, That the Committee on Commerce, or a subcommittee thereof, is authorized and directed (1) to collect, collate, coordinate, and make available to the Senate the results of (a) the inquiry into the Morro Castle disaster conducted by the Secretary of Commerce through the Steamboat Inspection Service of the Department of Commerce, (b) the inquiry into the Morro Castle disaster, and the actions taken in connection with or subsequent to such inquiry, by the United States attorney for the southern district of New York, and (c) such inquiries into the Mohawk disaster as have been or may be conducted by the Secretary of Commerce through the Steamboat Inspection Service of the Department of Commerce and by the United States attorney for the southern district of New York, and the actions taken in connection with or subsequent to such inquiry; and (d) such other inquiries into the Morro Castle disaster, the Mohawk disaster, and other maritime tragedies as would, in the discretion of the committee, be helpful for the purposes of this resolution; (2) to make such further investigations of the Morro Castle and the Mohawk disasters, including the rescue operations carried on in connection therewith, as the committee shall deem advisable and necessary for the purposes of this resolution; (3) to investigate the adequacy and enforcement of the present legal standards of safety of ship construction and operation; (4) to investigate the prevalent methods and practices in the complementing of sea-going vessels, including all conditions of employment; (5) to investigate the adequacy and efficiency of the Steamboat Inspection Service; (6) to investigate whether the laws governing liability for loss of life and property at sea, the laws and usages of salvage, and the laws, usages, and practices of the business of marine insurance tend to encourage the installation and utilization of such devices and the promotion of such practices as are conducive to safety and to a paramount concern at all times for the preservation of life; and (7) to make a preliminary report of the results of its investigations as soon as practicable, to make further reports from time to time but at least once during each regular session of the Senate until it has completed its investigations, and to submit a final report to the Senate, together with its recommendations for necessary legislation.

For the purposes of this resolution the Committee on Commerce or any duly authorized subcommittee thereof is authorized to hold such hearings, to sit and act at such times and places during the sessions and recesses of the Senate in the Seventy-fourth and succeeding Congresses until the final report is submitted, to employ such counsel, experts, and clerical, stenographic, and other assistants, to require by subpoena or otherwise the attendance of such witnesses and the production of such books, papers, and documents, to administer such oaths, and to take such testimony and make such expenditures as it deems advisable. The cost of stenographic service to report such hearings shall not be in excess of 25 cents per hundred words. The expenses of the committee incurred in the exercise of its privileges and duties under this resolution, which shall not exceed \$15,000, shall be paid from the contingent fund of the Senate upon vouchers approved by the chairman.

Accordingly, the following preliminary report is submitted, with particular reference to provisions of the resolution requiring that the committee "collect, collate, coordinate, and make available to the Senate the results of the inquiry into the *Morro Castle* and *Mohawk* disasters conducted by the Secretary of Commerce through the Steamboat Inspection Service of the Department of Commerce."

PART ONE. "MORRO CASTLE"

The *Morro Castle* was destroyed by fire on the early morning of September 8, 1934, and finally went aground off Asbury Park, N. J.

The Bureau of Navigation and Steamboat Inspection of the Department of Commerce convened a special board of inquiry, composed of the following: Dickerson N. Hoover, chairman; Karl C. Nielson, James Smith, and John L. Crone.

At that time Mr. Hoover was the Supervising Inspector General of the Bureau of Navigation and Steamboat Inspection of the Department of Commerce, Mr. Crone the supervising inspector of the second district with headquarters at New York City, N. Y., and Captain Nielson and Mr. Smith were the local inspectors at New York.

This special board sat in New York City, September 10, 1934, and continued in session September 11, 12, 13, 14, 17, 18, 19, 20, 21, 24, 25, 26, 27, and 28, 1934. On September 18, 1934, the board visited and inspected the wrecked vessel where she lay off Asbury Park, N. J.

This board proceeded with a view to developing a factual record concerning this disaster.

The scope and aim of this inquiry is set forth in Mr. Hoover's report to the Secretary of Commerce dated October 26, 1934, as follows:

On Sunday, September 9, I conferred with Mr. John L. Crone, and the U. S. local inspectors, Capt. Karl C. Nielsen, local inspector of hulls, and Mr. James Smith, local inspector of boilers, in the office of the Service in the Custom House, New York City, and explained the strict injunction of the Secretary that this investigation was to be most thoroughly conducted, and that for this purpose the supervising inspector of the second district and myself would cooperate with the local inspectors. I pointed out to them that the jurisdiction of the Service related to an investigation to discover the responsibility of the licensed officers of the *Morro Castle*, and as a result of that investigation to take such action as might be deemed necessary, concerning the licenses of those officers. I pointed out further that as the disaster was one of major proportions, the Department had sent me to New York to see that the inquiry was thoroughly conducted, and to cover the whole situation as broadly as possible with a view to ascertaining the cause of the disaster, and whether or not the Service had functioned properly, and the lessons to be learned to prevent a recurrence.

For ready reference, the principal particulars of the *Morro Castle*, together with pertinent data and information in connection therewith, are quoted from Mr. Hoover's report to the Secretary of Commerce, of October 26 last, as follows:

The steamer *Morro Castle* was designed by Theodore F. Ferris, Naval Architect of New York, New York, and built by the Newport News Shipbuilding & Dry Dock Company of Newport News, Virginia, for the Agwi Navigation Company of New York, New York, of which Franklin D. Mooney is president.

Through the provisions of the Jones-White Act of 1928 the United States Government loaned the Agwi Navigation Co. \$3,422,181 for the construction of the *Morro Castle*.

The vessel was certified for ocean passenger service, and her schedule called for a weekly sailing on a route between New York, New York, and Havana, Cuba. She departed from New York on her maiden voyage August 23, 1930, and was destroyed by fire September 8, 1934, while on her 174th voyage.

The last inspections of the vessel by inspectors of the Bureau of Navigation and Steamboat Inspection were the annual inspection completed May 16, 1934, and the reinspection conducted on August 4, 1934.

NOTE.—See exhibits nos. 1, 2, and 3, included in bound copy of testimony on file with the Commerce Committee, in volume 1.

A description of the *Morro Castle* follows (from p. 7, vol. 1, to p. 13, vol. 1):

Gross tonnage, 11,520; net tonnage, 6,449; displacement, 15,870 tons; length overall, 528 feet; length between perpendiculars, 482 feet; beam molded, 70 feet 9 inches; depth molded to shelter deck, 39 feet; total cargo space, 335,000 cubic feet; type of machinery, twin screw, turbine electric drive; shaft horsepower, 16,000; boilers, 6 watertube; service speed, 20 knots.

The *Morro Castle* was constructed, equipped, and fitted to meet all the requirements of the Bureau of Navigation and Steamboat Inspection, and she received the highest classification of the American Bureau of Shipping. The Merchant Marine Act of 1928 provided that such vessel be planned with reference to its possible usefulness as an auxiliary to the naval and military services of the United States, and the features of the vessel in this respect received the approval of the Navy Department. The United States Shipping Board, charged with the administration of the construction loan fund set forth in the Jones-White Act, approved the vessel generally.

The vessel was of the three-deck, complete superstructure type, with combined forecandle head and long bridge, forming a flush deck forward. The vessel was double-bridged and had an overhanging promenade deck which was of steel, as were all other decks including the sun deck inside of the houses. Calked wood decks were laid over the steel decks where exposed to the weather, including the wings over the navigating bridge, the top of wheel and officers' houses, wireless house, and forecandle head. (Exhibits nos. 4 and 5, vol. 1 of the record.)

The hull was divided by 9 watertight transverse bulkheads extending up to the shelter deck and forming 10 subdivision compartments. The forepeak bulkhead extended up to the forecandle deck. The watertight doors were fitted with an alarm system at the door and with an electric indicating system of lights in the wheelhouse to denote the position of the doors when open or closed.

