

(No. 126.)

"ALBATROSS."

The Merchant Shipping Act, 1894.

REPORT to the Board of Trade on the circumstances attending the destruction of the ketch "ALBATROSS," laden with petroleum spirit, which occurred at sea off Newtown River, Solent, on the 24th August, 1905.

In the matter of the inquiry by Captain JOCELYN HOME THOMSON, H.M. Chief Inspector of Explosives, being a person duly appointed by the Board of Trade under the seven hundred and twenty-eighth Section of the Merchant Shipping Act, 1894, for the purpose of holding such inquiry into the nature and cause of an accident or damage sustained by the British sailing ship "Albatross," of Penzance, at sea, off Newtown River, Solent, on the 24th August, 1905

Report.

Home Office,
December 10th, 1905.

SIR,

In virtue of my appointment by the Board of Trade, dated the 17th November, 1905, I held an inquiry into the above accident at the Local Marine Board Room, Dock Street, E., on the 28th November, 1905.

The "Albatross" was a ketch built of oak, at Brixham, in 1885. Her length was 80.3 ft., her breadth 21 ft., and her depth 10.6 ft. Her registered tonnage, after deducting for crew space, &c., was 69.10. She was owned by Mr. William Burgoyne, and worked by the master, Mr. Martin Grenfell, under an agreement by which the owner received one quarter of gross freight, &c. The vessel contained one hold with two hatches and two ventilators, the cowl heads of which were covered with canvas. The hold was separated from the fore-castle and from the cabin by two bulkheads of pine, sheathed with three quarter-inch planks, this sheathing being in accordance with a Board of Trade requirement, and intended to exclude coal dust from the crew quarters. About 15 ft. abaft the main hatch on deck was the galley, the fire of which was kept always alight during the voyage. The vessel had originally been a steam trawler, but the engine room and machinery had been completely removed, and she had been rigged as a ketch.

On the 11th August, 1905, the vessel had been chartered by her master to the General Petroleum Company, Limited, to load 360 barrels of motor spirit at Thames Haven for Cardiff. The cargo was made up as follows:—300 barrels of spirit of specific gravity 0.707, 30 barrels of 0.721, and 30 barrels of 0.745. Both the owner and master appear to have been imperfectly aware of the dangerous nature of the cargo. The former was informed of the charter by a telegram, which described the spirit incorrectly as naphtha, and states that, had he understood that it was petroleum spirit, he would not have allowed it to be carried in his vessel. It is only right to say, however, that in the charter party the cargo is correctly described as motor spirit. The vessel had never before carried petroleum spirit, and the master had no previous experience of a cargo of

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this nature, though the mate, James Lyden, appears to have had some knowledge of the dangers.

On the 16th of August, the cargo was shipped at Thames Haven. On commencing to load, the master, on the suggestion of the mate, objected to the spirit being in wooden barrels, and threatened to refuse to carry it unless it was contained in steel barrels. This objection appears to have been overridden, and the loading proceeded. Some five or six barrels were found to be leaking, and were returned to the wharf, where the hoops were tightened, and the barrels again put on board.

The vessel left Thames Haven on the 17th August, with a crew of four hands all told. Throughout the voyage the smell of vapour below decks was very strong; so much so that the crew were unable to sleep below, and some of them suffered from sickness. During the voyage on two occasions a barrel broke loose in the hold, and was secured by the mate. On the 23rd bad weather was met with, and the vessel put in and anchored off Ryde Pier. On the following morning, at about 10 a.m., the weather being fine, she was got under weigh again, and proceeded up the Solent. At about 5.30 p.m., the crew, who had recently come up from tea in the cabin, were all grouped around the wheel house at the extreme stern of the vessel, when a violent explosion occurred. The hatches and decks were torn up, the boat was smashed, and the vessel set on fire. Fortunately none of the crew were injured, and they were quickly rescued by a boat from a barge which was near the spot. The burning vessel was taken in tow and finally grounded, where she burnt away to the water line and was completely destroyed.

The cause of the explosion is not difficult to find. The vessel was reeking with petroleum vapour from end to end. Considerable leakage must have been constantly taking place from the barrels, as petroleum was observed on the water which was pumped from the bilge. The mate, who came up from tea immediately before the explosion, states that he was driven out of the cabin by the smell of vapour. The wind at the time was light and variable, a condition specially favourable to the retention of the vapour, and to its being wafted to a source of ignition. As the men were not smoking at the time, and no lights were lit, there is little doubt that the vapour was ignited at the galley fire. As to whether the ignition took place through the main hatch, which, though closed, would not have been vapour tight, or through the cabin ventilation, which was close to the galley, or even through the cabin companion, it seems needless to inquire. Where a vessel is full of vapour, and there is a fire alight on deck, there are numerous ways in which ignition can take place, it being remembered that petroleum vapour is much heavier than air, and does not readily mix with the latter. Consequently, it is liable to flow or be wafted about in light breezes.

