



# THE MERCHANT SHIPPING ACT, 1894

## REPORT OF COURT (No. 7952)

### s.s. "Samkey" O.N. 169788

In the matter of a Formal Investigation held at the Auctioneers' and Estate Agents' Institute, 29, Lincolns Inn Fields, London, on the 22nd, 23rd, 24th, and 26th days of July, 1948, before Mr. K. S. Carpmael, K.C., assisted by Captain J. P. Thomson, Captain W. Beswick, D.S.C., R.D., R.N.R., and Mr. E. F. Spanner, M.I.N.A., into the circumstances attending the loss of the s.s. "Samkey" on or about the 1st February, 1948.

The Court, having carefully inquired into the circumstances attending the above-mentioned shipping casualty, finds, for the reasons stated in the Annex hereto, that the s.s. "Samkey" was lost with all hands due to a sudden shift of the solid ballast in the 'tween decks during heavy weather.

Dated this 6th day of September, 1948.

K. S. CARPMAEL, *Judge*

We concur in the above Report.

J. P. THOMSON  
W. BESWICK  
E. F. SPANNER } *Assessors*

#### ANNEX TO THE REPORT.

This Inquiry was held in London on the 22nd, 23rd, 24th, and 26th of July, 1948.

Mr. J. B. Hewson, (instructed by The Treasury Solicitor) appeared for the Minister of Transport.

Mr. Roland Adams, (instructed by Messrs. William A. Crump & Son of London) appeared for the New Zealand Shipping Company Limited.

Mr. Hector Hughes, K.C., (instructed by Messrs. Neil Maclean & Co. of London) appeared for the National Union of Seamen.

Mr. P. F. Broadhead, (of Messrs. Ingledew Brown Bennison & Garrett & Co. of London) appeared for the Navigators' and Engineer Officers' Union.

Both Mr. Hughes and Mr. Broadhead applied for their clients to be made parties, which request was granted.

Mr. C. Hackforth Jones, (instructed by Messrs. W. H. Thompson of London) and Mr. Lester Rose, (instructed by Messrs. Gale & Phelps of London) held watching briefs on behalf of interested parties.

The Steamship "Samkey," Official Number 169788, of the Port of London was a steel, flush deck, single screw, steam driven cargo vessel with machinery amidships. She had two decks and a double bottom under the holds and machinery space. She was partly welded and partly rivetted. The tank top,

double bottom structure, decks, bulkheads, and deck-houses were of welded construction; the butts of the shell plating were welded, the seams were rivetted; the main side frames were rivetted to the shell.

The "Samkey" was built in 1943 by Bethlehem-Fairfield Shipyard Inc. Baltimore, Maryland, U.S.A. (Yard No. 2295). She was launched as the "Carl Thusgaard"; her name was subsequently changed to "Samkey".

The "Samkey" was owned by His Majesty, represented by the Minister of Transport, London. She was managed by the New Zealand Shipping Company, Limited, 138, Leadenhall Street, London, E.C.3.

The registered dimensions were :—  
422.8 ft./57.0 ft./34.85 ft.

The builders' dimensions were :—  
Length (on 25ft. 3½ins. water line), 416ft. 0in.  
Breadth moulded, 56ft. 10½ins.  
Depth moulded to upper deck, 37ft. 4ins.  
Depth moulded to 2nd deck, 28ft. 7ins.

The tonnages were :—  
Underdeck 6,696  
Gross 7,219  
Net Register 4,380

The "Samkey" had seven watertight bulkheads extending to the upper deck and separating the following compartments :—

Fore peak tank, Bo'sun's stores and Chain Locker.

No. 1 Cargo hold and 'tween deck and two deep tanks in the hold.

No. 2 Cargo hold and 'tween deck.

No. 3 Cargo hold and 'tween deck.

Engine and Boiler room and stores.

No. 4 Cargo hold and 'tween deck and a deep tank in the hold.

No. 5 Cargo hold and 'tween deck.

Aft peak tank and steering gear compartment.

There was a watertight door in the bulkhead between the machinery space and the shaft tunnel.

On the upper deck amidships a steel deckhouse surrounded the engine and boiler casing and accommodated the crew, messrooms and galley. The top of this deckhouse formed the boat deck. On the boat deck a steel deckhouse surrounded the boiler casing and accommodated the officers. On the bridge deck over this erection a steel deckhouse surrounded the boiler casing and accommodated the master, wireless operators, wheelhouse, chart room and wireless room.

