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1985 FOURTH EDITION

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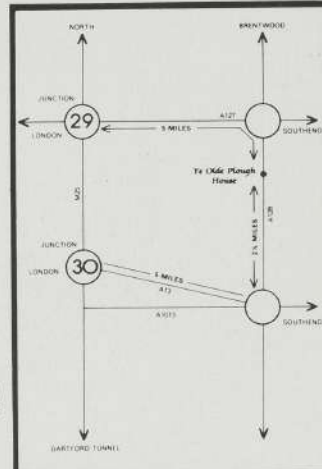
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PORT OF LONDON



Managing Editor: TERRY HATTON

1985 FOURTH EDITION No 635 Vol 60

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Cover: 'Tilbury Fort Wind against Tide', painted in 1849 by Clarkson Stanfield, RA.

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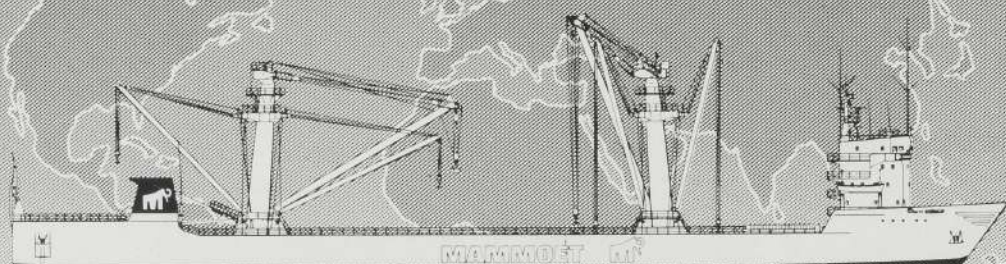
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TILBURY/ZEEBRUGGE FERRY SERVICE RESUMES

TERRY HATTON

After a break of several months, Searoads Ferries Ltd have resumed their cross channel ro/ro freight service between Tilbury and Zeebrugge. In October, the company recommenced a daily sailing schedule six times a week using the 4,470 grt vessel *Sirius*.

Capable of carrying 110 twelve metre trailers, the *Sirius* is now departing from the Port of London's riverside ro/ro berth at 11.00 hours with the return sailing leaving Zeebrugge at 24.00 local time. The service is also offering accommodation for up to 12 drivers on the eight hour crossing. After the initial mid-week start from Tilbury, Searoads Ferries have maintained a regular Sunday to Friday sailing schedule.

Searoads Ferries were disappointed that the initial Tilbury/Zeebrugge service had to be suspended earlier this year due to a number of problems at Tilbury. However, Searoads Ferries' belief in the viability of the project coupled with co-operation from the PLA and its workforce resulted in a tripartite agreement, acceptable to all parties, being hammered out. As a result, Searoads Ferries currently have the exclusive use of

the PLA's riverside ro/ro terminal and a working agreement for the service which particularly accepts the needs of the automotive industry in the movement of vehicle parts. Searoads Ferries say they now have utmost confidence in providing a reliable service at Tilbury.

When Searoads Ferries originally commenced operations at the beginning of the year, they said the decision to set up the service had been taken after careful market research. The amount of freight traffic running between the UK and the EEC was continuing to increase with more and more traffic switching from the north-east ports to the south eastern short sea crossing routes. In this respect Tilbury, said Searoads Ferries, backed by the then recently opened motorways links, was ideally located to meet their needs.

Today, the signs for the resumed service remain good and confirm the earlier market research for the route. Searoads Ferries already have contracts with nationally known organisations for around 140 trailer moves a day. This represents about 65 per cent of the *Sirius*' capacity and is beyond

the service's break even point. With freight traffic between the UK and the EEC continuing to increase plus Tilbury's excellent proven motorway links, Searoads Ferries anticipate they will shortly need to introduce a second vessel on the route. It is therefore Searoads Ferries' aim to offer shippers a morning and evening sailing from each port as soon as is practical.

However, Searoads do not intend to overlook the basics of the service and will make sure their operation is consolidated at each step of the way before embarking on any expansion programme. The company are determined to supply the service their customers actually require rather than provide the sort of service they might *think* they require. The customers' needs will be paramount.

'I am extremely optimistic for the service,' says Capt Steve Gobbi, the Managing Director. 'The reason for choosing the Tilbury/Zeebrugge route originally has not changed. Tilbury provides an ideal location with its direct link via the M25 to the UK national motorway network. When compared with existing short sea ferry services,

Pictured on the left is Searoads Managing Director, Captain Steve Gobbi, with on the right Tore Thorsen, Searoads Chairman.



the geographic advantages of the route will offer considerable savings to the transport industry. It will provide shippers with a direct cost-effective route between the heart of the UK and one of the main gateways into Europe. The natural advantages of the route plus keen competitive rates backed by the new operating set-up ensures that Searoads Ferries will offer all customers the highest quality of service at the right price.'

The company is confident that considerable savings in both mileage and operating costs can be achieved by hauliers from all over the UK when using Tilbury in preference to East coast ports such as Felixstowe and Harwich and the South coast ports of Dover and Ramsgate to move their trailers to Zeebrugge.

In spite of the fierce competition from the coastal outports for ferry traffic, Searoads Ferries remain confident of success. 'As far as Dover and Ramsgate are concerned,' said Capt Gobbi, 'they become attractive to shippers when drivers accompany their vehicles. The main attraction for the Searoads operation is in the large number of unaccompanied trailers that cross to the Continent. We are, therefore, in different markets.'

Searoads Ferries say they are also fully aware of the plans of the Dartford International Freight Terminal and their new riverside facility on the south side of the Thames. They welcome this as a benefit to their operation in attracting greater cargo volumes to the London river area. It is not viewed as a competitor as they feel there will be a natural division of traffics presented by the Dartford Tunnel. Searoads Ferries' traffic will mostly be from or bound for the industrial North and Midlands where the main manufacturing centres are, say the company.

Searoads Ferries are also ensuring that full back up facilities for drivers and customers are provided at their recently renovated berth office in keeping with the specialised requirements of the ferry trade. Their own highly trained staff are also available to iron out any problems that might arise in this time conscious trade, as are PLA, Port Health and Customs personnel.

While Searoads Ferries are a multi-national interest, they are firmly committed to an all British operation which should be achieved in the near future. This will bring badly needed jobs to the British freight ferry industry, plus an increasing number of jobs to the Tilbury area as it expands its operations.

At the ceremony to mark the official



launch of the service Tore Thorsen, Chairman of Searoads Ferries, was very complimentary of the help Searoads received from the PLA in bringing the service to operational readiness. On how the service was running even at such an early stage he said: 'We believe that the service is capable of meeting present and future requirements of our contract customers as well as attracting new ones. Our experiences so far have heightened our expectations of a large

future potential in Tilbury, not only for short sea trailer movements but also for other Ro/Ro cargoes. We can see a potential future in transhipment activity, and all in all we are happy to be at Tilbury and would like to play a role in its future development.'

PLA welcomes the return of the Searoads ro/ro service as a further proof of the growing strategic importance of the Port of London in the vital ferry trade between the UK and its EEC partners.

London Villages Barking

SHEILA GOVE



Barking is situated some seven miles east of the City of London along the A13 (the old Ripple Road), which is the main road that leads out of London along the Thames and into Essex. It lies east of the Roding River (which becomes Barking Creek at its mouth) and between the Thames and Ilford. For many centuries there has been a settlement on the site.

While the name of Barking could be derived from several Anglo Saxon words, the most likely is that it comes from Burgh-ing, which means meadow fortification. A little to the north of the town the remains of a Roman encampment, almost 40 acres in extent, have been found. These could have formed either a town or a military post, perhaps one of a series on the road between the old towns of London and Colchester. In any event it marks the importance of Barking from very early days.

It was one of the first Saxon settlements in Essex and probably formed part of the demesne lands of the East Saxon kings. Little is recorded about it until the foundation of Barking Abbey but like other parishes in which large monastic houses stood the parish was

very extensive — being nearly 30 miles around originally.

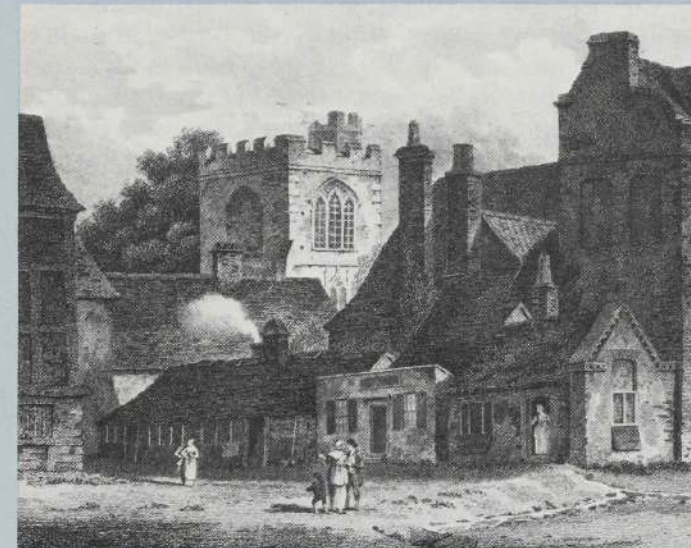
Dedicated to the Blessed Virgin, the Benedictine nunnery was founded by St Erkenwald, together with his sister St Ethelburga who became the first Abbess, in AD 666, during the reigns of two Saxon kings — Sebbi and Sighere. St Erkenwald was the grandson of Uffa, the first Saxon king of the East Angles to sit in the See of London after completion of the first St Paul's Cathedral, and was himself Bishop of London. On his death in 685, he was buried in St Paul's.

Whilst no contemporary records exist from the 9th century, it is believed that the Abbey was burnt down by the Danes in 870 and that it lay in ruins for some 100 years until rebuilt by King Edgar as a penance for insulting a holy recluse at Wilton. Early endowments of land and property included the manor of Barking, Ilford, Dagenham, Rainham, Ingatestone, Great Warley and the church of All Hallows by the Tower.

Under its Saxon abbesses it soon became one of the most sacred sites in England. Many miracles were performed there and pilgrims came from all over

England to worship.

The abbess was one of four who held seats in the Witenagemment, the great Saxon Council of England.



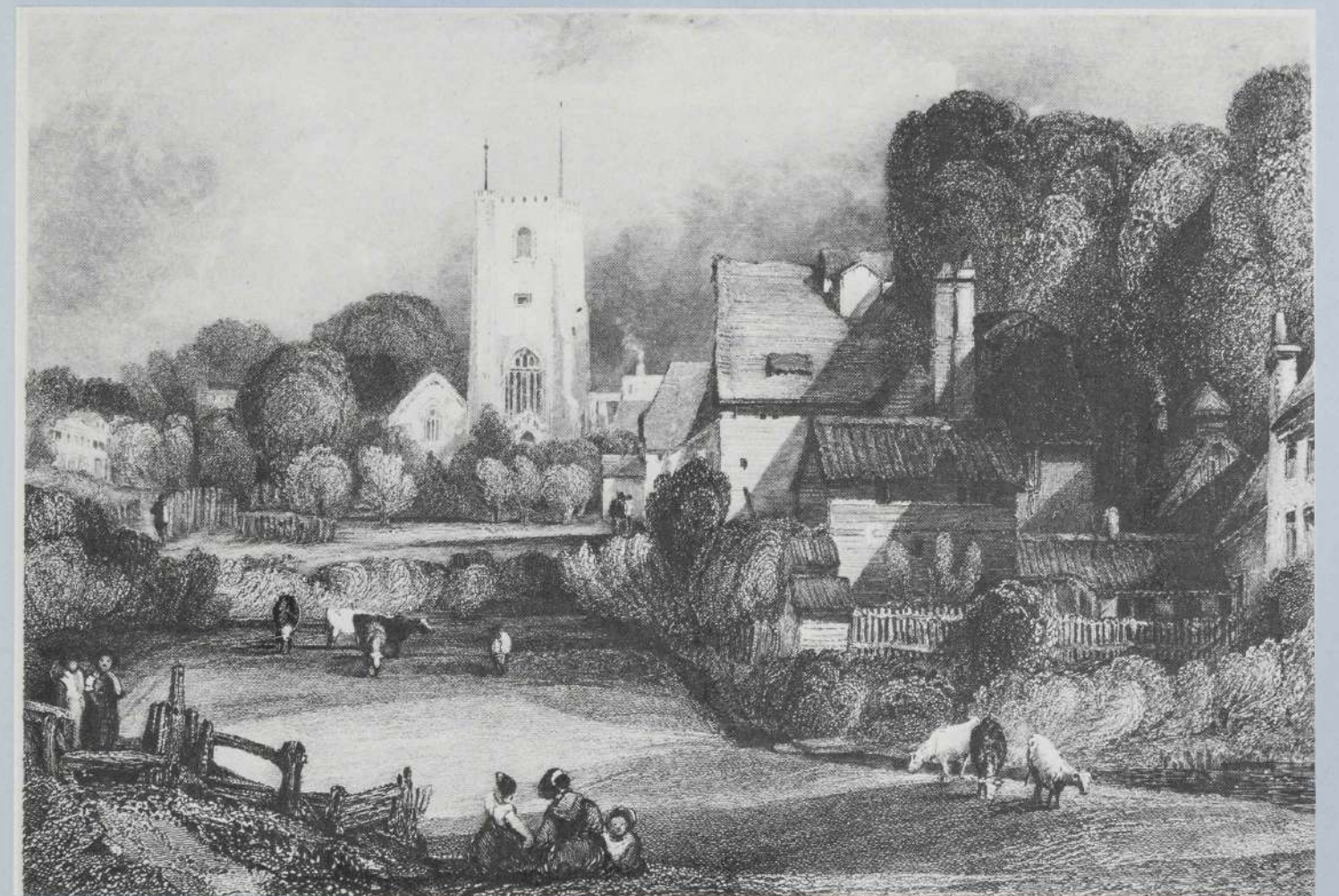
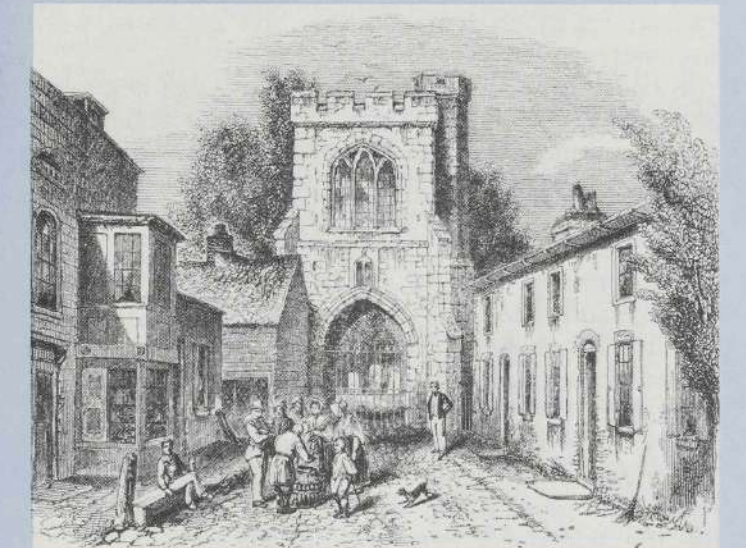
And the fact that she had great influence, power and wealth is indicated by the fact that later abbesses included two more saints (Hildelitha and Wilfhildis), three queens (Alfrudis, widow of King Edgar, Maud, wife of Henry I, and Matilda, wife of Stephen) and two princesses (the daughters of Henry II and John).

William I stayed there after his coronation while his camp (on the site of the Tower of London) was being fortified. He confirmed the abbey charters and also established it as his court making it for a while a place of fashion and state. It is said he set out on his first royal progress throughout England from its gates.

Under the Normans, who granted it many charters

Far left: The Town Quay, Barking, by W Bartlett, 1832.
Left: Barking Broadway by J Storer after Samuel Prout, 1804.
Below top: The Curfew Tower and 'Old Vicarage', 1840.
Below bottom: A romantic view of St Margaret's Church and part of the abbey site, by C Marshall and J C Bentley, c 1850.

and privileges, the abbey assumed great standing, both as a religious foundation and as a school for children of the nobility. The abbesses held great power having the rank of baron, with all its privileges except that of going into battle, but because they possessed 13 knights' fees they had to furnish their quota of men to fight for the king in a war. They were attended by



many servants including chaplains, an esquire, gentlemen and women, grooms, clerks and cooks. They also had a prison for offenders, and any servant who allowed his daughter to marry beyond the limits of the manor had to pay a fine.

There was a new abbey church built in the 12th century, which was enlarged in the 13th, and then little altered.

The latter part of the 14th century proved disastrous just when the abbey's revenues were improving. Serious flooding, which first occurred in 1377, resulted in the destruction of the abbey's possessions along the Thames. The flooding happened because the Thames dikes had fallen into disrepair (possibly because the Black Death had created a serious shortage of labour). It was the responsibility of the abbey to rebuild the dikes and keep them in repair and the cost of this caused so much hardship that the abbesses were excused many of their customary dues.

By now, anyway, its heyday was more or less over, although it continued to rank as a major abbey until the Dissolution, at which time it had an income of £1,085 a year. Accusations of immorality were never levelled against it, as against other religious houses, which was unusual. But this did not save it from Henry VIII and the last abbess was Dorothy Barley with the deed of surrender to the Royal Commissioners being dated 14 November, 1539.

The abbey buildings were magnificent and noble. They were probably something like 175ft long, cruciform in shape, the width of the transepts being 150ft. There was a nave and chancel, a Lady Chapel, High Altar and other altars dedicated to Our Lady, the Resurrection and St Peter and St Paul.

But no picture or painting of the Abbey remains, having been destroyed by religious reformers. In fact, two years after the Dissolution, the abbey buildings

were unrecognisable for they were demolished and the materials used for Henry VIII's royal properties at Dartford and Greenwich.

