Report on the investigation of

a barbecue fire in the galley of

Pride of Bath

on the River Avon, Bath

20 July 2002

Marine Accident Investigation Branch
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PURPOSE OF INVESTIGATION

The fundamental purpose of investigating an accident under the *Merchant Shipping (Accident Reporting and Investigation) Regulations 1999* is to determine its circumstances and the causes with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame

This report is not written with liability in mind and is not intended to be used in court for the purpose of litigation. It endeavours to identify and analyse the relevant safety issues pertaining to the specific accident, and to make recommendations aimed at preventing similar accidents in the future.

CONTENTS

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

BBQ	-	Barbecue
BWB	-	British Waterways Board
LPG	-	Liquid petroleum gas
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Note
MSN	-	Merchant Shipping Notice
PA	-	Public address
RIB	-	Rigid inflatable boat
SCBA	-	Self contained breathing apparatus

SYNOPSIS

Shortly after starting a pleasure cruise on the River Avon in Bath, *Pride of Bath* suffered a galley fire, which required the evacuation of her passengers and crew.

The gas-fired barbecue in the galley, located at the forward end of the enclosed welldeck, was lit when the vessel left her berth at 1230 on 20 July 2002.

At about 1245, hot fat, from the greasy food, dripped on to the hot coals of the barbecue and ignited. Although the gas to the barbecue was turned off, the flames continued to flare up, and eventually reached the overhead extract filters. They were drawn through the filters by the extractor fan located further along the galley exhaust duct. The flames ignited residual grease in the ductwork.

The crew smothered the barbecue flames with damp tea towels, but attempts to extinguish the duct fire were unsuccessful. A considerable amount of smoke built up in the welldeck.

At about 1300, the vessel was brought alongside the riverbank, and the 52 passengers and eight crew evacuated without injury. The fire brigade was called. It extinguished the fire and ventilated the welldeck.

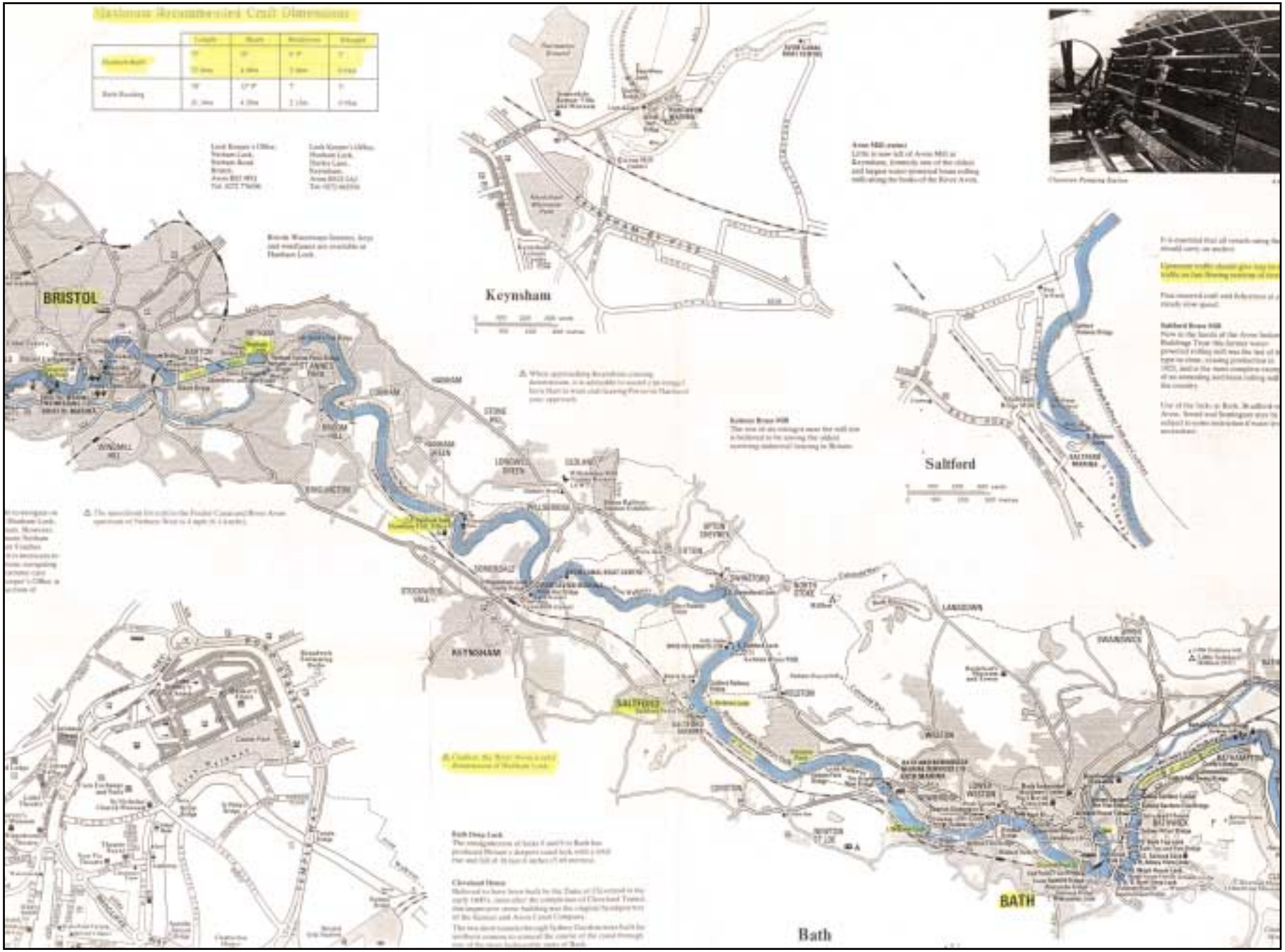
The welldeck of the vessel was extensively damaged, and required a complete refit. Fortunately, there was no structural damage.