On the upper deck at each of the three masts was a small steel deckhouse used for stores, and aft there was a steel deckhouse accommodating crew and the hospital.

The "Samkey" had a steel bulwark 3ft. 6ins. high all round, except for a short distance at the after end.

There were 5 main cargo hatches (one to each cargo hold), fitted with thwartship beams and wood covers laid fore and aft. Battening down was effected by the usual arrangement of tarpaulins, battens and wood wedges. Hatch locking bars were provided.

The double bottom tanks under the holds could be used for the carriage of oil fuel or water ballast. Those under Numbers 2, 3, and 4 Holds were divided into port and starboard tanks by an oil tight middle line girder. The tanks under Numbers 1 and 5 Holds were not divided.

The tank under the after part of the machinery space was used for boiler feed water and was divided into port and starboard tanks.

Under the forward part of the machinery space there was a "void" tank. When the "Samkey" sailed this tank was full of fresh water ballast.

In the holds there were centre line bulkheads except in way of the hatches. In the forward holds, these extended from the tank top to the second deck, and in the after holds they extended from the top of the shaft tunnel to the second deck.

The two deep tanks in No. 1 Hold and the deep tank in No. 4 Hold could be used for the carriage of dry cargo, oil fuel or water ballast. They were divided into port and starboard tanks by an oil tight division on the middle line.

The "Samkey" had one 3-cylinder triple expansion steam engine built in 1943 by Ellicott Machine Company, U.S.A., and two oil fired water tube boilers built in 1943, by Combustion Engineering Corp., U.S.A.

The designed speed was about 11 knots.

The "Samkey" had steam steering gear with telemotor control.

The "Samkey" had four class 1A steel lifeboats stowed two on each side of the boat deck under mechanical davits:

One 24ft. lifeboat certified for 36 persons.

One 24ft. lifeboat fitted with motor and certified for 32 persons.

All Lifeboats were fitted with Mills type of releasing gear.

The life-saving appliances included:—

46 Victory type lifejackets.

8 Cork circular lifebuoys.

A line-throwing appliance.

The life-saving appliances were inspected by a Ministry of Transport Surveyor in January, 1948, and were certified as being in a satisfactory condition.

The navigation lights and sound signals were inspected by a Ministry of Transport Surveyor in January, 1948, and were certified as being in a satisfactory condition.

The "Samkey" had the following wireless apparatus:—

Main Transmitter.

Emergency Transmitter.

Main Receiver.

Crystal Receiver.

S/W. Receiver.

Direction Finder.

Portable Lifeboat Transmitter.

Portable Lifeboat Receiver.

The apparatus was inspected and passed by a Ministry of Transport Surveyor in January, 1948.

The "Samkey" was built under a special survey of the American Bureau of Shipping and classed plus AI(E) indicating that organisation's highest classification.

On transfer to British Registry a load line certificate was issued by the British Corporation Register of Shipping and Aircraft. The certificate was issued on the 3rd January, 1945, to expire on 22nd December, 1948, and was duly endorsed after re-survey on 19th January, 1948.

The assigned freeboards were:—

Tropical 9ft. 1 $\frac{3}{4}$ ins.

Summer 9ft. 8 $\frac{3}{4}$ ins.

Winter 10ft. 3 $\frac{3}{4}$ ins.

The freeboards were measured from the top of the upper deck stringer plate at side.

The fresh water allowance was 7 $\frac{1}{2}$ ins. for all freeboards.

The draught corresponding to the Summer freeboard was:—

27ft. 7 $\frac{3}{4}$ ins. moulded

27ft. 9 $\frac{1}{4}$ ins. full.

A freeboard survey and an external survey of the hull in dry-dock were carried out in January, 1948.

The "Samkey" was one of a large number of partly fabricated vessels—commonly known as "Liberty Ships"—produced in United States Shipyards during the War. There was evidence that early Liberty ships suffered casualties due to certain defects in their structural design, but the Court is satisfied that the causes of such structural faults were investigated and eliminated from the "Samkey" and sister Liberty ships.