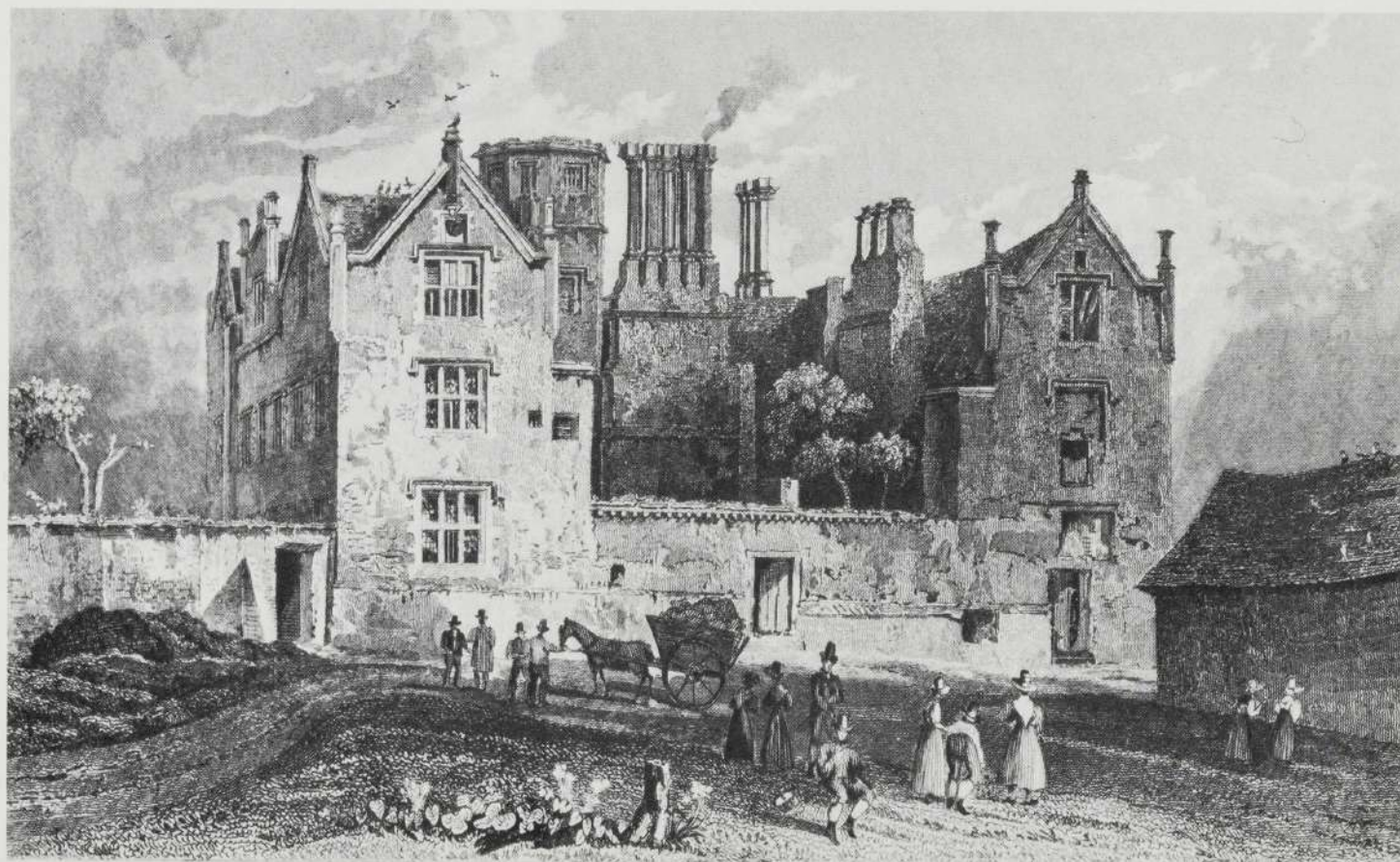
Now scarcely anything remains except for the 15th century Curfew Tower, which was one of the three original gatehouses of the abbey. There is little else, although preserved in the nearby St Margaret's church is a fragment of a Saxon carved cross and a black marble slab bearing the name of an abbess of the 11th century.

St Margaret's, which is now the parish church, was originally a chapel situated within the Abbey precincts. Mainly dating from the 15th/16th centuries, it was originally built much earlier in about 1215. A long and low exterior is dominated by the west tower while inside the effect is still that of a medieval church. The nave and aisle roofs are original although the timbers on the north aisle have been renewed.

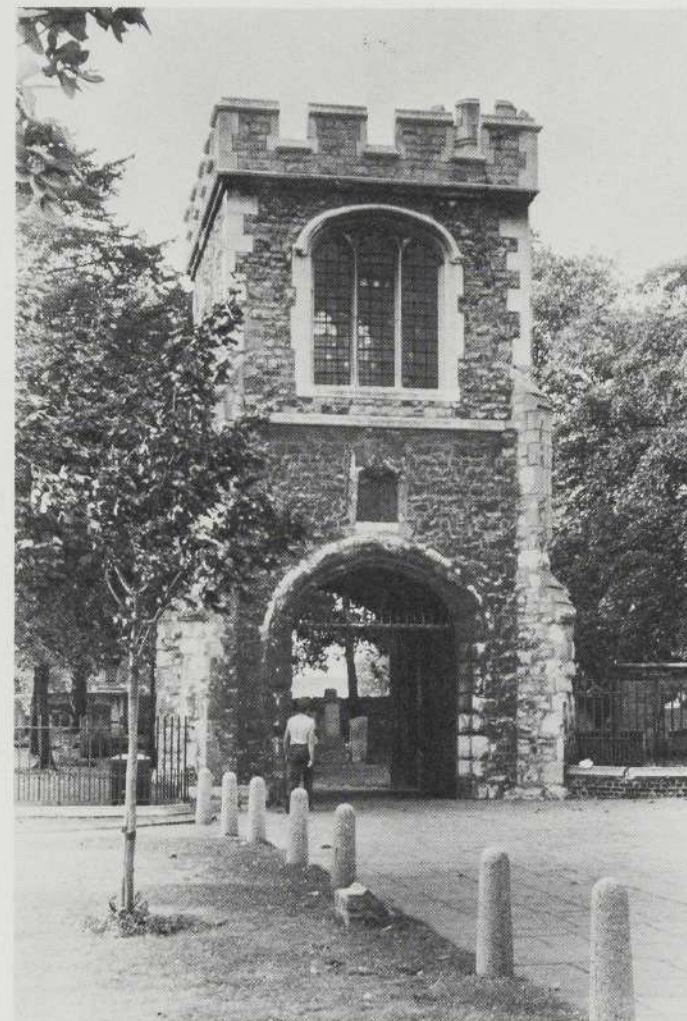
The church contains many notable monuments and early brasses. On the chapel's north wall is a slab dated



BARKING CREEK.



Left bottom: Eastbury House from the south by W. Bartlett, 1833.
Left top: Barking Creek 1883.
Below: The Curfew Tower as it looks now.



1328, inscribed to Martinus, first vicar of Barking, which was discovered during Abbey excavations in 1912. The font, dating from 1635, has a charming cover decorated with bird paintings and a carved bird on top. The 18th century pulpit is a staircase of finely twisted balusters.

Capt James Cook was married there on 21 December, 1762. And perhaps some of the holiness of the area remains for in the last 100 years or so, eight of its Vicars have become Bishops.

Today, the area around the Church and Barking Abbey ruins has been designated as part of the "Barking Abbey Grounds and Town Quay Conservation Area".

Other religions also had their place in Barking — Elizabeth Fry, who is famous for having visited the prisoners in Newgate Jail, is buried in what was once the Quaker burial ground, which is now a public garden.

Following the Dissolution Henry VIII leased the abbey and its adjoining lands to one of his courtiers, Sir Thomas Denny and in the reign of Elizabeth I it was leased to the Lord Mayor of London, Sir William

Hewitt, who also owned a large house called Malmains some one and a half miles from the church.

When the lands passed to the Crown the responsibilities that the abbey had carried on for centuries were often neglected.

For instance, as early as 1565, the road from Dagenham to Rainham, where a ferry crossed the Thames to the Kent side, became impassable because the bridge over the River Beam had decayed. A few years later, the bridge had completely disappeared. As it was still royal land, petitions were sent to Elizabeth imploring her to have the bridge repaired. Nothing was done and finally the parish authorities were forced to do the work themselves having to raise money from local citizens for it.

The Abbey would have been missed in other ways too, by travellers seeking shelter for the night and by the poor who had previously been provided with sustenance.

The land changed hands many times and by the time of the Stuarts it passed out of Royal hands when it was sold to a family called Fanshawe.

In Stuart and Georgian times, the town grew rapidly and there were several large manor houses in the parish, most of which have now disappeared. Many of the landowners were London merchants and several became Lord Mayors, including Sir Crisp Gascoyne who in 1752 was the first occupant of the present Mansion House.

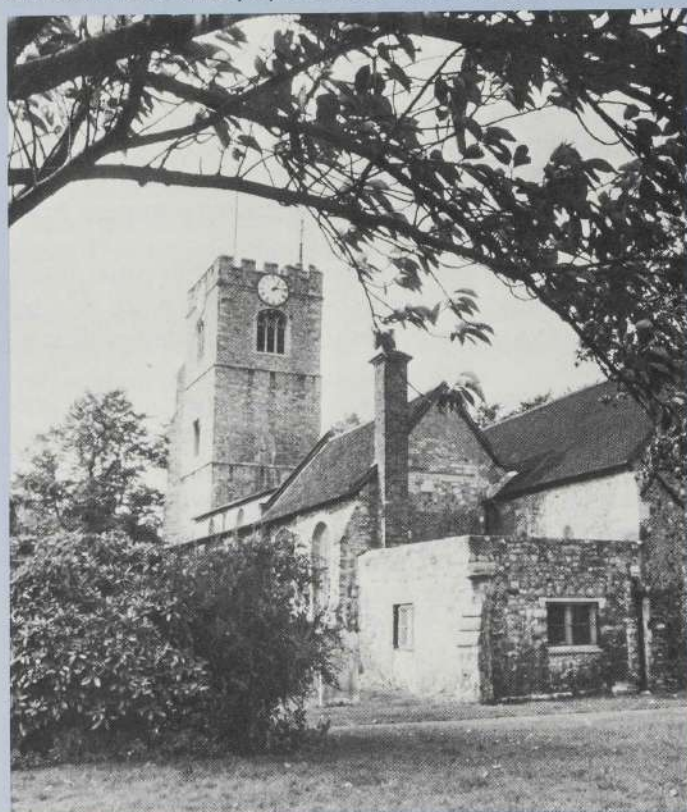
Slightly out of Barking on the road to Dagenham stood Eastbury House, a large, red brick mansion, with gables, mullioned windows, lovely chimneys and two tall towers, which commanded a view over London. The house was said to have had a connection with the Gunpowder Plot for Lord Montague was meant to have been staying there when he received the letter which, when passed to James I, led to the discovery of the Plot. Although there is no evidence for this, it was known by locals as 'Gunpowder House'; perhaps Guy Fawkes and his fellow conspirators used it as a rendezvous during their plotting or as the other rumour states they might have meant to witness the blowing up of parliament from the top of one of the towers.

Barking was not only well known for its abbey. With its position on Barking Creek, for 500 years or more it was a fishing village, first being mentioned in the Domesday Book. There was a Fish Row and Fish Shambles and those involved sold their catch, especially the salmon for which the Thames was renowned, not only locally but also to the growing population of London.

The fishermen did not confine their activities to their trade but were smugglers and river pirates as well. Being close to the remote marshes of Essex and Kent and the tiny inlets all along the Thames, Barking Creek was an ideal spot in which the smugglers could operate in comparative safety. As for the pirates they were notorious villains who operated so well that none of the diverse and plentiful cargo which came into the Port of London was safe from them. Harsh penalties of imprisonment, transportation or even hanging did not deter them and woe betide anyone who tried to stop them. They were often in league with the Customs men who were meant to prevent their activities and local publicans, who were receivers of the

stolen cargo.

Later the fishermen plied for trade in smacks which were fast, efficient vessels, the fish then being transferred to London in small boats. The masters of the smacks were invaluable as Thames pilots while their crews were sometimes press ganged into the navy — an event that always provoked violent resistance.



Left: A present day view of St Margaret's Church.
Below: The Barking Creek Barrier, part of the Thames Tidal Flood Protection Scheme.



narrow, badly drained streets. The houses were old and in disrepair. It was becoming the home for clerks and workmen looking for cheap accommodation. It was said that the only people in the parish able to afford servants were the pub owners.

By 1881, there were some 17,000 people living in the area; this rose to 21,000 in 1901 and over 78,000 by 1951 (but has since declined by some 1,000 a year).

After the First World War, Barking was part of an area used to provide housing for London's ever growing force of factory workers. By the 1930s, people from the East End had settled there but did not bring with them the East End community life and spirit.

By this time, Barking Creek, which was once described by a poet as 'limpid waters and gay banks' ran through mud between factories and warehouses. Barking Power Station, which was built in 1925 on the Thames over half a mile from the entrance to Barking Creek, was one of the largest in Europe, and stood in a bleak but dramatic landscape. (It closed in 1981). Today, the area is dominated by the massive gates and towers of the Barking Creek Barrier, part of the Thames Tidal Flood Protection Scheme.

Most of the industries were established either towards the south west near the Roding River or between the A13 and the Thames. Around the mouth of the Creek there are several wharves and industrial premises which make use of the Thames. Sea-going vessels are able to moor alongside to discharge raw materials and load finished products.

There have been many developments — several modern office blocks; the South East Essex Technical College opened in 1936 and is now the Barking Precinct of the North East London Polytechnic; the building of the Town Hall and Assembly Hall, both designed in 1936, was delayed by the war and not completed until the 1950s; the railway station was rebuilt in 1956/61 and Barking Hospital was enlarged in the 1960s.

Today Barking is considered to be one of London's industrial suburbs situated along the A13, and part of the East End; but with its very long and varied history, who can say what turn it will take in the future?

Seamen of the old school have traditionally tapped their biscuits on the mess table to shake out the weevils, and consumed large quantities of almost unidentifiable meat 'fresh' from salt barrels, often to the detriment of their health. Today, food has to be not only recognisable but also must conform to very high standards of quality. This applies to food cargoes carried by sea, often half way round the world, and to meet exacting modern standards food technologists are constantly seeking ways of improving both methods of transportation and the environments in which food cargoes are carried.

Early lack of scientific knowledge prevented efficient transport of food that tainted quickly. Pickling in brine was the chief method of preserving food on land and sea for many years and those who went to sea gave up hope of tasty meals almost as soon as they were out of sight of land unless they had a cow or a few chickens aboard. Nobody thought that the day would come when a European could munch his way through a New Zealand apple, or grill an Australian steak. Bananas were encountered only a few days sailing time from the lands which produced them. Fish was wind-dried, salted or stinking after a sea voyage.

Attempts to use ice as a preservative aboard sailing ships failed because it thawed out too quickly, and the first freezing plant to be installed in a sailing ship in 1876 was a failure. The first successful cargo of meat under chemical refrigeration was carried the following year, however, and Australian farmers wanted to know how. In 1879, the Anchor liner *Circassia*, suitably equipped with a cold storage machine, hauled a cargo of chilled meat to Europe from the USA. A year later, the *Strathleven* arrived from Australia with the first shipment of frozen meat from the southern hemisphere.

Although it was said that Queen Victoria ate Australian beef shipped round the globe to be sold at a modest 4½d a pound it was fairly obvious that the meat was affected by the voyage.

This state of affairs persisted until low-temperature research was carried out. Early failure was put down to the size of the bullock carcass, which delayed the freezing

Progress in Preserving the Product

ROBIN BURTON

process, which was not the case with mutton. It was deduced that when freezing was rapid, small ice crystals were formed and the meat juices were sealed in the cells. When, on the other hand, freezing was slow, larger crystals crushed the cells, so that during thawing the broken cells could not absorb the lost juices which simply dripped from the carcasses. By cutting up the carcasses into joints and thus reducing the unit size, much quicker and therefore tastier freezing was achieved. At least, that was the theory.

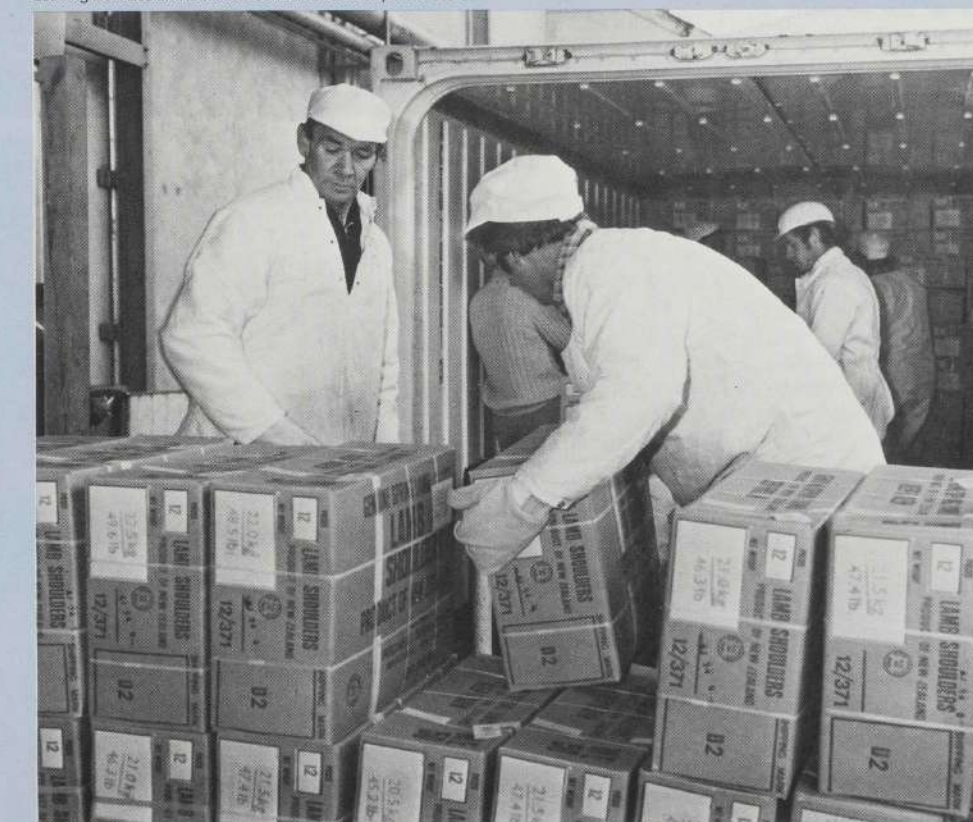
Constant observation made it fairly clear that frozen meat needed to be kept at 12°-15°F, and chilled meat at 29°F with no more than a ½°F of variation on either side of the nominated temperature. Fruits demanded various temperatures. Fruit was generally carried in chambers equipped with forced air ventilation, and chilled meats in chambers cooled by pipe grids on the bulkheads and deckheads.