The MAIB investigation found that the extract filters were cleaned daily. However, the twice yearly cleaning of the duct work was not enough to maintain the duct clear of grease, thus increasing the risk of a fire within it. The structural fire protection of the vessel was minimal, so smoke and flames were able to pass freely into the passenger accommodation from the galley. The material structure of the welldeck was composed largely of varnished wood, which probably assisted in the spread of flames.

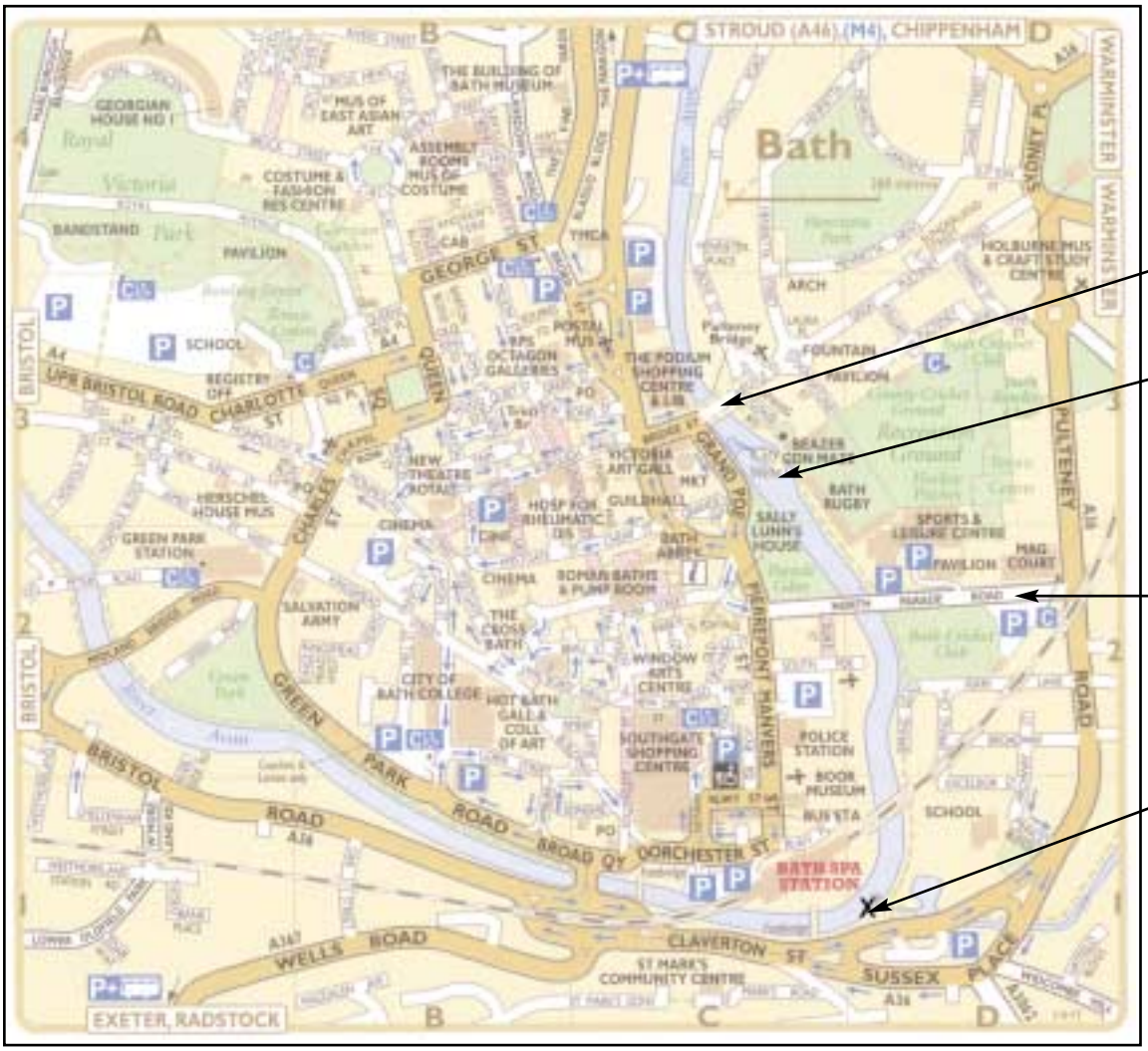
Recognising the problem of barbecues on small passenger vessels, the MCA has issued a draft MGN, advising on the siting of barbecues and the safeguards necessary in case of fire. Subsequent to the accident, the MCA has issued another draft MGN advising crew training needs on domestic passenger vessels.

The owner has refitted the vessel with fire resistant materials, to limit the spread of smoke and flame through its interior, and is conducting a review of crew training.

Additionally, a recommendation has been made to the MCA to ensure that the public address system on board domestic passenger vessels satisfies the relevant requirements



Map highlighting the River Avon



Street Map of Bath, showing the River Avon

Archive photograph

Pride of Bath

Figure 1

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *PRIDE OF BATH* AND ACCIDENT

Vessel details

Registered owner	:	Mr K Gate. Avon Leisure (Bath) Ltd
Manager(s)	:	Mr M Wilkinson
Port of registry	:	Bath
Type	:	River boat
Built	:	1981
Construction	:	Steel
Length overall	:	26.2m
Breadth	:	4.88m
Gross tonnage	:	60
Engine power and/or type	:	2 x Lister diesel, 56.7kW each
Service speed	:	4 knots
Other relevant info	:	Auxiliary engine 240V 60KVA
Crew and passenger numbers	: :	Maximum 120 passengers Minimum 3 crew
Total	:	Not more than 126

Accident details

Time and date	:	1300 on 20 July 2002
Location of accident	:	River Avon, Bath
Persons on board	:	60
Injuries/fatalities	:	None
Damage	:	Fire damage to galley, bar and lower level deckhead. Smoke damage to lower level

1.2 NARRATIVE

At 1100 on 20 July 2002, the eight crew of *Pride of Bath* arrived at North Parade bridge, Bath, to prepare the vessel for a prebooked 4 hour cruise to Saltford, due to begin at 1200.

The preparations entailed checks on fuel levels, operation of the engines, electrical systems, steering and the PA system. The lifesaving and fire-fighting equipment, and the general cleanliness of the vessel were checked, and the barbecue extract filters and surrounding stainless steel splashbacks cleaned.