The Court is of opinion that the "Samkey" was sound in hull design and construction, and was equipped with machinery which, also, was sound in design and entirely adequate to its task. Further, the vessel was thoroughly well maintained as to both hull and machinery and carried British Corporation Classification. Sister ships to the "Samkey" built at the same U.S. shipyard at or about the same date as the "Samkey" now carry Lloyd's Register Classification 100 A1.

The "Samkey" at the time of her presumed loss was in the course of a ballast voyage from London to Cuba having left London during the forenoon of the 24th January, 1948.

As the Court has come to the conclusion that the loss of the "Samkey" must have been due to a shifting of the solid ballast which was carried in the 'tween decks, it is necessary to consider:—

(a) why such ballast was put on board;

(b) the nature of such ballast, and

(c) the way in which it was stowed.

There is no doubt that in ordinary ballast conditions "Liberty" ships are "stiff" and therefore subject to somewhat heavy rolling which naturally affects their manoeuvrability. Accordingly, the practice was adopted of placing solid ballast on board such vessels in order to make them more manageable when carrying out ballast voyages in convey.

Naturally the nature of such ballast varied according to the whereabouts of the vessel at the time. It is also clear that the amount of ballast and its distribution varied considerably among different ships. Details have been put before the Court of the way in which such winter voyage ballast was distributed in ships belonging to a number of owners. These distributions varied from a case in which 500 tons of ballast was carried on deck and nothing in the holds, to a case in which 600 tons of ballast was carried in the 'tween decks and 1,200 tons in the holds. In an intermediate case 1,000 tons was carried in the 'tween decks and 500 tons in the holds.

It is obvious that the presence of such ballast on board and its vertical distribution must have a considerable effect upon both statical and dynamical stability even if the ballast does not shift; and if the ballast does shift the consequences may be very serious.

The type of ballast used in the "Samkey" was "Thames ballast" which consists of stones of varying sizes mixed with sand, with an angle of repose of 35° to 40° from the horizontal. It is stated to have been dampish when loaded.

There was a total quantity of 1,500 tons, all loaded in the 'tween decks, and although it was trimmed more or less level out to the sides no shifting boards were fitted and in consequence the only things to contain the ballast were the ship's sides and the bulkheads forward and aft.

There is no doubt that Thames ballast has been used in the 'tween decks in a number of Liberty ships in the same way—if not to the same extent—as in the case of the "Samkey," and on similar winter voyages, without any shifting taking place. Indeed there was evidence that in some cases such ballast has become so consolidated as to require a pick to break it out. On the other hand it is clear from the following Notice to Shipmasters issued by the Ministry of War Transport in December, 1942, that instances of shifting ballast have occurred and have caused grave concern.

#### UNSEAWORTHY SHIPS.

Shifting of solid ballast in heavy weather.

The attention of Masters is drawn to the liability of certain kinds of solid ballast to shift and endanger a ship. Serious lists have been caused by the shifting of shale, colliery stone, slag, and sand ballast.

Reports which have been received indicate that the term "shale" is used for various descriptions of mine refuse including refuse from the coal washers which when dry may not be unlike gravel and has a tendency to shift similarly to grain. In one ship where a list of 30° occurred as a result of the ballast shifting the term was applied to "colliery stones" which are of a brittle slaty nature with slippery surfaces.

Solid ballast is frequently carried in the 'tween decks and on weather decks of cargo ships in the ballast condition for the purpose of reducing "stiffness" but it must be borne in mind that the forces tending to cause shifting are greater at these positions than in the holds because of the greater distance and speed of transverse movement of the upper parts of a ship when she is rolling.

Masters are therefore urged to see that adequate trimming of solid ballast of kinds liable to shift is carried out and that in any case solid ballast carried in 'tween decks or on deck is well spread out and trimmed practically level.

Attention is also drawn to the importance of keeping ballast clear of strums and the caps of sounding pipes.

In the light of our present knowledge it was unfortunate in the extreme that the Notice set out above only called for adequate trimming of solid ballast of kinds liable to shift without any advice or instruction that such ballast should be prevented from shifting by the use of shifting boards or other methods, especially when loaded in 'tween decks. In addition, the mention by name of certain types of solid ballast as liable to shift might be taken to suggest, however unintentionally, that other types, such as Thames ballast, were not liable to shift.