All deck houses were of steel, as were the companion hoods and enclosures, skylights, domes, and the like. The principal deck houses were located on the promenade (B) and sun (A) decks, and on top of the main house on the sun (A) deck were the quarters for deck officers; with the wheel house at the forward end and a separate house for the engineer officers amidships. The wireless house was also located on top of the sun (A) deck about 50 feet aft of navigating bridge. The promenade (B) deck, about which considerable reference was made at the investigation, was enclosed from the forward end on each side to about amidships. Then for about 125 feet there was an open rail, after which it was again enclosed there forming a deck ballroom extending across the ship in which was the veranda cafe and musicians' platform. Aft of the deck ballroom was an open deck for sports.

The vessel had accommodations for 439 first-cabin passengers and 95 tourist passengers, a total of 534 passengers. The first-cabin passenger accommodations were located on the sun (A) deck, promenade (B) deck, bridge (C) deck, and shelter (D) deck. The tourist passenger accommodations were located

well aft on C, D, and E decks. In the forecandle head were accommodations for the sailors, watchmen, carpenters, boatswains, bedroom stewards, and waiters. Amidships on the upper (E) deck were accommodations for stewards, engineers, oilers, water tenders, and firemen.

A variety of architectural styles was employed in the treatment of the various public rooms. * * * * *

The remainder of this paragraph, pages 9 and 10 of volume 1, of the record, shows that all paneling and decorative features were of a highly inflammable nature.

There were two main passenger stairways running from D to A decks, one forward and one aft in the superstructure. The communication to these stairways from the two main passenger passageways on each deck was direct. On each side amidships were service stairways from the engine room to A deck, each having a full-sized door on each deck leading to the main passenger passageways.

Also there were two steel service stairways, one at each corner of the superstructure at the forward end running from E deck to A deck, with communicating doors on B and A decks.

The vessel had 2 passenger and 1 engine-room elevators. Other escapes from the interior of the vessel include 1 tunnel escape from engine room and 1 steel stairway just abaft the windlass leading to open deck, and 2 escape ladders from fireroom to the navigating deck through the ventilators.

From aft there were stairways outside leading from each side from D deck aft to A deck, and also in the forward end of superstructure from B deck to A deck outside, and two vertical escape ladders from the bridge to the forward deck.

The only passenger accommodations on the promenade (B) deck were eight de luxe staterooms, which were separated from the writing room and the library and other public spaces above described by the forward lobby.

Plywood was used for bulkheads and stateroom partitions, and the ceilings and paneling of the dining room, smoking room, and other public spaces were constructed of Vehisote. * * *

For the purpose of confining to a given space or preventing fire from working fore and aft there were fitted on all passenger decks, port and starboard from side of ship to steel machinery casings or all across the ship, steel bulkheads not more than 131 feet apart. These bulkheads were fitted with sliding steel doors.

The Darby electric automatic fire-detecting system was installed in all passenger staterooms, officers' quarters, and crews' quarters. This system operates by the action of excessive temperature upon thermostats and the warning of fire is indicated in the wheelhouse. The writing room, library, lounge, and such public spaces were not equipped with such system (exhibits nos. 6 and 7, vol. 1 of the record).

The Rich smoke-detecting system, comprised of 27 lines of piping, was installed, which led from the various cargo spaces to a cabinet in the wheelhouse. In this system an exhaust fan draws a continuous sample of the air through each line of piping from the various compartments to the cabinet. * * *

A Lux carbon dioxide gas smothering system was installed in conjunction with the smoke-detecting system, so arranged that the same pipe lines used for detecting smoke were utilized for fire extinguishing. * * * A separate carbon dioxide system with 34 of the same capacity cylinders was installed to protect bulkheads and under-floor plating areas in the boiler room. * * *

There were seventy-three 2½-gallon portable fire extinguishers and twenty-one 1-quart carbon tetrachloride extinguishers throughout the vessel. In the boiler rooms and engine room there were distributed six 2½-gallon foam type extinguishers. * * * Two gas masks and one flame safety lamp were also carried. There were two electric driven fire and sanitary pumps of 400 and 300 gallon per minute capacity, respectively, located in the engine room, and one fire and bilge service steam pump located in the after fireroom. In addition there were two double-acting hand fire pumps.

The vessel was equipped with 2,100 feet of 2½-inch fire hose in 42 lengths, with suitable nozzles, outlets, and spanners for each length of hose.

The vessel was fitted with ten 30-foot 70-person steel lifeboats having detachable air tanks. There were also two 30-foot 58-person steel motor lifeboats. All lifeboats were fitted with an automatic releasing gear. The total accommodation provided in lifeboats was 816 persons. All lifeboats had individual sets of Welin-Maclachlan gravity davits. They were carried at about the sun (A) deck

level and the embarkation stations were on the promenade (B) deck. In connection with the embarkation of passengers 14 side ladders were provided.

In addition to the lifeboats were 12 box floats, each being capable of supporting 17 persons in the water, or a total of 204 persons. Attached to the railings about the upper decks were 18 ring life buoys, 9 of which had an automatic luminous attachment. Each of these buoys had ample buoyancy to support two persons in the water. There were 851 life preservers carried, of which 78 were specially adapted for the use of children.

Summary of life-saving equipment		Persons
Lifeboats-----		816
Floats-----		204
Life buoys-----		36
Life preservers-----		851

The magnitude of this disaster is shown by the following figures quoted from Mr. Hoover's report dated October 26, 1934 (p. 29, vol. 1):

Statement showing number of persons saved and lost	
Number of passengers:	
Saved-----	228
Reported dead-----	84
Reported missing-----	6
Total-----	318
Officers and crew:	
Saved-----	196
Reported dead-----	30
Reported missing-----	4
Total-----	230
Total number of passengers, officers, and crew-----	548
Total number of passengers, officers, and crew:	
Saved-----	424
Reported dead-----	114
Reported missing-----	10
Total-----	548

The foregoing, together with evidence contained in accompanying record of inquiry conducted by the Bureau of Navigation and Steamboat Inspection composed of volumes 1-12 inclusive and confidential file from Shipping Board Bureau on file with this committee, seems clearly to indicate that the *Morro Castle* was properly constructed in accordance with the existing regulations and had available, and in good order, safety, life-saving, fire-detecting, and fire-fighting equipment in compliance with existing requirements.

HISTORICAL

The record shows that the *Morro Castle* sailed from Habana about 4 p. m. on Wednesday, September 5, 1934, enroute to New York City, having aboard 318 passengers and a crew of 230. At about 7:45 p. m., eastern standard time, September 7, the master, Capt. Robert R. Willmott, died of an attack, which the ship's doctor diagnosed as indigestion and heart failure. As a consequence of this casualty, the first officer, Capt. F. Warms, at once assumed command of the vessel, and the remainder of the deck officers each assumed the duties of the next higher position. All of these men hold licenses as master of ocean vessels, unlimited tonnage.

At 1:55 a. m., of September 8, the vessel was approximately 3 miles east (true) of Barnegat Lightship, and on a course 1° true, which was designed to bring her up to Ambrose Lightship off the entrance of New York Harbor.

A summary of testimony given by Captain Warms, acting master of the *Morro Castle* (pp. 1280 and 1302, vol. 8) indicates weather conditions as wind east northeast, force 4 to 5; which would be 14 to 17 miles per hour according to the Beaufort scale; and choppy sea which he describes as "running pretty strong."

TIME FIRE WAS DISCOVERED

The record shows much conflicting testimony in fixing the time of the fire. The only record which was saved, and is thus available, to enable us to determine with reasonable definiteness the time of this important occurrence, is the bell sheet maintained by cadet engineer, William W. Tripp, who was on the 12-to-4 watch, and consequently on duty when the fire was discovered. This young man was detailed to the starboard telegraph, and the junior electrician was looking after the port telegraph, but Mr. Tripp registered on the bell sheet the signals coming down from the bridge on both telegraphs.