Because some passengers arrived late, the vessel left at about 1230. On leaving the berth, the gas barbecue was lit. This was located under the main deck in the galley, at the port forward end of the vessel. It was expected to take about an hour to cook the food.

Pride of Bath cruised upriver for about 6 minutes to Pulteney weir, turned around and headed downstream. All the passengers were on the upper deck.

In the galley, before leaving the second galley assistant in charge, the chef had put sausages on the barbecue on a low heat setting. He then went up on deck to telephone the company manager.

Meanwhile, as the assistant watched the barbecue, dripping fat from the sausages caused flames to flare up from the hot coals. He turned off the barbecue at the local control, but the flames continued to flare up, eventually touching the overhead extract filters.

At about 1245, the skipper, stationed at the steering position on the port side aft, was guiding the vessel passed her usual mooring position at North Parade bridge. He and the boat manager noticed more smoke than normal issuing from the barbecue extract louvre, on the port side of the vessel.

The boat manager went to the galley to assess the reason for the amount of smoke coming from the extract louvre. He arrived just as the BBQ flared up. He smothered the flames with damp tea towels. This action initially controlled the flames. He then sent the kitchen porter to get the chef.

The chef returned to the galley to see the extract filter mesh glowing orange/yellow, with flames inside the extract ductwork. He turned off the main gas supply valve to the BBQ at the forward end of the galley. Then he put sand from a fire bucket on to the hot coals to prevent any further flames developing from the BBQ.

On passing under the rail bridge, the skipper throttled back for the starboard bend in the river, and noticed an increased amount of smoke and flames leaving the extract louvre.

Meanwhile, the boat manager assessed the situation and agreed with the chef that the passengers would need to be evacuated. He went up on to the deck to signal to the skipper to bring the vessel to the riverbank on the port side. The boat manager then informed all the passengers about the fire in the galley, and that they would have to be evacuated. Because of the relatively small number of passengers, the onboard PA system was not required.

In the galley, the chef attempted to douse the barbecue duct fire using CO_2 portable extinguishers. He directed the CO_2 at the extract filter, but with no effect. No attempt was made to stop the extraction fan.

The chef told the junior assistants to go out on deck, leaving him and two others to continue the fire-fighting. But they were eventually forced to leave because of the heavy, dark smoke coming from the ductwork.

At the same time, the vessel pulled alongside the riverbank on the outer bend of the river, opposite Bath Spa station.

The skipper and boat manager moored the vessel to strong points with the forward and aft mooring ropes. The evacuation started with the passengers climbing over the vessel's safety rail and on to the bank, which was at the same level as the upper deck.

Meanwhile, the chef returned to the galley with one of his assistants and, again, attempted to extinguish the flames in the duct and filter using a CO_2 portable extinguisher. Nobody stopped the extraction fan. This fire-fighting effort was unsuccessful. With thick smoke making breathing difficult and reducing visibility, they went on to the vessel's upper deck.

The skipper used his mobile telephone to contact the fire brigade at 1304, while the boat manager phoned the company manager at home. It took less than 5 minutes for the first fire tender to arrive, followed by three more appliances and a rescue boat.

The boat manager and chef moved the two barbecue gas supply bottles from the forward end of the vessel to the riverbank.

The skipper stopped the port engine and auxiliary engine, but left the starboard engine running, to assist in keeping *Pride of Bath* alongside.

The fire brigade used a positive pressure fan to clear the lower deck of smoke. About 15 minutes later, when the fire brigade was satisfied that no one was on the vessel, and that all machinery had been stopped, a fire crew in SCBA entered from the aft end of the vessel with two fire hoses. They extinguished the fire.

The fire was under control at 1327 and extinguished at 1347. The fire brigade began leaving at 1543, and considered the accident closed at 1823.

1.3 DESCRIPTION OF VESSEL

Pride of Bath is a Class V passenger vessel, operating on smooth waters. She operates throughout the year in the Bath area of the river Avon, and also on the Kennet and Avon canal.

The steel hull was built in 1981 by Springers of Market Harborough, Leicestershire, for Silver Sails of Bath, specifically for trading in the Bath district. The vessel had been fitted out to accommodate 100 passengers and four crew. She has two engines and propellers.

In 1983, the vessel was widened by a metre, to 4.88 metres. Passenger numbers were increased to 120, with six crew **(Figure 1)**.

The enclosed lower welldeck is a window-lined space containing a galley and bar area located on the port side forward. Aft of these is the main saloon and dance floor **(Figure 2)**. Because of vandalism, several glass windows had been replaced with temporary polycarbonate windows. The galley and bar are separated by a wooden partition extending almost half the breadth of the vessel from the port side. The galley fume extract duct for the gas barbecue passes through the partition into the bar area before discharging the fumes through the side of the vessel. The section of duct in the bar encloses the extract fan. The duct is cement board lined and the flanges are sealed.

The bar area, saloon and deckhead are all mainly of wood construction. Aft of the dance floor is the DJ booth, and on the starboard side is the main entrance **(Figure 3)**.