Two further sets of instructions were later on sent by the Ministry of War Transport to the Managers of the "Samkey", the first a letter dated 28th December, 1943, in the following terms:—

"SAM Vessels." "With reference to the memorandum sent for your guidance as managers of the above type of vessels and in particular to paragraph 20, owing to the world shortage of solid ballast, especially in those areas where SAM vessels are likely to discharge, a concerted policy has been found necessary. The matter has been explored most carefully in the light of the experience gained by American "Liberty" and 'Sam' Vessels now sailing. As a result, it is considered that if these double-bottom tanks and other tanks are full either of water or of oil, then 1,500 tons of solid ballast is sufficient for North Atlantic ballast purposes, which is the yardstick and, in general, the maximum requirements. This gives a deadweight of about 4,200 tons. This ballast should be distributed in accordance with the Captain's requirements, which are likely to call for a large quantity in the 'tween decks, as, this type of vessel is stiff. The principle remains of master's requirements being met, but he should be guided as above, and he should only under special circumstances take more than 1,500 tons. Will you please inform your Masters accordingly, and also that we have no objection to oil alternating with salt water in the vessel's tanks. The above does not cancel any General Instructions which have been issued from time to time. The Ministry's representatives in the various areas concerned have been informed. Yours faithfully.

Attention is called to the following passage:—

"This ballast should be distributed in accordance with the Captain's requirements which are likely to call for a large quantity in the 'tween decks, as this type of vessel is stiff".

The second letter was sent to the Managers on 28th March, 1944, and was as follows:—

"SAM Vessels". "Further to our letter of 29th December (presumably the previous letter above) experience has shown that the most important feature of the ballasting of these vessels is the disposal of the solid ballast in the holds.

As stated perviously, this should be done in accordance with the Captain's requirements, but it is hoped that the enclosed diagram showing a stowage of solid ballast—which is purely for guidance—will be found of general assistance.

It may not always be possible to stow the ballast exactly in this way but this arrangement is desirable in that it minimises excessive strain on the hull.

As you may wish to put a copy of the diagram on board each of the 'SAM' vessels under your management, I enclose copies. Yours faithfully."

Attached to this letter was a plan which showed the vessel loaded with 1,500 tons of solid ballast, distributed longitudinally as follows:—550 tons in No. 2 Hold and 'tween deck, 400 in No. 3 Hold and 'tween deck, 200 in No. 4 Hold and 'tween deck, and 350 in No. 5 Hold and 'tween deck. The vertical distribution was 425 tons in the 'tween decks and 1,075 tons in the holds. A Note at the bottom of this drawing stated:—"This stowage plan is intended for guidance only."

Attention is called to the following points:—

- (a) The letter states, "It will not always be possible to stow the ballast exactly in this way, but this arrangement is desirable in that it minimises excessive strain on the hull."

The inference is that this distribution of ballast had been worked out simply with control of the longitudinal bending moment in view—not with consideration of the question of stability or stiffness. The advice to stow only 425 tons in the 'tween decks and 1,075 tons in the holds appears to be contrary to the remark in the previous letter that :—“This ballast should be distributed in accordance with the Captain's requirements which are likely to call for a large quantity in the 'tween decks as this type of vessel is stiff.”

- (b) No mention is made as to the character of the solid ballast to be used nor as to any special precautions over and above such as might be regarded as those current, e.g., those set out in the Notice of December, 1942.

When convoys were discontinued a circular letter dated 29th May, 1945, was sent out to all concerned by the Ministry of War Transport in the following terms :—

“Solid Ballast”. “As from today's date it will be unnecessary to ship solid ballast for vessels not sailing in convoy. In the past solid ballast has been provided and shipped solely to enable vessels to maintain correct station whilst in convoy. There are some vessels which require a certain quantity of solid ballast aboard to enable them to move in safety, but these cases are few and will be treated as exceptions to the general policy. In addition certain vessels may require to ship solid ballast for operational reasons. It is the intention to return to the peacetime practice as quickly as possible. The shipment of solid ballast was then a rare occurrence. Ships sailing independently will normally be routed in accordance with the wishes of the Master, and he will if occasion demand be in a position to nurse his vessel. Gratuities for disposal of solid ballast actually on board ships as at today's date will be paid in accordance with my letters of October, 1941. No gratuities will be paid hereafter.” This is signed by the Director of Ship Management.

