



TREASURY DEPARTMENT
UNITED STATES COAST GUARD

Address reply to:
COMMANDANT (MVI-3)
U.S. COAST GUARD
WASHINGTON, D.C. 20226

5943/YARMOUTH CASTLE
A-7 Bd Misc.
• 24 FEB 1966

COMMANDANT'S ACTION

on

The Marine Board of Investigation convened to investigate the fire on board the Panamanian SS YARMOUTH CASTLE on 13 November 1965 and subsequent sinking with loss of life

1. The record of the Marine Board of Investigation convened pursuant to the request of the Government of the Republic of Panama has been reviewed and the record including the findings of fact, conclusions, and recommendations is approved.

Action Concerning the Recommendations

RECOMMENDATION 1 concerning the forwarding of a copy of the record of investigation to the Government of the Republic of Panama will be accomplished.

RECOMMENDATION 2 concerning a study looking to legislation to require all U. S. flag passenger vessels built prior to 27 May 1936 to be built of incombustible material is undergoing interdepartmental study and review.

RECOMMENDATIONS 3 and 5 concern implementation of efforts to upgrade and amend the International Convention for Safety of Life at Sea, 1960, with respect to passenger vessels that contain large amounts of combustible material in their construction. Action has been instituted and arrangements have been made for these recommendations to be presented to the Maritime Safety Committee of the Intergovernmental Maritime Consultative Organization at a special meeting in May 1966.

RECOMMENDATION 4 concerning action looking towards execution of bi-lateral agreements with foreign governments whose vessels transport passengers from United States' ports will be held in abeyance pending completion of the special meeting of the Maritime Safety Committee of the Intergovernmental Maritime Consultative Organization. The specific suggestions mentioned in RECOMMENDATION 4 will be brought to the attention of the Maritime Safety Committee of the Intergovernmental Maritime Consultative Organization at the special meeting in May 1966.

RECOMMENDATION 6 concerning implementation of recognition of the exemplary rescue action of the SS BAHAMA STAR and the M/V FINNPULP will be given active consideration.

E. J. EISKIND
Admiral U. S. Coast Guard
Commandant



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TREASURY DEPARTMENT
UNITED STATES COAST GUARD

Address reply to:
COMMANDER
7TH COAST GUARD DISTRICT
1203 FEDERAL BUILDING
51 S.W. FIRST AVENUE
MIAMI, FLORIDA 33130

23 February 1966

From: Marine Board of Investigation
To: Commandant (MVI)

Subj: Panamanian SS YARMOUTH CASTLE, O.N. 4319-53; fire
aboard on 13 November 1965 and subsequent sinking
with loss of life

FINDINGS OF FACT

1. The Commandant, pursuant to the request of the government of the Republic of Panama, convened this board on 19 November 1965 for the purpose of inquiring into all the facts and circumstances surrounding the fire and sinking of the Panamanian Flag SS YARMOUTH CASTLE, with loss of life, while underway in the Atlantic Ocean, on 13 November 1965.

2. At or about 0045 [EST], 13 November 1965, the Panamanian SS YARMOUTH CASTLE, O.N. 4319-53, was enroute Miami, Florida to Nassau, Bahamas. A fire was discovered in the forward staircase area, which rapidly spread and enveloped the amidship passenger section and the bridge area. The vessel subsequently capsized and sank at 0603 the same morning in the Northwest Providence Channel, Atlantic Ocean in approximate position 25°55' North, 78°06' West, about 13 miles from Great Stirrup Cay. As a result 85 passengers and 2 crew are missing and 3 passengers are known dead.

3. Deceased are:

<u>NAME</u>	<u>ADDRESS</u>	<u>STATEROOM NO.</u>
Nathan Barkin	846 Michigan Avenue Miami Beach, Florida	820
Anne M. Jackson	2155 Cordova Avenue Vero Beach, Florida	842
Nathan Lehr	1621 S. Treasure Drive Miami Beach, Florida	634

Missing and presumed dead are:

Norma J. Barton	25-51 30th Road Astoria, New York	811
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MARINE BOARD OF INVESTIGATION, SS YARMOUTH CASTLE

Missing and Presumed Dead (Cont'd)

Frances M. Best	1390 S.E. 5th Ave. Boca Raton, Florida	806
Andrew J. Best	1390 S.W. 5th Ave. Boca Raton, Florida	806
William H. Burleigh	1040 N.E. 23rd Place Pompano Beach, Florida	844
Elsie Burleigh	1040 N.E. 23rd Place Pompano Beach, Florida	844
Anna E. Cirilincione	17 Rose Street Lincroft, New Jersey	620
Frank A. Cirilincione	17 Rose Street Lincroft, New Jersey	620
George R. Crawford	3431 N.E. 14th Ave. Pompano Beach, Florida	808
Sarah J. Crawford	3431 N.E. 14th Ave. Pompano Beach, Florida	808
Dena A. Duffy	2851 N.E. 8th Terrace Pompano Beach, Florida	817
Sylvia Ebner	5919 Parsons Blvd Flushing, New York	710
Hal M. Eberle	2342 N.E. 28th Street Pompano Beach, Florida	845
Helen E. Eustice	6066 Winfield Blvd. Margate, Florida	809
Samuel Frankel	4244 Chase Avenue Miami Beach, Florida	G-1
Rose Frankel	4244 Chase Avenue Miami Beach, Florida	G-1
Estelle M. Franc	24210 Church Oak Park, Michigan	810
Fred R. Franc	24210 Church Oak Park, Michigan	810

MARINE BOARD OF INVESTIGATION, SS YARMOUTH CASTLE

Missing and Presumed Dead (Cont'd)

Wanda B. Gang	3720 N.E. 17th Ave. Pompano Beach, Florida	629
Agnes Hill	3711 N.E. 13th Terrace Pompano Beach, Florida	815
William Hill	3711 N.E. 13th Terrace Pompano Beach, Florida	815
Jonathan A. Hamilton	15307 Harbor Drive Madeira Beach, Florida	614
Mary Hall	2357 S.W. 16th Terrace Miami, Florida	718
Helen M. Hier	140 S.E. 13th Street Pompano Beach, Florida	823
William Hier	140 S.E. 13th Street Pompano Beach, Florida	823
Henry A. Hughes	8 Bayview Court East Setauket, New York	805
Mary Hughes	8 Bayview Court East Setauket, New York	805
Louise Jackson	2155 Cordova Avenue Vero Beach, Florida	842
Robert W. Johnson	89 Stoneleigh Road Watertown, Massachusetts	828
John A. Karnes	1320 Ridgewood Avenue Winter Park, Florida	721
Alice Karnes	1320 Ridgewood Avenue Winter Park, Florida	721
George D. Keen	2940 N.E. 8th Avenue Pompano Beach, Florida	715
Catherine Keen	2940 N.E. 8th Avenue Pompano Beach, Florida	715
Arthur E. Lehr	3711 Lyme Avenue Brooklyn, New York	819