Mr. Tripp testified that at about 2:55 a. m. the telephone rang, and he was asked if there was a fire in the engine room, to which he replied in the negative. The record develops that Mr. Hackney, who was the officer on watch at that time, telephoned and made this inquiry from the bridge. Mr. Tripp stated (p. 899, vol. 5 of the record) that the fire alarm sounded at about 2:56 a. m.

At 3:21 a. m. full speed astern starboard side was received on the telegraph and after that time the telegraph and other means of communication with the bridge ceased to function.

Mr. Tripp testifies that the lights went out in the engine room at 3:29 a. m. (p. 894, vol. 5), and that he was watching the clock at the time (p. 895, vol. 5). He stated the engines were stopped altogether about 2 minutes after the lights went out, which would fix this time at 3:31 a. m.

In reply to question as to where he was getting the times he recorded on his bell sheet from, he stated, "I was watching the clock over the desk" (p. 899, vol. 5). Further down on this same page of the record when asked whether his previous experience with this clock had been that it kept correct time, he replied in the affirmative.

This young man's conduct before the board of inquiry, that is, his intelligent, ready, and apparently straightforward answers to questions, lends weight to his evidence, and induces the conclusion that his is reliable testimony.

It will be noted from the foregoing, that Mr. Tripp states that the fire alarm sounded about 2:56 a. m. In his chronological statement Mr. Hoover says:

The testimony also shows that approximately between 2:30 and 2:45 a. m. eastern standard time, September 8, 1934, a deck night watchman reported to the bridge that smoke was coming out through the ventilator on the fidley. Mr. Hackney, second officer, was on watch at the time, and after notifying Captain Warms was ordered by the master to proceed to the scene of the fire and make an investigation.

It seems reasonable that Captain Warms would wait a reasonable time for Mr. Hackney, second officer, referred to just above, to make

an investigation as to the seriousness of the fire and report back to him before turning in the fire alarm. The record shows however that Mr. Hackney, upon first arriving at the scene, exhausted a fire extinguisher on the blaze without appreciable effect and this perhaps consumed 10 to 15 minutes, for he states in his testimony (p. 3, sec. 2, vol. 2) that he heard the alarm on his way back to the bridge. This approximates the time given by Mr. Tripp—i. e. about 2:56 a. m.

DISTRESS SIGNALS

With respect to this subject Mr. Hoover, in his report, covers the matter as follows:

The testimony shows that the stand-by, or CQ was sent over the wireless at 3:18 a. m., and the SOS at 3:24 a. m., eastern standard time. It is evident that the fire had been out of control for some time when the SOS was finally sent (exhibit no. 8).

This is borne out by the record.

ORIGIN OF FIRE

From the testimony it seems conclusive that the fire originated in a locker located in the after end of the writing room, which is on the port side of B deck, and forward of the first-class lounge and ballroom. There is nothing definite in the record to indicate the cause of this fire. The record discloses some rather nebulous or conflicting testimony pointing to the no. 3 hold as a possible spot of origin for the fire, but we also find that, according to the record, there was no cargo in this hold, nor is there any substantial evidence submitted to support the theory that no. 3 hold was the point of origin. On the contrary the report of the experts from the Bureau of Shipping, Department of Commerce, who inspected the *Morro Castle* where she lay off Asbury Park, N. J., on September 13, 1934, at the request of the United States attorney, seems to dissipate the thought that the fire could have originated in no. 3 hold. The confidential report submitted as a result of their inspection with particular respect to the possibility of fire in hold no. 3 so shows (confidential Shipping Board report, comment, p. 31):

Comment.—There was no means of communicating fire originating in no. 3 hold to any portion of the writing room and, particularly, to the locker through ventilating system ducts installed in no. 3 hold. Had a fire broken out in no. 3 hold, prior to the discovery of the fire in the writing room locker, it could have spread aft to crew's accommodations through open watertight doors on E, upper deck, but this is a remote possibility since detection of such a fire by smoke alone coming through the open watertight doors by any member of the crew which were berthed aft of this hold could reasonably be expected.

DISCOVERY OF FIRE

The record shows that fire was first discovered in a locker located in the writing room above referred to and it spread rapidly throughout the vessel's entire superstructure, the flames quickly enveloping the forward stairways with which the passengers were familiar, thus precluding their escape to the boats on the decks above, via routes familiar to them. Accordingly, they went to the after end of the ship where large numbers gathered on B, C, and D decks. The heavy, choking smoke, flames, and consequent heat soon made the

after part of the ship untenable and from time to time those congregated there jumped overboard. Probably many of this number jumped while the engines were in operation and may have been mangled by the propellers. Those who waited until the engines had been stopped before jumping, of course, had a better chance for being ultimately picked up. Those who were able to remain aboard until the arrival of the lifeboats from the vessels which came to the rescue, were taken into such rescuing boats directly, or jumped when these boats were at hand, and were picked up promptly.

Mr. Hoover reports this feature of the disaster as follows (p. 31 and 32, vol. 1):

When the passengers were awakened by the fire alarm and endeavored to make their way to the boat deck they were not able to use the two main stairways and the only recourse left them was to find their way to the after decks. This they did, large numbers of them gathering on B, C, and D decks aft. It is apparent that no successful effort was made on the part of any of the officers or crew to lead these people up to the boat deck by way of the crew's service stairways or to lead them up outside. No successful effort was made by any of the lifeboats that left the burning vessel to go under her stern and render assistance to the large number of passengers gathered there.

RAPID SPREAD OF FIRE

In his report Mr. Hoover states as follows (p. 30, vol. 1):

The vessel continued at full speed into a 20-mile breeze for some distance after fire had been reported. It was not until the fire was out of control that the course was changed, and the vessel slowed down. At this time the gyro pilot, the tele-motor gear, the electric lights, and all communication systems between the bridge and the engine room failed and no efforts were made to use the emergency steering gear or the emergency lighting set. The engines were operated until the smoke and heat pouring into the engine and firerooms made it impossible for the men to carry on. At this point the engines and boilers were shut off, allowing the steam that held in the boilers to supply the fire pump until consumed or until the back pressure set up in the steam end of the pump due to inefficient exhaust.

Acting First Officer Freeman testifies as follows (p. 8, vol. 2, third section of the record):

* * * The wind was 2 points forward of the beam and a ship going 19 knots an hour creates a breeze in the corridors on both sides of the staterooms and along these corridors the windows were open. The draft comes there from different directions. When that started it was just like a fan like a forced draft.

The testimony of Arthur J. Pender, who was deck night watchman on this vessel, but who holds a license from the Service entitling him to sail as chief mate, any gross tonnage, any ocean, is as follows (p. 1468, vol. 9):

Q. Did you notice any change in the wind while you were fighting the fire?—A. Yes; but this was some time later.

Q. How much later?—A. Well, things were beginning to happen pretty quick around there about that time and I couldn't be definite as to time as I didn't carry a watch and my efforts were concentrated on other things more important, although that was an important issue. I would say, to give you a direct answer for a direct question, three-quarters of an hour later.

Q. Before the wind changed around?—A. That is from my point of view, although as to time I cannot be definite.

Q. You never noticed any change in the wind immediately after the fire?—A. No, sir; I did not.

Q. It was still on the starboard bow?—A. It was on the starboard bow still until then where I first noticed the change in the wind—to answer your direct question, Captain—was when the fire had reached the gymnasium or the after end of the superstructure on B deck.