It is to be remarked that this letter recognised that “there are some vessels which require a certain quantity of solid ballast aboard to enable them to move in safety” although such cases were few and were to be treated as exceptions. In addition, however, it is stated that “certain vessels may require to ship solid ballast for operational reasons.” Whether this referred to operations of War or operations of peace is not clear, but it was interpreted by the Managers of the “Samkey” as allowing the use of solid ballast in that vessel. The distribution of such ballast had been left by the previous letters to the discretion of the Managers or the Masters of their vessels, and provided the ballast was properly stowed and distributed the Court sees no reason why it should not be carried if the Managers or Masters thought fit.

Having set out the information which was placed at the disposal of the Managers by the Ministry, it is now desirable to give in detail the experience of the “Sameveron,” a sister ship of the “Samkey”. She left London in ballast in December, 1944, for a voyage across the North Atlantic in convoy. In all, she took on board before leaving 2,025 tons of Thames ballast, 1,020 tons of which was in the lower holds and 1,005 tons in the 'tween decks. After making allowances for filling No. 2 deep and other tanks when clear water was reached her G.M. was 4.3 feet. The amount and disposition of ballast had apparently been decided by the Master of the ship, and his opinion was that if the ballast had not shifted she would have been in a fairly good condition although stiff. Before loading the ballast, the Master had made enquiries which led him to think that such ballast never shifted. Accordingly no shifting boards were

used. When off the Newfoundland Banks severe weather was experienced with a beam wind of force 10 and the vessel rolled 40° or 50°. The ballast then shifted suddenly with a run as a result of which the vessel listed 55° to starboard. Fortunately there was no further increase of list and with improving weather the ballast was re-stowed and the vessel made port. Thereafter the ballast was re-stowed with shifting boards and no further trouble was experienced.

In the opinion of the Court there is no doubt that the “Sameveron” and her crew had a very lucky escape. The Court is also of opinion that there was a definite lesson which ought to have been learnt from her experience and that is that the use of shifting boards or other method of preventing *any* shifting of solid ballast is vitally necessary. Had the experience of the “Sameveron” been brought to the attention of shipowners and shipmasters, the Court is of opinion that the ballast in the “Samkey” would not have been stowed without the use of shifting boards and that in consequence she would not have been lost.

The case of the “Sameveron” was reported to, and investigated by, the Ministry, and the Court considers that the failure to give this case the wide publicity it demanded was an error of judgment.

Coming back to the case of the “Samkey”, it is clear that the amount and distribution of the Thames ballast loaded in the “Samkey” was decided in consultation between the Marine Superintendent of the Managers and the Master of the ship. It does not appear to have occurred to either that it was desirable to take steps to prevent a shift of the ballast by the use of shifting boards. The Marine Superintendent had had previous satisfactory experience of the use of such ballast, but it is not known whether this was also true of the Master. Neither, unfortunately, had the advantage of knowing what had happened to the “Sameveron” three years earlier.

Although the way in which the ballast was loaded (that is to say in the 'tween decks only) undoubtedly had the effect of reducing the G.M. and rendering the vessel less stiff and less uncomfortable, the Court is satisfied that this was achieved only at the expense of the ship's dynamical stability, reduction of which meant that, in heavy weather, she would roll to a greater angle than had she retained more stiffness. In such case there would be a reasonable possibility that, in the absence of shifting boards, the ballast might shift.

The Court has given anxious consideration to the question whether blame should be attached to either the Marine Superintendent or the Master for failure to use shifting boards and has come to the conclusion that such failure was due to an error of judgment on the part of both in that both failed to anticipate the possibility of a vessel such as the “Samkey”—despite the fact that she had a G.M. of between 3 and 4 feet—rolling to such an angle during a North Atlantic winter voyage that Thames ballast spread out and trimmed level in the 'tween decks, but without shifting boards, would take charge and shift.

Before considering the final circumstances which led up to the loss of the “Samkey” it is necessary to consider the initial stability of the “Samkey” when she sailed, and the change therein that would have come about if the two forward deep tanks were filled after sailing. This latter point arises because of the intention expressed by the Master before sailing of filling the two forward deep tanks upon reaching clear water.