MARINE BOARD OF INVESTIGATION, SS YARMOUTH CASTLE

Missing and Presumed Dead (Cont'd)

Stella Lehr	3711 Lyme Avenue Brooklyn, New York	819
Clarice Lobel	7525 E. Treasure Drive No. Bay Village, Florida	P-1
Myrtle P. Lowe	1920 Tigertail Avenue Miami, Florida	0
Morgan I. Lowe	1920 Tigertail Avenue Miami, Florida	0
Florence B. Lucchesi	5415 Connecticut Ave., N.W. Washington, D. C.	702
Ann J. Marple	3186 East 1st Street Tulsa, Oklahoma	F-1
Edna Matias	2123 South Harlem Berwyn, Illinois	719
John Mazzarisi	36 Mulberry Street New York, New York	638
Jessie Mazzarisi	36 Mulberry Street New York, New York	638
Gayle M. Musson	2651 N.E. 6th Street Pompano Beach, Florida	629
Louis W. Neher	700 N.E. 5th Avenue Pompano Beach, Florida	830
Margaret E. Neher	700 N.E. 5th Avenue Pompano Beach, Florida	830
Elsie M. O'Connell	2357 S.W. 16th Terrace Miami, Florida	718
Charles E. Polm	RD #3, Parker, Pennsylvania	840
Mary A. Polm	RD #3, Parker, Pennsylvania	840
Herman Pollock	4720 N.E. 14th Avenue Pompano Beach, Florida	841
Minnie Pollock	4720 N.E. 14th Avenue Pompano Beach, Florida	841

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Missing and Presumed Dead (Cont'd)

Omar D. Quay	3860 N.E. 21st Way Pompano Beach, Florida	836
Della Quay	3860 N.E. 21st Way Pompano Beach, Florida	836
Charlotte M. Reich	3420 N.E. 14th Avenue Pompano Beach, Florida	807
Vivian St.Clair	2631 Roberts Street Largo, Florida	T-1
Helen St.Clair	2631 Roberts Street Largo, Florida	T-1
Bertha Salke	704 N.E. 72nd Street Miami, Florida	L
Edith R. Schneider	151 S.E. 14th Street Pompano Beach, Florida	831
Frank Silver	6120 Avers Avenue Chicago, Illinois	827
Juan P. Stanley	3606 Sheridan Road Kenosha, Wisconsin	813
Elmer E. Stanley	3606 Sheridan Road Kenosha, Wisconsin	813
Mabel Straub	8942 86th Street Woodhaven, New York	615
Ralph D. Storrs	2342 N.E. 28th Street Pompano Beach, Florida	843
Winfield W. Thomas	705 North C. Street Lake Worth, Florida	824
Ethel L. Thomas	705 North C. Street Lake Worth, Florida	824
Flora G. Tiefenthaler	3583 County Line Road Chalfont, Pennsylvania	816
William C. Tiefenthaler	3583 County Line Road Chalfont, Pennsylvania	816

MARINE BOARD OF INVESTIGATION, SS YARMOUTH CASTLE

Missing and Presumed Dead (Cont'd)

Pauline I. Tomasini	Route 2, Box 428 San Luis Obispo, California	829
Warren Tomasini	Route 2, Box 428 San Luis Obispo, California	829
Charles E. Vincent	721 S.E. 5th Terrace Pompano Beach, Florida	717
Salle A. Vincent	721 S.E. 5th Terrace Pompano Beach, Florida	717
Betty Wand	7315 Byron Avenue Miami Beach, Florida	P-1
Stella M. Wiehe	711 N.E. 72nd Street Miami, Florida	L
Alice Weible	4668 Falcon Long Beach, California	523
Steven W. Wright	15833 Redington Drive Redington Beach, Florida	614
Joseph T. Wright	2748 N.E. 28th Avenue Pompano Beach, Florida	847
Florence B. Wright	2748 N.E. 28th Avenue Pompano Beach, Florida	847

Aliens

Carlos Davis	Av. Tacna, 890 Lima, Peru	804
Carmen Davis	Av. Tacna, 890 Lima, Peru	804
Allen M. Gillan	Rural Route #1 Mt. Hope, Hamilton, Ontario	838
Lynda Ann Gillan	Rural Route #1 Mt. Hope, Hamilton, Ontario	838
Castillo F. Hurtarte	4 Calle 4-36; Zona 1 Guatemala, Guatemala	N-1

MARINE BOARD OF INVESTIGATION, SS YARMOUTH CASTLE

Missing and Presumed Dead (Cont'd)

Leonie Pellowski	447 12th Street West Palm Beach, Florida	832
Eduardo Pinedo	Manco Capac 490 Mag. Nueva, Lima, Peru	812
Maria Pinedo	Manco Capac 490 Mag. Nueva, Lima, Peru	812
Mercedes Vila Sole	4 Calle 4-36, Zona 1 Guatemala, Guatemala	N-1

Crew Members

Lisardo Diaz-Torrens	Cuban (PP A 13 345 991)	Doctor
Phyllis Hall	Jamaican (PP 349518)	Stewardess

4. The weather at the time of the casualty was good, the sea smooth, the sky clear, visibility excellent and there was a light southeasterly breeze, Beaufort Scale 2 [4-7 MPH]. The barometer at 2400 was 30.06 and the air temperature was 80° F.

5. The SS YARMOUTH CASTLE was 379 feet overall, 5002 gross tons, 2474 net tons, molded depth to main deck 29 feet 6 inches, with steam turbine propulsion [2] of 7500 HP. Home port was Panama, Republic of Panama. Owner was Chadade Steamship Company, Inc., Pier 3, Miami, Florida and the operator was Yarmouth Cruise Lines, Inc., Pier 3, Miami, Fla. Master at the time of the casualty was Byron Voutsinas, licensed by the Republic of Panama.