Fruit was from the early days a more difficult problem than meat, and it was entirely logical that special ships should be brought into service to carry them, owned by such companies as the United Fruit Company, Elders and Fyffes, Clan Line, and the New Zealand Shipping Company.

The steady progression towards greater technical knowledge and cargoes in better condition on arrival has since been maintained. Every few months, or so it would seem, new tests and experiments are announced with the aim of ensuring that northern man can eat southern man's food, or an African can eat butter produced in a country thick with snow.

In Britain, the main body concerned with the shipment of refrigerated cargoes is the Shipowners Refrigerated Cargo Research Association at Cambridge. Here various methods of temperature control have been looked at for many years, to determine the nature of temperature margins and toler-

Loading New Zealand lamb into container for transport to the UK



Top right: 'Preserving the product' while it travels across the world has meant evolving systems suitable for the needs of individual commodities.
Centre right: Pears may be sensitive to minute increases in temperature.
Bottom right: Commemorating one hundred years of frozen lamb shipments to Britain in 1982.

ances for differing cargoes. One new development, based on microprocessors, will act as an 'intelligent machine' aiding precise temperature control aboard ship, and monitoring of the refrigeration unit.

Meat is a fairly tolerant sort of cargo and much is known about how to deal with it. Its temperature in chilled state is recognised as being critical, for otherwise it will either get too cold and become frozen with considerable loss of value, or become a relatively warm breeding ground for moulds and bacteria.

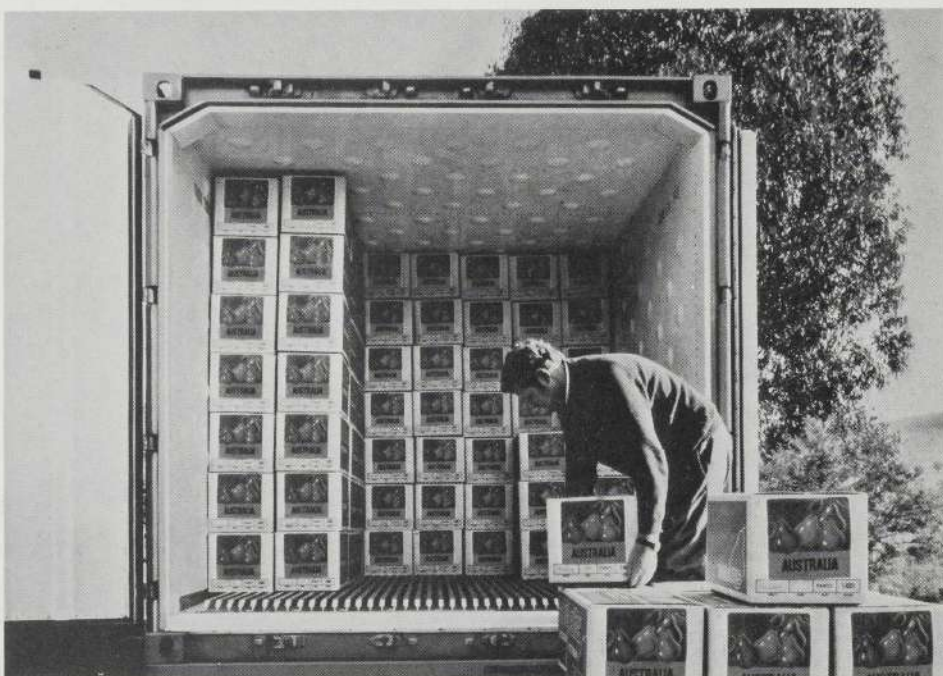
Butter is not especially demanding, but fruit cargoes vary quite a bit, with bananas being ruined by a drop of only $\frac{1}{2}^{\circ}\text{F}$ while apples are not at all fussy. And pears such as Williams will complain about even a tiny rise in temperature. It is therefore essential that the performance of freezing units be monitored.

Two decades ago data loggers were commonly used by shipping companies who had ample crews to carry out such work as sampling and recording temperatures at pre-determined intervals. This was not particularly satisfactory for many reasons, but not least because the unscrupulous could record what they would have preferred to see rather than what they actually did see. Electronic control of both container refrigeration systems and large ship refrigeration plants came in side by side with the use of refrigerated containers. Now it has been found possible to eliminate both electro-mechanical and electronic systems by replacing them with total control systems based on microprocessors. These, if properly programmed, will monitor all the relevant parameters and sound the alarm if something is wrong.

In effect, this means that a system of this nature can keep records in a manner which cannot be easily tampered with, and will do away with the traditional stylus creeping across a traditional chart recorder.

One of the early problems was adequate insulation of ship structures, but this worry transferred to containers when these came into wide use as the quality of the insulation and the lasting ability was regarded as being of prime importance. As it happens most modern containers are insulated with polyurethane foam material which tends to decay with time, so that it is vital that a close watch be kept for deterioration of performance. This interest also extends into observations of road vehicles, which are, after all, extensions of the shipment procedure.

The Association, which is formed by the common interests of several prominent shipping lines, is not altogether convinced that temperature control equipment supplied by manufacturers is always as precise as it should be. This is another good reason for designing a good monitoring system. Insurance companies would look askance at a claim when it could be held that the refrigeration equipment was faulty.



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Shipping companies of course have close links with other bodies which are involved in research affecting their activities. A recent example of the sort of collaboration that can pay off is provided by the method of shipping onions to Britain from Australia by Associated Container Transportation (Australia) Ltd. In the past onions were either carried in refrigerated containers or on flat racks stowed in well ventilated parts of the ship. However, reefer units have not always been available, and in any case were expensive, while in the case of flatrack shipment it was difficult to safely secure the onions which were also exposed to weather during transit handling. Other systems of packing have also been tried, such as the use of open-topped boxes and general purpose boxes from which the doors were removed to assist ventilation, but for various reasons have not been successful.

The problem is that onions begin to deteriorate swiftly if deprived of ventilation, even for a few days, although given good ventilation they will easily last for months at a time. The most important requirement is to keep the onion dry, and although an onion has a high moisture content often of about 85-90 per cent and the equilibrium relative humidity is also high, perhaps 98 or 99 per cent, its skin is a good moisture barrier. This means that even a very modest flow of air is enough to maintain that essential surface dryness and thus prevent the growth of mould.

The answer is a system producing a continuous flow of air through the stow by means of a slatted false floor from a fan mounted on the outside of one end of the container and vented at the headspace of the other end. Well-cured onions are now packed in net bags and held in the containers for eleven weeks, which is the equivalent to twice the usual voyage time to Europe, and the onions emerge dry and shining bright.

ACT(A) took up this idea, and have since used it with success. Tasmanian onions shipped to Europe now total thousands of tons every year. The company has also been looking into better ways of shipping garlic to Australia from France, and pioneered the bulk shipment of apples northbound.

The careful shipment of apples is a matter of some importance, as the fruit fills an otherwise empty slot in the market just after South African fruit has arrived in Europe but before the picking of the European crop. Quality is a real problem, however, with bruising resulting in much lower returns to the grower. ACT(A) has in fact shipped apples in bulk, and, although not all apples can take this treatment, Granny Smiths have shown that they can take the weight provided that they are not damaged during loading.

One of the most important factors affecting saleability is the degree of ripeness of the fruit, and this is directly influenced by ethylene which is produced naturally by certain fruits to stimulate ripening and accelerate senescence. It is not always realised that it is also a by-product of internal combustion engines, which means that diesel or LPG powered fork lift trucks should never be used near stores containing fruit, cut flowers or shrubs.

The effects of ethylene can be removed

by getting rid of the ethylene itself. This is quite simple if the cargo is ventilated with fresh air about once every hour. This would, however, simply 'throw away' refrigerated air and eliminate 'modified atmosphere' containing, for example precisely controlled levels of carbon dioxide. Various methods of absorbing ethylene from the atmosphere have been tried in the past such as potassium permanganate coated substances and activated charcoal. And in 1984 scientists at East Malling Research Station in Kent announced the development of a new type of 'scrubber' which passed the ethylene over a platinum catalyst to remove it by combustion. This technique would be very useful for the transportation of apples, but the scientists do not see this as the main use, although it has been successfully tried on Coxes. It could be used to control ethylene levels in cargoes of bananas and kiwi fruit, or even vegetables, and has the benefit of being very precise. Commercial development of the equipment is being arranged with Johnson Matthey Chemicals of Royston.

Not everyone agrees that it is necessary to go in for really costly systems and, according to Dr Nigel Banks, who spent many years at the Department of Applied Biology at Cambridge University, it is quite possible that refrigeration alone, allied with the use of suitable waxes, could eliminate dependence on controlled atmosphere and gas exchange in the products. Fruit tissue respiration is connected with heat production, and the consumption of oxygen. This can be affected by wax surface coatings. It is not possible to avoid completely oxygen intake and render the fruit anaerobic because it would then begin to ferment, so it is necessary to be careful with the waxes.

As a result of Israeli work with oranges, the limits of water reduction in oranges are known, but other fruit such as apples behave differently, and this is one reason why waxes have yet to reach their full potential. Research work is however, continuing on this interesting topic.

Fish is now being shipped round the world in increasing quantities, but not necessarily in larger individual shipments.

Fyffes Geestbay, which visited London in 1981. Photograph: W. H. Brown.



Onions begin to deteriorate quickly if deprived of ventilation.

Something like 5,000 tons of Canadian herrings will be shipped this year and, although this cargo has to be preserved, the shipments will not justify use of full reefer ships. One alternative is a modern packing technique, developed by food scientists at Cornell University, which is said to keep fish fresh for about a month without any noticeable loss in flavour, nutritive value or texture. This process, known as modified atmosphere storage, applies carbon dioxide to slow down the growth of bacteria which would otherwise cause spoilage of the fish.

Early in the treatment the fish is refrigerated in impermeable bags with air and 60 per cent carbon dioxide. Thus the process is in effect a smaller version of the larger modified atmosphere storage systems used to preserve fruit and vegetables. It works equally well with salmon, cod and red hake, but other research workers at Cornell have also been preserving trout, shrimp and pollack in 'retort pouches'.

One valid objection to canning is that the required heat tends to change both flavour and texture. Fish contained in 'retort



pouches' need much less heat so that not only are flavour and texture less affected but also heat-sensitive vitamins are preserved. What this really means is that fish which would not have been shipped at all in anything other than frozen state can now be sent at will and airlines, in particular, are taking advantage of the fact.

'Gamma fresh' fish is another cargo that can now be shipped after use of ionizing radiation from a radioactive source to kill bacteria. Such fish keeps longer than untreated fish kept on ice, and the method avoids use of fumigants, pesticides and additives.

What may on first impressions seem to

Left: Refrigerated containers transporting food products are a common sight in PLA's Tilbury Docks. Left bottom: ACT(A) pioneered the bulk shipment of apples and showed that certain types of apples, like Granny Smiths, can take the weight provided that they are not damaged during loading.

be a step backwards is in effect an advance in the case of present Australian research into fish drying. In Indonesia, a vast amount of fish is lost through spoilage. Research is underway at the University of New South Wales aimed at the design of much more effective fish driers which can be sent to Indonesia to preserve the catch so that it can be shipped as safely as other commodities.

It has always been possible to ship grain without major problems, but it has only relatively recently become clear what vast quantities are lost each year through pest infestation. It is possible to fumigate cargoes to arrest this proliferation of pests, and although this can be done at the port of shipment it is now increasingly the case that 'in transit' fumigation is practiced. Ethylene dibromide (EDB) is now falling out of fashion following fears that it is cancer-inducing, but there are other useful and relatively safe fumigants which can be used such as Actellic D and Reldan 50 so that the question is not whether the fumigants can be used but when.

In recent years something like two thousand ships annually have left US ports while undergoing 'in transit' fumigation and it is clear that this system has a lot to commend it. There are fewer delays, and the recipient can be sure that there has not been reinfection between treatment and shipment. There are ample safety precautions such as the requirement that each ship be provided with a certificate stating that the hold is suitable to contain the fumigant, and sealing off of accommodation from areas under fumigation. The actual process is therefore fairly well controlled, but there is one problem that demands constant attention. With constant use even the most effective fumigant or pesticide becomes less and less effective. This has already happened with Malathion which was commonly used to treat shipments from Holland and Belgium. Research emphasis will therefore be largely concentrated on the development of new and more potent potions to give persistent pests a pain in the posterior. In fact, even with grain there is a temperature consideration, because grain pests proliferate in relatively warm conditions.

In summary then, there is a lot of research and thought currently being directed towards the more effective control of the factors affecting shipment of a considerable range of products and commodities. One way of gaining an appreciation of the basic rules of the game is to read 'The Transport of Perishable Foodstuffs' which was recently published by the Ship-owners Refrigerated Cargo Research Association and deals with most of the relevant factors.

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An aerial view of Silvertown Wharf.

Keeping Fleet Street's presses rolling — from Silvertown

'The three great elements of modern civilization, are Gunpowder, Printing, and the Protestant Religion' said Thomas Carlyle over one hundred years ago. While his present day countrymen might well argue with one or even two of Carlyle's 'essentials', few would dispute the value of the printed word — or wish to be without their daily newspaper! And Ault & Wiborg Ltd, largest suppliers of printing inks in Europe, are currently putting underway a £4 million development at Silvertown Wharf on the Thames to cope with the expansion of their newspaper division. SUE COPEMAN writes:

The planned new facilities at Silvertown herald the return to London of a company which supplies inks to all the Fleet Street newspapers as well as other UK and overseas printers. Mr Fred Sleet, managing director of the newspaper division, sees the move as an opportunity to get geographically closer to many of the company's major customers, at the same time enabling Ault & Wiborg to utilise the latest technology to provide a platform for further growth.

Ault & Wiborg was originally the London branch of a US company, formed in the 1870s by two Scandinavians, L A Ault and F B Wiborg, who had emigrated to America. The British arm became an independent UK public company in 1934 and by 1938 was the principal supplier of news-

papers inks in the UK, having exclusive contracts with both Beaverbrook and Kemsley Newspapers and Odhams Press. It was also the only UK supplier of gravure inks for magazine printing.

In 1962, Ault & Wiborg acquired The Empire Printing Ink Company from its parents Daily Mirror Newspapers, Associated Newspapers and The Amalgamated Press. Ten years later came another acquisition, that of British Printing Inks, a 50 per cent owned subsidiary of Express Newspapers.

At that time, British Printing Inks had just completed a new factory in Milton Keynes, having taken advantage of grants and government assistance to relocate out of London. Faced with the choice of continuing in its Plaistow factory which by now required

modernisation or of moving to up-to-date premises in Milton Keynes, the company opted for the latter.

Now 13 years later, Ault & Wiborg has reached the situation where the Milton Keynes site is insufficient for its needs and is developing its new facilities at Silvertown. However, the Milton Keynes factory will remain operative, concentrating on the manufacture of new products and taking advantage of the skills and experience which its workforce has built up over the years.

These same skills and experience will be applied by Fred Sleet and his team to maximise the potential of the new Silvertown works. Mr Sleet has been in the newspapers inks business some 37 years and his deputy managing director, Dena Campbell,

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Right: The manufacture of printing inks is a scientific business and requires modern equipment.
Bottom: The newspaper inks division's Milton Keynes factory.

16 years. Their senior colleagues have a similar length of involvement. Mr Sleet says with some justifiable pride that there is little that they don't know about the newspaper production business.

And in this particular business, the key factors are not just offering the right product at the right price but reliability as well. While newspaper production may from time to time be disrupted by industrial disputes or associated problems, it is unheard of for a newspaper not to be printed because the ink was not delivered on time or was of the wrong quality. Mr Sleet and his colleagues go to a great deal of trouble to ensure that this will never happen, including the provision of a 'mothball' plant in Liverpool so that if fire or disaster strikes the primary location, production can be switched immediately and continuity assured.

Since most newspaper presses do not store large quantities of ink, deliveries are made on a daily basis. They are scheduled to slot in with the other regular deliveries that Fleet Street newspapers receive such as reels of newsprint — an essential point bearing in mind that narrow roads like Bouverie Street can soon become congested. Ault & Wiborg was a pioneer too in the introduction of electrical pumps on its road tankers to provide a quiet, efficient and very fast means of delivering inks. The traditional method which involved using the vehicle's engine to power the pump was noisier, slower, and often resulted in diesel fumes which were particularly unwelcome in view of the fact that newspapers' press-rooms are often below ground level.

Technical advances have indeed been a feature of the company's activities. The



manufacture of printing inks is a scientific business; there are no fewer than 16 different formulae for newspaper letterpress printing and 22 for web offset. Mr Sleet's search for the latest and best equipment and methods of manufacture took him to the USA and Europe, and ended up in a factory in a little-known part of the USSR which he had to have special permission to visit, to see the prototype machine in use there. His company has also pioneered

development of inks with health and safety considerations well to the forefront. For example it introduced inks which would not mist on the rollers, so preventing serious pollution of the atmosphere.

The factory at Silvertown will use modern techniques and plant with a high degree of automation. Says Mr Sleet, 'It is going to be like the most up-to-date oil refinery where the processing plant is all enclosed and everything has been con-



structed with cleanliness, health and safety in mind.'

The comparison is perhaps particularly appropriate as Ault & Wiborg purchased the site from an oil company — Shell — who had used it as a depot for the distribution of petrol, diesel fuel and other oil-based products. When the depot became surplus to their requirements, Shell commenced demolition of the storage tanks and loading bays with the intention of selling the area as a greenfield site. When Ault & Wiborg began purchase negotiations, they halted demolition. The main constituent of ink is oil which accounts for 80 per cent of the product so storage and adequate loading facilities are obvious essentials.

Today, the site has seven storage tanks, ranging in size from 3,400 tons down to 50 tons, and giving a total capacity of 10,500 tons. 'This,' says Mr Sleet, 'will be more than we initially require — but we will find a use for them!'