Mr. Charles Menken, who was a passenger on the ill-fated vessel is recorded as testifying in part as follows (p. 463, vol. 3):

Q. You tell us there were a lot of sparks around that fire?—A. Yes, sir.

Q. Did you know where the sparks came from?—A. The ship was going forward and it was fanning the flames and the smoke back toward us. We were all on the extreme rear of the ship on C deck.

The foregoing induces the conclusion that the vessel did proceed for an appreciable time with the wind on the starboard bow, and that this action contributed to the rapidity with which the flames enveloped the vessel's superstructure. There is other testimony in the record to supplement the above quotations, but that portion quoted seems sufficient for this record.

ORGANIZATION AND DISCIPLINE

There is nothing in the record to indicate that there was failure of material importance insofar as the vessel and her mechanical equipment was concerned; that is, up to the point where destruction was effected by fire. Consequently, failure must be laid to the human element.

The evidence discloses that there was no organized method of procedure to cope with emergencies such as arose on this vessel on the early morning of September 8, last. Had the proper organization and discipline existed, such would have functioned irrespective of the unfortunate death of Captain Willmott, on the preceding evening.

The record is clear in that other than casual or perfunctory instruction, no provision had been made to insure that the fire screen doors would be closed, nor were capable, dependable members of the crew assigned to the important duty of closing these doors in times of emergency. Captain Warms testified in this respect as follows (p. 12, vol. 2, sec. 1):

Q. What means could you take to hold that fire in that place? Not by hose or fire extinguishers but by shutting it up in that place?—A. The only way we could shut it up in the writing room was to close that fire screen, and you couldn't get at that because the fire had too much headway.

* * * * *
Q. Was any effort made to close the fire screen on the other side?—A. I shouted that order.

Q. To whom did you shout it to?—A. One of the sailors.

Q. What organization did you have on the ship to close these doors in the event of fire?—A. We had a steward stationed there to close them.

* * * * *
Q. I am speaking of the fire-resisting bulkheads.—A. We had men stationed there to close those doors.

Q. How many doors were there?—A. Four doors

Q. One man to look after the four doors?—A. One man at each door.

Q. Did you have four men at those doors?—A. Four men were supposed to be at those doors.

Q. You shouted an order to close those doors—were they closed?—A. I don't know.

This testimony was given on September 10, and when Captain Warms was recalled to the stand on September 24, the record shows as follows (p. 1313, vol. 8):

Q. At that time when that report came to you from Hackney did you give any directions in regard to closing any of those fire doors?—A. Not at that time. He ran up so quick and he went right down again.

Q. Did you give any instructions, Captain, during this fire to close any fire doors?—A. No, sir.

* * * * *

Q. Yes; but what I want to get at is this: Now will you state what your practice was on this ship with reference to a general rigid rule in regards to closing those doors? What rule did you follow?—A. Well, I did not have any rule, but when I saw new men around there I showed them how to close this door.

Q. When you say "this door" you refer to what door?—A. The fire screen doors; all of them.

Q. What did you do with those doors? How often did you actually close those doors to see if they were working?—A. Well, we would close them an average of maybe every two weeks, and once a month I would go around with the carpenter and we would look at the catches and close them and see that they worked all right and there was grease on the springs.

Q. And you were always able to close them?—A. Yes sir. We used to lift up the catch and they would close themselves.

Q. And you never had any trouble in closing them?—A. Never had any trouble in closing them.

Mr. J. W. Barnett, technical expert of the Bureau of Shipping of the Department of Commerce, testified before this board on September 26, 1934, and to illustrate the importance of assigning some capable, dependable crew member to the duty of closing fire doors in such emergencies, Mr. Barnett's testimony is quoted as follows (p. 1652, vol. 10):

Q. You have seen that ship, and you have testified in regard to its construction and in regard to the governmental agencies approving it. The thing that has impressed me has been the rapidity with which that fire spread. Have you any thoughts upon that as one who has been to sea and had experience in such matters?—A. Yes; if that fire started in the writing room, where it has been said many times that it did start—I believe by people who have said to have discovered it and found it in that locker—in my opinion the fire could never have gotten beyond the four walls of the writing room, if they had shut the openings in the writing room, if they had shut the fire screen door in the after bulkhead and the windows in the outboard wall and the doors in the forward end, the entrance or exit from that room, I cannot conceive of there being enough material in that room to burn and go through the steel walls and transmit itself to other spaces in that ship.

FIRE AND BOAT DRILLS

The record shows that the procedure in conducting these drills on the *Morro Castle* was perfunctory. For fire drill it was the practice to assemble one group on the forward deck and one group on the after deck, and each group would stretch a hose and play the water over the side. Further, the testimony shows that many members of the crew did not know they were required to participate in fire drills, still others who knew this was required of them did not know where their stations were. They all seemed to know their boat assignment, and when this disaster took place some of them at once went to their boat station. The reason given by some for not knowing their fire station was that such was on the portion of the ship devoted to the passengers, and the latter were not to be disturbed.

The foregoing briefly points out some of the most flagrant evidences of lack of discipline or organization. The record also indicates that there was little, if any, executive direction throughout this disaster.

EXECUTIVE SUPERVISION

Mr. Henry E. Cabaud, first vice president of the Ward Line (New York & Cuba Mail Steamship Co.) testified before this board (p. 1834, vol. 11) to the effect that he gives attention to the affairs of the company including traffic matters, operating matters, etc. Mr. Cabaud is, therefore, the executive authority for operating matters.

Mr. M. O. Fano is assistant to Mr. Cabaud, and Mr. T. S. Torresson is marine superintendent. Together these gentlemen were responsible for the efficient operation of the *Morro Castle*.

NOTE.—To develop the extent to which the Ward Line executives went in the matter of establishing discipline and organization aboard their vessels; that is, through explicit instructions or verbal directions to the masters of their vessels, the record, Mr. Cabaud testifying, is quoted as follows (p. 1840):

Q. Have you ever undertaken to influence their discipline in any way whatever?—A. Absolutely not.

Q. And you have no written instructions, any book of instructions that your company has ever issued, upon general procedure?—A. None.

We find the following (Mr. Cabaud, witness; p. 1856, vol. 11):

Q. Did you have anything to do with selecting the crew for the *Morro Castle*?—A. Only in respect to the officers.

Q. What was that?—A. The captains, the chief engineers.

Q. Did you select the captains and chief engineers?—A. I would not say that I selected them, but any changes that were made or appointments made were submitted with recommendations by the marine department. The records of these men were carefully scrutinized and their appointment, as in the appointment of any head of a department—we always considered each separate department as a self-contained unit, and in the selection of a captain we were always very careful to select the best man we could with respect to his years of service, his experience, his qualifications, and frequently I consulted with our president when it came to an important appointment such as for these large ships.

Q. I take it that the matter of the quality of the masters was given particular attention by you?—A. Very searching.

Q. That was true of Captain Wilmott?—A. Yes.

Q. Did you ever give that same attention to the chief officers?—A. Oh, yes; all of the officers. Most of our officers are, I might say, raised in our own service. These men are graded and they are advanced according to their experience, years in service, and wherever there are any changes we always make it a point to give our own men the opportunity of advancement.

Mr. Torresson testified as follows (p. 1866, vol. 11):

Q. What position do you hold in the Ward Line?—A. I am the marine superintendent. My duties, and the rest of my staff, is to have supervision of the vessels, to see that they are properly maintained and kept up, see that nothing is neglected so far as any of the requirements that may be necessary.

Q. That covers the entire ship?—A. Yes, sir; practically the entire ship.

Q. Is there any other official who has charge of something else?—A. Well, we have the port engineer, who has supervision over all maintenance and upkeep of the vessel.