6. The SS YARMOUTH CASTLE [ex-SS EVANGELINE] was a passenger vessel of riveted steel construction, built at Philadelphia, Pennsylvania, in 1927. She had eight (8) watertight transverse bulkheads extending to the main deck, stepped where required to suit accommodations and freight spaces. The vessel had a lower deck [E], a deck [D], a main deck [C], a promenade deck [B], a boat deck [A] and a sun deck. [The original plans refer to these decks as lower [E], main [D], upper [C], promenade [B] and boat deck [A].] The lower, D and main decks were fully steel plated. The main deck at the after end, the promenade deck outside of the house, and the boat deck outside the house had caulked wood decks over steel. The promenade deck and the boat deck inside the house were wood decks. The decks forming the top of the house on the boat deck, the bridge, top of wheel and chart house, and top of the wireless house were wood decks covered with canvas. The sides of the superstructure on the promenade and boat decks were steel. All interior passenger staterooms, passageways, and stairways above the main deck were of wood construction. The boiler and engine room casings and all public and private toilet space bulkheads and decks were of steel construction. Two un-insulated transverse steel fire zone bulkheads were fitted within

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the passenger area; one aft of the forward passenger stairway and one forward of the after main stairway. Sliding plate steel fire doors were fitted in way of these bulkheads at each deck level in the passageways.

The ship was originally fitted with mechanical ventilation for ventilating the living quarters, mess rooms, storerooms, etc., on the D deck and on the main deck the inboard passenger staterooms, various offices and service spaces, dining room, etc. A separate mechanical exhaust system was provided for the main galley and main pantry. Various light and air shafts were provided for natural ventilation for public toilets and washrooms, and inside staterooms on the superstructure decks.

A separate mechanical exhaust system was provided from all public and private toilet rooms. Vent ducts from these various toilet rooms connected into the fore-and-aft ducts in the overhead of the port and starboard passageways on the main deck, promenade deck and boat deck. These port and starboard ducts connected into vertical risers in the boiler room casing and terminated at the exhaust fans aft of the stack on the top of the house. Manual fire dampers were fitted in this system at the location of the fire zone bulkheads.

Subsequent to 1954, at various stages, the dining room, public rooms and all staterooms were air-conditioned. The dining room, and the staterooms amidships and forward were air-conditioned by a chilled water system piped to the various spaces. Individual air blowers were provided in each space. Staterooms at the after end of the ship were air-conditioned by a separate freon system circulating cold air through air ducts. When the air-conditioning was installed on the vessel, the original mechanical ventilation supply system to these spaces was blanked off and air shafts for staterooms in the superstructure were blanked off.

7. The vessel operated first in coastwise service and in international coastwise service under the U.S. flag and was delivered to the Government for war service in 1942. The vessel, as the SS EVANGELINE, was converted from wartime to peacetime service in 1946-47 by the War Shipping Administration. At that time the U.S. Coast Guard considered the conversion a "material alteration" of the vessel and pursuant to the provisions of 46 USC 369 the War Shipping Administration was advised that the vessel would have to meet all the requirements relative to fire retardant construction. In addition, detailed plans and arrangement of the vessel were required to be submitted to the Coast Guard for approval

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prior to conversion. After further analysis by the War Shipping Administration it was found that compliance would bring about an estimated increase in weight of joiner work of 100 tons and cause a total loss in deadweight capacity of approximately 450 tons due to additional ballast necessary for stability. The War Shipping Administration advised that this increase in weight would be serious not only from an economic point of view but also because of draft limitations in her trade route. In view of these considerations, the Coast Guard, pursuant to the provisions of 46 USC 369d, considered the requirements could not be reasonably and practicably complied with and modified the requirements to permit the repair and restoration of the existing type of construction subject to the following requirements: [1] the main stairwells to be trunked in with incombustible material behind the paneling; [2] the installation of hinged metal fire doors enclosing the stairways; and [3] staterooms, passageways, stairways and public spaces to be covered with a seven (7) zone automatic sprinkler system. This was accomplished; however, original wood construction throughout the vessel was retained and the sprinkler system was not required to serve in the toilet spaces.

8. In 1947, after reconversion, she returned to service under the U.S. flag. The vessel was laid up from 1948 through 1953, except for 2-1/2 months of service in 1950, and was sold in April 1954 to a wholly owned Liberian subsidiary of the Eastern Steamship Company and placed under Liberian flag and registry. The request, for sale and transfer, to the Maritime Administration cited as reason "can operate under Liberian flag more economically". The vessel operated under Liberian flag and registry through several owners until 1958 when she was transferred to the McCormick Shipping Corporation, a Panamanian corporation, with concurrent transfer of flag and registry from Liberia to Panama. In 1962 the vessel was sold to the Evangline Steamship Company, S.A., a Panamanian corporation and in 1964 the vessel was sold to the Chadade Steamship Company, Inc., a Panamanian alien controlled corporation. The Panamanian flag and registry were retained, but the name was changed from EVANGELINE to YARMOUTH CASTLE.

9. The vessel had a dry-pipe automatic sprinkler system which was installed to cover by seven zones all staterooms, passageways, stairways and public spaces. Air pressure was maintained in the pipe lines, counter-balancing water pressure in a pressure tank containing 260 gallons of fresh water. Opening of a sprinkler head would release air pressure in the system and water in the pressure tank would flow in the system. As the pressure dropped, a 300 GPM sprinkler pump started automatically. At the same time an alarm bell would

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actuate on the bridge and in the engine room. On the bridge an indicator light would show the zone in operation. A cross-over connection was provided to the fire pump.

The vessel had manual fire alarm stations strategically located throughout. Actuation of one of these stations would ring an alarm bell on the bridge and in the engine room, and an indicator would light on the bridge showing the fire zone affected.

The vessel's fire main system was provided with a fire pump with a capacity of approximately 400 GPM and with forty-six (46) fire hydrants located through the vessel. Additional pumps, including the bilge-and-ballast pump with a capacity of about 250 GPM, could be connected to the fire main system. A connection was fitted to the fire room line with a valve on the promenade deck for use in filling the swimming pool. Fifty foot hoses were provided for the fire hydrants.

The general alarm system provided for 29 alarm bells strategically located throughout the vessel in areas available to passengers and crew. All alarm bells were separately fused from the main circuit. The alarm control was located on the after bulkhead of the bridge. No separate emergency signal alarm system for alerting the emergency squad was provided on the vessel. The vessel was provided with a public address system with the main control station on the bridge.

The vessel carried 13 lifeboats including one (1) radio equipped motor lifeboat for a total capacity of 598 persons. Boats were fitted under mechanical davits with wire falls and lowering winches. Three of the boats were nested. Also provided were eight (8) approved type buoyant apparatus capable of serving 160 persons.

10. The vessel was classed as a passenger vessel by the American Bureau of Shipping. She had a Passenger Ship Safety Certificate issued by the American Bureau of Shipping as agent for the Republic of Panama, under the provisions of The International Convention for the Safety of Life at Sea, 1960 [hereinafter referred to as SOLAS '60], and a Certificate of Examination for Foreign Passenger Vessels issued by the United States Coast Guard. The Passenger Ship Safety Certificate certified the vessel for carriage of 426 passengers and 172 in the crew.