By the first week in October, Ault & Wiborg had already taken delivery of two 1,000 tons consignments of oil brought in by tanker to Silvertown Wharf. It expects its year's intake to be around 12,000 tons imported via the river. Obviously the facility to buy in greater bulk than before will give the company an edge when it comes to negotiating terms with its suppliers.

The accent that the company places on quality control is demonstrated by its import procedures. The oil is tested before it leaves the exporting countries, in this case usually Sweden and Germany, and a sample is taken again by Ault & Wiborg's own engineer when it arrives. Keeping Fleet Street's presses running means ensuring that the product is correct in every respect. No driver can leave the company's factory until the quality control laboratory has issued a certificate to say that his load is everything it should be.

The Silvertown wharf and discharge facilities are important for a company which utilises imported products. In the future, they may also prove valuable with regard to exports, which are a significant feature of the company's operations. The UK news-

paper division supplies inks to many places in the world; for example, it provides all Nigeria's needs and also exports to the Middle East and Far East. The Sun Chemical Corporation, which holds 83.5 per cent of Ault & Wiborg's capital, is one of the two largest printing ink groups in the world, with factories in Finland, Sweden, Belgium, France and Italy, all offering export opportunities for the UK company. The main product which it exports at present is ink for web offset printing, packaged in 200 kilo drums. The new factory at Silvertown which will comprise 9,000 square yards plus mezzanine floors will enable Ault & Wiborg to increase production.

The building alone is going to cost in the region of £400,000 and will take 40 weeks to build. By the time that it is equipped with modern computer-controlled plant, the

Above and Below: Ault & Wiborg was a pioneer in the introduction of electrical pumps on its road tankers for improved delivery of inks.

cost of the whole development will be around £4 million. Facilities will include a coloured inks facility to meet increasing demand in the UK where, as newspaper printing switches from letterpress to web offset, colour pages will become an increasing feature of our newspapers.

Until the Silvertown plant becomes fully operational, Ault & Wiborg will continue newspaper inks production at Milton Keynes, using their road tankers to deliver to London and collect oil at Silvertown to take back on the home run.

Ault & Wiborg enjoy between 65 and 70 per cent of the UK newspapers inks market. And, with some 22.5 million newspapers produced each day, printing looks like retaining its place as one of Carlyle's main elements of modern civilisation!



The Quiet Conquest

PETER MARSH

This year saw the staging of a major new exhibition in London. The Quiet Conquest, held at the Museum of London, looked at the history of The Huguenots from 1685 to

1985 and the impact that these French exiles had on the English way of life.

The Huguenots were French Protestants followers of John Calvin and, by the late

16th century, probably accounted for some 10 per cent of the total population of France. However, in a predominantly Catholic country and with that religion generally supported by successive French kings, persecution was perhaps inevitable. By 1685, Protestantism did not officially exist in France as an organised religion and its supporters, the Huguenots, were forced to meet and worship in secret. If discovered, they were imprisoned or condemned to the galleys.

Against this background, it is hardly surprising that many Huguenots decided to leave their homeland for a country where they would be allowed to follow their beliefs in peace. Many — probably around 50,000 or 60,000 — went to the Dutch Republic; the second most popular country was Britain which took in between 40,000 and 50,000 Huguenot refugees.

London had what the museum's exhibition catalogue refers to as 'a magnetic attraction' for the Huguenot refugees of the 1680s and 1690s. It was the centre for relief which appears to have been provided quite generously. From 1681 when Charles II issued his proclamation offering England as a place of refuge, the Huguenot refugees were assisted by house-to-house collections across the country. A broadsheet of 1688 refers to a fund of £40,000 from collections in James II's reign which met the needs of some 15,500 refugees of all classes, both in London and the ports where they landed. Also, in the late 17th century, two soup kitchens in Soho and Spitalfields were established for the Huguenot poor.

Other sources of London's attraction were the two most important French churches in the country. These were situated at Threadneedle Street in the City and the Savoy at Westminster. And, extremely important, were the employment opportunities offered by London. By 1700, it is estimated that there were between 20,000 to 25,000 Huguenots in the area of modern Greater London.

Having been drawn to London, the Huguenots were quick to open schools which pursued their own educational traditions. Schools were established in and around London at Chelsea, Greenwich, Islington and Marylebone. Later, in 1747, the Westminster French Protestant Charity School was founded to provide a primary education for some 30 children; it was limited to girls only after 1812. Although the school closed in the 1920s, the Westminster French Protestant School Foundation still assists with the education of children of Huguenot descent.

The French communities of the late 17th and 18th centuries undertook a variety of trades. The largest concentration in London of Huguenot refugees was at Spitalfields where the weaving trade was most important. For 100 years from 1670 to 1770, the Huguenot element was a vital part of the London silk industry. The Wandsworth community was noted for its

hatmakers. The most variety was in the west, centred around Soho, where Huguenots followed a wide range of occupations. Says the museum's catalogue: 'There were Huguenot gardeners at Chelsea, glass-makers at Greenwich, and schoolmasters in many London suburbs. The richest coterie was composed of merchants who frequented the City, many of whom contributed to the capital of the Bank of England, and the new world of stocks and shares.'

The Huguenots met not only at work and in church but also in London's coffee houses and at the Masonic Lodges. The larger communities retained their distinctive French characteristics well into the 18th century; later they were to abandon everyday use of the French language as they became absorbed into the English community.

As the Huguenots took their place in various trade and professions, so the sphere of their influence extended and they began to make a contribution to areas such as the fine and decorative arts, science, medicine, business and the City, the theatre and the army. It was a Huguenot, Charles Labelye, who designed the first Westminster Bridge and a fellow refugee, watchmaker, James Vauloue, who invented the engine used to drive the piles.

Although Calvin had disapproved of the theatre, the descendants of his followers did not and among them are featured play-



At the invitation of Parliament, Prince William of Orange entered London on 18 December 1688, to the joy of the Huguenot refugees who hoped for backing from the Protestant king — from an engraving by Romeyn de Hooghe. Below: Mr and Mrs Garrick taking tea — Actor David Garrick was a Huguenot descendant.



In Hogarth's engraving 'Noon', 1738, the Huguenots are shown emerging from the 'Eglise des Grecs' in Hog Lane, Soho. Their sobriety is contrasted with the disorderliness of the indigenous on the other side of the gutter.



wrights, such as Thomas D'Urfey and actors, of whom the most famous must surely be David Garrick. Huguenot writers also had a contribution to make, their French background and philosophies giving a new perspective to English opinions and promoting the cross-fertilization of ideas. And as in France the Huguenots were not permitted to print or sell books, many printers and booksellers came to London and set up business there, with the Strand a popular area for the booksellers.

A significant contribution was made by the Huguenots in the field of architecture. Daniel Marot who, as architect to William III, designed the king's state coach and the interior furnishings and garden layout at Hampton Court Palace, was the first to introduce the idea to English architecture that everything in a room should be designed by the same hand. This principle was later adopted by two great designer architects, William Kent and Robert Adam.

Marot's engraved designs were particularly influential too for furniture produced in the first two decades of the 18th century. Huguenot craftsmen also developed the use of papier-mache for ornamental pur-



poses.

Not all the traditional crafts and industries of London welcomed the coming of the Huguenots who not only brought with

An engraving of the new church, Soho Square, built after St Martin's Le Grand was demolished in 1687 as a place of worship for Huguenot descendants.

A silver pair-case watch made by James Debaufre, London, c. 1740. James Debaufre was born in London in 1691, the son of Pierre Debaufre, a Huguenot emigre from Paris. Photographs: Museum of London

them new ideas and methods but also competed for trade. For example, Huguenot goldsmiths came to Britain not only because of religious persecution but also because, in an effort to finance his wars with Holland, Louis XIV in 1686 ordered all plate to be melted down, decreeing that goldsmiths should no longer be employed.

The refugee goldsmiths introduced new forms, styles and ornamentation — and London goldsmiths objected to the unwelcome uncompetition. A series of petitions against the Huguenots were presented to the Goldsmiths' Company, and some London goldsmiths deliberately copied the Huguenot style or employed Huguenot journeymen.

The Free Clockmakers of London are also on record of complaining, as early as 1627 before the main thrust of Huguenot immigration was underway, of being 'exceedingly compressed by the intrusion of French clockmakers'. Interestingly, this was one wheel which ran full circle: although the development of London's horological industry owed much to the refugee Huguenot craftsmen, by the early 18th century, it was an English clockmaker who was invited to Versailles to revitalise the French clockmaking industry.

Gradually, the immigrants were accepted and took their place in English society. The 'quiet conquest' was completed; many hitherto traditional English trades and crafts would never be quite the same again.

The exhibition which ended in October was the first to focus on the Huguenots and the contribution they made to the life of London and the nation. It coincided with the 1985 tercentenary of the Revocation of the Edict of Nantes in 1685 by which Louis XIV deprived the Huguenots of their right to freedom of worship. It was arranged by the Museum of London in association with the Huguenot Society of London and was illustrated by the Museum's first-ever full-scale exhibition catalogue with over 500 black and white photographs and 24 colour plates.

This article is based on information contained in the exhibition catalogue, *The Quiet Conquest The Huguenots 1685 to 1985*, price £9.95, the Museum Book Shop, Museum of London, subject to availability.

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Diversification and a new role for St Saviours Dock

SUE COPEMAN

Appropriately, the mill and offices of Vogan & Company are in Mill Street, Bermondsey. They are situated in St Saviours Dock on the Thames which still has a role to play in the trade of the company despite the growing use of containers and down-river facilities.

Vogan & Company was formed in Bermondsey in about 1813, although it did not move to its present site in Mill Street until the turn of the century. Even in those early days, the company's business was broadly similar to that of today — processing of lentils and peas — although importing oats was a major activity in those days of horse-drawn traffic. At that time, indeed, there were a number of oats wharves along the Bermondsey stretch of the river.

Vogan's main activities continued to be centred on the processing of pulses and the milling of pearl barley until, with modernisation, the company decided to diversify.

It was towards the end of the 1970s, when Vogan carried out a feasibility study on the machinery at its premises and its methods of handling grain. The company was concerned to bring equipment and operations up-to-date and to upgrade standards to meet the requirements of its customers. The decision was taken to remodel the mill and the work was completed in 1982.

To help with the process of modernisation and to enable the company to remain in its traditional location, finance was forthcoming from two external sources. The Docklands Development Corporation and the Department of the Environment assisted with the remodelling of the mill by providing Vogan with a grant for the civil building works which had to be carried out, which enabled it to complete its alterations at the Bermondsey site and stay in the area.

The result of this finance and planning is a mill of the latest design with modern handling facilities but still housed in the original Victorian warehouses. The mill, which can be operated by one man, frequently runs continuously, 24 hours a day. It has high capacity and is controlled by a computerised central panel.

A silo with a capacity of 2,000 tons at the plant ensures a regular supply of raw

materials; the mill itself can process around 500 tons of raw material a week. From the silo the vegetables are spouted into the mill where they pass through a number of

machines, undergoing a variety of processes. The raw materials are gravity-fed down through the machines on the floors of the mill, lifted up to a higher level by elevators and once again gravity-fed downwards for further processing.

When the refining stage is completed, the products pass onto packing lines where the bags are automatically filled, weighed and stitched. Then they are conveyed to a palletiser and automatically stored, 20 bags to a pallet, ready to be taken by forklift truck to the warehouse or to road transport.

Lentils and peas can often arrive in a very dirty state. They are imported from countries such as Eastern Turkey, as well as the home market in the case of peas. Often there is a high percentage of undesirable 'extras' such as stones and sticks, and they need to be cleaned to a high standard in order to conform with UK food regulations. They are also skinned (a process known as decorticating), split, cleaned once again and then polished before bagging up.

Demand for dried pulses such as peas and lentils is to some extent seasonal — after all they are most frequently used in making soups and stews which are winter dishes — and so Vogan decided to diversify in order to maximise the potential of the new mill. The result was the introduction of

Rice is brought in bulk to St Saviours Dock by coaster, and pumped out by pneumatic elevator.



rice milling, a year ago.

The demand for rice is constant throughout the year and, in its first year of handling this commodity, Vogan reports that it has been kept 'reasonably busy' throughout the summer. However, the company is hoping to make a significant inroad into this market which hitherto has been dominated by milled products imported from the Continent. It believes that it can offer UK customers speed of delivery and a flexibility which are not available when customers are buying 'at a distance'. There is a considerable competitive edge in being on the spot!

The process of refining both pulses and rice usually involves removing the husk which is afterwards sold to become animal feed compounds. However, the growing demand for 'whole foods' means that sometimes part of the husk is retained, as with wholegrain rice. In any event, even the keenest health food enthusiast would not wish to eat a product which had not been properly cleaned. And the interest in high-

fibre products has been beneficial to dried peas and lentils production.

Vogan imports brown rice in its raw state from America, Thailand and Indonesia. It is milled and usually the husks are taken off and the material is whitened, after which it is cleaned and graded. It is packaged in 50 kilo and one ton bags, and afterwards goes to packers, supermarket chains or restaurants.

St Saviours Dock has been used by Vogan since the turn of the century and until around 1970 the dock was usually full of barges. Everything the company used to import was taken into the upper enclosed docks, dispatched overside into barges and brought to St Saviours. At that time too most of the other wharves surrounding the dock were operational, and Vogan used to employ a dock master to make sure that cargoes came in and out in the right order.

With the closure of the Upper Docks and reduction in riverside wharves' commercial activity, things have changed. Much of the



raw material that Vogan processes comes in containers through Tilbury and other ports and is delivered by road to the mill. Rice is transhipped on the continent and brought to St Saviours Dock by coasters. These vessels are up to 400 tons and carry the rice in bulk. It is pumped out at the dock by pneumatic elevator. On average, two coasters every six weeks call at the dock but if Vogan's plans to increase their share of the UK market are realised the number will increase. Although Vogan do not operate their own transport fleet, they can arrange carriage via local hauliers where customers do not wish to use their own facilities.

Keen buying is an essential feature for any organisation which thinks competitively. Vogan's storage facilities give it the ability to lay-up stocks when prices are good. For example, the company might buy peas or barley from UK farmers immediately after harvest time.

Vogan is understandably concerned at the present time about the proposed restrictions on heavy vehicle traffic in Inner London as it takes delivery of much of its raw materials at 6am. For example, as many as 20 or 30 containers may be brought from Tilbury at a time and unpacking, which starts at 6am, may go on until 8pm that night. Inevitably, this means lorries coming into London at around 5am and Vogan shares the fears of other London industrial concerns that it may be forced to move outside the capital if the GLC's plans are implemented.

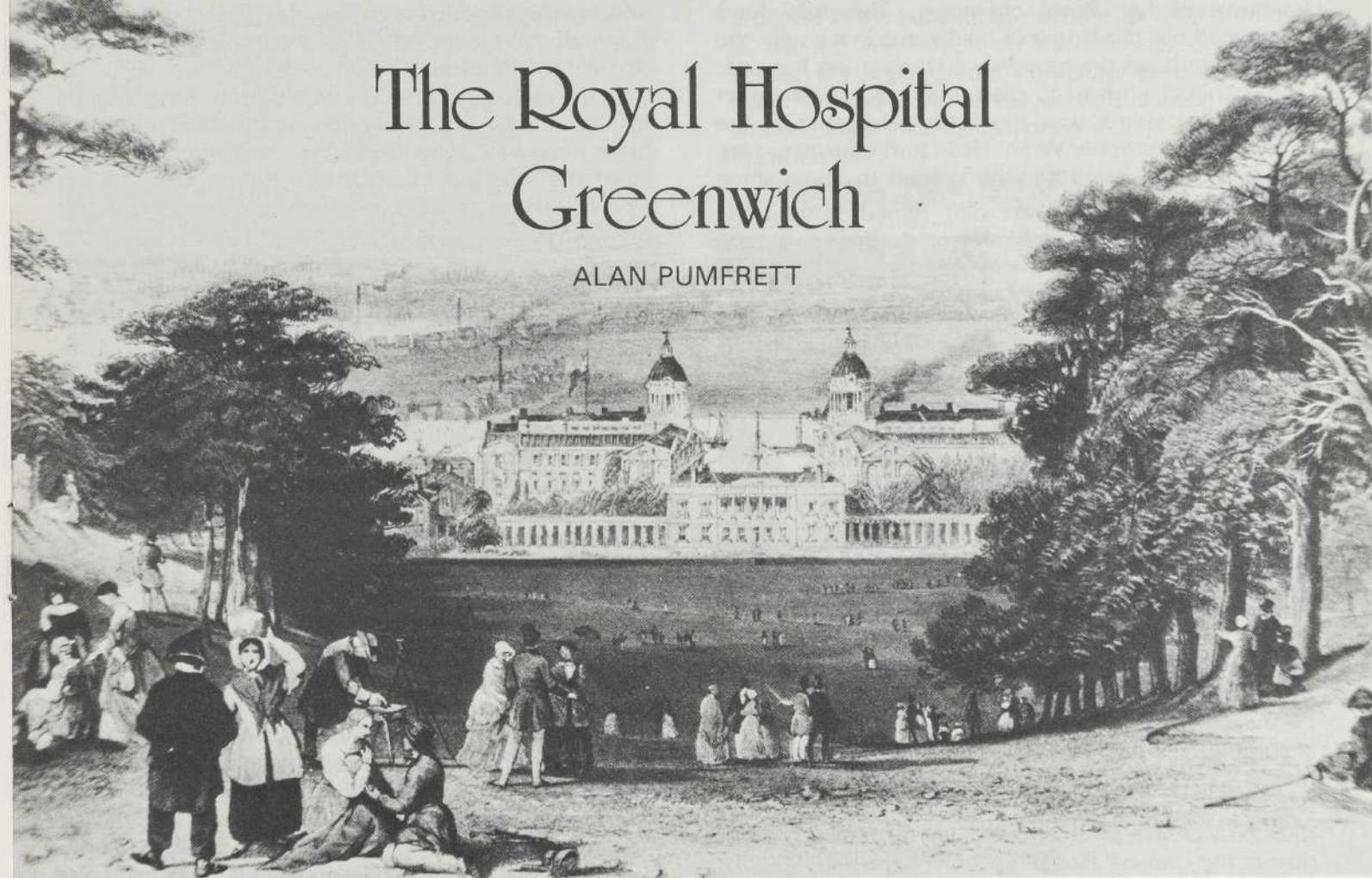
This would be a shame as not only is Vogan an employer of local people in its own right but there is also the 'spin-off' that they use local firms such as hauliers and engineers which also provide employment in the area.