Expert evidence on this point on behalf of the Minister showed that on sailing and before the deep tanks were filled the metacentric height was probably 3.4 feet after making a correction for free surfaces of 0.8 feet. If the deep tanks were filled the corresponding figure would have been—metacentric height

4.0 feet after making the same correction for free surface. Providing no ballast moved, the Minister's expert considered such metacentric heights to be satisfactory. Should however such a shift occur, he considered that the reserve stability would be considerably lessened, and taking into consideration the probable shift of stores and other things the ship with a heel of 45° would be in a very dangerous condition. The Court sees no reason not to accept this latter opinion, but desires to make it clear that a larger metacentric height than 3.4 or even 4 feet would have been desirable since the Minister's expert showed that even with shifting boards placed fore and aft in the centre line there would have been a considerable lessening of stability if the ballast had shifted within these restricted confines.

As appears from the answer to Question 22, the "Samkey" encountered normal and not too bad weather up to the afternoon of 31st January. It appears probable that later that day she passed through the track of a severe storm with winds of force 11 reaching force 12 in gusts, the worst weather probably being experienced between midnight on the 31st January and 4.0 a.m. on the 1st February.

The Court is of opinion that in such weather the ballast, uncontrolled as it was, was very likely to shift and probably did so with a run. Such a shift, coupled with two or three big waves and the wind, might well have caused the "Samkey" to have been overwhelmed. It is pointed out that a sudden disastrous shift would account for no distress signals having been heard, and for the absence of floating wreckage such as life-jackets, oars, hatchcovers, and the like.

The circumstances of this disaster make it urgent that steps should be taken at once to prevent a recurrence.

There is no doubt that despite the wording of the Ministry's letter of 29th May, 1945, set out above, there is a body of sea-going opinion which regards the use of solid ballast as essential in such vessels as the "Samkey" when carrying out ballast voyages, although there is no unanimity of opinion as to its distribution.

As pointed out above, the matter is at present left to the discretion of shipowners and shipmasters.

In these circumstances, the Court recommends that definite instructions should be issued immediately that solid ballast of any character should not be carried in 'tween decks without suitable precautions being taken to prevent any shift, and that such precautions are to be regarded as essential to seaworthiness.

The Court further desires to recommend that an early investigation should be instituted into the character and qualities of different kinds of solid ballast

- (a) when wet, and
- (b) when dry ;

that these different kinds of ballast should be divided into distinctive grades ; and that definite instructions should be issued as soon as possible as to the extent of the precautions necessary to render safe the carrying of these various grades of ballast both in 'tween decks and in holds.

K. S. CARPMAEL, *Judge*

We concur,

J. P. THOMSON  
W. BESWICK  
E. F. SPANNER } *Assessors*

**QUESTIONS and ANSWERS.**

The Court's answers to the questions submitted by the Ministry of Transport are as follows :—

Q. 1. When and where was the steamship "Samkey" built ?

A. In 1943 by Bethlehem-Fairfields Shipyard Inc. Baltimore, Maryland, U.S.A. She was launched as the "Carl Thusgaard" ; her name was subsequently changed to "Samkey".

Q. 2. By whom was the s.s. "Samkey" owned ?

A. The "Samkey" was owned by His Majesty represented by the Minister of Transport, London.

Q. 3. (a) By whom was the s.s. "Samkey" managed?  
(b) How long had the vessel been so managed?

A. (a) She was managed by the New Zealand Shipping Company Limited, 138, Leadenhall Street, London, E.C.3.  
(b) Since 24th December, 1943.

Q. 4. Did the s.s. "Samkey" leave the Port of London in ballast on an intended voyage to Cuba on the 24th January, 1948 ?

A. Yes.

Q. 5. When the s.s. "Samkey" left London on her last voyage, was the vessel properly equipped and in a good and seaworthy condition to meet the perils of the voyage then undertaken at the time of the year the voyage was commenced ?

A. The "Samkey" as to hull, machinery, navigating and other fittings was properly equipped and in a good and seaworthy condition, but the solid ballast loaded in her 'tween decks was not secured against shifting and the "Samkey" was therefore not in a good and seaworthy condition to meet the perils of the North Atlantic winter voyage then undertaken.