Q. Is that gentleman subordinate to you?—A. Yes, sir; he is in our department.

Q. How about the stewards' department?—A. The stewards' department is taken care of by the port steward.

Q. And is he subordinate to you?—A. Not directly; no, sir.

Q. To whom does he directly report?—A. Why, his direct report is to the management.

Q. To the management?—A. Yes, sir.

Q. And whom in the management?—A. Well, don't let me get this confused. The port steward is not under the marine department directly, but there are many functions of his duties that come in contact with the marine department, naturally.

Q. That is Mr. J. B. Bordes?—A. That is correct.

Q. And he it is that reports directly to the management?—A. Why, he takes up any special question with the management that he considers necessary; yes, sir.

Q. Let me direct my thought this way, so as not to confuse you? To whom do you report?—A. I report to Mr. H. E. Cabaud.

Q. And when you report to him do you report for the port engineer?—A. Sometimes; other times the port engineer reports direct when he is requested.

Q. And he would be requested by whom, by you or Mr. Cabaud?—A. Well, Mr. Cabaud would possibly call him direct, as being part of the marine organization.

Q. Did you ever instruct him to report direct to Mr. Cabaud?—A. No sir; I don't instruct him.

Q. And he would only happen to report to him as a result of request from Mr. Cabaud?—A. Yes sir, or if I am absent naturally he would have direct contact with Mr. Cabaud.

Q. Then for practical purposes he would be practically a subordinate of yours; is that it?—A. That is correct.

With respect to the issuance of general instructions Mr. Torresson testifies in the record as follows (p. 1871, vol. 11):

Q. What I have in mind particularly, Mr. Torresson, is whether you have any general instructions in book form from the company?—A. No, sir; the only instructions we have is what we get from the Department of Commerce.

COMMENTS

FIRE AND BOAT DRILLS

Fire and boat drills conducted on specific days at the same hour do not necessarily demonstrate crew efficiency. This practice, too frequently, finds the crew waiting for the fire signal with their life belts already on, and the engineers warned well in advance of the imminent use of the fire pumps, consequently such procedure is no test of discipline.

Failure properly to direct the work produced the result that in many cases the efforts of the crew were misdirected or futile. The tremendous importance of proper control and direction by the officers as well as efficient and well-organized discipline on the part of the crew cannot be too strongly emphasized. Later reports of the investigating committee will go into the matter more extensively.

FAILURE OF THE EXECUTIVES

From the foregoing we must conclude that the executives of the Ward Line considered that they had complied with the law and justified their responsibility to the public when, with due diligence, they had selected a master and the licensed personnel, and put them in charge of this vessel which complied with all regulations and requirements prescribed by constituted authority.

In selecting the master they chose one who had long been in their service, and whose record, no doubt, was beyond reproach. The balance of the licensed personnel appears to have been selected on comparatively the same basis. Prior to this catastrophe, with its so serious consequences, any suggestion that there was any lack of discipline or proper organization, would have, no doubt, met indignant denial, by both the executives ashore and the licensed personnel aboard the *Morro Castle*, in perfectly good faith, and yet the record seems to shatter any thought that such denial would have been justified.

It is noteworthy that the operating executives, other than the port engineer, had had no sea-going experience.

The practice of issuing general instructions by operating executives of the various steamship companies is well established if, indeed, such procedure is not practically universal. Such executive action in no sense relieves shipmasters, or personnel afloat, of the responsibility imposed upon them under the duly constituted regulations and law, but these instructions should be prepared by executives who are themselves experts or who have experts to assist them, so that when issued

they will command the respect of the personnel afloat and serve as a guide and constant reminder of what is required and expected of them. In addition, this practice establishes uniformity and precludes confusion when changing officer personnel from one vessel to another of the line.

If such action is taken and then followed up by any proper system which will enable executive officials to be certain of continuous and proper carrying out of these instructions, in fact and in spirit, it would seem that then and only then can they be justified in feeling that they have entirely carried out their responsibility. It should be noted that no such instructions were provided for by the Ward Line.

TENTATIVE CONCLUSIONS

The last annual inspection by local inspectors of the Bureau of Navigation and Steamboat Inspection Service was completed May 16, 1934. There was a reinspection August 4, a month before the accident. So far as the record shows these developed nothing to indicate lack of proper maintenance or any serious deficiency in life-saving or other equipment. We shall go further into these statements.

The fact that the vessel held her certificate and maintained her rating in the highest classification in the American Bureau of Shipping forces the conclusion that the *Morro Castle* was maintained and equipped in compliance with all requirements and regulations now prescribed by constituted authority. There is nothing in the record to indicate technical failure of the vessel or her mechanical equipment under rules of construction now in existence.

We recognize the necessity of complete overhauling of such rules and it is expected a later report of the committee will include recommendations for such revision. It is clear to the committee that had the *Morro Castle* been built and operated in full compliance with the Convention for Promoting Safety at Life at Sea (1929) which was signed in London, prior to her construction, a very different result might have been expected. However, so far as construction is concerned, the convention would not have applied, but had the convention been ratified by the Senate, it would have applied to her inspection and operation.

While we deplore the lack of certain installations against fire, yet it must be conceded that there appears to have been observance of existing standards, but standards which we hope to have bettered materially.

Responsibility for the eventualities of this disaster appear in the last analysis to rest with the human element concerned.

Ignorance of conditions concerning lack of organization and discipline on the part of the operating executives of the Ward Line seems clearly obvious.

The station bill was inadequate as regards steam whistle signals to govern handling of life boats and also with respect to establishing proper care and guidance of passengers under emergency conditions and their speedy and safe removal from the vessel.

There existed no organization for concerted, unified action in cases of emergency.

Leadership and direction of the crew were sadly conspicuous by their absence.

TENTATIVE SUGGESTIONS

DISCIPLINE AND ORGANIZATION

No materiel improvements can take the place of a well-instructed, disciplined, and properly organized crew personnel. While a poor ship may be operated safely by a well-disciplined crew, the best ship can easily come to grief with a poor crew.

FIRE AND EMERGENCY ESCAPES

An outstanding lesson taught by this disaster is the high importance of provision being made for ample and readily apparent means of egress for all passengers to the decks where they are taken into the lifeboats. In this instance the main forward stairways were rendered useless as has been shown in the foregoing. While there were service and after stairways, the passengers were not familiar with their location and they were, therefore, unable to make use of these means of ascending to the boats. As assurance that this important facility will be available in the future the following suggestion is offered:

In practically all power-driven vessels there is installed what is known as the "shaft tunnel escape." This is provided to insure against the engineers and firemen being trapped when other means of egress from the engine and fireroom is cut off. The engine-room crew of the *Morro Castle*, who stuck to their posts until the last, practically all used this means of escape to the upper decks and were thus afforded the chance to save their lives. This escape is located in the after end of the shaft tunnel; is constructed of steel, and leads to the upper decks. It is usually equipped with a steel-rung ladder. It is entirely adequate for the men it is designed to serve as they should be active and entirely capable of climbing this ladder.

This thought should be employed in providing escapes for passengers, and as several of those testifying as to why the fire-screen doors were not closed stated that had these doors been closed they would have trapped the passengers in the section involved, it seems clear that escapes should be provided on the port and on the starboard side in the vessel so that there would be an emergency escape in each section even though all fire-screen and watertight doors were closed. These escapes should have an entrance on each deck and they should reach up to the top deck. The entrance doors to these escapes on each deck should be of steel and on hinges. There should be no locks or fasteners (this to insure against the doors being inadvertently locked, or fastenings becoming jammed), but there should be affixed to each door a strong spring or closing device which would promptly and automatically close it tight and thus it could not contribute to the fire-spreading hazards. These doors should never be permitted to be fastened in an open position.

Finally, and this is highly important, the entrance doors to these escapes should be boldly marked so that the availability of this means of escape in case of emergency would be readily apparent to all.

Had these escapes been installed on the *Morro Castle*, they would have been of great service to the passengers.