Bermondsey has been the home of Vogan for more than one and a half centuries. Although the company is now part of the Australian Elders IXL Ltd group, its roots lie firmly in South London. And the modernisation and diversification which it has undertaken show that it has the resilience to supply the British consumer with healthy and staple foods for many years to come.

PORT OF LONDON 1985 FOURTH EDITION

The Royal Hospital Greenwich

ALAN PUMFRETT



In 1692 the British Navy, under the command of Admiral William Russell, dealt a severe blow to the French King Louis XIV and his imperialist aspirations on England, when they defeated his fleet in a vital sea battle off the Cherbourg Peninsula in the Bay of La Hogue. The human consequences of this great sea victory which, in the defence of England's shores, historians have since ranked in importance alongside the Spanish Armada and the Battle of Trafalgar, had a direct bearing on the decision of Britain's joint monarchs, William III and Mary II, to build the Greenwich Royal Hospital.

When news of La Hogue reached London, Queen Mary was overjoyed. Unable to share her delight with her husband, who was away fighting in the Low Countries, she resolved to reward her victorious sailors with money and medals as soon as their great war ships returned to port.

But she was shocked and horrified when a week or so later she saw for herself the sorry state of the thousands of broken men who emerged from the battlescarred 'men o' war' at Portsmouth dockyard. For their efforts in the name of their country, many had been grievously and horribly wounded. Many had been maimed and were to be invalided for the rest of their lives. The Queen's heart went out to them as she realised that money and medals would not be enough. Mindful of the piteously inadequate medical care that there was available for such large numbers she founded Greenwich Hospital which she dedicated to the nations' retired and injured sailors.

The aftermath of La Hogue had no doubt provided Mary with the spur she needed. She was already cer-

tainly aware of the great contribution that her Uncle, King Charles II, had made towards the welfare of England's fighting men a decade earlier, when he had founded Chelsea Hospital for ageing and infirm soldiers.

The new naval hospital was to be built on the south bank of the River Thames at Greenwich on the site of the old Palace of Placentia which on and off had been a notable Royal residence for over two and a half centuries. But by the time of La Hogue it lay in ruins. It had been unoccupied and uncared for since its abandonment by James II following his exile to France in 1688. Alongside the ruins stood Charles II's unfinished 'new' Royal Palace, known as the Kings' House, which had also been left abandoned unable to be completed due to lack of money.

Just to the south of the Kings' House, some 300 yards from the river, on the edge of Greenwich Park stood the Queens' House which had been built by the architect Inigo Jones. It was James I who had ordered this Royal works, but the House had taken many years to build and eventually it was Henrietta Maria, the wife of his ill fated son, Charles I, who had taken up residence there in 1635.

Nearly 60 years later, unlike Henrietta Maria, Queen Mary II did not spend a great deal of time at Greenwich, preferring instead to live with her husband, William, further up-river at the Thameside Palace of Hampton Court. However, like many of her predecessors, she liked Greenwich and when in residence at the Queens' House, was no doubt irritated to have the unfinished 'Kings' House' and the ruins of the Palace of Placentia spoil her view of the river from the

windows of her Royal chambers. This may have influenced her thinking and held some sway with the decision to build the new Royal Hospital on this site. The architect chosen to plan and oversee her great philanthropic work was the most celebrated of the times, Sir Christopher Wren. He in turn refused to take any fee for his labours as he wished to 'have some share in this work of mercy'.



Greenwich Hospital pensioners.

Wren submitted two designs. The first, a palatial three sided construction was rejected by Mary because it completely cut off her view of the river. The second, which she accepted, showed all of the great master's genius. To please her he had cut his original design in two to create four buildings instead of three, thus providing a clear vista 115 yards wide from the river to the Queens' House.

Sadly for Queen Mary the question of whether she could see the ships sailing by became academic. In 1695, one year after jointly signing the Royal Charter with William III, which set up the administration for the Charitable Trust which was to manage the new hospital, she died of smallpox.

Today, perhaps, the thousands of visitors who flock to Greenwich every year are pleased that she was so insistent about her view. The buildings which Christopher Wren designed now form one of the most magnificent riverside fabrics along the whole of London's river. The view is best taken in from the river where Wren's gleaming white twin-domed buildings, which are nowadays the home of the Royal Naval College, appear to rise sheer out of the water. Through the grand square which separates the King Charles and Queen Anne Blocks can be seen the Queens' House which now forms an integral part of the National Maritime Museum. Beyond, in the centre of Greenwich Park at the top of the hill in a direct straight line to the river and the Queens' House stands the Royal Observatory which was founded by Charles II in 1675.

The building of Sir Christopher Wren's Greenwich Hospital masterpiece took many years. Its progress depended very much on the availability of funds. The money for the Greenwich Hospital Charity Trust, which was set up in the Charter of 1694, came from many sources — the Crown, private donations, 6d a month docked from seamen's pay (a scheme known as the Chatham Chest set up by Queen Elizabeth I just under a century before), a tax on coal imported into London, unclaimed prize money, smuggling fines, and captured pirates' treasure. The Trust was administered by a general court of Commissioners of the Hospital

which was presided over by the First Lord of the Admiralty and included 400 of the leading personages of the day in England.

In the early days after his wife's death King William III pressed the Commissioners to put the 'good and pious purposes' of her desires into execution. Work on all of the four Blocks of Wren's design started soon after but it was another ten years before the first naval pensioners were able to move in. They occupied the Kings' House (later named the King Charles Building), the old partly finished palace of Charles II, which the great architect had enlarged and redesigned.

The second part of the hospital to be brought into service was the Queen Anne Block, the foundation stone for which had been laid in 1697. The construction of this building saw the final demise of the old Palace of Placentia. But the rubble from its demolition came in useful as Wren had it tipped onto the foreshore of the Thames, where it formed the hardcore for the pleasant riverside walk that still exists today, running between Greenwich Pier and the Trafalgar Tavern.

Not all of Placentia was to perish however for the old Chapel Crypt was to remain. Today it is still accessible under the Queen Anne building where it is the subject of many ghost stories.

Some tell of the headless body of Anne Boleyn who lived much of her life in the old Palace. Others relate to the unfortunate Admiral Byng who many years later was imprisoned at Greenwich while he awaited trial for treason. He was found guilty and was subsequently executed by firing squad on board a warship at Portsmouth.

Just a few years before the death of Admiral Byng, with the opening of the Queen Mary building in 1750,

The interior of a pensioner's cabin.



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A general view showing the Queen Anne and Queen Mary blocks.

the fourth and last block in the building programme of Christopher Wren's design was finally completed. The work had taken over 50 years and since Wren's death at the age of 91 in 1723, had exercised the minds of a number of eminent architects of the day including Webb, Hawksmoor, Jones and Vanbrugh.

But perhaps, by 1750, the most striking contribution to the hospital had been made, not by an architect, but by a leading eighteenth century mural painter named Sir James Thornhill. It was he who collaborated with Sir Christopher Wren, (with whom he also worked on St Paul's Cathedral) way back in the early days to paint the walls and ceilings of the chambers of the King William Block which had been structurally completed in 1705. The work took 19 years to complete and though half way through on realising he had quoted ridiculously low, the painter tried to renegotiate his contract with the Hospital Commissioners, he was unsuccessful and received no more than the £6,685 which was due to him.

The Commissioners must have been well satisfied with their deal with Thornhill for his stupendous efforts had created a breathtaking masterpiece in the King William building. Nowadays the 'lower' chamber of Thornhill's long labours is known as the 'Painted Hall' and is used as the 'Officers Mess' by the residents of the Royal Naval College. With spectacular wall murals adorning much of its 106 ft length and 51 ft width and the ceiling which rises 45 ft above the Painted Hall is truly the gem of the Royal Naval College.

The ceiling, painted in the Baroque style, is illustrated in massive circular panels which depict figures portraying love, peace, liberty, time, truth, architecture, fame, wisdom and heroic virtue, all of which are attendant upon the portraits of the Hospital's founders William and Mary. In one corner of the Hall can be seen a self portrait of Thornhill himself holding out his hand, a pose which suggests he is asking for additional money which he felt was due to him.

Thornhill's work in the King William Block at Greenwich finished in 1727. Apart from the great upper and lower chambers which he painted, the building also contained some pensioners' rooms though few would have been occupied at that time as the 300 or so who were in residence were mainly housed in the King Charles and Queen Anne Blocks.

Naval pensioners had been arriving at the Royal Hospital since 1705. The rate of intake and the

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progress in the building of the hospital itself continued to depend very much on the intensity of war. For conflict at sea provided the funds for the building work (from the 6d levy on all serving sailors) and the wounded and invalided sailors who applied for entry in the aftermath.

Admissions were fortnightly. Wives were not admitted, though they received an allowance, and some could find employment in the Hospital as seamstresses, washerwomen or nurses. Sons, over the age of 11, were allowed however, and were included in the daily ration of 4 pints of beer per pensioner, (boys were only allowed 2 pints). This was supplemented by one loaf of bread, one pound of beef (on certain days) plus cocoa for breakfast and a pint mug of tea in the evening. Any surplus food was given to wives and daughters who often congregated at the hospital gates. Pensioners also received a weekly 'tobacco' allowance of one shilling which eventually rose to five shillings, with an extra two shillings for married men.

Pensioners' uniforms were distinctive consisting of a dark blue coat, sleeved waistcoat and breeches, stockings, buckled shoes and cocked hat, with overcoats being issued to the old and infirm only.

Accommodation was in 'wards' which were divided into cabins holding one to four pensioners. The wards were named after ships and Admirals (some of the inscriptions showing these names can still be seen in the halls and corridors in the Royal Naval College today). Each cabin was furnished with iron bedsteads to minimise the instance of lice.

Totally incapacitated pensioners, many of whom had only come to Greenwich to die, were housed in the Infirmary which was added to the hospital building complex in 1763. Much later the Infirmary was leased to the Seaman's Hospital Society. For the more 'fortunate' pensioners all of whom carried some sort of incapacity — sustained at La Hogue, 'the Seven Years War', the American Civil War, the Napoleonic Wars or some other sea battle — life at the Royal Hospital was fairly leisurely. Provided their cabins were kept clean, their dress was decent and they attended Church parade on Sundays and Holy days they were allowed to come and go as they pleased.



The Royal Naval College today.

On their excursions from the hospital, enterprising pensioners were able to earn themselves extra pocket money around the environs of Greenwich. Some caddied for golfers on Blackheath, while others loaned telescopes to morbid onlookers in Greenwich Park to facilitate the latter's viewing of the bloated corpses lying on the foreshore on the far bank of the river. These unfortunates had been hung in chains, no doubt for committing petty crimes, and left to drown

while three tides washed over them. Those pensioners who were less mercenary but were more energetic used to participate in cricket matches in the Park with a 'one armed XI' often taking on a team of 'one legged' players!

A more sombre moment came for the hospital pensioners in 1806 when, on 5 January in that year, the body of one of England's best known naval commanders, Admiral Lord Nelson, was brought up the River Thames by yacht to lie in state in the Painted Hall. For three days people of all classes from all over England came to Greenwich to file past his coffin and pay their last respects. It must have been a poignant moment for some of the hospital's residents, many of whom had sailed under his command. On the fourth day, amid much ceremony, Nelson's coffin was transferred upriver by state barge to its final resting place in St Paul's Cathedral.

After the Napoleonic wars, and Nelson's death at the Battle of Trafalgar, admittances to Greenwich Royal Hospital continued to rise. They reached a peak in 1814 when the established capacity of 2,710 men was reached. These numbers were maintained with little variation for another 35 years after which they began to fall steadily as pensioners from the old wars died and were not replaced.

From 1849 onwards the Hospital gradually went into decline. There were fewer wars to provide the invalids for its wards and in any case men were by then joining England's expanding merchant service, in preference to the Navy, where better conditions for seamen prevailed. The main reason for the lack of candidates however, was that by this time naval pensions had become widely available to retired and invalided

seamen entering the Hospital.

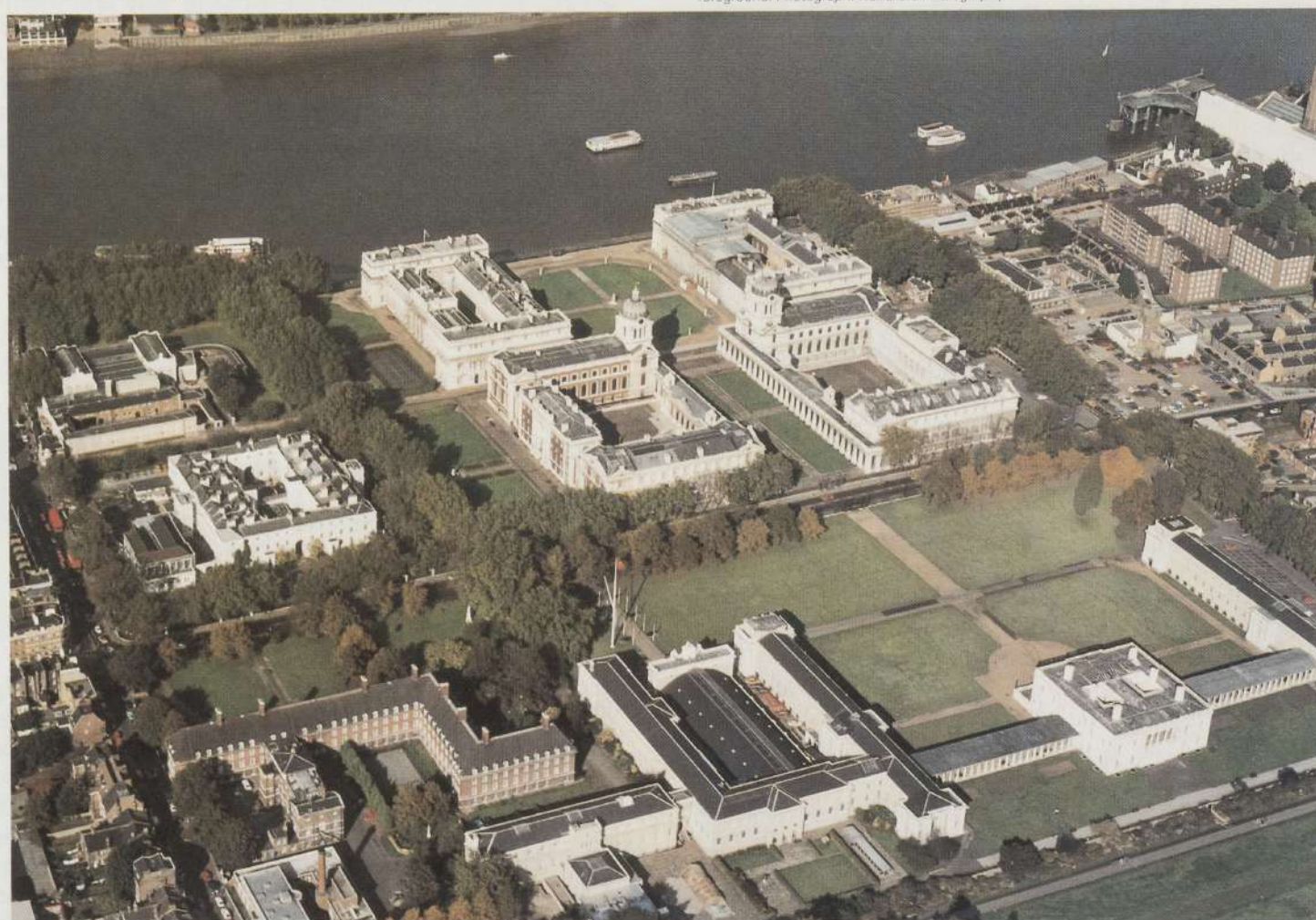
By 1865, with only half the wards full, the Commissioners took steps to close down by offering the 'in-pensioners' a Greenwich Hospital Pension in lieu of their board and lodging. Nearly 1,000 men accepted, but not until further inducements had been forthcoming were the remaining 400 prepared to leave and the Hospital finally allowed to be closed in 1869. The bed-ridden and chronically ill were allowed to remain in the Infirmary, which had already passed into the hands of the Seaman's Hospital Society, where they were maintained at the expense of Greenwich Hospital Funds.

But like the Infirmary, which was later renamed the Dreadnought Seaman's Hospital, after the hospital hulk which had been for many years moored in Greenwich Reach, the grand Royal Hospital Blocks of Sir Christopher Wren were to retain their seafaring connections. For four years later in 1873 the Hospital Commissioners came to an arrangement with the Admiralty for the Royal Naval College at Portsmouth, which had outgrown itself and desperately needed new accommodation, to be transferred to Greenwich to occupy the quarters left vacant by the departed pensioners.

The Royal Naval College has remained at Greenwich ever since, turning out first class naval officers. Unfortunately for the Dreadnought Seamen's Hospital, it was recently announced its function was to be transferred to a self-contained ward at St Thomas' Hospital, so ending one Greenwich tradition.

Port of London acknowledges the assistance of the Royal Naval College in the illustration of this article.

An aerial view of the Royal Naval College, showing the National Maritime Museum in the foreground. Photograph: Handford Photography.



Grain Terminal Tests Emergency Techniques

In October, the Port of London Authority's Grain Terminal in Tilbury Docks blew up causing extensive damage to the Terminal and the surrounding buildings...This was the basic scenario for operation GRAEVAC, an emergency evacuation exercise and the first of its kind to be held at the Terminal. TERRY HATTON writes:

The aim of the exercise was two-fold. The first objective was to stimulate a wide range of emergency situations over as large an area as likely, with casualties requiring treatment occurring in a large number of difficult locations. This was specifically designed to set all the rescue services and authorities, who would automatically become involved in the unlikely event of a real life incident of this kind, a tough and realistic examination of their response procedures. The special demands of the simulated situation therefore was one that many of the rescue services' personnel would not have come across before in their day to day training or operational experience.

The second reason for GRAEVAC being held at this time was so that PLA could thoroughly examine and update all the existing emergency procedures for the Terminal. This was to enable PLA as a responsible port authority to meet the new

UK Health and Safety Legislation, Dangerous Substances in Harbours and Harbour Areas Regulations, which are due to be introduced during 1986. The prime aim of the regulations is to prevent any major accident arising from the many industrial activities involved in the transport and storage of dangerous substances in all their varied forms. The regulations also call for the preparation of detailed emergency plans and the provision of information to those bodies who would be involved in any such unfortunate incident.