Archive photograph Figure 2

The enclosed lower welldeck containing a gallery and bar area

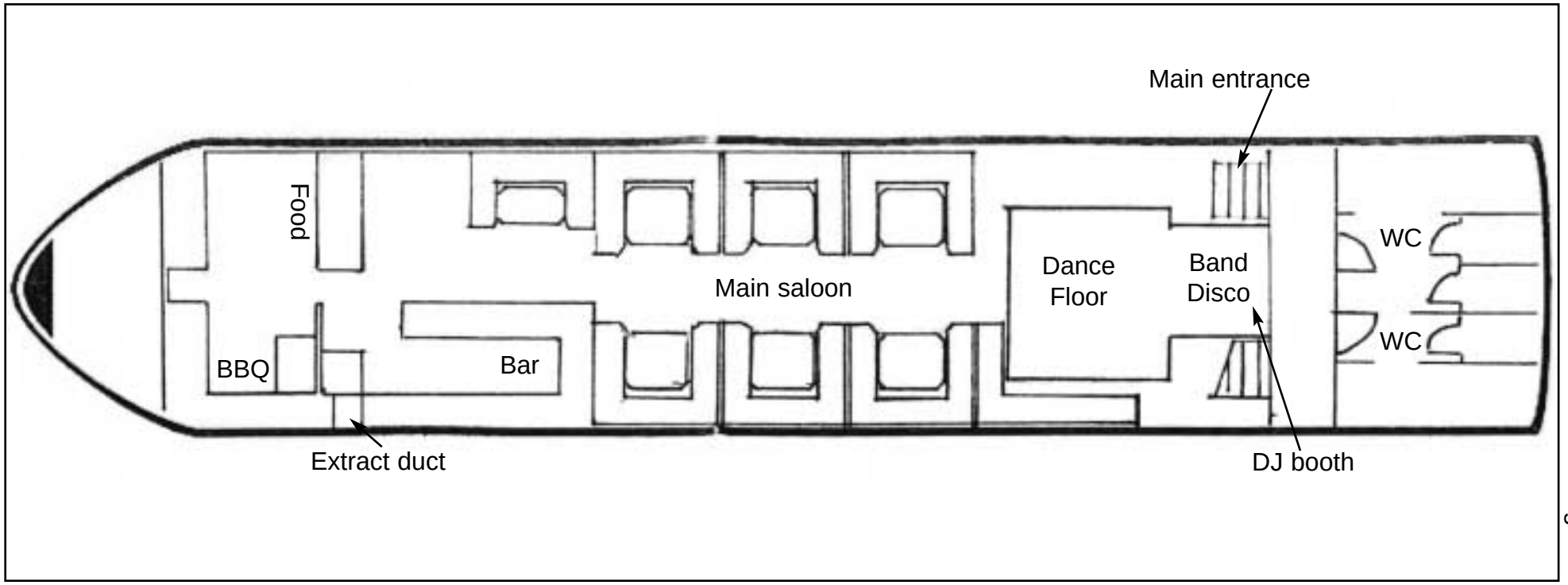


Figure 3

Plan of *Pride of Bath*'s enclosed lower welldeck area

The steel upper deck is open with steel rails at the deck perimeter, enclosing seating and tables **(Figure 4)**. The height of fixed fittings is limited to allow the vessel to pass under Churchill Bridge. The steering position is on the port side at the extreme aft end, and is separated from the upper passenger deck by the toilets and main entrance deckhead **(Figure 5)**.

Figure 4

The upper deck with steel rails at the perimeter

Archive photograph

Figure 5

The steering position on the port side at the extreme aft end

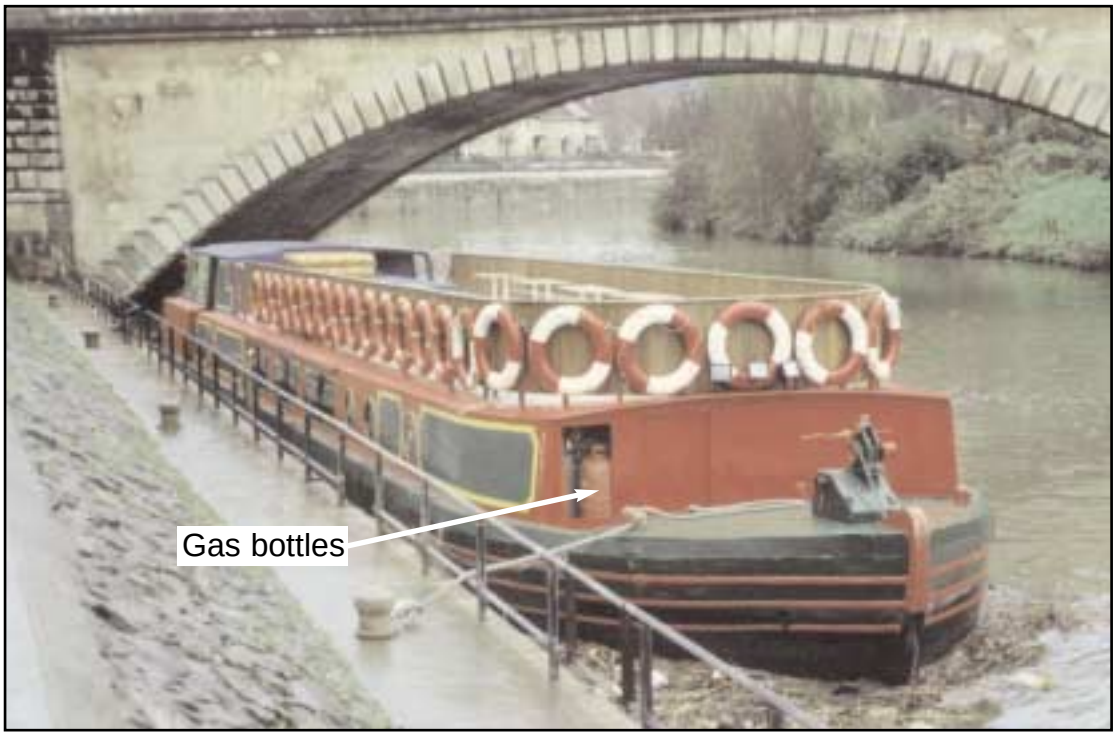
1.3.1 Barbecue arrangement

The galley range was installed in about 1991, and comprised a gas-operated barbecue with stainless steel splashbacks and an electric oven. The stainless steel extract hood above the barbecue held three removable wire mesh filters. These filters were inclined at about 45° to the horizontal. They were over three years old and possibly the original filters.

The gas for the barbecue was supplied from two bottles situated in a locked cabinet on the forward end of the weatherdeck **(Figure 6)**. The bottles were turned off with a bottle spanner kept in the cabinet. From the bottles, the gas passed through a three-way valve. This arrangement allowed both bottles to be connected, but with only one in use. After this valve, the gas pipe passed through to the galley via the main isolating valve located at the forward end of the galley. From there, the gas pipe was connected to the barbecue, and the local control valve to control the gas flow.