11. In June 1965, the American Bureau of Shipping inspected the vessel at Miami, Florida, for compliance with the

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provisions of the International Convention for the Safety of Life at Sea, 1960, and on 23 June 1965 issued a 1960 SOLAS Passenger Vessel Safety Certificate to the vessel for a period of three months under the authority of the Government of Panama. The Republic of Panama had not at this time deposited its acceptance of the International Convention for the Safety of Life at Sea, 1960, with the Inter-Governmental Maritime Consultative Organization; therefore the 1948 Convention was in effect; however, that Government had directed the American Bureau of Shipping to have Panamanian flag vessels comply with the requirements of the International Convention for the Safety of Life at Sea, 1960, as were applicable to an existing vessel. The 1960 Convention, as did the 1929 and 1948 Conventions, exempted existing vessels from the construction and arrangements standards applicable to new vessels except as decided by the administration concerned. The additional standards applicable in this instance applied basically to equipment. Three inflatable life rafts required by the SOLAS '60 regulations were not available and were noted as deficiencies. This inspection by the American Bureau of Shipping included a complete evaluation of the interior structure of the hull, testing of watertight doors and side closures, testing of pumping arrangements, testing of fire detection and extinguishing systems, examination of lifesaving appliances and equipment, testing of portable radio apparatus, radio-telegraphy installation and various other appurtances and equipment as applicable to an existing vessel. The vessel was in the Tampa Ship Repair and Drydock Corporation yard from the middle of September to October 15, 1965, at which time the Passenger Vessel Safety Certificate was extended by the American Bureau of Shipping for three additional months [15 January 1966]. While the vessel was in the shipyard, the American Bureau of Shipping made a complete 3rd Special Periodical Survey of hull and machinery, and an Annual Load Line survey.

12. The U.S. Coast Guard examines annually, with re-examinations quarterly, foreign passenger vessels carrying passengers from ports of the United States to check the vessels' documents, firefighting equipment, lifesaving equipment and to verify that the vessels are in compliance with their SOLAS Convention Safety Certificates and issues as evidence of these examinations Certificates of Examination of a Foreign Passenger Vessel. Re-examinations are made quarterly to verify continued compliance with the vessels' Safety Certificates.

The U.S. Coast Guard Marine Inspection Office, Miami, Florida, had cognizance of the YARMOUTH CASTLE and conducted most of the annual examinations and the quarterly re-examinations. During the 12 months prior to the casualty five

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examinations were conducted, one of which was conducted by the U.S. Coast Guard Marine Inspection Office, Tampa, Florida, where the vessel was undergoing drydock examination. These tests and examinations included fire and boat drills, fire screen doors, fire hydrants and hoses, watchmen key stations, watertight doors, sprinkler pump, automatic alarms, emergency generator and such other equipment as the Coast Guard inspector deemed necessary to establish the condition of the vessel's lifesaving and firefighting equipment. The Coast Guard Marine Inspection Office, Tampa, Florida, completed an examination of the vessel on 15 October 1965 for issuance of a certificate for the period of her SOLAS Safety Certificate. Three deficiencies were noted and when the vessel returned to Miami, Florida, the Coast Guard Marine Inspection Office, Miami, Florida, witnessed the correction of these deficiencies on 25 October 1965 by conducting a fire and boat drill, testing the sprinkler system in zones 6 and 7, and testing the operation of watertight doors and the emergency generator.

13. The board was unable to obtain a copy of the YARMOUTH CASTLE's Fire and Emergency Station Bill but obtained a copy of the station bill from her sister ship, the SS YARMOUTH. Testimony was received that the bills on both vessels were identical. The vessel's Fire and Emergency Station Bill listed the duties of the officers and crew at emergency stations. In addition each member of the crew was given a station bill duty card printed in English and Spanish upon reporting aboard. The annual and quarterly drills conducted by the Coast Guard during the year preceding the casualty noted no discrepancies in knowledge of duties by members of the crew. Testimony received by the board indicated weekly drills were held in Nassau, Bahamas.

14. The officers and crew were nationals of Austria, Bahamas, Canada, Columbia, Cuba, The Dominican Republic, Greece, Haiti, Honduras, Jamaica, Spain and the United States.

15. The YARMOUTH CASTLE departed at approximately 1700, 12 November 1965 on her bi-weekly trip from Miami, Florida to Nassau, Bahamas. The sailing and subsequent passage was uneventful until about 0030, 13 November 1965. At the time the SS YARMOUTH CASTLE was steady on course 101° T., speed 14 knots, steaming in Northwest Providence Channel, Atlantic Ocean between Great Isaac Light and Great Stirrup Cay. On board were 376 passengers and 176 crew. West and behind the SS YARMOUTH CASTLE, on course 101°, speed 14 knots, was the Panamanian SS BAHAMA STAR at a distance of about 12 miles. Ahead and east of the SS YARMOUTH CASTLE, on course 100° T., speed 13 knots, was the Finnish MV FINNPULP at a distance of about 8 miles. The master of the YARMOUTH CASTLE had retired

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to his cabin. The bridge watch on the YARMOUTH CASTLE consisted of the Second Mate, Jose L. RAMS de LEON, licensed by the Government of Cuba, the helmsman, and two watchmen. This distribution of personnel resulted from the fact that the watchman who had started his security patrol at 0030 hours had completed his rounds at 0050 and returned to the bridge to relieve the helm. The watchman in making his rounds did not follow the numerical sequence of the watch clock stations designed to cover all accessible passenger and crew areas of the vessel, and did not cover the port passageway, main deck, in which room 610 was located.

16. Although not known on the bridge, first indications of fire were noted by officers and crew of the vessel after midnight and before 0100. During that time a member of the engine-room crew advised the Chief Engineer by word of mouth that there was smoke coming into the engine spaces through the natural draft ventilation system. Immediately the Chief Engineer started a search in the pantry-galley-bakeshop area with negative findings and without report to the bridge. He proceeded to the main entrance lobby [Purser's square on the main deck] where he met the night cleaner, WHYLEY, who reported that he had found smoke in the men's toilet on the promenade deck. The night cleaner and the Chief Engineer ran up to the promenade deck and forward via the port passageway to the men's toilet opposite stateroom 702. The Chief Engineer opened the door, looked inside, closed the door and proceeded forward. The night cleaner proceeded aft to awaken the crew in the crew's quarters aft. When he passed through the main entrance lobby on the main deck he told the gift shop operator, Charlie AGERO, about the fire and its location. Mr. Agero testified that the time was 0045. At this time Mr. Agero proceeded to the men's toilet on the promenade deck. Meanwhile the radio operator who left the radio room at 0048 had smelled smoke at his station on the sun deck and started looking for the fire. A passenger, Mr. Lloyd LAMN from cabin 634 on the main deck, the Master, the Chief Mate, the First Assistant Engineer, the Cruise Director, the Switchboard Operator and other crewmen and passengers also were looking for the fire and all of the above ultimately arrived on the promenade deck and main deck at the forward staircase. There was considerable confusion in this vicinity with these people arriving and leaving at different times; however, fire and smoke were found or observed by these individuals in room 610 on the main deck and in the men's toilet directly above on the promenade deck. Several fire extinguishers were used to no avail and an attempt was made to activate the zone fire alarm boxes in the vicinity. A fire hose was run out and the First Assistant Engineer was sent by the Chief Engineer to notify the engine room to start the fire pump. By this time the fire appeared to be extremely hot and well advanced in