Q. 6. What weight of ballast did the s.s. "Samkey" carry at the commencement of her last voyage ?

A. (a) solid ballast (b) water ballast

(a) No. 2 'tween deck 300 tons	}	Thames Ballast.
No. 3 'tween deck 400 tons		
No. 4 'tween deck 500 tons		
No. 5 'tween deck 300 tons		
<u>1,500 tons</u>		

In the bilges, No. 2, 4 and engine room, and possibly others—186 tons—Rock ballast boxed in.

(b) Fore-peak 140 tons Fresh water  
After-peak 150 tons Fresh water  
Boiler feed tank 132 tons Boiler water  
'Tween deck tanks 56 tons Domestic Fresh water

Engine room  
'void" tank  
about 100 tons Sealed Fresh water

578 tons

Q. 7. (a) Was the weight of water ballast increased after the vessel left the dock at London ?  
(b) If the answer is "Yes" would the increase affect the immersion of the vessel's propeller ?

A. (a) It is not known whether No. 1 Deep Tank (228 tons Salt water) and/or No. 2 Deep tank (420 tons Salt water) were in fact filled after the vessel left the dock at London, but the Master had informed the Marine Superintendent before leaving that he intended to fill both of these tanks.

(b) If done, the increase would have affected the immersion of the propeller.

- Q. 8. How much of the propeller was immersed with the vessel ballasted, as she was, when she left the dock at London ?
- A. The propeller was wholly immersed by two or three inches.
- Q. 9. What draughts of water was the vessel drawing fore and aft when she left the dock on the commencement of the last voyage ?
- A. Forward 9 feet 11 inches } As ascertained  
Aft 19 feet 11 inches } by calculation
- Q. 10. What were the draughts fore and aft if the two forward deep tanks were in fact filled as soon as the s.s. "Samkey" reached clean water ?
- A. The draughts would have been approximately 14 feet 7 inches forward and 17 feet 5 inches aft and the propeller tip would have been brought about 2 feet 3 inches above the surface.
- Q. 11. Where was the solid ballast carried on board the vessel on her last voyage, and what was the nature of the solid ballast ?
- A. There were 186 tons of rock ballast distributed as far as is known throughout the bilges and certainly in No. 2, 4 and engine room bilges. This was boxed in and had been fitted originally to counteract the armament. In addition there were 1,500 tons of Thames ballast distributed as detailed in the answer to Question 6.
- Q. 12. Was the solid ballast properly disposed, stowed and trimmed, and were all reasonable precautions taken to prevent the solid ballast shifting ?
- A. The rock ballast was properly disposed, stowed and trimmed, and all reasonable precautions had been taken to prevent it shifting.
- The solid ballast in the 'tween decks was properly trimmed, and had steps been taken to prevent it shifting it could have been described as properly disposed and stowed. No such steps were taken although such steps would have been desirable. This matter is dealt with in the Annex.
- Q. 13. Where was the water ballast carried on the last voyage ?
- A. As stated in the answer to question 6(b) and 7(a).
- Q. 14. Was there loose water on board of such a quantity as to be a source of danger ?
- A. No, unless the solid ballast shifted.
- Q. 15. What weight of fuel oil was carried on the last voyage and how was it disposed ?
- A.
- |                 |          |
|-----------------|----------|
| No. 1 tank      | 133 tons |
| No. 2 tank      | 318 "    |
| No. 3 tank      | 234 "    |
| No. 3 deep tank | 77 "     |
| No. 5 tank      | 236 "    |
| No. 6 tank      | 110 "    |
| Settling tank   | 8 "      |
|                 | <hr/>    |
|                 | 1,116 "  |
|                 | <hr/>    |
- Q. 16. What was the daily consumption of fuel oil in tons ?
- A. 30 tons for 11 knots.
- Q. 17. What wireless signalling instruments were carried on board the vessel and of what range by day and by night ? When were they last inspected ?
- A.
- Main transmitter
  - Emergency transmitter
  - Main Receiver
  - Crystal Receiver
  - S/W. Receiver
  - Direction Finder
  - Portable lifeboat transmitter
  - Portable lifeboat receiver.
- The daylight ranges of the main, emergency and lifeboat transmitters were 200, 125 and 25 miles respectively. These ranges were doubled at night.
- The apparatus was inspected by a Ministry of Transport Surveyor in January, 1948.
- Q. 18. When was the last certificate issued in respect of the vessel's life saving appliances and lights and sound signals ?
- A. January, 1948.
- Q. 19. When was the s.s. "Samkey" last surveyed for the issue of a loadline certificate ?
- A. January, 1945, under a certificate which was due to expire on 22nd December, 1948, having been duly endorsed on 19th January, 1948.
- Q. 20. When was the s.s. "Samkey" last dry-docked ?
- A. January, 1948.
- Q. 21. When were the boilers last examined and safety valves adjusted ?
- A. Starboard boiler—October, 1947.  
Port boiler —November, 1947.
- Q. 22. What signals were received from the s.s. "Samkey" after she sailed from London on the 24th January, 1948 ?
- A.
- (a) Received at 1.55 p.m. G.M.T. on 28th January by the "Ruahine" giving noon position Latitude 47° 8' N Longitude 17° 27' W course 238 speed 8 knots.
  - (b) Received at 6.22 p.m. G.M.T. on 28th January by the "Ruahine" giving wind force as South East force 6.
  - (c) Sighted by the "Innesmoor" in Latitude 45° 21' N Longitude 19° 17' W at 11 a.m. 29th January.
  - (d) Message received on 30th January by the "Robert F. Hand" contents unknown.
  - (e) Message sent to Horta Radio Station at 1.45 p.m. G.M.T. on 31st January giving noon position of "Samkey" as Latitude 41° 48' N Longitude 24° W. wind South-West force 6 barometer 30.09 inches.
- Q. 23. When and where was the s.s. "Samkey" last seen ?
- A. Latitude 45° 21' N. Longitude 19° 17' W.
- Q. 24. What is the last known position of the s.s. "Samkey" ?
- A. Latitude 41° 48' N. Longitude 24° W.
- Q. 25. When was the latest time at which the s.s. "Samkey" was known to have been afloat and what was the last signal received from the s.s. "Samkey" ?
- A. About 1.45 p.m. G.M.T. on the 31st January at which time the last signal received from the "Samkey" was despatched from that ship.
- Q. 26. What was the wind, weather and sea at the time and place of last location of the s.s. "Samkey" ?
- A. Wind South-West force 6 weather fair sea unknown.
- Q. 27. What was the wind, weather and sea for the 48 hours prior to the last location of the s.s. "Samkey" in respect of the course the vessel had steamed ?
- A. Not known.