This accident closely resembles that which occurred on the "Flown," on the 11th May, 1902, and in some respects also that which resulted in the destruction of the "C. Rice," at Hull, on the 21st April, 1902. In my report on the latter accident, I dwelt at some length on the unsuitability of wooden barrels for containing petroleum spirit. As the result of actual experiment I showed how the property which renders wooden barrels efficient for containing aqueous liquids is entirely absent in the case of petroleum. When used for the latter liquid, wooden barrels depend for their stanchness almost entirely on their interior coating of glue. It is scarcely necessary to say that when this coating is once cracked or damaged its efficiency is gone. In the present case, barrels were seen to be leaking when being put on board, and, instead of being re

placed, they were merely re-coopered, that is, the hoops were tightened. The fact of their having leaked shows that the glue lining was damaged, and no amount of coopering would then render them staunch. Consequently, these barrels, and probably many more which were not noticed, must have continued to leak throughout the voyage.

As regards the ignition of the vapour, this, as I have said, most probably occurred at the galley fire. The London and Thames Haven Oil Wharf Co., who are neighbours of the General Petroleum Co., Ltd., are in the habit of issuing a notice to coasting vessels carrying petroleum spirit, warning them against having any fire or light on board. The observance of this precaution, if it were possible, would no doubt minimise the risk, but I consider it too much to expect that even the hardiest sailors will consent to undergo a voyage occupying many days without warmth or cooked food. In any case, the navigating lights must be lit. As a matter of fact, previous accidents have shown that the precaution is habitually neglected. In the present instance, not only was no such warning notice handed to the master, but apparently no steps whatever were taken to acquaint him with the dangerous nature of the cargo which he was to carry. I do not, therefore, attach any blame for the accident on the master or crew of the vessel.

The sole blame for the destruction of the ketch, and for the imminent danger to which the crew were exposed, rests, in my opinion, on the General Petroleum Co., Ltd., and their manager, Mr. John Thomas Taylor. I consider that they are to blame in the first place for shipping petroleum spirit coastwise in wooden barrels. They were perfectly well aware of the unsuitability of such packages from the Official Notice of the Board of Trade (Handbill, No. 202). Mr. Taylor, it is true, stated in his evidence that they are replacing the wooden barrels with steel, but that they had not a sufficient stock of the latter. I consider, nevertheless, that there had been ample time since the publication of the Official Notice to replace the whole stock of barrels. Secondly, I consider that the Company are to blame for shipping petroleum spirit in barrels which were not only unsuitable, but were many of them in an unserviceable condition. It was stated that all the barrels had been overhauled and relined with glue before refilling. The fact that several of them showed visible leakage on being put on board, appears to demonstrate either that the overhauling and regluing must have been inefficiently carried out, or that the barrels had suffered severe mishandling on the Company's wharf. I may add that the practice of attempting to make a leaky barrel staunch by simply re-coopering indicates somewhat culpable ignorance.

I hold the Company and their servants also to blame for having apparently made no attempt to impress upon the master the dangerous nature of the cargo, and the necessity of taking all possible precautions.

I have nothing to add to the recommendations which I have made in my reports on the accidents on the "C. Rice" and "Flown," and which have been embodied in the Official Notice referred to above. I recognise, however, the difficulty which

exists at the present time in preventing the use of wooden craft for the coastwise conveyance of petroleum spirit. This difficulty is perhaps insuperable, and until the use of steel barrels or drums becomes universal for such conveyance, accidents such as the present one will be very likely to recur, attended, of course, with grave danger to human life.

I will now reply to the special questions to which my attention is directed by the Board of Trade:—

(1) The cargo which was shipped on board the "Albatross" was petroleum spirit for use on motor cars.

(2) Motor spirit gives off inflammable vapour freely at ordinary temperatures. The proportions of vapour necessary to form an explosive or inflammable mixture with air are as follows:—From 1 per cent. of vapour, the mixture is inflammable; from 2 to 4 per cent. the mixture is explosive; while above 4 per cent. it becomes again only inflammable.

(3) The "Albatross" was not a suitable vessel for carrying petroleum spirit.

(4) The barrels shipped on board the "Albatross" were not in good condition: several of them were certainly leaking pretty freely even at the time of shipment, and throughout the voyage.

(5) In my opinion wooden barrels should certainly not be used for the coastwise conveyance of petroleum spirit, or in any vessel not specially constructed for the conveyance of petroleum.

(6) The cargo appears to have been properly stowed and secured. It is true that two barrels did break loose at different times during the voyage, but I regard this in the light of an unavoidable accident, and I do not think that it has any appreciable bearing on the subsequent explosion.

(7) The master was not properly cautioned as to the danger arising from the cargo, and appears not to have had previous experience in carrying petroleum spirit.

(8) The galley stove appears to have been the only fire or light burning at the time of the explosion.

(9) The cause of the explosion was the evolution and spreading throughout the vessel of petroleum vapour from leaky wooden barrels in which it was contained, and the subsequent ignition of the vapour most probably at the galley fire.

At my inquiry Mr. Vaux appeared for the Board of Trade, and Mr. W. H. T. Crump for the owner.

I have the honour to be, Sir,

Your obedient servant,

J. H. THOMSON, Captain,
H.M. Chief Inspector of Explosives.

The Assistant Secretary,
Marine Department,
Board of Trade.

(Issued in London by the Board of Trade on the
29th day of December, 1905.)

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