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Room 610 and when the door to this room was [sic] opened, pushed in or fell in, the fire, heat and smoke broke out into the passageway. Fire and smoke quickly advanced into the forward staircase and aft in the passageway out of control. The Master, leaving the Chief Engineer in charge, returned to the bridge. The Chief Engineer, after fighting the fire for a brief period, gave the hose to an unidentified crewman and went to the engineroom to close off the mechanical ventilating system and to see that all machinery was operating and then proceeded about the decks closing scuppers. The Chief Mate did not tarry at the scene of the fire but went forward on the outside of the house on the promenade deck and with other crew members began assisting passengers out of their stateroom windows and breaking out fire hoses to fight the spreading fire. The radio operator made his way back to the bridge. All others went aft, pounding on stateroom doors to awaken passengers and crew and ultimately to the promenade and boat decks to the area of the after lifeboats. The crew was not alerted to the fire emergency by the general alarm system and the fire emergency organization of off-watch personnel did not come into play during the resulting debacle.

17. ACTION ON THE BRIDGE. It was testified to by the mate on watch that the first indication of fire came to the bridge at about 0110 when the Engineer of the watch, Haralampos SOTIRIOU, a Greek national, licensed by the Government of Panama, reported smoke coming through the engineroom natural draft ventilation system. Immediately the watch officer dispatched one (1) watchman to the sun deck and one (1) watchman to the promenade deck to locate the fire and report. He then reported by word of mouth through the voice tube to the master, who ordered, "Sound the alarm, I am coming up". There was testimony by the Master and several officers of the vessel that the general alarm was sounded and heard, but this was not corroborated by any passengers interviewed. Within a short time the Master arrived on the bridge; directed the mate to stay in charge and departed to locate the fire. The Master returned to the bridge in about five (5) minutes, at which time there was smoke and flame in the chart room aft of the bridge. He ordered, "Stop the engines" [0120], "close the watertight doors in the engineroom" [0121], and "turn to port". No attempt was made to use the public address system. At about this time the radio officer reported for orders and was directed by the Master to transmit a distress message. Immediately thereafter he reported inability to comply because of flames and smoke at the radio room, and was directed to transmit a distress message by flashing light. Communications were not established by the radio officer with either the SS BAHAMA STAR or the MV FINNPULP. During this time bridge personnel were forced by smoke and flame to the open forward

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deck of the wheelhouse. The Master ordered the abandon ship signal sounded at approximately 0125. The Second Mate broke the wheelhouse window and sounded the whistle by the electrical control but was unable to enter the bridge to sound the general alarm. The complete abandon ship signal of seven shorts and one long was not obtained. Within a few minutes the Master, the Second and Third officers and the watchman abandoned the forward deck of the bridge and all, with the exception of the Master, proceeded to assist in the evacuation of passengers. The Master proceeded to motor lifeboat number 3 which contained the emergency radio. He, with the assistance of the Second Electrician, Emmanuel SAKALEROS, a Greek national, was unable to clear the boat because of fire and smoke. At this time the Second Electrician and four (4) passengers, Mr. and Mrs. James T. HEIGEL, from stateroom W-1, and Mr. and Mrs. Carl M. APUZZO, from stateroom 835, released a buoyant apparatus and jumped from the sun [top] deck into the water. Mrs. Heigel testified that her watch stopped at 0130. The Master proceeded to lifeboat number 1, which contained several passengers and after considerable difficulty, due to the proximity of the fire, the boat was lowered to the water by the Master and Chief Boatswain, Ines GOZAN-PINDER, who had come to the boat deck from the forecabin. The boatswain descended in the boat and the Master descended on the life lines. At this time the Staff Captain, Panagiotis MENEGATOS, licensed by the Government of Greece, appeared and came down to the boat on the lifelines. The time by best estimate was 0145.

18. ACTION IN THE ENGINE ROOM. The Third Assistant Engineer with two oilers and two firemen was on the mid-watch [0000 to 0400] in the engine and boiler rooms. Shortly after the completion of blowing of boiler tubes, about 0100, the smell of smoke was noted carrying into the boiler rooms from the top-side ventilators. A fireman was sent up to find out what was wrong and an oiler was dispatched to notify the Chief Engineer and other engineroom officers. The bridge was notified by telephone about 0110. At approximately 0115 the First Assistant Engineer came down and the fire pump was started. About 0117 the sprinkler alarm located in the Number 2 fireroom sounded and the sprinkler pump started. The Chief Engineer came to the engineroom and shut down all power ventilation blowers. About 0120 the engineroom received orders to stop the engines. At this time the firemen cut out three burners on each boiler leaving only one burner operating on each boiler. Boiler #1 was not in service. Soon after the engines were stopped, the three watertight doors in the fire and engine rooms were closed from the bridge; however, the alarm on the engineroom watertight door rang continuously. The fire pump, sprinkler pump, and the generators were operating.

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About 0145 the steam pressure was dropping, so the Third Assistant went up from the engineroom and down into the fire room and added a second burner to the four boilers in the number two fireroom. Everything continued to operate satisfactorily in the engineroom and around 0300 the Third Assistant was advised by word of mouth to add the bilge pump to the fire pump. He and the oiler stayed in the engineroom until about 0400 when they left and departed the vessel by the midship pilot side port on the D deck. All of the above pumps operated continuously and were in operation when the engineroom was abandoned.