Q. 28. What was the wind, weather and sea for the 96 hours following the time the s.s. "Samkey" sent out her last recorded signal, for the area through which the vessel would be expected to pass?

A. From calculations it would appear that the "Samkey" probably passed through the track of a severe storm with winds of force 11 reaching 12 in gusts, the worst weather being experienced between midnight on the 31st January and 4.0 a.m. on the 1st February. The bad weather persisted for two or three days.

Q. 29. Was the s.s. "Samkey" posted at Lloyd's Register of Shipping as a missing vessel on the 24th March, 1948?

A. The s.s. "Samkey" was posted at Lloyd's as missing on the 24th March, 1948.

Q. 30. Has any information of any kind whatsoever since been received concerning the fate or whereabouts of the "Samkey"?

A. No.

Q. 31. If the s.s. "Samkey", Official Number 169788, must now be presumed lost with all hands, can the Court on the evidence available assign any cause or probable cause that would explain the disappearance of the vessel?

A. The Court is of the opinion that the s.s. "Samkey" was lost with all hands due to a sudden shift of the solid ballast in the 'tween decks during heavy weather.

Q. 32. Was the loss of the s.s. "Samkey" due to any act or default on the part of the Owners, Managers, Master or Crew or any of them?

A. The loss of the "Samkey" was directly traceable to the errors of judgment of the Marine Superintendent and the Captain of the ship in failing to take steps to prevent a shift of the solid ballast as described in the Annex. But the Court is also of opinion that had the information with regard to the shifting of ballast in the "Sameveron" been circulated and so brought to the attention of the Marine Superintendent and Captain, adequate steps would have been taken to prevent any shift. The Court therefore considers that the loss of the "Samkey" was in part due, though indirectly, to the failure by the Ministry to circulate information.

K. S. CARPMAEL, *Judge*

We concur,

J. P. THOMSON }  
W. BESWICK } *Assessors*  
E. F. SPANNER }

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