PROVISION FOR GAS MASKS

There were but two gas masks aboard the *Morro Castle*, one in the wheel-house, and one in the engine room. The chief radio operator must have been practically suffocated immediately after, or even before, he sent out the SOS. In fact had he not been aroused and dragged, more or less, from the radio-operating room, it is not unlikely that he would have died right there.

There appears to be no doubt that a gas mask would have been of material value to him. Consideration should be given to requiring vessels to include in their equipment a considerable number of gas masks for appropriate distribution.

FIRE-ALARM THERMOSTATS

The *Morro Castle* had the Darby electric alarm system throughout the passengers' accommodations and thermostats or sentinels were installed in each stateroom. They were not required under the regulations, insofar as the public rooms were concerned, and there were none installed in any of these spaces. The theory in this respect was that these areas were so public that it would be impossible for a fire to make any headway without being promptly discovered and extinguished. The record demonstrates the fallacy of this theory. From the foregoing it is clear that the regulations should be amended to provide for the installation of thermostats or sentinel devices in all public rooms and lockers.

SPRINKLER SYSTEM

In this particular case a properly functioning automatic sprinkler system might have saved the vessel. It would run into considerable expense, and particularly in case of accidental set-off would, no doubt, damage considerable ship and passenger property. However, consideration should be given this question by some technically qualified authority.

FIREPROOF MATERIAL

Fireproof and fire-resisting materials should be required wherever and whenever their use is practicable. The record shows, as we have indicated, that too much inflammable material was used in the structure, fixtures, decorations, and furnishings of the vessel. The committee intends to seriously consider this feature of construction with a view to limiting such material to the utmost.

DISPOSITION OF PASSENGERS IN CASE OF EMERGENCY

Considerable loss of life in the *Morro Castle* disaster may be attributed to the fact that there was no organized method whereby the passengers could be quickly assembled at their boat stations. Passengers simply will not, as a rule, take more than cursory interest in boat drills, seldom know their boat numbers or definitely where their boat is situated. They generally know that there are a lot of boats on one of the top decks, but that is about all. Furthermore, they don't seriously examine their life belts and try them on so that

they will be familiar with their workings. (In one portion of the evidence it is developed that a member of the crew found one of the passengers with a life belt on backwards, etc.) Indeed, perhaps the majority of the passengers (prior to this disaster) failed to locate their life belts in their cabins.

The unfortunate part of this is that there is no way whereby passengers may be compelled to acquire this important information—that is important in time of emergency.

Should a printed notice be handed the passengers with the menu with the first meal they take aboard the ship containing this important information, this might help. They might read it while they are waiting for the first course of the meal to be set before them, and service might even be deliberately delayed until they had had time to read the notice.

PART TWO. "MOHAWK"

Very shortly after the loss of the *Morro Castle*, the same line had another disaster in the loss of the *Mohawk*. The sinking of this vessel in frigid weather resulted in the loss of 14 passengers and 31 members of the crew, a total of 45 lives.

A brief report regarding the *Mohawk* disaster follows:

The *Mohawk* descriptions were as follows:

(1) Built by the Newport News Shipbuilding & Drydock Co. in 1926; (2) length over all, 402 feet; (3) length between perpendiculars, 387 feet 6 inches; (4) beam molded, 34 feet; (5) gross tonnage, 5,896 tons; (6) net tonnage, 3,514 tons; (7) last annual inspection completed September 22, 1934; (8) licensed to carry 453 passengers; (9) licensed to carry 122 crew members; (10) licensed to carry a total of 575 persons.

HISTORICAL

The *Mohawk* left Pier 13, East River, New York City, at 4 p. m., January 24, 1935, with 54 passengers and 110 crew. Upon arrival at Ambrose Lightship, she maneuvered about 1½ hours adjusting compasses and took departure from Scotland Lightship, off the entrance of New York Harbor, at 7:44 p. m.

The Norwegian motorship *Talisman* left Brooklyn, N. Y., the afternoon of January 24, 1935, and took departure from the sea buoy at 7:15 p. m. The average speed of the *Talisman* and the *Mohawk* from the time of departure until the collision is recorded as being 12 knots and 15.6 knots, respectively. The weather was clear, light northwest winds, sea smooth and temperature 3° F. above zero.

The *Mohawk* and the *Talisman* were proceeding southward on parallel courses. The *Mohawk*, the overtaking vessel, was required under the rules of the road to keep clear of the *Talisman*. Due to failure of proper control by means of the telemotor steering gear the *Mohawk* gradually closed in on the *Talisman*.

FROZEN TELEMOTOR

The telemotor steering gear began to cause difficulty about 8 p. m. By 9 p. m., this gear was so stiff that the quartermaster could no longer turn it, and an able seaman was required to help him. Apparently the liquid in the gear was freezing. The temperature was recorded as 3 above zero.

The record indicates that an arrangement was made between the third officer, who was on watch, and the first assistant engineer to change over from steering with the telemotor gear to the "trick" wheel. This is located aft in the steering engine room, and orders are transmitted from the bridge to the person operating the "trick" wheel by a steering telegraph.

The local inspectors in their letter above referred to are brief, yet quite clear in their explanation of what occurred. Their reconstruction of what took place seems to be borne out by the record and is convincing. There seems no doubt that the sharp sheer the *Mohawk* suddenly took and which brought her across the *Talisman's* bow was caused by error in interpretation of signals sent from the bridge.

Regarding this, the local inspectors of the Department of Commerce in paragraph 4, page 2, of their report stated the following:

4. Wheel commands of "right" and "left" were used on the *Mohawk*, and a diagram was posted directly in front of the wheel in the pilot house to indicate this. The communication system from the bridge to the steering engine room consisted of telephone and steering telegraphs, the dials of which were athwartships and marked "starboard" on the starboard side of the ship and "port" on the port side of the ship, and the "trick" wheel corresponded with the wheel on the bridge. At this time it appears that the men on the *Mohawk* were stationed as follows: The third mate, Mr. Jackson, at the steering telegraph on the bridge; Quartermaster Polaner at the steering compass to call out the ship's heading to the third mate; Mr. Mack Smith, first assistant engineer, was in the steering engine room alone answering the telegraph and doing the actual steering by executing the orders given him on the steering telegraph. The third mate evidently wanted to change the *Mohawk's* course to "right" or "starboard" and moved the telegraph lever to 10° "right" or "starboard" rudder in accordance with the wheel commands in force on the bridge. The rudder indicator, however, showed 10° "left" or "port" rudder, and when the quartermaster called the third mate's attention to this the third mate pushed the telegraph lever to "hard starboard" rudder and the order was executed "hard port" rudder. This swung the *Mohawk* across the bow of the *Talisman*. It appears that it was Mr. Mack Smith, first assistant engineer, who handled the "trick" wheel, and from instructions he later gave Mr. Stephen Snyder, deck engineer, it appears that wheel commands to the steering engine room on the telegraph were to mean "port" or "starboard" helm, instead of "port" or "starboard" rudder. In other words, the third mate considered the steering telegraph a rudder telegraph, while the first assistant engineer considered the same telegraph a helm telegraph.

CHANGING FROM TELEMOTOR TO "TRICK" STEERING WHEEL WHILE VESSEL WAS AT FULL SPEED

There is nothing in this record to show that the speed of this vessel was moderated when they were experiencing steering difficulty. When the change from telemotor to "trick" steering wheel was made the vessels were only about 500 feet apart, and the *Mohawk* was proceeding at more than 15 knots. In view of the uncertain conditions existing aboard the *Mohawk*, failure at least to slow down, or stop while this change was being made, and then, to proceed at slow speed until they were certain all would be well, indicates a decided error in judgment.