19. ACTION FORWARD ON THE VESSEL. The Chief Mate, on leaving the scene of the fire, went aft on the main deck and proceeded up the port crew amidship stairway to the outside on the promenade deck. On going forward toward the bridge he was unable to go into the lobby of the forward stairway due to the heat and smoke in the area. He then continued forward on the promenade deck and began breaking the passenger stateroom windows to assist passengers to get out on deck from their rooms since smoke and heat had filled the passageways at that time. Meanwhile the deck crew in the forecabin had been aroused by a night watchman and had come on deck in that area. Some of them assisted the Chief Mate in getting passengers out of their rooms and in breaking out fire hoses forward to fight the fire that was advancing. No water could be obtained at the fire station on the forecabin head. The fire hose on the port side at the forward end of the promenade superstructure was damaged and was abandoned. The fire station on the starboard side of the promenade superstructure was activated by the Chief Mate and he left a crew member there directing the hose into the lobby stairway area on the starboard side. Good pressure was obtained on this station. The Chief Mate went aft on the starboard side and had a crew member use a fire hose at a location amidships to throw water into the interior of the vessel. He continued on to the after part of the vessel. In the meantime many passengers, several severely burned and cut, had congregated on the boat deck forward. At this time it was impossible to go aft on the boat deck as the fire had broken through the sun deck across the vessel. The crew members forward, including the Second Mate, Third Mate and radio operator assisted the passengers down to the promenade deck in the bow area. Ladders and ropes were lowered over the side of the ship.

About 0150 the number one lifeboat in which the Master, Staff Captain, Boatswain, several crew members and several passengers were embarked went off the vessel about fifty yards and began sending up flares. The passengers and crew in the bow area hailed the boat to pick them up. The Master testified

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that he had been unable to send off an SOS signal and wanted to go to a ship that was approaching from some distance away on the starboard bow to advise them to send an SOS and of the need for lifeboats for rescue purposes. Seeing that the boat was not going to come back to the bow to pick up passengers, several passengers and crew went over the side and swam to the boat. The boat then rowed to meet the approaching vessel, MV FINNPULP, and arrived alongside between 0215 and 0225, about 1/3 mile from the YARMOUTH CASTLE.

Back on the bow of the YARMOUTH CASTLE the remaining crew and passengers waited to be rescued. Three crew members had gone below through the forward hold to the D deck where they opened the forward port cargo side port and went overboard in a small paint boat that was stowed in the hold. Later when the lifeboats from the two rescue vessels arrived, the passengers and crew forward were picked up and taken to these vessels. When evacuation of the vessel was completed by approximately 0400 the port cargo door forward on D deck, at frame 37, and the side pilot ports, port and starboard, at frame 103 on the same deck were open.

20. ACTION AFT ON THE VESSEL. The first indication of fire came to the ballroom-bar area aft on the boat deck at 0105 when Miss Erna GROEGER, a passenger from stateroom 832 on the same deck, burst in screaming "fire". Shortly thereafter a badly burned passenger came into the bar. There was no smoke in this area at the time and the lights were on. Meanwhile other passengers who had escaped from the amidship section and the passengers in the after staterooms were proceeding to the stern of the vessel. The members of the crew in the after crew's quarters came up and mingled with the passengers in this area. Some of these assisted the passengers in finding life jackets, others broke out fire hoses and directed water on the fire forward of the after staircase and others assisted in preparing the after lifeboats for lowering. Although shown on the plans there were no single boats numbers 11 and 12, these boats being nested and identified as 9A and 10A, respectively. The time and order of launching of the boats aft cannot be definitely established except that lifeboat number 7, heavily loaded, appeared to be the first boat in the water. Difficulty was experienced in launching lifeboats 10 and 10A due to the brake seizing on the drum. Other than this delay, which was corrected, boats 7, 9, 9A, 10 and 10A were lowered. All passengers and crew who were not accommodated on the boats left the vessel via lines, ladders and by jumping into the water and were taken on board awaiting lifeboats from the rescue vessels. Some passengers in the staterooms on the main deck escaped the vessel by climbing through the portholes. Various crew members left the vessel by the side

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pilot doors. During the above evacuation the swimming pool aft on the open deck was observed filling with water. The Master testified that he returned to the vessel and assisted in the evacuation of passengers from the stern. This was corroborated by the Chief Engineer.

21. ACTION BY RESCUE VESSELS. The MV FINNPULP, proceeding on a course 100° T., observed by radar, that the range to a following vessel about 7.8 miles aft on the port quarter was opening. A bright glow in that direction was noted and the Master was called at 0130. Looking through his binoculars he saw what he believed to be a ship on fire. About 0132 the vessel was turned and headed back to the YARMOUTH CASTLE. The radio officer attempted to call VPN [Radio Nassau] three times on 500 KCS between 0140 and 0145 but was unable to establish contact. At 0154 he called Coast Guard Radio, Miami, and reported a vessel on fire. No distress signal was transmitted. The vessel's speed was increased from about 13 knots to about 16 or 17 knots and the course changed to 280° T. At about 0215 the FINNPULP came within 1/3 mile of the YARMOUTH CASTLE, made a starboard turn, and stopped. The YARMOUTH CASTLE was broadside to the FINNPULP and at this time towering flames were seen on the YARMOUTH CASTLE forward of the stack and engulfing the bridge area. The FINNPULP's port lifeboat had been cleared and was lowered into the water. The starboard gangway was lowered and a lifeboat from the YARMOUTH CASTLE containing the YARMOUTH CASTLE's master came alongside. The Master of the FINNPULP was told by someone in the lifeboat that the YARMOUTH CASTLE had about 600 persons on board and lifeboats were needed to rescue these people. The passengers and some of the crew in the lifeboat came aboard the FINNPULP and the rest of the crew in the lifeboat headed back to the YARMOUTH CASTLE. The FINNPULP's starboard boat was then lowered and both boats proceeded to rescue passengers from the YARMOUTH CASTLE. Two other lifeboats from the YARMOUTH CASTLE were in the vicinity and the people from these boats later came on board the FINNPULP. The two Finnish lifeboats proceeded to take passengers and crew from the YARMOUTH CASTLE and finally the vessel took on board 51 passengers and 41 crew. Two of the YARMOUTH CASTLE lifeboats were later hoisted on board the FINNPULP. The FINNPULP remained in the vicinity until the YARMOUTH CASTLE sank at 0603 and then proceeded to Nassau, Bahamas, where the survivors were placed ashore. One badly burned survivor was removed from the MV FINNPULP by Coast Guard helicopter.