Archive photograph

Figure 6



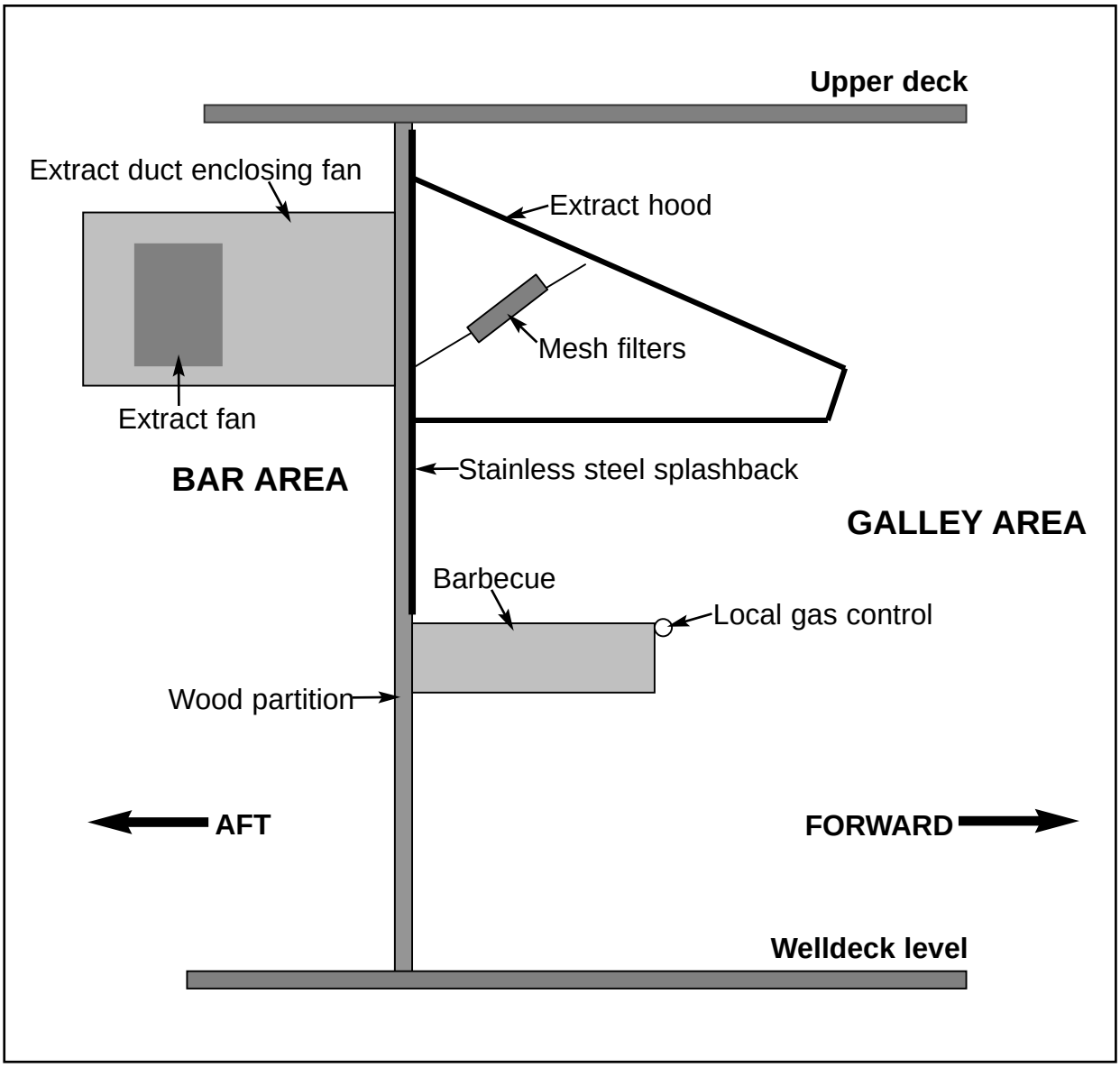
Photograph showing the stowage position of the gas bottles on the forward end of the weatherdeck

1.3.2 Extract duct (Figure 7)

The stainless steel ductwork attached to the extract hood passes through a wood partition to the bar area located aft of the galley. From the bar area, the duct turned 90° and passed through the port side of the vessel.

There was no means of closing down the ductwork or injecting a fire-fighting medium in case of fire in the duct. There is no such requirement for Class V vessels.

Figure 7



1.3.3 Extract fan

The extract fan was positioned where the duct changed direction by 90° in the bar area. It could be reached by removing a panel on the ductwork. A new fan and motor were installed in 1998. Servicing was carried out yearly, with an inspection mid-way between services.

The fan was not stopped manually when the barbecue was ablaze. It probably stopped as a result of a fire-damaged electrical supply cable.

1.3.4 Cleaning routine

The practice on *Pride of Bath* was to clean the barbecue area daily, by removing the three mesh filters and soaking them in a degreaser, cleaning the drip trays and wiping the surrounding splashbacks and hood.

On a weekly or fortnightly basis, the ductwork immediately behind the filters was cleaned. The ductwork beyond, and which contained the extraction fan, was much harder to reach. This part of the duct was wiped down twice a year, usually before and during the season. It was last cleaned in May 2002. Since then, 13 barbecues had taken place.

The crew received no written instructions on the cleaning routine. Normally the galley staff carried out the task.

1.3.5 PA system

The PA system extended across both decks as part of the music sound system. The auxiliary generator supplied power to it. There were two speakers in the welldeck, and four on the top deck (two aft and two forward). All the speakers were rated at 100 watts.

The sole microphone was situated in the DJ booth. Information broadcast on the PA system overlaid any music being played.

The *Merchant Shipping (Life-Saving Appliances for Passenger Ships of Class 111 to VI(A)) Regulations 1999* require that the public address system should have two microphones, one situated on the navigation bridge and one in another location.