ENGINEER AT "TRICK" WHEEL—ALONE

It seems remarkable that no quartermaster or deck officer was sent aft to handle the "trick" wheel. It devolves upon the engine department to stand by in the steering engine room to insure that the me-

chanical gear works efficiently. It devolves upon the deck department to supply the necessary personnel to insure that the instructions coming down from the bridge are promptly and properly executed. Had this procedure been followed, the result might have been different.

VESSEL SANK BECAUSE OF FAULTY DESIGN

The most important lesson to be learned from this disaster is found in the caption noted just above. Had the design of the *Mohawk* included a more efficient system of watertight bulkheads, the vessel should have been able to return to port under her own power with no appreciable property loss and no loss of life, other than those who were killed by the collision.

The fact that the vessel did sink, and in the comparatively short time of 70 minutes after the collision, clearly evidences the imperative necessity for the formulation and promulgation of an effective set of "construction rules" which will preclude a recurrence of such a catastrophe.

It is also highly important to note that there are two sister ships to the *Mohawk* now in service. Under similar conditions, the same performance may be expected of these sister ships. As these vessels were constructed in full compliance with all regulations of duly constituted authority, it is alarming to consider the laxity in requirements governing ship construction, and the necessity for remedying this condition is manifest.

TENTATIVE CONCLUSIONS

A careful analysis of the record, which is on file with the Committee, leads to conclusions as follows:

Causes contributing to the collision.—(1) Frozen telemotor; (2) misinterpretation of steering orders; (3) changing from telemotor to trick steering wheel while vessel was at full speed and in comparatively close quarters; (4) engineer at trick wheel—alone.

Results of collision.—(1) Vessel sank in about 70 minutes; (2) vessel sank because of faulty design.

PART THREE

SAFETY OF LIFE AT SEA CONVENTION

Your committee believes that the Government is at fault in failing to modernize its laws and to take its place with other powers in the promotion of safety of life at sea. The committee is firmly of the opinion that the International Convention for Safety of Life at Sea (1929) should be ratified at once.

BETTER RULES FOR CONSTRUCTION

Most of the important maritime nations too have comprehensive rules governing the construction of ships. The statutes in effect in the United States do not require a standard of safety comparable with that of other countries. Our committee has invited a technical group to formulate rules concerning structural strength, loading, watertight subdivision, stability under all conditions, fire-resisting

qualities, fire-fighting equipment, life-saving equipment, equipment for communications, electrical equipment, navigational equipment, bilge and fire pumps, propelling machinery, ground tackle, and such other features as may be necessary to insure properly equipped and safe ships, and we hope within a reasonable time to prepare legislation to make them effective.

BETTER ORGANIZATION OF INSPECTION PERSONNEL

It is our belief that immediate steps should be taken for a better system to govern the personnel of all vessels and by adequate inspection and supervision to guarantee crews that are competent and properly drilled. That the Department of Commerce has not been unmindful of this necessity is shown by Mr. Hoover's report to the Secretary of Commerce dated October 26, 1934, which is quoted as follows (p. 104, vol. 1):

Again I wish to invite attention to the annual report of the Supervising Inspector General for the fiscal year ended June 30, 1927, and I quote below that heading in that report commencing on page 1 which reads as follows:

"REORGANIZATION

"The Steamboat Inspection Service is one of the oldest bureaus in the Federal Government. Its organization reflects the thought and ideals of the country a hundred years ago. Though the framers of the laws governing the Steamboat Inspection Service in many instances builded better than they knew, it is time to make certain changes to meet existing conditions. I suggest the following:

"*Change of name.*—The name "Steamboat Inspection Service" does not properly describe the functions and activities of the organization. Although one of its functions is to inspect steam vessels, it also has to inspect motor vessels, motor ships, sailing vessels of certain classes, and sea-going barges. It is suggested that the name "Marine Inspection Service" would be more appropriate and could be very properly adopted."

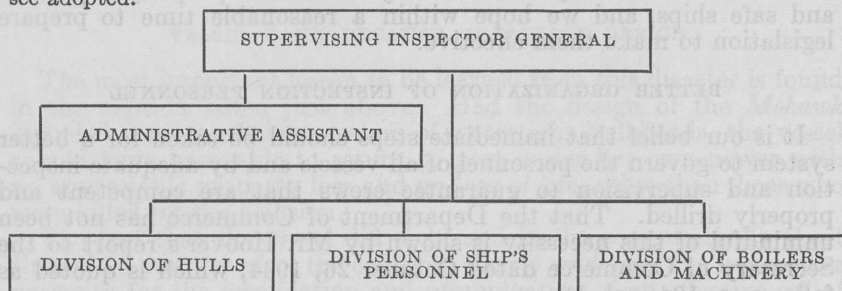
Paragraph 1, under "Reorganization", is of keen interest because it forces attention to a condition which, upon being mentioned, at once becomes obvious; that is, there seems no doubt but that a revamping is necessary to meet modern, existing conditions.

Paragraph 2, under "Reorganization", is of interest as there has already been somewhat of a change in organization, and a director and an assistant director have been named to head this Bureau, i. e., the Bureau of Navigation and Steamboat Inspection, as it is now known. However, it would perhaps be well to establish these functions under one bureau appropriately named as suggested by Mr. Hoover, with proper provision for the central staff he recommends on page 104, volume 1, from which we quote and include explanation of functions as follows:

A central staff.—The Supervising Inspector General is, under the law, directed to obtain uniformity, but the machinery with which he works has, in many instances, to function before he can know whether there is any lack of uniformity. The right time to obtain uniformity is before the action is taken. This can be done by the creation in the central office of a technical staff. The service has often stressed its dependency upon "practical" men, and its regulations require that only men who have been officers on ships can hold positions as inspectors. This has obtained good results thus far, but it is desirable to obtain even better results in the future. To do this it is my desire, while availing myself of all that the practical men know, to create and develop a technical staff. The day for rule-of-thumb methods is past and the day of the technician is at hand. It is not sufficient for the Board of Supervising Inspectors to legislate as necessity arises, but it should have at its command the machinery with which to plan in advance.

That can be done only by a central staff of technical men, the result of whose investigation from the technical side would be available to the Board of Supervising Inspectors working from the practical and legislative side.

There is submitted below a chart of organization which the Bureau desires to see adopted:



The Division of Hulls would be under a trained naval architect, who should have about four inspectors and three or four clerks to assist him. He would have charge of the stability work, and look after it in such a manner as to be able to advise the shipbuilding companies which may seek information. The Division of Hulls could also do valuable work in regard to bulkhead construction.

The division of boilers and machinery would be in charge of a chief with about 4 inspectors and 2 or 3 clerks. He would look after the inspection of all boilers designed for vessels of the American merchant marine. At the present time boilers are approved by 46 different boards of local inspectors. In the interest of uniformity there should be a directing head over this work with authority over its technical phases. While uniformity would be obtained, safety would be the paramount thought. A division of this character could work out methods for the inspection of boilers much better than the boards of local inspectors. In the approval of designs it would have in mind at all times easy accessibility of inspection, because, while a boiler may be built of good material that meets in all respects the requirements or provisions of the statutes, its design may make it impossible to inspect it thoroughly to ascertain its actual condition.

The division of ship's personnel would be under a chief with about 5 inspectors and 4 clerks to assist him. In licensing officers and certificating able seamen many problems arise that are not apparent to one who is not familiar with marine work. They come up not only in issuing licenses and certificates, but in the discipline that the service exercises over ship's personnel. To exercise this discipline effectively the service must at all times be just, beginning with the time when an applicant applies for his license or certificate. While in the issuance of licenses and certificates boards of local inspectors have the statutes and regulations to guide them, it is easy to see that with 46 issuing offices throughout the Service there can be lack of uniformity. A division of ship's personnel would bring about uniformity. It would prepare standard sets of examination questions for the guidance of the inspectors, these to be supplemented by questions to meet local conditions. With such procedure it would be impossible to claim that it was easy to get a license at one port and difficult at another.