SS BAHAMA STAR. The SS BAHAMA STAR was proceeding in the Northwest Providence Channel at a speed of 14 knots on course 101° T. At about 0205 hours the mate on watch on the BAHAMA

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STAR advised the Master that he could see Great Stirrup Light. In keeping with his routine, the Master looked out of the porthole, observed the light and at the same time observed an orange glow on the horizon on the port bow. The Master came to the bridge, observed a vessel on fire and ordered the helmsman, "Come left and steer for that ship". The BAHAMA STAR arrived alongside the starboard side of the YARMOUTH CASTLE at about 0225. Enroute a blinker light from the YARMOUTH CASTLE was observed; however, no actual message was read or understood. Two or three lifeboats were at this time passed and hailed. These boats were from the YARMOUTH CASTLE. The YARMOUTH CASTLE was afire from her stack forward, including her bridge and radio shack, through all decks to the main deck. The forecandle head was not burning nor was there fire aft. Fourteen boats were placed in the water from the BAHAMA STAR. These lifeboats proceeded to take passengers and crew from the YARMOUTH CASTLE, completing rescue efforts at approximately 0415 hours. The BAHAMA STAR remained in the vicinity until the YARMOUTH CASTLE sank at 0603 and upon release by the Coast Guard proceeded to Nassau, Bahamas, where survivors were placed ashore. The BAHAMA STAR took on board 240 passengers and 133 crew. Twelve passengers, badly burned, were evacuated to Nassau from the SS BAHAMA STAR by Coast Guard helicopter.

22. At 0154 the MV FINNPULP advised Coast Guard Radio, Miami, of a vessel on fire. This information was relayed from the Coast Guard Rescue Coordination Center to the Coast Guard Air Station, Miami, Florida, by telephone at 0204. The first aircraft was airborne at 0236 and was followed by three others at 0300, 0302 and 0332, respectively. The first helicopter was airborne at 0322 hours, followed by another at 0412 and a third at 0657. Illumination of the scene was commenced at 0343. At 0513 the first of the twelve injured passengers transported to Nassau was hoisted from the SS BAHAMA STAR. Search of the area was conducted throughout the day with the last helicopter departing the area at 1651 and the last aircraft departing at 1745.

23. There was no noticeable list to the vessel during the night prior to the casualty. After the fire broke out, the vessel heading was altered to place the prevailing wind on the starboard side and the vessel was stopped. As time elapsed a gradual list developed to the port side and the vessel was down by the head. By about 0300 the list appeared to be approximately 4 to 5 degrees. When the vessel was completely abandoned about 0400 the list was estimated to have increased to about 7 or 8 degrees and the sea was observed entering the forward open cargo side port on the port side. The list continued to increase to port until the

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vessel quickly rolled over, bottom up, and sank at 0603.

24. The radio room, the motorboat fitted with radio-telegraph installation, and the lifeboat portable radio apparatus stowed in the chart room were all located within the same relative area on the vessel. Accordingly, when the fire broke out in this area, these three independent means of transmitting radio messages for assistance were, within a very short time of each other, unavailable for use.

25. The sprinkler system alarm sounded on the bridge and in the engineroom during the fire. The Chief Engineer testified that when he was on D deck he observed the sprinkler system guages and noted that the sprinkler system in zone 2 on the boat deck and zone 3 on the promenade deck was operating.

26. Room 610 was located on the Main Deck [referred as Upper C deck on original construction plans] on the inboard side of the port passageway and immediately forward of the boiler room uptake. The steel galley vent trunk on the forward side separates the room from the forward passenger stairwell. On the starboard side of the room was a ladies toilet. The boiler room was below and above was a men's toilet on the promenade deck and over that was another toilet on the boat deck. At the forward and after ends of this room were natural ventilation ducts which extend vertically from this room to the top of the superstructure. These ducts also served the two toilet rooms above and opened directly into those rooms. Additionally, a mechanical exhaust duct, previously described, served these rooms. Room 610 had been built as a toilet room and was of steel construction, and when the sprinkler system was installed in 1947 no sprinkler head served this room. At some later date the room had been converted to a ship's hostess stateroom, but no sprinkler head was installed. In October 1965 the room was dismantled and insulation, paneling and equipment removed. Testimony by Roderick Smith, the Second Steward, and several other crew members indicated that on the night of the fire nothing was in the room with the possible exception of a vacuum cleaner and a mop. Testimony by the hostess, Ruth WRIGHT, and Charles AGERO, the gift shop operator, indicated that they entered the unlocked room the evening of the fire to look at some mattresses that were stored inside. Their testimony indicated that in the room were about five mattresses, a couple of damaged chairs, pieces of scrap paneling, a vacuum cleaner, and other miscellaneous items. A jury rigged electric cable stretched across the room from which hung a large naked light bulb and socket with bare wire connections and it was indicated that the light was on when they entered and left. Further testimony indicated that arrangements had

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been made with the stewards to secure one of these mattresses from this room to be put on Mr. Agero's bunk that night. Mr. Agero stated that later that night when he visited his stateroom his bunk had been fitted with a mattress.

27. The greatest loss of life was determined to have occurred on the boat deck. Fifty-two of the passengers and crew missing and presumed dead were assigned staterooms on this deck; twenty-two were assigned staterooms on the promenade deck; and thirteen were assigned staterooms on the main deck. Two of the passengers known dead were assigned staterooms on the boat deck and the third was assigned a stateroom on the main deck.

28. Testimony of several witnesses who occupied outside staterooms on the night of the fire indicated that they could not open the windows and shutters in their staterooms.

CONCLUSIONS

1. That the fire originated in room 610, on the main deck, originally a toilet space, containing a number of combustible items including mattresses, discarded bulkhead paneling and broken chairs. The fire smoldered and increased in intensity for an unknown period of time.
2. That the source of ignition of the fire could not be determined, but could be attributed to anyone or a combination of the following:
 - a. Malfunction of the lighting circuit in room 610 which had been jury rigged.
 - b. Sparks entering room 610 through the natural ventilation ducts during blowing of boiler tubes.
 - c. Unintentional or careless acts of persons entering room 610 during the evening of 12 November 1965, such as failure to extinguish a cigarette; placing of mattresses so that they came in contact with the jury rigged lighting circuit, etc.
3. That the proximate cause of the debacle was failure of early detection of the fire in a ship with combustible materials in her structure. When the fire escaped room 610, the wooden interior and inflammable paint together with the chimney effect of the forward stairway permitted a rapid, uncontrolled spread of fire and smoke to the overhead of the boat deck and forward passageways. Contributing to the rapid spread was the mechanical exhaust system connecting room 610 with the toilet spaces on the port side of the main deck.
4. That contributing to the failure of early detection was the inadequate control of the security patrol in not knowing that he was not following the prescribed route and thereby increasing the possibility of a fire going undetected. A further contributing factor was the absence of a sprinkler head in a room containing combustible materials.
5. That the magnitude of loss of life stemmed from failure of early use of the general alarm or the public address system and failure of windows and shutters on outside staterooms to be maintained in a condition so they could be easily opened.
6. That the general alarm did not ring during the casualty.
7. That an attempt to sound the general alarm was not made before the Master returned from the scene of the fire to the bridge. Failure of the alarm on any subsequent attempt is ascribed to the fact that the general alarm was a one circuit

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system and fire damage to any portion would place the complete circuit out of operation.