1.4 VESSEL CERTIFICATION

Pride of Bath is surveyed annually for the purpose of the issue of the Class V Passenger Safety Certificate. A surveyor is employed by the British Waterways Board on behalf of the MCA to carry out the surveys.

The last certificate for the vessel was issued on 26 April 2002, and valid until 16 April 2003.

Her plying limits are restricted to:-

“Pulteney Weir to Bristol Floating Harbour, excluding periods when the river is in spate*.”

* The word “spate”, for not only *Pride of Bath*’s Passenger Certificate plying limits but also for other vessels, has been historically used in the district instead of the word “flood”. “Flood” is defined, in respect of rivers, as flooding of surrounding areas, whereas the word “spate” is defined as a swollen river caused by thaw or heavy rain. Although a tight definition of “spate” in respect of the River Avon does not appear to exist, it is loosely defined in *Pride of Bath*’s Passenger Certificate as:-

- *Bath below Pulteney Weir*

    1. *When the sluice gates are open at Pulteney Weir and that the level of water is such that there is less than nine feet six inches clearance under Churchill Bridge;*

    2. *Or at any time when the flow is 4 knots or over.*

1.5 CREW DETAILS

The vessel is manned by a crew of eight. The skipper had held a valid boatmaster’s licence for three years.

Included in the crew were the boat manager, who looked after the passengers’ needs during the pleasure trip, and the chef, who was in charge of the galley.

SECTION 2 - ANALYSIS

2.1 AIM

The purpose of the analysis is to determine the contributory causes and circumstances of the accident as a basis for making recommendations to prevent similar accidents occurring in the future.

2.2 CAUSE OF FIRE

The initial fire, caused by hot fat from the food being cooked, dripping on to the barbecue coals, started a secondary fire in the extract duct.

It is not uncommon for flames to flare up from a barbecue when fatty foods are being cooked. Either removing the source of heat, or removing the food from the hot coals, can usually stop the flames. In this case, the gas was turned off, but this did not affect the intensity of the flames rising from the hot coals as the hot fat continued to feed the fire.

As the flames reached the filter mesh, residual grease on the surface area of the mesh probably caused it to heat up rapidly.

The fire in the extract duct was probably because of a ‘blow torch’ effect as the flames were drawn through the filter by the suction effect of the extract fan. The intense flame would inevitably ignite any grease deposit lining the internal surface of the duct.

Had the fan been shut off when it was realised that the fire on the barbecue was out of control, the fire in the duct might have been avoided.

If vent flaps had been fitted to the inlet and outlet sides of the duct, with a facility to inject an extinguishing agent into the duct space, it could have been possible to, at least, effect timely and effective action to extinguish the duct fire. Or, at most, prevent a fire outbreak in the duct.

Portable fire extinguishers were unsuccessful in extinguishing the fire. The fire brigade put out the fire using fire hoses.

2.3 EXTENT OF DAMAGE

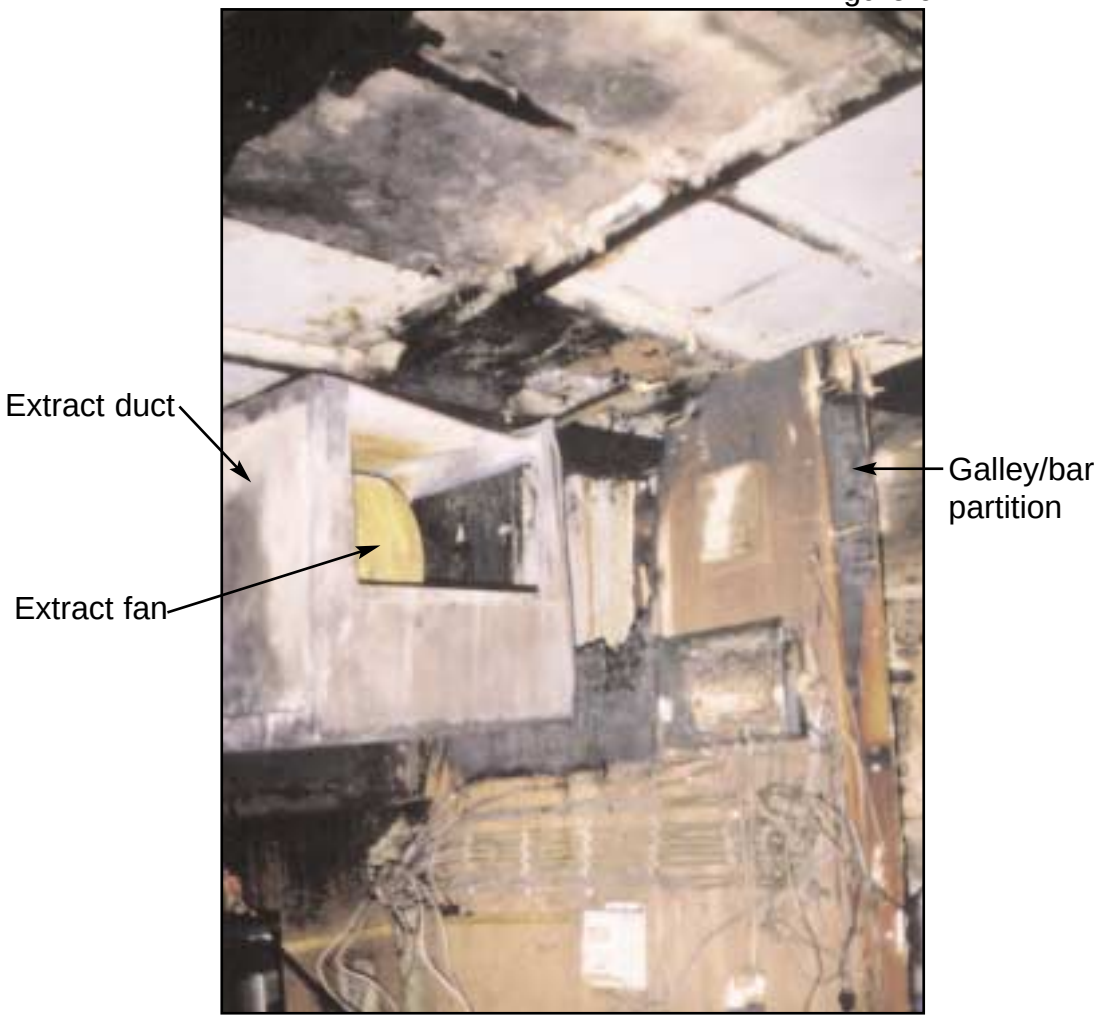
The galley and bar areas were badly damaged by the fire. The fire melted plastic bar equipment, producing black smoke. There was extensive smoke damage throughout the welldeck. The side windows in the saloon were blackened, and the temporary polycarbonate windows bowed with the heat **(Figure 8)**.