It may come as a surprise to many that grain is regarded as a potentially hazardous substance and falls within those regulations governing the other better known substances labelled as dangerous. In this instance, however, it is not the grain itself that is regarded as hazardous but the fine



The Tilbury Grain Terminal is situated on the riverside close to the estuary. Photograph: Handford Photography.



dust generated in its handling. In spite of all the strict safety precautions, equipment and procedures that are inherent in the operation of the Tilbury Grain Terminal it was felt that the worst possible incident should be assumed for the greatest benefit of those participating in the exercise.

Therefore, exercise GRAEVAC, as it was code named (standing for Grain Terminal Evacuation) imagined that a major dust explosion took place involving all the grain silos to the west of the control tower. As a result parts of the silos were deemed totally destroyed and devastation existed over the whole site — the fire being extinguished by the blast. There were over a score of casualties, many of whom were considered to be seriously injured and required rescuing from precarious positions.

In this respect special praise must be given to the personnel from the Essex Fire Brigade and to the doctors and nurses from Orsett Hospital's Emergency Department who took part so willingly. Working in extremely difficult conditions at times their diligence, inventiveness and especially the sheer physical hard work they put into their rescue efforts went a very long way to making the exercise a success. Their work was made all the harder by the fact that for the purposes of the exercise all the trained first aid personnel at the Terminal were incapacitated by the explosion.

Other outside emergency services attending included the Essex Ambulance Service and the Essex Police Force.

Although only an exercise, all the response aspects of a real incident were taken into consideration. These ranged from the PLA Police establishing a secure area around the scene, to setting up a casualty clearing station, to listing all the heavy and mobile equipment available locally to assist in wreckage clearance and lifting work. If regrettably, an actual incident of this type should occur anywhere within the dock estate then PLA would be fortunate in having numerous mobile cranes, mechanical shovels and fork lift trucks at its disposal.

Exercise GRAEVAC lasted approximately two hours and proved invaluable in provid-

ing all the participating emergency services with a practical test of their communications, equipment, response times and rescue techniques over a wide and diverse area.

One particular point the exercise brought out was the need to tighten up co-ordination and liaison even further between the emergency services present at such an incident within the dock. Another need which quickly became apparent in the view of PLA Police Superintendent, David Sebire was the requirement to establish a 'beach-master' type of position. This was in order that the arriving emergency service vehicles could be controlled and either be directed in an orderly fashion into the incident area or held at rendezvous points away from the scene until needed.

A full scale debriefing was carried out at the Terminal soon afterwards to assess the value and lessons learned from the exercise. The Manager of Tilbury Grain Terminal, Alan Holland said: 'The exercise has proved very useful indeed. All participants have learned a lot', a view that was echoed by all those taking part. Alan Holland was particularly happy that the exercise had brought home to all concerned the special evacuation and safety problems of the Terminal especially those associated with its

large geographical layout. He thanked all those taking part for their efforts and time, particularly the volunteer casualties, all trained first aiders from the dock incidentally, for adding that vital extra touch of realism.

PLA's Grain Terminal management together with its Accident Prevention section are now using the invaluable knowledge gained in this exercise to draft the Terminal's new emergency planning manual. This will only be completed after fully taking into consideration the views and requirements of the participating emergency services and incorporating them into the manual.

In addition to thoroughly updating the emergency procedures at the Terminal, PLA is currently fitting more safety devices into its actual operation. These include explosion suppression and dust extraction equipment currently being installed throughout the Terminal.

The ongoing programme which is estimated to cost almost £1 million will be completed in the next two years and shows that PLA takes its safety at work responsibilities very seriously indeed.

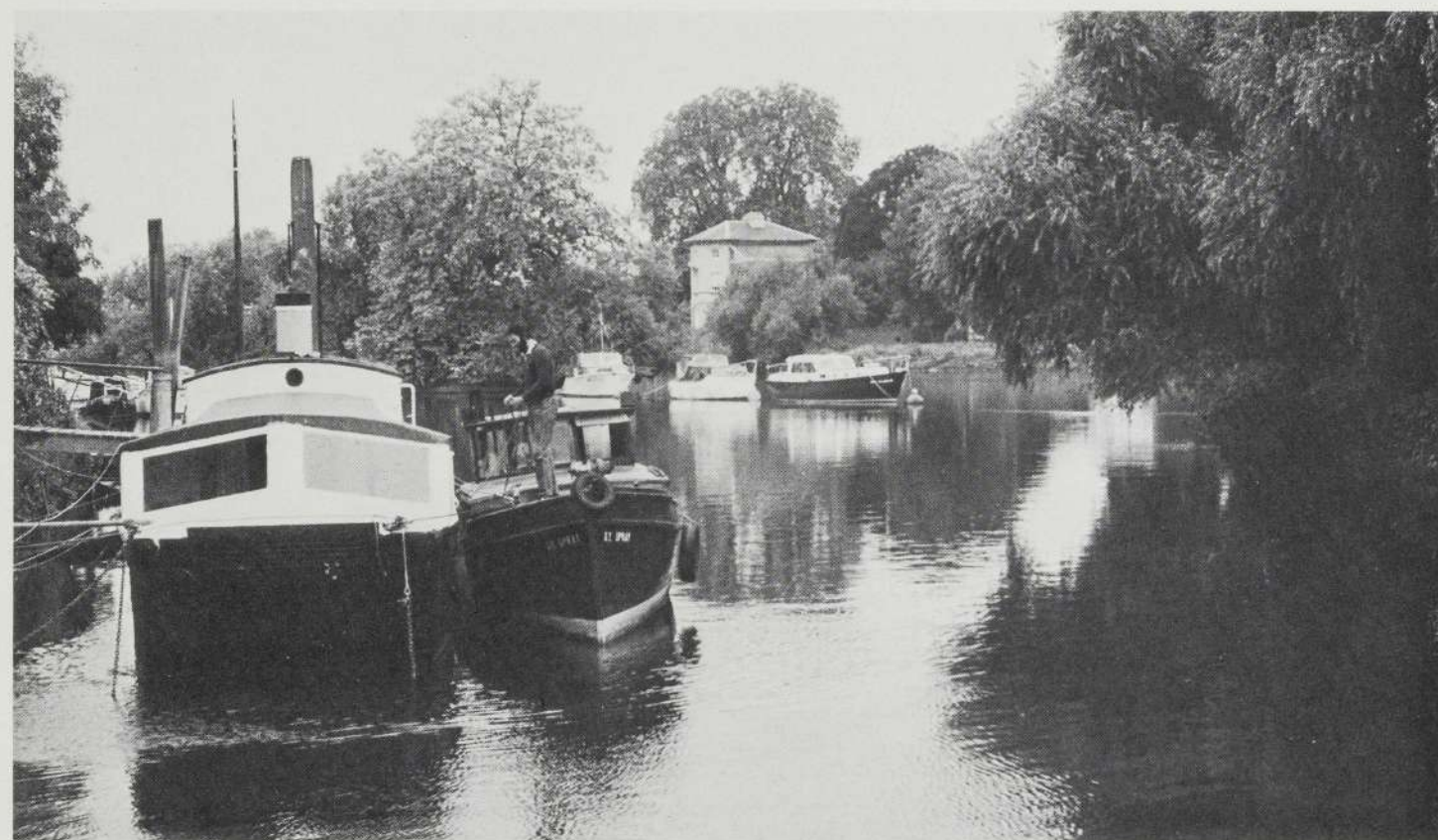
As for emergency exercises at the Terminal, it is hoped to hold them at regular intervals in the future.



Steam Pioneers of the Eighties

R A J ARTHUR

The Thames Steam Launch Company operating from premises close to Kew Bridge has already become wellknown among vintage steamboat enthusiasts for its development of boilers for use in steam vessels. It has now become apparent that the harnessing of energy from steam could have wider implications for the Third World — and TSL are meeting the challenge.



The SY Spray, moored on the River Thames near Kew Bridge. This 32 ft launch, owned by Bob Bossine, has the TSL's oscillator engine and a coalfired boiler. The boiler is in a corner of the wheelhouse, and the engine — of less than 5 kW output — is beneath the stern deck so as to take up no space which might be useful for other purposes. SY Spray began life as an Admiralty pattern auxiliary ketch, possibly as early as 1906.

It all began six years ago when Tom Leadlay was seeking an engine for his ageing 1928 hydroplane. The search led him to a meeting with Bob Bossine, a diesel engineer working for London Transport, who sometimes gave a hand at the Living Steam Museum near Kew Bridge. From that chance encounter grew a small company that is helping to write a new chapter in the history of steam power.

Tom Leadlay, himself an innovator, recognised in Bob Bossine an engineer of high originality and inventive skill. A conversation about engines was the spark that

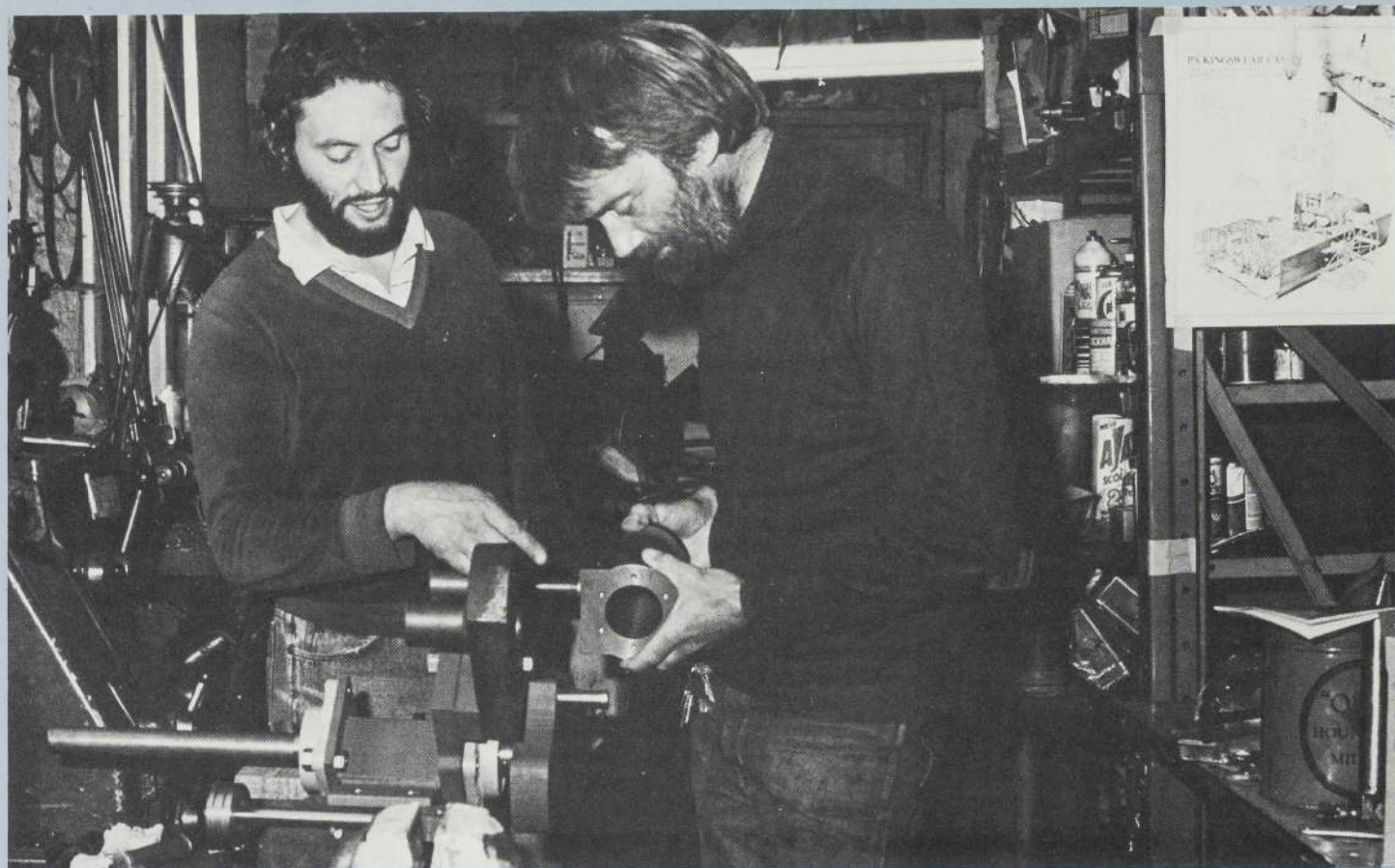
set the new company in motion. Tom Leadlay already operated his own business, trading as C T Leadlay of London, and specialising in the interior design of boats, planes and hovercraft.

The original plan was a modest one. The pair agreed to make about half a dozen small boilers for steam boats in a small workshop over a year or two. But certain features of the design caught the fancy of steam enthusiasts, many of whom are members of the Steamboat Association.

The boiler which was designed is simple, robust and safe. Steel top and bottom

drums are joined by copper tubes, expanded into the drums to make a good fit without the need for welding. The end plates are merely held in position with stay bolts. If pressure builds up or water level falls too low, the water leaks into the combustion zone to douse the fire. Access for cleaning is by removing the bolts and end plates. Cleared for insurance by National Vulcan, the design conforms to British Boiler Standards.

Already about 50 of these boilers have now been sold. And Bob Bossine, encouraged by the interest of steam enthusiasts,



has gone on to design an engine — two-cylinder oscillator of 5kW output and operating at 300-500 rpm. There are no complicated valves to go wrong. Steam entry and exit is by ports in the engine block and cylinder block. Advantages of the engine are cheapness, rugged construction, very long life, low maintenance requirement, absence of pollution and silent operation by comparison with diesel. Units can also be scaled up if necessary.

Until now, steam engines of much less than about 15 kW shaft power have often been regarded as impracticable. Their successful miniaturisation to a scale as low as 5kW is a British breakthrough. Yet publicity for the new development has so far been muted; in the public mind, steam is still associated with the past.

Initially, the fortunes of TSL had only reflected the rapid growth of interest in steam systems among river and canal boat amateurs. Boilers from the little workshop had gone far and wide — to enthusiasts in Switzerland, Germany, the United States and Australia. Then came the enquiry which was to put all the company's efforts in a new light.

As Tom Leadley explained, 'We'd sold a boiler to a customer and his sister-in-law worked for the Intermediate Technology Development Group Ltd. After dinner, he said to her: "Come and look at my new boiler"'. Thus the connection was made.

ITDG pioneers appropriate systems for developing countries on the 'small is beautiful' lines of its famous founder, the late Dr Fritz Schumacher, and was deeply interested in steam engines. In fact, one of its research team had already completed a significant report on them.

Experience argued that the small diesel engine, almost universal workhorse for water-pumping, irrigation and agriculture-based industries of the Third World, was



losing its cost-effectiveness, especially in countries where fuel oil had to be imported at ever-increasing cost. The urgent need for power systems using local, renewable energy had prompted ITDG to undertake a comparative costing study for a small steam plant.

Carried out by ITDG research engineer Drummond Hislop, the study covered grid electricity, diesel oil, producer gas (both new and retro-fit to diesel) and solar energy. Comparisons were based on estimations of how much it would cost to

Above top: Bob Bossine and Tom Leadley assembling an engine at their workshop near Kew Bridge.
Above bottom: Much of TSL's work reflects the growing interest in steam engines.

Right top: Bob Bossine stoking the boiler of the SY Spray.
Right bottom: In the wheelhouse of SY Spray. The steam boiler to the right of Bob Bossine occupies only a small part of the wheelhouse. The engine is under finger-tip control like a diesel. Easily operated by the steersman, it needs no special attention while manoeuvring or in normal running.

deliver 5 kW shaft output for an operating period of 1,000 hours per year. The study included market wood and charcoal prices, and assumed that diesel fuel would be readily available at normal market rates.

The steam system came out surprisingly well. In many locations it was likely to be the cheapest technology for, under actual working conditions in developing countries, the small diesel engine often reaches little more than half its claimed efficiency. Moreover, fuel supply in remote areas is erratic as well as costly.

Encouraged by these results, ITDG had searched for a suitable engine. Yet, although steam is an old and well known technology, small systems appropriate for the Third World were apparently nowhere to be found. When word reached ITDG about the work done by TSL no further away than Chiswick, its interest can be imagined. Soon an agreement had been worked out for the joint development of small steam systems. ITDG project staff are Drummond Hislop, Stephen Joseph and John Loose.

As TSL had evolved very low cost engines with shaft outputs of 5 kW, ITDG decided to use this design in the first instance, despite its relatively low efficiency. For this purpose, full advantage is taken of new materials to optimise a traditional machine — high-grade cast iron for the engine and cylinder-blocks, and off-the-shelf bearings of a type that can be sealed for life to cut cost and raise performance.

The complete system includes the TSL boiler design, which continues to operate well even when filled with river water, and a new multi-fuel furnace of high thermal efficiency. Developed by ITDG at its Shinfield research laboratories, the furnace consists of horizontal sections which can be cast from cement and vermiculite or similar refractory material, or alternatively built from refractory bricks. It gives steam efficiencies of up to 65 per cent on wood, 60 per cent on coconut shells and 50 per cent on straw.

Tests of the engine, carried out at London's Polytechnic on the South Bank by Hugh Robertson of the Department of Engineering, gave efficiencies of over 5.2 per cent. For an overall system the level is in the region of 2.5-3 per cent. These figures apply to designs which can still be greatly improved, for instance by the use of superheated steam and optimised porting.

Even at the present comparatively low efficiency levels, the steam systems relate well to many Third World markets. ITDG research has identified a need not only for a prime mover but for systems able to meet all energy demands of a small factory. Today, TSL's inventive skill finds an outlet in developing the full potential of the basic steam unit for combined heat and power (chp) applications.



A typical application is for drying and pressing a crop, which in the tropics might be dessicated coconut or sugar. The team have designed a chp system for a sugar factory in Bangladesh, for example, utilising sugar cane waste (bagasse) as fuel and evaporating the juice partly with furnace heat, partly with steam. The system carries out all factory processes, including crushing of the cane, with only the crop waste as fuel and no need whatsoever for diesel oil.