8. That the lack of pressure at fire hydrants forward on the vessel is ascribed to the fact that more valves were opened throughout the ship than the fire pumps could service. Contributing to this deficiency was the open valve from the fire main to the swimming pool.

9. That the installed sprinkler system was in operation, but was ineffective in reducing a fire of this magnitude.

10. That the sprinkler system is of value only in early detection and extinguishment of small fires in their early stages within the area of sprinkler heads. It is of little value in hidden spaces such as overhead ceiling spaces, behind paneling, etc., or where an advanced fire has developed before the sprinkler system comes into action.

11. That with the possible exception of the sliding fire screen door in the port passageway aft of room 610 there is no evidence that any fire doors in the vessel were closed.

12. That the Master and ship's officers who were searching for the fire and ultimately arrived at the scene failed to take firm and positive action to organize the crew to isolate and combat the fire or to awaken and evacuate passengers in the area.

13. That the decision of the Master to leave his ship to allegedly go to the rescue vessel to assure the sending of the distress signal demonstrates negligence, abandonment of command responsibility, and an overall failure to approach and cope with the difficulties attending the accomplishment of a task of this order of magnitude.

14. That the emergency squad was unable to obtain gear from the emergency squad locker outside the radio room on the sun deck due to the delayed alert and the rapid spread of fire in the area.

15. That the organization of the vessel for fighting a fire as evidenced by the station bill was adequate; however, the organization was not implemented upon first discovery of the fire or subsequently thereto and prior to its getting out of control. When the fire was out of control those members of the crew remaining on board and performing as individuals performed adequately.

16. That the organization of the vessel for abandon ship, as

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evidenced by the station bill, was adequate and in view of the extent of the fire at the time the abandon ship signal was given, all accessible boats were utilized and there was no loss of life as a result of abandon ship procedures.

17. That a progressive list developed to port as a result of the accumulation of water on the several decks from the sprinkler system, open fire hydrants, and probably sanitary lines damaged during progression of the fire. As this list progressed the open side ports became awash and, as the testimony indicated that no watertight doors other than three doors in the boiler and machinery spaces were closed, the sea flooded the vessel amplifying the list and the vessel rolled over and sank.

18. That the inspection performed by the American Bureau of Shipping for the Passenger Vessel Safety Certificate was proper and adequate. The vessel was equipped in accordance with the SOLAS, 1960, requirements with the single exception of inflatable life rafts, and the board received no evidence of significant failure or deficiency.

19. That the inspection performed by the Coast Guard for the Examination of Foreign Passenger Vessel Certificate was proper and adequate to verify that the vessel was in compliance with her Passenger Vessel Safety Certificate and that her lifesaving and firefighting equipment was satisfactory.

20. That the rescue effort of the SS BAHAMA STAR and the MV FINNPULP was performed in an exemplary manner and in keeping with the highest traditions of the sea.

21. That over half of the persons who are missing and presumed dead were assigned staterooms on the boat deck and their loss is attributed to the rapid rise of smoke, heat and fire in the forward staircase reaching the closed overhead of the staircase on the boat deck and rapidly spreading horizontally preventing passengers exiting through the passageways.

22. That the board had difficulty, and was unable to correlate fully the observed and estimated times of reported events into a chronological sequence.

RECOMMENDATIONS

1. That a copy of this record of investigation be forwarded to the Government of the Republic of Panama for information, study and such action as deemed appropriate looking to preventing a reoccurrence of such a casualty and for improving the safety of life at sea.
2. That, although the record indicates there are no U.S. flag passenger vessels operating on the high seas with combustible material in their structure, it is recommended that the Commandant, U.S. Coast Guard, institute a study looking to federal legislation to require that any other American flag passenger vessels fitted with passenger berthing spaces and built prior to 27 May 1936, be made to conform to the requirements for use of incombustible material in their structure as applicable to passenger vessels built subsequent to that date.
3. That the Commandant, through the U.S. representatives to the Inter-Governmental Maritime Consultative Organization [IMCO], seek to amend the International Convention for Safety of Life at Sea, 1960, to require all signatory governments to upgrade passenger vessels which contain large amounts of combustible material in their construction to obtain an acceptable fire safety standard.
4. That in the interim period the Commandant give consideration to the following suggestions for improving safety of existing passenger vessels of type construction and service similar to the SS YARMOUTH CASTLE, and that these be the basis of discussion looking to bilateral agreements with foreign governments whose flag vessels transport passengers from U.S. ports:
 - a. During the nighttime, watchmen should make complete rounds of all accessible areas of the vessel every 20 minutes.
 - b. An independent alarm system from the bridge should be provided serving the emergency squad berthing spaces for the purpose of alerting them at the first sign of an emergency.
 - c. All fire screen doors, except normally closed doors, should be capable of release from a control station on the bridge and also at the doors themselves. The doors should be capable of automatically closing upon failure of the control system.
 - d. Steel fire screen bulkheads should be provided with incombustible insulation to provide adequate fire barriers.
 - e. All exposed paneling in passageway bulkheads that

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provide escape routes from passenger and crew staterooms should be of incombustible material.

f. All stairwells should be trunked in with incombustible paneling and fitted with fire screen doors to enclose the area.

g. All ventilation ducts that pass through fire zone bulkheads should be provided with automatic fused fire dampers.

h. The sprinkler system should cover all interior combustible spaces accessible to passengers and crew including spaces where combustible material might be stowed.

i. A loudspeaker communication system should be provided to all passenger and crew areas.

j. All emergency means of escape available, such as stateroom windows and portholes, should be kept in good operable condition.

k. Vital communications systems such as general alarm circuits, loudspeaker system, etc., should be installed clear of high fire hazard areas and/or insulated against early damage.

l. Pressure should be maintained on the fire main system at all times.

m. On all overnight voyages on vessels equipped with berthing areas a fire and boat drill, including muster of passengers, should be held at starting or shortly thereafter.

n. Consideration be given to the adequacy of communication among officers, crew and passengers concerning matters pertaining to safety of life at sea.

5. That the Commandant, through the U.S. representatives to IMCO, seek to revise the construction standards of new passenger vessels prescribed in the 1960 SOLAS to require the maximum use of incombustible material, as opposed to reliance on sprinklers and detecting systems in conjunction with partially combustible construction.

6. That the Commandant give consideration to implementing letters of commendation to those vessels and personnel who performed in the rescue operation in the highest tradition of the sea. This will be the subject of separate correspondence from the board.

MARINE BOARD OF INVESTIGATION, SS YARMOUTH CASTLE

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