Fire damage in the passenger accommodation of the welldeck included charring of the wood deckhead, which, in the area above the galley extract ductwork, fell away from the steel supports **(Figures 9 and 10)**.

Figure 8

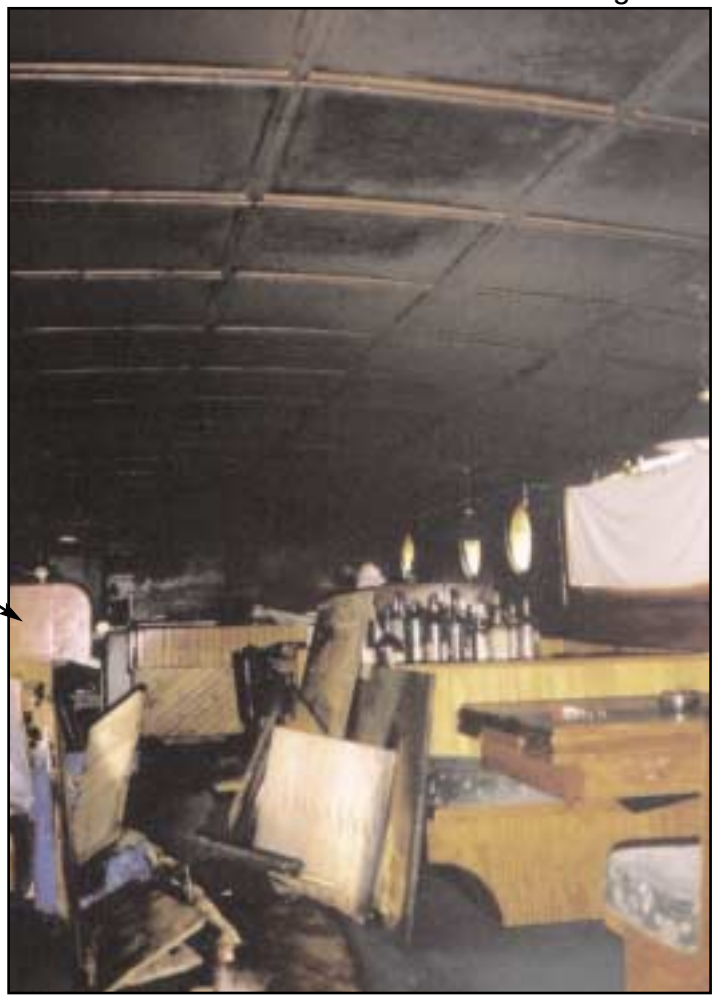
Smoke and heat damage to the side windows in the saloon

Figure 9



Charring of the wood deckhead, which fell away from the steel supports above the galley extract ductwork

Figure 10



Fire damage in the passenger accommodation
of the welldeck, looking forward

2.4 CREW TRAINING

The owners had a policy of crew training, which was carried out on an irregular basis, as and when temporary crew members were employed. The training included use of fire-fighting equipment. The crew's response had limited effect in extinguishing the fire and preventing the spread of flames. They shut off the gas to the barbecue, smothered the flames on the hot coals with damp tea towels, and used CO_2 extinguishers on the extract filter.

However, no attempt was made to stop the extraction fan. Had this been done, it is possible the intensity of the fire in the duct would have been reduced, and possibly extinguished, using the portable extinguishers. With the fan running, and feeding air to the flames, the inevitable effect was to intensify the heat of the fire. Consequently, it spread beyond the confines of the ventilation ducting.

To improve crew fire-fighting effectiveness in future, the owners need to learn the lessons of this crew response.

The MCA has drafted guidelines for the training of personnel serving on board domestic passenger vessels – draft Marine Guidance Notice 203(M). The owners need to review their training needs against the advice given in this document.

2.5 STRUCTURAL FIRE PROTECTION

There is no mandatory requirement for Class V passenger vessels to be installed with a means to prevent the passage of smoke and flame in case of fire.

By the time the barbecue flames had been extinguished, the fire in the extract duct had taken hold. The fire caused a large amount of smoke. Damage to the vessel indicated that smoke and flame passed, uncontrolled, from the duct through the lower welldeck, and along the wooden deckhead, causing it to char.

The saloon area fixtures and fittings were mostly of wood construction. Seating and tables, window surrounds and deckheads were finished in wood varnish. The deck was carpeted. All were damaged.

The company manager stated that the galley deckhead had a flame spread rated varnish coating, but he neither knew of its specification nor when it was applied.

It is probable, however, that the spread of flames through the space was assisted by combustible varnish coatings on the deckhead and on other surfaces in the lower welldeck, which had been applied over a number of years.

The wood partition, between the galley and the bar area, was designed merely to screen the cooking area from the passenger saloon, without any consideration being given to the prevention of fire and smoke entering the saloon.

Sandwiched between the wooden deckhead of the saloon, and the steel upper deck, was an insulating layer of mineral wool. The wood deckhead was fixed to steel angle iron welded to the upper deck. The insulation was probably fitted to help keep the welldeck space cool in hot weather, and to prevent condensation in cold weather, rather than to insulate against the heat of a fire in the space below.

It so happened that fortunately, when fire broke out below them, this insulation protected the passengers on the upper deck from the effects of the fire until they were able to disembark safely ashore.

Passengers were exposed to unnecessary risk because the barbecue had been installed in an enclosed passenger space, which was unprotected from the passage of fire and smoke.