To assure discipline and efficiency, and to centralize responsibility in this respect, every crew member should hold a license or certificate from the Bureau of Navigation and Marine Inspection, including radio operators, electricians, etc.

LICENSES FOR OFFICERS

Referring to the above-quoted provision for a central staff and with particular respect to its functions concerning examinations and the issuance of licenses, Mr. Hoover's recommendation is quite sound and would no doubt go far to achieve the desired end. Perhaps more could be accomplished in this respect if the local inspectors were relieved of the entire responsibility of preparing the written portion of examinations for license, and this be left as the function of the

central staff. Thus, when the local inspectors had scheduled an examination at a specific time, the central staff could be notified well in advance of the date set so that they could prepare a set of questions for the written portion of the examination and forward same to the supervising inspector of the district involved, in a well-sealed envelop. This envelop should remain intact until those who are to take the examination are assembled and in their seats, prepared to begin the examination, when the seal should be broken in the presence of the applicants and the first question handed them or written on a black-board, together with the time allowance to turn in the written answer.

When the specified time had elapsed, the papers should be collected and the next question given the applicants in the same manner as prescribed for no. 1, and so on until the written examination is completed. Then each applicant's accumulated papers should be placed in individual envelops and clearly marked with the applicant's name etc., and securely sealed. Then the local inspectors should conduct their oral examination in accordance with instructions prescribed by the central staff, and the questions asked, and the answers, thereto, as given by the applicants, should be recorded by a stenographer. This stenographic record of the applicant should be graded by the local inspectors, and they should also take into consideration his strength of character, qualities of leadership, etc. The applicant should furnish the local inspectors with a physician's certificate showing physical fitness to hold position for which he is applying. Then all these papers should be forwarded to the central staff for final rating and issuance of license, or otherwise, as may be warranted by the outcome of this examination. The United States Navy satisfactorily employs a similar method to examine its officers for promotion when distance from Washington, D. C., prevents personal appearance of such officers before the Naval Examining Board here.

RADIO OPERATORS

Mr. Hoover recommends as follows (p. 116, vol. 1):

I recommend that there be transferred to the Bureau of Navigation and Steamboat Inspection the licensing and disciplining of radio operators on ships. A ship must be considered as an entity, and radio operators are a part of it, and should be disciplined by the same agency that has control over officers.

Under the present system radio operators are licensed by the Communications Commission, furnished to ships on request of the shipowners by various radio communication services, and these employees draw their wages from the shipping company.

This system cannot be expected to produce proper discipline or efficiency, and it would, therefore, seem highly important that Mr. Hoover's recommendation in this respect should be adopted. Operators could continue to be certified by the Communications Commission, but they should apply for license or certificate from the Bureau of Navigation and Steamboat Inspection and should not be allowed to sign the articles of a vessel until they held the proper qualifying papers in this respect.

SEAMEN

The present requirements incidental to securing an able seaman's certificate are quite lenient, and the system of issuing a certificate, or ticket, on an affidavit certifying to the length of sea service of the

applicant involved is not dependable and should be abolished entirely. Definite proof of at least 3 years' sea service should be required to accompany application for an able seaman's ticket, and this ticket should be issued only after appropriate examination. Lifeboat tickets should be a part of the able seaman's ticket, that is, every applicant for an able seaman's ticket should be able to satisfy the examiner that he is qualified for a lifeboat ticket as well, and the able seaman's ticket should not be issued until the examiner is entirely satisfied in this respect.

STATION BILLS—RULES AND REGULATIONS

Station bills, in addition to assigning members of the crew to definite fire stations and boats, instruction as to the care of passengers, etc., when emergency arises, should also be explicit and complete as regards steam whistle or siren signals to govern the handling of the lifeboats.

The station bill of the *Morro Castle* as per exhibit 16, volume 1, of the record shows "one short blast of steam whistle will be the signal for crew to man the boats" and "one short blast of steam siren will be the signal to retreat." There are no other whistle or siren signals shown on this station bill. The rules and regulations prescribe further:

If necessary to abandon ship, no boat to be lowered without orders from the captain.

In contrast to the above, the steam whistle signals concerning abandoning ship as shown on the station bill of the steamship *Mohawk* are quoted below:

6 short blasts and 1 long blast-----	All hands to boats.
5 short blasts-----	Swing out boats.
4 short blasts-----	Swing in boats.
3 short blasts and 2 long blasts-----	Retreat.
3 short blasts and 1 long blast-----	Lower to embarkation deck.
6 short blasts-----	Abandon ship.

It should be noted that the signal 6 short blasts and 1 long blast corresponds to the requirement of the Convention for Safety of Life at Sea (1929).

A passenger aboard the *Morro Castle*, Dr. Phelps, who testified that he had made over seventy-odd voyages, hence, as regards things nautical, his should be reliable testimony. This testimony follows (p. 44-45, vol. 3):

The corridor was full of smoke. I tried to go up the companionway but was unable to do so because of the smoke, and I could hear the crackling of the fire. We then proceeded down toward the stern. This we soon reached. There we met a lot of other people huddled about, crying, screaming, and praying. The heavens we could see were bright red with the fire. We stayed there for a little while and there was, as I say, quite a mob of people, among whom was standing a tall man, apparently an officer, in white uniform, full dress, even to his tie, with one or more gold stripes on his chevrons. After a few minutes he screamed out, "Silence, please. I am waiting for orders from the bridge."

Well, between the screaming and the terrific noise of the fire, no one could hear anything practically except their own voices. A few minutes later some woman said to him, "When are they going to lower the boats?" His answer was, "Lady, God knows", or something similar to that.

The fact that there were no steam whistle or siren signals on the station bill, other than above shown, to govern final lowering away of the boats, or abandoning the ship, is remarkable, and this disaster

has demonstrated that such signals should be included on all station bills. This should be prescribed in the regulations of the Bureau of Navigation and Steamboat Inspection, if provision has not already been made to cover this important point. We shall investigate this matter.

It is important that some method be devised whereby steamship companies may be compelled to have proper station bills showing complete and satisfactory organization for all emergency conditions. Usual and well-developed practice on passenger ships places a large measure of responsibility on the steward's department for seeing that the passengers are properly equipped and guided to their boat stations. The station bill of the *Morro Castle* was sadly lacking in this respect. Had a proper organization existed on the *Morro Castle*, the history of this disaster would doubtless show a different record.

OTHER PROVISIONS OF THE RESOLUTION

UNITED STATES ATTORNEY'S INVESTIGATION

With respect to the provisions of Senate Resolution No. 7, concerning the investigations conducted by the district attorney for the southern district of New York, the committee's investigator reports that there are several indictments pending in re the *Morro Castle* disaster and the district attorney feels that the Government's cases might be prejudiced should he release the grand jury minutes from his custody.

With respect to the *Mohawk* disaster, the grand jury minutes have just recently been made available to our investigators. These minutes are now being studied with a view to carrying out further purposes of the resolution.

PENDING BILLS

Several bills bearing on vessel safety, manning personnel, reorganization of the Bureau of Navigation and Steamboat Inspection of the Department of Commerce, etc., have been referred to the Committee on Commerce. In some instances the subject matter involved has been included in S. 2582, which was reported to the Senate on May 24, 1935. The remaining matters are receiving attention and will be dealt with by the Committee as promptly as possible.

FURTHER REPORTS

As our investigation proceeds, we shall make, as promptly as possible, further reports respecting the remaining provisions of Senate Resolution No. 7.

ROYAL S. COPELAND,
DUNCAN U. FLETCHER,
MORRIS SHEPPARD,
HIRAM W. JOHNSON,
WALLACE WHITE,

Subcommittee.