Not long ago, in Papua, New Guinea, Tom Leadley offered a solution to the energy problems of an up-country timber plant approachable only on foot or from the air. Helicopters currently fly planks out and carry diesel fuel in, but the new steam system will eliminate the need for diesel by running on wood off-cuts. Here the engine is only a source of power for sawing, but efficiency comes from the use of waste as fuel.

A neat combined application is a replacement for the canoe paddled by local doctors in remote parts of Bangladesh. The new design provides a modern hospital boat powered by steam, carrying stretchers, instruments and medical supplies, and using the steam plant for sterilisation. Locally produced brown coal is the energy source.

The challenge of the Third World has added another dimension to the work of TSL which now operates from a house and workshop in Spring Grove, Chiswick. The need to shed all preconceptions of an industrial society in reaching the ultimate user is always in their thoughts. 'We can't

put ourselves in the mind of the user,' Tom Leadley admits. 'I want to get to the man in the field because he's going to help me to redesign.'

Whether in Britain, Thailand or Bangladesh, the engine system continues to make friends among people whose need is for something basic and reliable. Designed in the first instance for boats, it may well have a future there too. Uncompetitive with diesel in a British setting, it still marks a big advance on the old steamer.

'We build steam motor boats rather than steamboats.' Once the engine took up a large part of the boat. Now it is what Tom Leadley calls 'a very boring metal box, about four feet by two by two with no mystique. You stuff coal in and it makes the boat go along. In our boats you have a measure of the power of the engine. The motor is a very insignificant part.'

Engine developments planned for the future include an oscillator with steam cut-off for higher efficiency, a conventional piston-valved column engine and a high-speed engine for electricity generation.

Even with all hoped-for improvements, the new system cannot match the economy of diesel fuel in Britain. Yet it is reasonable to think that the advantages of cheapness to buy, freedom from stench and the ability to make a boat glide along in near-silence, ideal for leisure craft, will give it a place on Britain's rivers in years to come. In the meantime, TSL has successfully united apparently far-separate worlds — the up-river world of the British boat enthusiast and the up-river world of tropical development technology.

BOOK REVIEWS

Q-ships by Carson Ritchie. Published by Terence Dalton, Lavenham, Suffolk. 216 pages. Illustrated. Price: £13.95.

War is a prolific breeder of rumour, and the first world war was particularly active in this respect. Whispers about Russian troops landing in Scotland with snow on their boots were eclipsed by exaggerated claims of what Q-ships were doing to enemy submarines. London and other British ports were being severely blockaded by German U-boats and the river eagerly seized on the whispers and the hope offered by these mysterious vessels. Something of what these ships did was revealed after the war by books from Harold Auten, E. Keble Chatterton and Gordon Campbell. Today, the story has been largely forgotten.

Dr Carson I A Ritchie, MA, PhD, claiming that those early writers were to some extent tongue-tied by the Official Secrets Act, has produced the definitive work on the subject.

Q-ships were adapted merchant vessels or specially built ships which masqueraded as commercial traders inviting attack by submarine. They were mostly small and insignificant, and it was hoped that the attacking submarine would not waste torpedoes but would surface and attack by gunfire. The Q-ship would then pretend panic and send away part of the crew in boats to lure the submarine nearer. Concealed guns aboard the Q-ship would then go into action at close range.

There were more than 200 of these mystery ships. (The author gives what appears to be a complete list accompanied by relevant details of each vessel.) Over 70 duels were fought with U-boats but only 13 were destroyed. It seems a poor return for much effort and incredible gallantry, but the author records that their use forced the U-boats to attack without warning and to treat neutral ships as possible disguised Q-ships, which alienated non-belligerent nations. In conclusion, he writes: 'It was the U-boats which lost the war for Germany: it was the Q-ships which brought them to the position in which they did so.'

There are plenty of thrilling stories in the book, although the author says that his account of Q-ship actions has been rigorously selective. 'Only those which disposed of a U-boat or those which for some reason are particularly significant are dealt with at any length.'

Immense pains were taken to disguise the ships as peaceful traders. Royal Navy crews dressed in the nondescript clothes of merchant seamen; house flags, funnel colours and routes were all carefully

planned. German U-boat commanders were soon alerted to this new menace and, many of them merchant seamen themselves in peacetime, drew upon their experience when studying potential victims through the periscope. A certain type of ship on the wrong route would arouse suspicion; it was claimed that merely a misplaced lanyard could put the submariners on their guard. The Admiralty even went to the length of disguising one decoy ship as a crashed Zeppelin in the hope of luring a submarine within range, but without success. Several sailing ships were taken up for the work in the belief that the enemy would be more likely to use their guns on them than a torpedo.

As the war progressed, the fight between these protagonists became more bitter. The Lowestoft smack *Ethel and Millie*, acting as a Q-ship, was sunk by a U-boat and members of her crew were taken aboard the submarine. They were last seen lined up on the submarine's foredeck; their fate is unknown. The other side of the conflict was reflected in the case of the Q-ship *Baralong*, a converted tramp steamer. She found a U-boat attacking the ss *Nicosian* whose crew had taken to the boats. The Q-ship promptly sank the submarine, some of whose crew escaped and swam to the *Nicosian* which they boarded. The Q-ship went alongside and her marines hunted down the German boarders and shot them out of hand on the grounds that they were likely to scuttle the ship. The German government despite the flagrant atrocities of German submarines, made a great outcry at what they claimed was an outrage.

The Thames has faint memories of those mystery ships and their gallant crews. One Q-ship was the Thames ketch barge *Record Reign* which was well known in the river before and after the war. In 1932, she left London for a west coast trade. HMS *Chrysanthemum*, the RNR drill ship lying off the Thames Embankment, served as a submarine decoy in 1917-18.

An attempt was made during the second world war to revive Q-ships to deal with the renewed menace of German submarines. But the mystery of these ships had been blown, moreover traditional Admiralty dislike for 'private navies' caused serious mistakes to be made in their manning and equipment, and the project was abandoned.

The book is beautifully produced with a general index and an index of ships. The wealth of illustrations include some very dramatic pictures. It is a valuable contribution to the long story of us island people.

LMB

The Deathless Story of the Titanic. A facsimile reprint of the Summer 1912 report. Published by Lloyds of London Press Ltd, Sheepen Place, Colchester, Essex CO3 3LO, England. 40 pages. Price £3.95.

By coincidence, or not, Lloyds of London Press published this facsimile report of the sinking at the very time the world was marvelling at the television pictures of the wreck of the *Titanic* on the seabed some 12,000 ft down in the North Atlantic. The sales of this thoroughly readable publication are bound to benefit from the current 'can they or can't they raise the *Titanic*' debate.

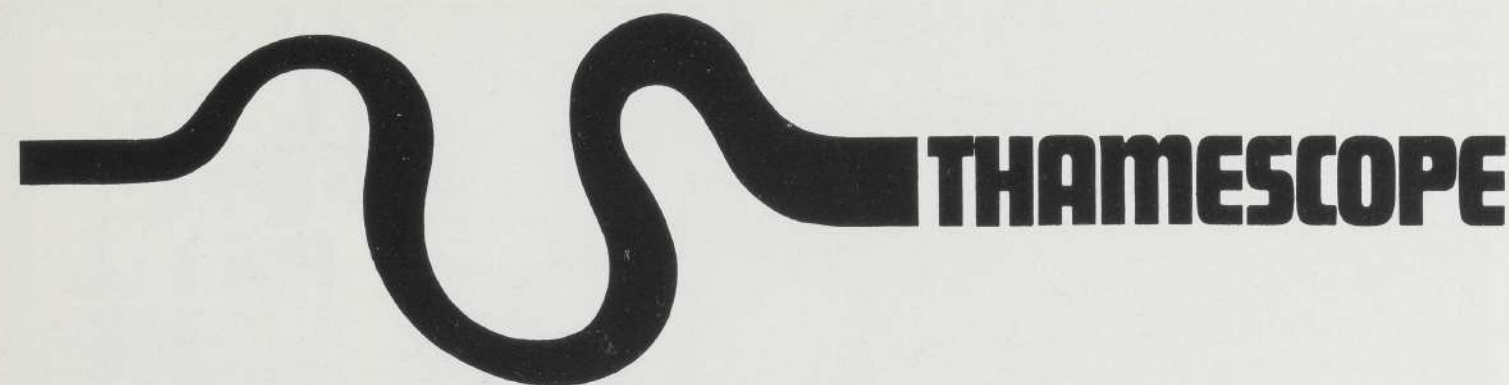
Putting this aside and the moral rights and wrongs on disturbing seabed graves, the story of the *Titanic* has fascinated the public for over 70 years. Indeed the publication itself contains the prophetic line ... 'the *Titanic* will put a spell upon the imagination of men'. How right this has proved down through the ages.

As one who from an early age has been hooked on 'Great British Disasters', I found this report both absorbing and moving. And even after reading many other reports of the disaster and after all these years I still found myself becoming angry with an unknown Establishment that failed to insist that the *Titanic* provide a lifeboat place for all passengers, whatever gender or class. After all no one ever claimed the *Titanic* was unsinkable, the report reveals. Certainly the survivors thought the absence of adequate lifeboat places was lamentable. On arrival in New York they issued a press statement saying it was their duty to inform the public that they considered the *Titanic*'s life saving appliances inadequate!

The report is made all the more readable and indeed haunting in that it reminds us today of that long ago era when such events were accepted more stoically. Then the tragedy and drama of disasters was treated factually and with respectful conservatism. Think of how today's disasters are treated, with all their media hype!

This report is chillingly simple in its presentation of the eye witness accounts and the presentation of the facts. It concentrates on quiet heroics and graphically brings home the selfless behaviour of passengers and crew in that awful situation. This illustrated report is an admirable testament to the *Titanic*'s lost and saved and is to be recommended most highly.

TVH



LONDON TO SWANSEA VIA TILBURY

The latest air separation equipment cargoes from Cryoplant Ltd of Edmonton, North London to pass through PLA's Tilbury Docks were loaded onto the DSR vessel *Brocken* at No 4 Berth recently. Delivered by road the seven major pieces, the longest of which was 40 metres and weighed 90 tonnes, were all bound for the British Oxygen works at Margam, South Wales. There they will form part of BOC's industrial gas producing plant. Over the years Cryoplant have taken advantage of Tilbury's excellent road links and the storage and delivery facilities for abnormal loads, sending industrial gas manufacturing equipment throughout the UK and the world through the port.



TRIPLE DISCHARGE AT 42 BERTH

In October, No 42 Berth, Tilbury Docks, the PLA owned and operated timber terminal, oversaw its first simultaneous triple vessel discharge.

The *Borgfeld* was discharging a cargo of timber, plywood and pulp for Westwood Shipping, transhipped from Rotterdam, at the PLA's combi berth No 40 while Combo Line's *Rose* was discharging plywood and hardboard on 42 Berth itself. The third vessel, Forest Product Carriers International's *F P Clipper* was discharging lumber on 42/44 Berth. 44 Berth is the specialist timber terminal owned and operated by Svenska Terminals in London Ltd.



MISC INTRODUCE NEW BULK SERVICE

Malaysian International Shipping Corporation (MISC), whose agents in the UK are Brown Jenkinson, have introduced a new Bulk Service, primarily for the carriage of timber. The service operates on a monthly fixed schedule from Kota Kinabalu, Tanjong Mani (Sarawak), Kuantan, Pasir Gundang and Port Kelang, with Tilbury as the UK destination port.

The new service is operated with the encouragement and support of the

Malaysian Timber Industry Board, a statutory body of the Malaysian Government set up in 1973 to promote the timber industry in Malaysia. The first vessel of the new service, the MV *Rimba Ramin*, arrived at Tilbury in September loaded with timber and bulk Palm kernel pellets from Malaysia for UK and Continental ports. This is the first of four similar purpose built modern vessels which will be employed in the bulk service.

The *Rimba Ramin* is pictured discharging at Tilbury's West Africa Terminal.

UNITED TRANSPORT LINE PROVIDES FEEDER SERVICES TO UNITED STATES LINES

First loadings onto United Transport Line ships of United States Lines Ltd containers took place simultaneously in Hull and Tilbury under a new feeder services agreement between the two companies earlier this year. In Tilbury, 70 boxes were loaded onto the United Transport Line vessel mv *Este*, 45 of which were USL units. United Transport Ltd currently operates nine round voyages a week between the British Isles and Rotterdam using three ships. A fourth vessel has been chartered to increase this frequency to 12 round voyages a week. United Transport Line Ltd has recently changed its name from Lovell Line Ltd the in-house shipping line for the United Transport container group. This has been done in order to focus more attention on the overall activities of the United Transport organisation and to underline the back-up strength available to its operating companies.

FALKLANDS HERO VISITS LONDON

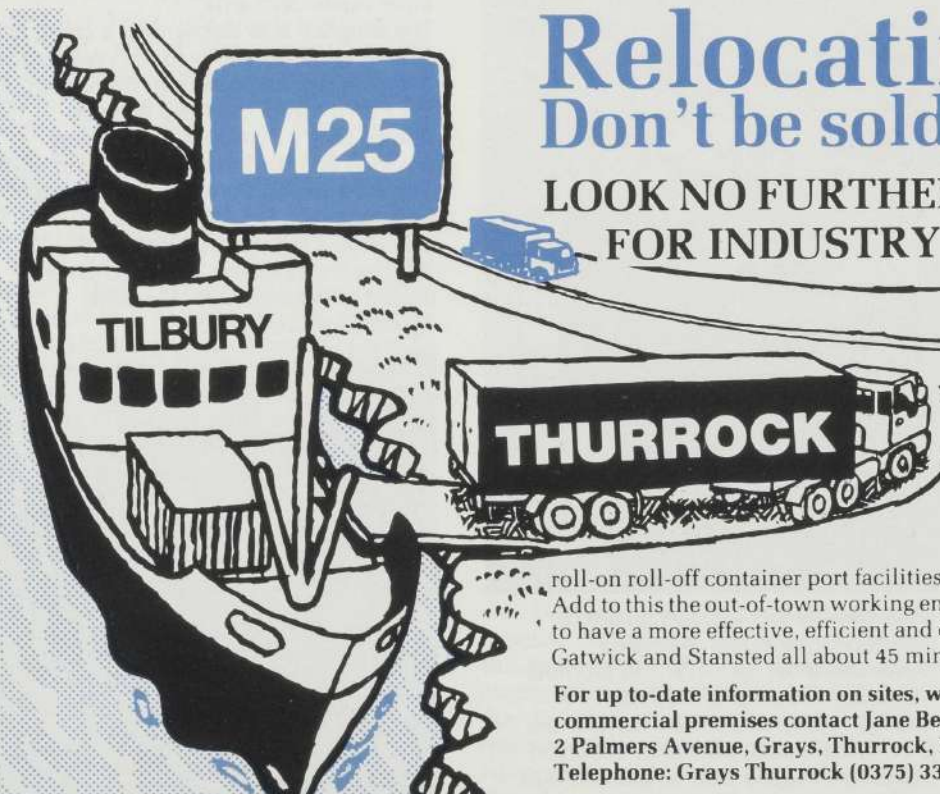
One of the latest vessels to use the PLA's prestige mooring in the Upper Pool was the Royal Fleet Auxiliary, *Sir Tristram*. The logistic landing ship which was badly damaged at Bluff Cove during the Falklands conflict had just completed a 15 month repair and refit programme at Tyne Shiprepairer's yard in South Shields. The *Sir Tristram* was paying a routine courtesy visit to the Port prior to returning to service with the Royal Navy.



The United Transport container group consists of International Ferry Freight Ltd (known as IFF), Seawheel Ltd and

Containerlink Ltd, which together constitute the Unit Load Division of United Transport Company Ltd.





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For up to-date information on sites, warehouses, industrial/high-tech units and commercial premises contact Jane Beeken at Thurrock Borough Council, 2 Palmers Avenue, Grays, Thurrock, Essex, England. Telephone: Grays Thurrock (0375) 33553.

THURROCK for Industry.

RAINHAM TRANSFER STATION OPENS

Cleanaway Ltd's totally enclosed riverside refuse transfer station at Rainham, Essex was officially opened by Lord Gregson, Chairman of the House of Lords Select Committee on Science and Technology on Hazardous Waste Disposal on 25 October.

The transfer station which has already become a major Thameside landmark is an integral part of Cleanaway's £13 million investment in special equipment which includes enclosed barges for transporting London's waste downriver for disposal at Rainham.

Cleanaway Ltd, the UK's largest waste management company won a contract from the Greater London Council in 1983 for the transport and disposal of waste from Central London.

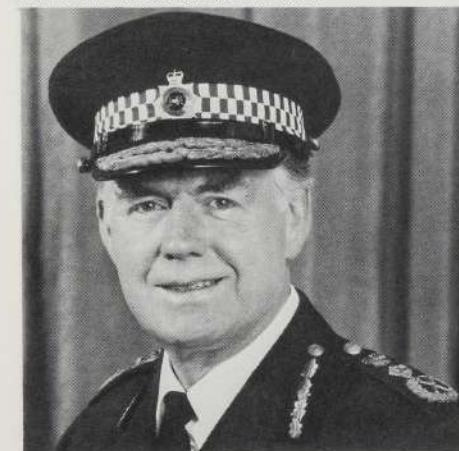
The tender documents issued by the GLC specified that all refuse loaded by them into barges at both Grosvenor Dock and Walbrook Wharf should be totally enclosed until its final deposit at the landfill face. However, it was physically impossible to convert Grosvenor or Walbrook to accommodate packers and receiving equipment for containers. Ultimately, McGregor Navire power operated roller shutter covers were fitted to purpose-designed and built barges to ensure that the refuse would be totally contained during transit. The covered barges are towed by tug on the 16 mile journey to Rainham.

To meet the contract specifications, the unloading transfer station has been built out into the river so that there is sufficient water for the barges to be moved at all stages of the tide. A canal has been constructed within the station and the unloading area is totally enclosed by a building. At each end of the building, doors have been provided which seal the door openings down to water level.