2.6 EMERGENCY DISEMBARKATION

It took about 15 minutes from the first signs of excess smoke in the extract ducting, to mooring the vessel and evacuation of all 52 passengers. The evacuation took about 7 minutes.

The risk of serious injuries would have been greater had a full complement of passengers been on board. Disembarkation would have taken longer, with the consequential increased danger from the fire. The risk would have been even greater if the vessel had been in a lock.

Before this accident, the owners and the MCA had not properly considered the hazard of fitting a barbecue on board this, and similar vessels, and the risks involved, given the nature of the route taken.

Since the accident, the vessel's owner has dispensed with the open flame barbecue, replacing it with a hot plate facility.

Even though the open flame barbecue has been removed, like with any passenger vessel, owners need to make a risk assessment to ensure that passengers can be evacuated from the vessel safely under every condition of operation.

The fire brigade was called using a mobile telephone, after the vessel was placed alongside, at least 15 minutes after the outbreak of the fire. Had it been called earlier, it is possible the fire could have been contained and extinguished sooner, thus minimising the danger to the vessel and risk to passengers.

The PA system was not used as the passengers were informed of the situation verbally by the crew. Had the PA system been required, however, attempts to use the sole microphone at the DJ booth would have been severely hampered by the thick smoke and heat in the welldeck.

As noted in Section 1, the PA system had only one microphone. It therefore did not meet the regulations, The *Merchant Shipping (Life Saving Appliances for Passenger Ships of Class III to VI(A)) Regulations 1999;* Schedule 11 Part 2 (PA systems), and outlined in Merchant Shipping Notice 1676(M).

The regulations require that the PA system should be operable from more than one position. However, the fact that only one microphone was installed did not hinder the evacuation.

Had a full complement of passengers been assembled on the upper deck at the time of the emergency, the restrictions the smoke and heat placed on the sole microphone in the DJ booth could have jeopardised timely disembarkation.

SECTION 3 - CONCLUSIONS

3.1 CAUSE

1. The initial fire was caused by hot fat dripping from the barbecue on to the hot coals. [2.2]

2. The secondary fire was probably caused by the ‘blow torch’ effect as the flames were drawn into the extract duct by the extraction fan. These flames ignited grease deposits inside the duct. [2.2]

3.2 CONTRIBUTORY FACTORS

1. The extraction fan was not stopped to reduce the amount of air feeding the fire inside the extract duct. [2.2]

2. The extract duct casing was not insulated sufficiently to prevent the effect of heat from igniting adjoining structures. [2.5]

3. The extract duct was not fitted with a closing device to prevent passage of smoke and flame and air ingress. [2.2]

4. The portable fire extinguishers were unsuccessful in extinguishing the fire in the duct. [2.2]

5. The spread of smoke and flame was aggravated by varnished wooden surfaces on the lower welldeck. [2.5]

3.3 FINDINGS

1. There is no mandatory requirement for Class V passenger vessels to be fitted with means to prevent the spread of smoke and fire. [2.5]

2. Smoke and flame passed uncontrolled through the welldeck. [2.5]

3. The effect of the fire and smoke could possibly have been reduced had the fire brigade been called as soon as it was realised the fire was out of control. [2.6]

4. Passengers were exposed to unnecessary risk because the barbecue had been installed in an enclosed passenger space, which was unprotected from the passage of fire and smoke. [2.5]

5. The passengers on the upper deck were protected from the effect of the fire until they were disembarked safely. [2.5]

SECTION 4 - ACTION TAKEN

4.1 BY MAIB

The Chief Inspector has written to Mr K Gate (owner) regarding the following safety issues which have arisen as a result of this investigation:

(a) Compliance with relevant requirements for PA systems on board Class V domestic passenger vessels;

(b) Conducting a review of crew training needs.

4.2 BY THE MCA

Before the accident on 20 July 2002, the MCA circulated a draft MGN for consultation: MGN 222(M+F) – *Use of Barbecues and Pig Roasts on Ships and Fishing Vessels*.

This is primarily aimed at smaller passenger vessels operating barbecues using either LPG or solid fuel. It gives advice on siting the barbecue on an open deck suitably roped off, securing arrangements to enable quick release, ash and fat collection facility, and on the training in the use, and availability of, fire-fighting equipment. As a result of this investigation, the MCA has amended the draft MGN to include a regular and thorough cleaning routine of barbecue equipment and associated areas, and to prohibit the use of liquid fire accelerators.

Since the accident on *Pride of Bath*, the MCA has circulated another draft MGN for consultation: MGN 203(M) – *Crew Training for Personnel Serving on Domestic Passenger Vessels*.

This notice describes the minimum level of training required for crew working on domestic passenger ships of Classes IV to VI(A).

Application of these guidelines will reduce the risk of an accident, such as that which occurred on *Pride of Bath*, and improve the effectiveness of crew response to such an emergency.

4.3 BY AVON LEISURE (BATH) LTD

The fire and smoke caused considerable material damage to the galley and saloon such that they both required an extensive refit. The refit gave the opportunity to improve the vessel's resistance to fire outbreak and limit the spread of flame and smoke through its interior.

The refit included:

- Fitting an A30 bulkhead, incorporating an A30 fire door, to separate the galley from the saloon;

- replacing the open flame BBQ with a griddle, thus eliminating naked flames;
- re-routeing the galley extract duct within the galley area, rather than through the saloon bulkhead; and
- installing flame spread-resistant timber linings and surfaces in the saloon.

Additionally, the owners were to review its crew training procedures.

SECTION 5 - RECOMMENDATIONS

The Maritime and Coastguard Agency, in addition to the actions already in hand (Section 4), is recommended to:

1. Ensure that existing domestic passenger vessels, issued with passenger safety certificates, are fitted with a public address microphone on the navigation bridge, and one other location, in accordance withThe *Merchant Shipping (Life Saving Appliances for Passenger Ships of Class III to VI(A)) Regulations 1999;* Schedule 11 Part 2 (PA systems).

Marine Accident Investigation Branch
February 2003