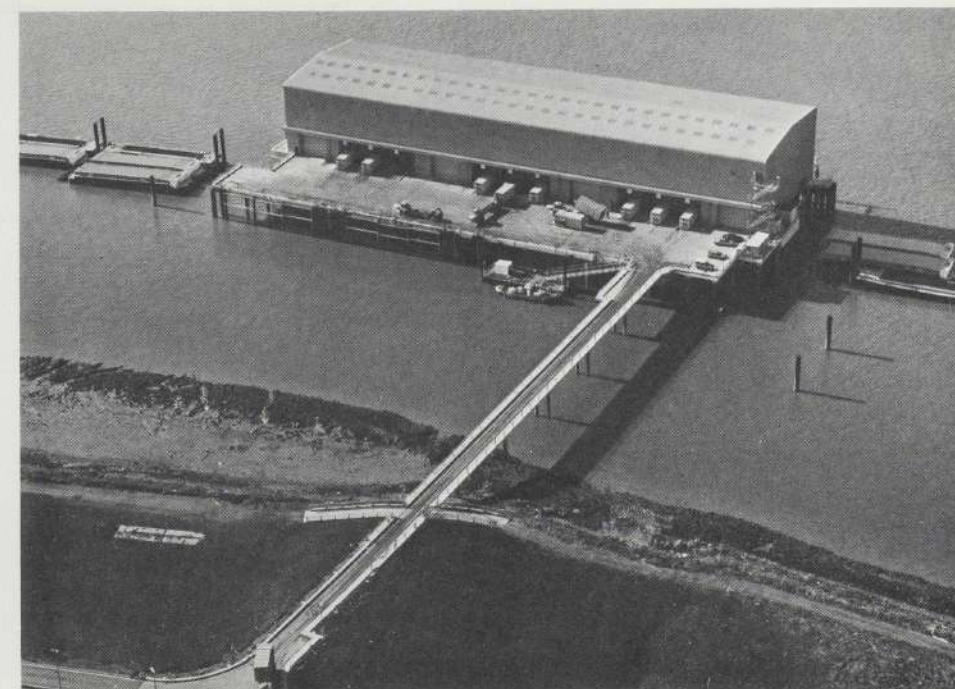
COMMISSIONER OWEN KELLY

Port of London regrets that in the last issue of the magazine Peter Marshall was wrongly described as being appointed a new Commissioner of the City of London Police. It was in fact Owen Kelly who was appointed Commissioner in July, 1985, having previously been Assistant Commissioner.

Mr Kelly joined the Metropolitan Police in 1953, where all of his service was in the uniform branch. He joined the City of London Police force in 1982.



PORT OF LONDON 1985 FOURTH EDITION



At the transfer station, the barges are manoeuvred within the canal by launch tug. The barge covers are not opened until the canal has been sealed. Three pairs of barges can be accommodated within the facility, three at first bottom and three at second bottom. The refuse is unloaded from the barges by overhead travelling cranes using polyp grabs. The cranes deposit the material into buffer storage hoppers above the three banks of packers. Refuse is compacted into 30m³ containers attached to the packers. 'Devon doors' on the packers allow the refuse containers to be locked automatically onto the packers for filling. This reduces the risk to operatives as well as reducing spillage at this point to a minimum. The containers, which protrude from the building at floor level, are then picked up by self loading cross

site vehicles with Ampliroll equipment, for final transportation to the landfill site. The waste is discharged at the metre high tipping face and covered by at least 100 millimetres of cover at the end of each working day. Professional landfill management ensures that the high environmental standards of the transport and transfer operations continue throughout the landfill stage. Daily cover and seasonal spraying reduces flies, vectors and dust to a minimum. Phased restoration will take place throughout the operational stages of the site. The final contoured landform produced as a result of the landfill will provide an area suitable for amenity use for the London Borough of Havering. See **Port of London** magazine 2nd edition 1984.



NEW UKWAL MEMBER

Nigerian Green Lines Ltd has become a full member of the UK/West Africa Lines Joint Service (UKWAL). Nigerian Green Lines which is recognised as a national shipping company of Nigeria will be party

to UKWAL contracts presently in force. The company plan to build up sailings within UKWAL to one a month. The *Sapele* which has been chartered by NGL is pictured making its first call at Tilbury's West Africa Terminal earlier this year.



TIGHT SQUEEZE AT TILBURY

One of the largest vessels in recent times to enter the Tilbury Dry Dock was the 45,800 dwt general bulk carrier *Mitla*. Built by British Shipbuilders at Sunderland for Transport Maritimo Mexicana (TMM Line) the 32.6m wide vessel had less than a

metre to spare when entering the dry dock for painting and final acceptance work after completing its sea trials. The *Mitla*, which was launched in May, was the first British Shipbuilders contract vessel that the operators of the Dry Dock, Blundell and Crompton had dealt with.

NEW SET-UP FOR COSCO

COSCO, China Ocean Shipping Company, the national line of the People's Republic of China has recently appointed China Agents Ltd as their liner agents in the UK. The functions and responsibilities that China Agents perform have hitherto been carried out by Lambert Brothers Ship Agencies. They will be responsible for

canvassing, advertising, bookings and documentation of COSCO's Liner Services out of Tilbury. China Agents have an office in Tilbury Docks for the clearance of boxes, custom entries and the receiving and monitoring of containers at PLA's common-user terminal. The Port of London has a long association with the China Ocean Shipping Company.

SEA HORSES TO AUSTRALIA

One of the more unusual containerised cargoes to leave the UK left the Northfleet Hope Container Terminal this summer.

Nine English Shire horses bound for a new life in Australia sailed from Tilbury. They travelled aboard the OCL containership *Resolution Bay* operating in the fast transit streamlined service between Europe and Australasia. Accompanied by groomsman Kevin Round for the 12,000 miles voyage from the UK, the Shires were accommodated in two specially modified open-sided containers for the 28 days transit. Until recently, export of Shires to Australia was by air, which was prohibitively expensive. An Anglo-Australian enterprise, Shire Shipping, based in Tanworth-in-Arden, Warwickshire, developed special containers and a fully inclusive door-to-door delivery service which means that the horses can travel in comfort by sea at half the cost of air travel.

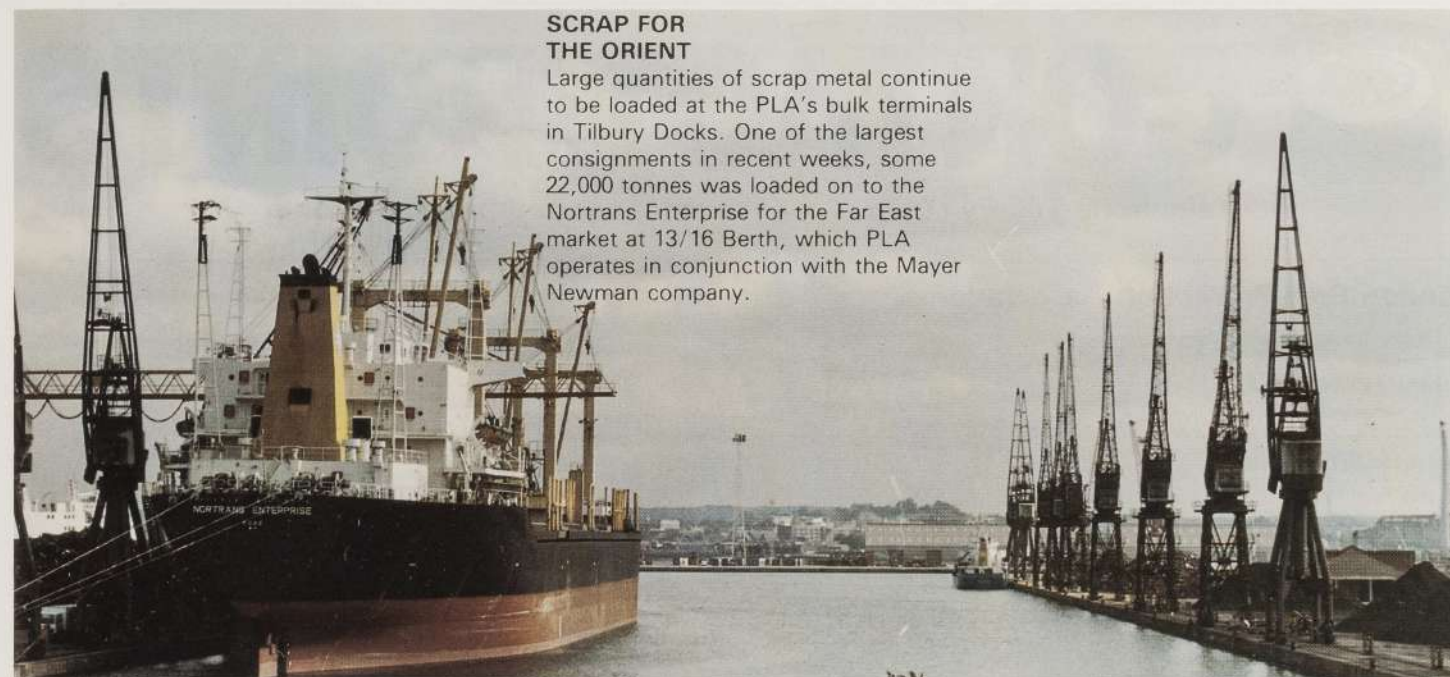


CEGB UPRATE TONNAGE

In these days of oil and nuclear power, coal still remains a significant generator of electricity as well as being an important trade on London's river. On the Thames there are two major coal powered generating stations, Tilbury B and West Thurrock, which benefit by

being supplied by CEGB colliers. In the pursuit of efficiency the CEGB placed a £28 million order with British Shipbuilders' Govan Yard for three 19,000 dwt vessels in March 1984. The first collier, named *Sir Charles Parsons* in honour of the man who built the first turbo-generator in 1884, came into operation in July of this year. Already

the *Sir Charles Parsons* has made several visits to the Thames carrying coal from the Northeast coal fields. By the end of the year the *Lord Citrine* and the *Lord Hinton* will also be in service. They are the biggest ships ever employed on this trade and will be managed by Christian Salvesen Ltd of Edinburgh.



SCRAP FOR THE ORIENT

Large quantities of scrap metal continue to be loaded at the PLA's bulk terminals in Tilbury Docks. One of the largest consignments in recent weeks, some 22,000 tonnes was loaded on to the Northtrans Enterprise for the Far East market at 13/16 Berth, which PLA operates in conjunction with the Mayer Newman company.

PLA PLANT REPLACEMENT POLICY CONTINUES

PLA has taken delivery of three Linde fork lift trucks at a cost of £56,000. The trucks, the first of their type purchased by PLA, were selected after extensive field trials in Tilbury Docks. Designed for ship board and quayside operations the Linde trucks fully meet PLA's operational requirements. The forks incorporate a PLA designed section especially for handling timber and plywood cargoes. The trucks, which have been introduced into PLA's Central Department, are also capable of operating with specialist attachments such as hydraulic clamps and have a lift height of 16.5 feet. This latest purchase of mechanical plant by PLA closely follows the contract for a new navigational control system for its Thames Navigation Centre at Gravesend. PLA container operations have also benefitted from the recent addition of a number of Bromma spreader frames which have been fitted to the terminal's newly heightened Paceco cranes. In

addition the last of the terminal's fleet of 13 new Ferranti straddle carriers have also been brought into operation. It is PLA policy to continue to provide

modern equipment for all its operational activities to ensure shipowners and customers receive an efficient and reliable service.





CONTACT POINTS

Telephone Tilbury (03752) 3444 except where otherwise shown

London Port Promotion Association

Tilbury Docks, Essex
Secretary
Tilbury (03752) 75522

General Enquiries

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Tilbury Docks, Essex.
ext: 586 Telex: 99267

Port Rates and Conservancy

Port Rates Section, Long Room, Custom House,
Upper Thames Street, London, EC3
01-621 1435

Conventional Cargo, Tilbury Docks

Manager (Conventional) Len Richards ext:290
Senior Marketing Manager, Eddie Goodwin ext: 298
Marketing Executive, Alan Price ext: 293
Manager, Central Department ext: 250
Charges Manager, Chris Blamey ext: 581
Senior Superintendent, Central Dept. ext: 260
Supts. Conventional Cargo ext: 273, 305
Supt. Scrap Terminal ext: 353
Supts. 44 Berth (Svenska Terminal in London Limited) ext: 418
Supts. 46 Berth ext: 418
Heavy Lift Cargo ext: 473
Telex: 995170

Common User Container Terminal, Tilbury Docks

Manager, Fred Nichols ext: 334
Marketing, John Wright ext: 450
Telex: 995234

Export Information

Tilbury Docks, Essex ext: 221

Tilbury Docks (outside normal office hours)

1800 — 0800 weekdays and throughout weekends	
Police	Tilbury (03752) 4714
Marine Services	Tilbury (03752) 4941
Gear Office (Ships' Fresh Water)	Tilbury (03752) 2441
General Office	Tilbury (03752) 2077
Central Department	Tilbury (03752) 2304
Multi-user Container Berths:-	
Nos: 41/43 berths	Tilbury (03752) 6621
No: 45 berth	Tilbury (03752) 2269
Tilbury Grain Terminal	Tilbury (03752) 2837
Engineering Report Centre	Tilbury (03752) 2101
Computer Department	Tilbury (03752) 3112
Tilbury Passenger Landing Stage	Gravesend (0474) 60311

Berthing Centre

Berthing Superintendent
Tilbury Docks, Essex
Shipping information ext: 203

Grain Terminal, Tilbury Docks

Manager, Alan Holland ext: 342
Ledgers ext: 348
Control ext: 341
Telex: 995392

London Cruise Terminal

Tilbury Docks, Essex ext: 254

Director of Tilbury

Tilbury Docks, Essex
General enquiries appertaining to dock operating
matters ext: 428
Enquiries relating to the movement of dangerous goods
within the enclosed docks ext: 276

Rail Container Terminal

Tilbury Docks, Essex
Tilbury (03752) 2918

Traffic Co-ordination and Shipping movements

Gravesend, Kent
Shipping movements, tug hire, river moorings
Gravesend (0474) 60311. Telex: 262880
Thames House, Tilbury Dock.
Marketing Executive (River) John McArthur ext: 367 Telex: 995553

Computer Department

Tilbury Docks, Essex
POLA Computer Services
ext: 404

Port of London Properties Ltd

Tilbury Docks, Essex
Enquiries ext: 547, 549, 550
Property Director, Graham Hall. ext: 545

PLA Subsidiary Companies

PLACON Ltd
Managing Director, Peter Chambers
ext: 510

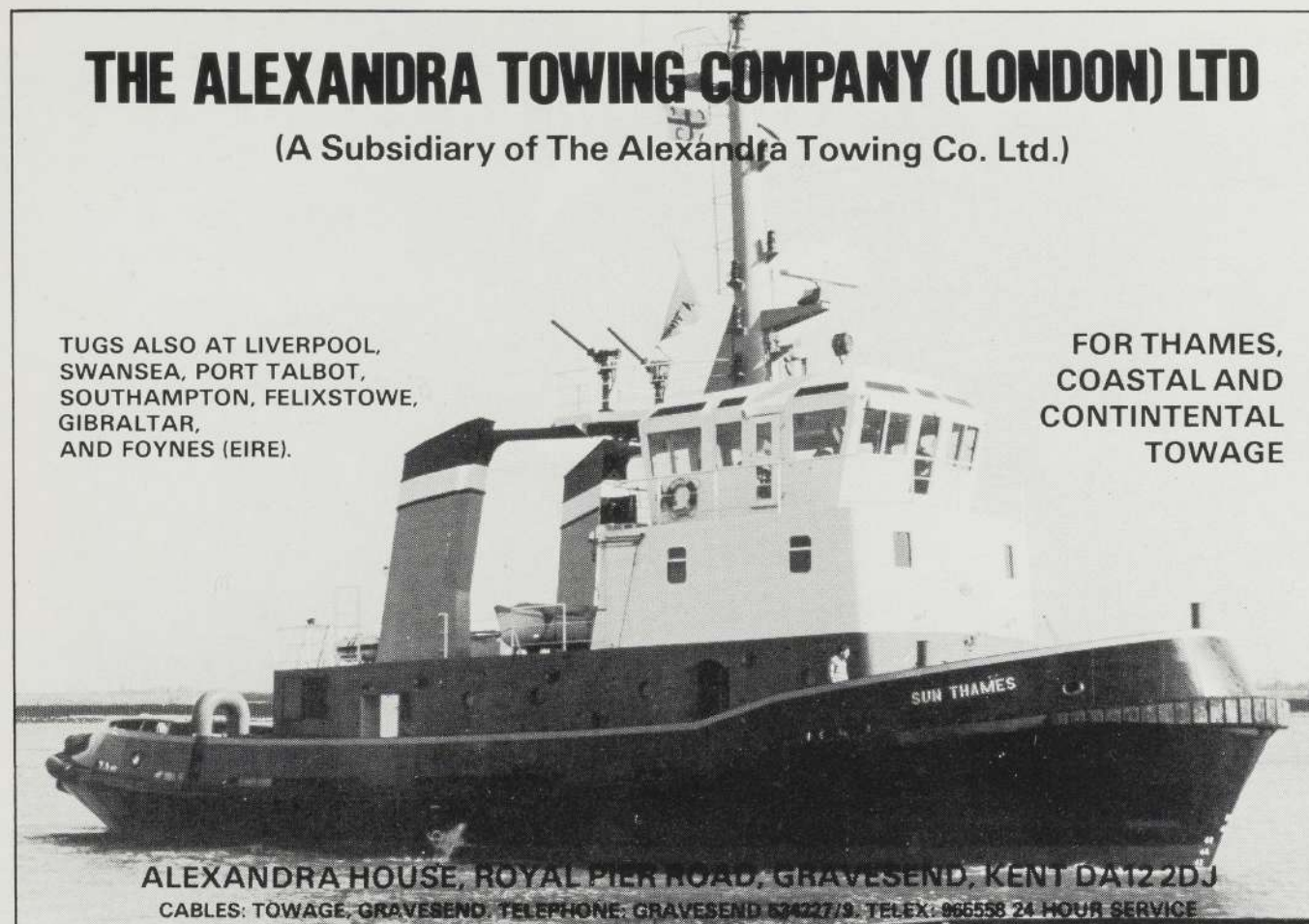
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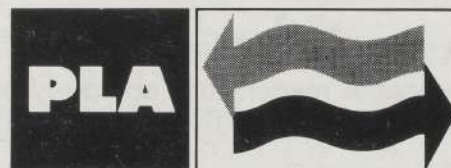
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